The ptyctimous mites faunaof the Oriental and Australian regions and their centres of origin*
(*Acari*: *Oribatida*)

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ABSTRACT. The faunas of ptyctimous mites from different subregions of the Oriental region and its bordering zones have been described and analysed. The numbers of species known from particular regions are: 119 from the Oriental region, 143 from the Australian region and 98 from the bordering zone of the Oriental and Palaearctic regions; Descriptions of 64 new species have been given (*R. aokii* sp.nov. from North Korea; *R. gracile* sp. nov., *M. similis* sp. nov., *H. similis* sp. nov. from North India; *O. anceps* sp. nov., *O. bipartita* sp. nov., *O. nepalensis* sp. nov., *I. aspera* sp. nov., *A. glabrata* sp. nov. from Nepal; *A. phalerata* sp. nov. from oriental India; *N. extraordinarius* sp. nov., *N. ignobilis* sp. nov., *N. mirus* sp. nov. from Sri Lanka; *O. submolesta* sp. nov., *O. paraaoki* sp. nov., *E.* (*E.*) *parareticulatus* sp. nov., *A. evexus* sp. nov., *A. parasentus* sp. nov. from Vietnam; *H. heterotrichosus* sp. nov. from Malaysia, *H. parafoveolatus* sp. nov., *A. sumatranus* sp. nov. from Sumatra; *E.* (*P.*) *sarawaki* sp. nov., *A. sarawaki* sp. nov. from Sarawak; *A. ornata* sp. nov., *O. heterotricha* sp. nov., *P. dispar* sp. nov from Borneo; *E.* (*E.*) *klabati* sp. nov. from Sulawesi; *P. invenustus* sp. nov. from Java; *H. stigmosus* sp. nov. from Flores; *O. duplex* sp. nov., *I.* (*Z.*) *brevipilosa* sp. nov., *A. bifurca* sp. nov., *A. carinata* sp. nov., *R. bipartita* sp. nov., *M. fusa* sp. nov., *S.* (*R.*) *diaphoros* sp.nov., *A. fusticulus* sp.nov., *A. lamingtoni* sp. nov., *N. flagrus* sp. nov., *N. longisetus* sp. nov., *N. modicus* sp. nov., *A.* (*H.*) *diaphoros* sp. nov. from Queensland, Australia; *A. aenus* sp. nov., *A. largus* sp. nov., *N. paraparvulus* sp. nov. from New Caledonia; *O. incognita* sp. nov., *P. dikros* sp. nov., *P. insolens* sp. nov., *H. lividus* sp.nov., *A. aureus* sp. nov., *A. daimonios* sp. nov., *A. heterotrichus* sp. nov., *A. tinctus* sp. nov., *N. aquilus* sp.nov., *N. ater* sp. nov., *N. atratus* sp. nov., *N. comatus* sp. nov., *N. fecundus* sp. nov., *N. incomparabilis* sp. nov., *N. maurus* sp.nov., *N. perlucundus* sp. nov., *N. uncinulus* sp. nov., *N. unicarinatus* sp. nov., *A.* (*A.*) *controversus* sp. nov. from New Zealand); 32 new synonyms have been proposed. Identification key of supercohorts, superfamilies, families, genera, subgenera and species of ptyctimous mites of all the three regions are provided.

The general characteristics of the *Ptyctima* fauna in particular subregions is given. The fauna of the Oriental region is much more harmonious than that of the Australian region.

For all species their zoogeographical element was determined. On the basis of the currently available data it is impossible to establish a faunistic border between the Oriental and Australian regions. Faunistic analysis of the subregions suggests that the actual border zone between the Oriental and Palaearctic regions includes northern India and Nepal but not Pakistan and Korea.

Any similarity between the faunas of the Oriental and Australian and the neighbouring regions (Ethiopian, Pacific islands) has been shown to be statistically insignificant, as the only common species are the widely distributed ones. No species has been found to occur in the neighbouring regions only. The ptyctimous fauna of the Pacific islands is under greater influence of the Oriental fauna than the Australian fauna.

Arguments have been given to support the thesis that the Oriental region is the centre of origin and speciation of ptyctimous mites. The thesis that all genera originated from before the break-up of Pangea and in some regions certain species underwent strong speciation and adaptive radiation, has been confirmed. Despite the arguments supporting the hypothesis of the Oriental origin of Australian fauna, it seems that the contemporary distribution of *Ptyctima* is probably a result of a complex mixture of events of dispersal across gaps and episodes of vicariance.

Key words: acarology, taxonomy, zoogeography, monograph, *Acarina*, *Ptyctima*, Oriental Region, Australian Region

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"The trouble is that the limits are not always in the same place"
– Reginald as quoted by Saki a/k/a H.H. Munro (SIMPSON 1977)

1. INTRODUCTION

The ability of folding the aspidosoma under the opisthosoma to protect their appendages (= ptychoidy) characterizes moss mites called *Ptyctima* (*Acari, Oribatida*). They belong to two separate cohorts of primitive moss mites. The superfamilies *Protoplophoroidea*, ptychoid only in the adult stage and *Mesoplophoroidea*, ptyctimous in all ontogenetic stages, belong to *Enarthronota*, whereas the superfamilies *Euphthiracaroidea* and *Phthiracaroidea* (both known as *Euptyctima*), ptychoid only as adults, belong to *Mixonomata*. Thus, ptychoidy is a convergent feature. The *Euptyctima* are macrophytophagous and feed on dead plant material; most of them are xylophagous. Living in litter and dead leaves they create irregular galleries and cavities in decayed wood (immature stages in particular), and take part in mechanical fragmentation of organic matter.

This paper is a part of comprehensive series on the world's *Ptyctima*, following the reviews of the world *Phthiracaroidea* till about 1988 (NIEDBAŁA 1992), ptyctimous mites of Pacific islands (NIEDBAŁA 1998a), Central America (NIEDBAŁA and SCHATZ 1996) and *Euphthiracaroidea* of the Ethiopian region (NIEDBAŁA 1998b).

The objective of this paper is to summarize knowledge on the distribution of *Ptyctima* species in the Oriental and Australian regions, provide estimations of comparative faunal diversity and to attempt an identification of the centres of origin of those faunas. Information on the *Ptyctima* from the Oriental and Australian regions is contained in a few papers concerning mainly species descriptions. For the Oriental region these works are those of MAHUNKA, NIEDBAŁA, and a few individual papers by AOKI, BERLESE, HU, JACOT, HAMMER, OUDEMANS, RAMSAY, SELLNICK, SHEALS, STARY and WANG. Papers pertaining to Australian region are those by BALOGH J., BALOGH P., LEE, LUXTON, MAHUNKA, NIEDBAŁA, RAMSAY, SPAIN and WALLWORK (see bibliography).

The *Ptyctima* material studied comes from different areas of the Oriental Region, the border zone of the Oriental and Palaearctic Regions and the Australian Region. For the sake of clarity, the regions were divided into the following subregions. Oriental Region: A. India including Sri Lanka and Maldive Islands (81 samples: 59 India, 20 Sri Lanka, 2 Maldives), B. China (4 samples), C. Indo-Chinese and Malysian Peninsulas with Thailand (16), Vietnam (71) and the part of Malaysia (13) (100 samples), D. Philippines (84 samples), E. Sumatra (12 samples), F. Borneo with part of Malaysia (18), Timur (2), Sabah (38) and Sarawak (4) (62 samples), G. Sulawesi (11 samples), H. Java and Bali (19 samples); border zone of Oriental and Palaearctic Regions: A. Pakistan (13 samples), B. North India (Kashmir, Uttar Pradesh, Himalah Pradesh) (48 samples), C. Nepal (47), Bhutan (6) (53 samples), D. Russia (Far East) (68 samples), E. Korea (54 samples), F. Japan (97 samples), G. China (4 samples); Australian Region: A. Papua New Guinea (37 samples), B. North Australia (Queensland) (26 samples), C. Western Australia (2 samples), South Eastern Australia (12 samples), E. Tasmania (135 samples), F. New Caledonia (15 samples), G. New Zealand (248 samples).

2. GENERAL CHARACTERISTICS OF SUBREGIONS IN THE:

2.1. ORIENTAL REGION.

A1. India, Sri Lanka, Maldives

India, with an area of 3 287 262 km^2, is divided into three main structural units of different geological structure and surface configuration: the Decan plateau covering the whole Indian Peninsula, the alluvial Hindustan Lowland surrounding the latter from the north and young mountain ranges spreading from Karakoram through the Himalayas to the Mizo Mountains at the border with Myanmar (former Burma). The Decan Upland is built of a crystalline Precambrian shield, which is a fragment of Gondwanaland. Its northward movement caused folding of sedimentary rocks and uplift of the world's highest mountains - the Himalayas - in the Alpine orogenesis which still continues. The Alpine orogenesis has also caused a second uplifting of the external fragments of the Decan Upland and formation of the Western and Eastern Ghats. The inner part of the Decan is elevated to 850 –900 m a.s.l. The Upland is surrounded by coastal lowlands made of alluvial deposits, very narrow, up to 80 km in the west, and somewhat broader – to 200 km in the east. The Hindustan Lowland formed in the tectonic depression between the Himalayas and the Decan Upland, and within the borders of India it comprises the Ganges Lowland, the Assam Lowland and the eastern borders of the Indus Lowland. The landscape of the lowlands is rather monotonous and characteristic of plateau, their elevation does not exceed 300 m a.s.l. The Himalayas spread along 2400 km from the Indus Valley in Kashmir to the Brahmaputra river valley and is built of Precambrian, Palaeozoic, early-Mesozoic and Tertiary formations. The main orogenesis of the Himalayas occurred in the Oligocene, however, orogenic processes are still active.

Almost the whole territory of India lies in the tropical climate zone of the monsoon type. The western and central parts of the Decan Upland are located in the continental zone of subtropical climate, the Hindustan Lowland is located in the intermediate subtropical zone, whereas the estuary of the river Ganges and Brahmaputra and the western coast – are situated in the subtropical wet zone. The annual precipitation in India varies from hardly 100 –150 mm on the Thar Desert to over 8000 mm in Meghalaja. The largest part of the area of India lies in the zone of three main seasons: hot and wet –from June to September, related to the summer monsoon, dry and cool – from October to March and dry and hot – from March to June. In the mountains the climate changes vertically and the zones starting from that of warm and wet climate and ending with that of snow and glaciers are well marked.

For a thousand years the natural environment of India has been much transformed as a result of intense anthropogenic pressure. Forests, including brushwoods, presently cover about 23% of the area, mainly in the north-eastern provinces of the Himalayas and along the borders of the Decan Upland. The evergreen tropical forests are dominant in the Western Ghats, in the Assam river valley, and on the Adaman and Nikobar Archipelagos. In the central part of the Decan Upland the forests become xerophilous scrub, and on the southern slopes of the Western Ghat – they merge into savannah. The low riverbanks in the deltas of the rivers Ganges and Brahmaputra are covered with mangrove vegetation. The xerophytic brushwood and

savannah are the natural vegetation of eastern Rajastan and Gujarat; westward they become semidesert and desert. The vegetation zones are clearly marked on the southern slopes of the Himalayas.

Samples were collected from the litter taken from:

- evergreen tropical forest (moss from tree trunks, lichens, litter from under ferns or leaves),
- subtropical monsoon forests with bamboo as the dominant species,
- eucalyptus forests,
- xerophilous scrubs.

Sri Lanka lies on the island of Ceylon and nearby numerous and small islands, in the Indian Ocean in South Asia. The total area of the country is 65610 km^2. The main part of the island is the Central Plateau built of Precambrian crystal line rocks, predominantly gneiss and quartzite, whose average elevation is 1500 m a.s.l. Movements of the earth's crust have broken its monolithic structure and today it is composed of highly elevated fragments of the plateau separated by deeply-cut valleys. The highest elevations are those in the southern part of the island: Pidurutalga, 2524 m a.s.l., Adam's Peak, 2243 m a.s.l. and Namunakula, 2033 m a.s.l. The eastern and northern parts of the island are lower; towards the east there is a slightly undulated plain with individual elevations, towards the north there are fertile lowlands cut by numerous river valleys. The coastal area is narrow, most often sandy, sometimes separated from the ocean by coral reefs closing up lagoons. The climate is subtropical hot and wet, the mean temperature of the air varies from 22 to 33°C on the coast, while in the mountains it drops to 7°C in the coldest month. The total annual precipitation is very high. The island is under the effect of monsoons, which control the rhythm and amount of rainfall. The humidity does not fall below 60% and often exceeds 80%.

The natural vegetation is preserved only in 1/3 of the country. In the north and east the dominant vegetation is evergreen dry forest and savannah called Patama (uplands) and Talawa (lowlands). Towards the south-west the coast is covered with palm-tree forests. Mangrove vegetation predominates on the riverbanks and in estuaries.

Samples were taken from:

- forest litter,
- mixed forest litter,
- dry forest litter,
- litter from a plantation of hevea trees,
- moss on branches of trees, on bamboo trees,
- litter from a mountain,
- moulding palm tree roots.

Maldives occupy the islands of the Indian Ocean, located south-west of the Indian Peninsula. The archipelago consists of about 1300 small coral islands, sandy patches and fragments of coral reefs grouped into 26 natural atolls formed from the corals growing on the a volcanic submarine ridge of Aravalla. The atolls are rather flat and emerge from water only at a height of a few metres. The atolls are surrounded by the barrier reef. The area of Maldives is 298 km^2. The islands lie in the

wet subtropical climatic zone and are under the influence of monsoons. From May to August they are affected by the south-westerly monsoon which brings heavy rainfalls, and from December to March – by the north-easterly monsoon which is dry and cooler. The mean annual air temperature is 27°C, while the mean temperatures of particular months vary from 24 to 30°C with small daily amplitudes. There are practically no natural fresh water reservoirs, the soil is nutritionally poor, much salinated and sandy. The sandy beaches, which are almost exclusive elements of the landscape, are over grown by coconut palms as the dominant species, and bread trees. The fauna is very poor and includes mainly species of marine fish and turtles, as well as many species of birds.

Samples were collected near the coastline.

A2. China

Only a few samples originating from the Huan Province and Tianmu Mountains were available.

A3. Indo-Chinese and Malaysian Peninsulas (Vietnam, Thailand, Malaysia)

Vietnam occupies the eastern coastal area of the Indo-China Peninsula spreading along the South-China Sea. About 75% of Vietnam is mountainous and upland area cut with tectonic drops and deep valleys. Parallel mountain ridges in the north-western part of the country are built of crystalline rocks elevated to 3142 m a.s.l. at Phang Xi Pang. The Annam Mountains occupy the central and southern part with the highest summits of Ngoc Linh (2598 m a.s.l.) in the south and Phu Dai Leng (2711 m a.s.l.). The slopes of the mountains fall gently to the west and steeply to the east.

Broad alluvial valleys occur in the delta of the Red River (Song Hong) in the north and the Mekong river (Cu'long) in the south. The coastal area is low and swampy in the deltas, and becomes narrow and often precipitous with small bays, along the Annam Mountains. The climate of the country is of wet monsoon type, tropical in the north and equatorial in the south. The rain forests and monsoon forests, particularly abundant in the south and constituting the dominant element of natural vegetation, have suffered a considerable damage from timber exploitation and war in 1965-1975. The dominant landscape features are savanna and secondary forests, in higher parts of the mountains forests with admixture of trees typical of temperate climate zone. The coast, flooded by tides, is overgrown with mangroves. The natural coastal fauna has also been substantially damaged.

The samples collected in Vietnam have been taken from:

- litter from an old equatorial forest,
- litter from subequatorial forest,
- litter from needle forest,
- litter, soil and lichens from a mountain forest,
- moss from building walls,
- litter from under a lawn and trees in a garden,
- litter from a fissure in a rocky wall of a waterfall,
- litter from a bamboo forest.

Thailand lies on the Indo-China Peninsula and partly on the Malaysian Peninsula, and occupies an area of 513 115 km^2. The country lies in a zone of the Mesozoic undulations and is divided into four main geographical regions: the mountainous area in the north, the Memam Lowland, Korad Plain and Malaysian Peninsula. The northern, north-western and western parts are occupied by mountain ridges formed in the Mezozoic are an extension of the Himalaya system; their mean altitude varies from 1500 to 2000 m a.s.l. The mountain ranges in the south and on the Malaysian Peninsula become individual elevations. The central part of the country is the broad alluvial Menam Lowland, extending for 500 km from the mountainous area in the north to the coast of the Thailand Bay. The Korat Plain in the eastern part of the country occupies an area of 169 km^2, i.e., 33% of the whole area of the country. The undulated plain has low hills and a large number of lakes, especially in the north. The Malaysian Peninsula is a separate geographical region with lowlands along the coasts and central granite mountains of an altitude of over 1 000 m a.s.l. The eastern coast is flat with numerous bays and broad beaches.

The major part of Thailand lies in the zone of hot equatorial monsoon climate, while the Malaysian Peninsula - in the wet equatorial zone. The rainy season lasts from May till October, the dry season from December to February, and they are separated by intermediate seasons with high temperatures and less intense rainfall. Forests occupy c. 30% of the area of the country. In the central part there are monsoon forests with trees which shed leaves in the dry season, it is poorer in species than the evergreen rain forests in the swampy areas of the Korat Plain and Malaysian Peninsula. Savannah is found only on the Korat Plain in the regions shielded from rains, and in the northern part of the country as a secondary formation. The coastal area in the south and on the Malaysian Peninsula is overgrown with mangrove vegetation.

Soil samples were collected from monsoon forests.

Malaysia lies in Southeastern Asia and its area of 329 744 km^2 includes a continental part spread over two-thirds of the Malaysian Peninsula (Western Malaysia) and the northern part of the Borneo Island (Eastern Malaysia), 650 km from the mainland. The Western Malaysia borders with Thailand while the Eastern Malaysia with Brunei and Indonesia. The central part of the Malaysian Peninsula has mountain ranges of medium altitude. The highest granite ridge Baniarah Besar reaches 2188 m a.s.l. at Guong Korbu. To the west are the ranges of Keledang, Bintang and Kedah-Singora, to the east – Benom and Tahan Mountains, with the highest elevation of 2207 m a.s.l., the highest on the peninsula. The mountains are built of quartzites, sandstone and slates, there also are traces of earlier volcanic activity. Along the coasts and on the islands in the strait of Malacca there are lowlands and swampy areas, built of alluvial deposits. The main part of Borneo belonging to Malaysia is also occupied by mountains with the highest summit Kinabalu at 4175 m a.s.l. in the Crockker Mountains, which are of Palaeozoic and Mesozoic origin. The coastal areas are alluvial lowlands, some swampy, the broadest lowland lies in the middle part of Sarawak.

The climate of Malaysia is hot and wet equatorial monsoon.

About 67% of the area is occupied by barely accessible rain forests. The number of tree species is about 3000. The forests become poorer with increasing elevation. Above 500 m a.s.l. some representatives of a subtropical and temperate flora occur.

Coastal areas have mangrove vegetation, and the wet lowlands farther from the sea are covered by swampy forests with palms.

The soil samples were collected from:

- equatorial rain forests,
- mountain forests, above 1 500 m a.s.l. and at 3 000 m a.s.l. from *Leptospermum*.

A4. The Philippines

The Philippines lie on the islands of the Philippine Archipelago in the western part of the Pacific Ocean. This archipelago consists of 7170 islands of the total area of 300 000 km^2. The largest islands are Luzon, Mindanao, Mindoro and Samar.

Mountains cover most of the area (75%), with a few lowlands and valleys. On Luzon the main ranges are Cordilliera in the west and Sierra Madre in the east, which in the north join into Carabello. Narrow lowlands run along the coast and broad valleys are found between the mountain ranges. The landscape of the other islands is similar.

The climate is hot and wet, of the monsoon type. The south-westerly winds (summer monsoon) bring very humid air from the Indian Ocean from May till October, and the north-easterly winds bring less humid air from the Pacific from November till April. The west Pacific to the east of the Philippines is the area of the most frequent formation of tropical cyclones, their mean annual number being 18 (3 to 6 per month from July to November). Some of the cyclones travel to westward and go over the archipelago, others follow the northern direction and go along the eastern coast towards the continent.

The primary vegetation consists of forests which still cover 46% of the country. These forests are mangrove, monsoon, rain and mountain forests with moss in abundance.

The samples were collected from:

- litter from equatorial forests,
- litter from bamboo forests (monsoon forests),
- litter from grassy floor of needle forests,
- moss layer on a mountain,
- litter from under *Imperata cylindrica-Saccharum spontaneum* (Hydroecological Upland Project),
- litter from a plantation of *Lucaena leucocephala, Gliriciadia sepum*,
- litter from *Vitex parviflora*,
- litter from a young plantation of *Gmelina arborea-Swiegtenia macrophylla*,
- litter from a 14-year old plantation of *Eucalyptus deglupta*,
- litter from a mango plantation (*Magnifera indica*),
- litter and soil from under *Imperata cylindrica* (the area of the University of the Philippines),
- litter from a basalt area.

A5. Sumatra

A6. Borneo, Timur, Sabah, Brunei, Sarawak

A7. Sulawesi

A8. Java, Bali

Indonesia occupies about 17 500 islands, 6000 of them inhabited, lying between the Indochina Peninsula and Australia, with a total area of 19 194 000 km^2. The country includes: Great Sundae Islands (Sumatra, Java, southern part of Borneo and Celebes), Little Sundae Islands (from Bali through Flores to Timor), Maluku (Moluccas) and a few smaller archipelagos adjoining the larger islands, and the west part of New Guinea (West Irian).

The coastal line is highly diversified. The arrangement of islands has created a complex system of seas and bays know as the Indonesian Mediterranean Sea, belonging to the Pacific. Mountains dominate the landscape of the islands and most of these show significant volcanic and seismic activity, except for the crystalline rocks on Borneo and Sulawesi.

This country lies in the zone of equatorial climate, mainly very wet. The climate is wet subtropical in the central part of Borneo and on Little Sundae Islands. No clearly differentiated seasons can be distinguished. Heavy rainfall occurs all throughout the year, with maxima in November and December (inflow of wet air masses from over the Pacific) and April and May. Forests occupy 60.3% of the total area of the country, being most abundant in Borneo (80%), Sumatra and West Irian (80%). The Malaysian Archipelago, besides the Amazon and the Valley of Congo, is the third largest world complex of evergreen equatorial forests. The rain forests are natural vegetation on Sumatra, West Java, Borneo, Sulawesi, Moluccas, and West Irian, they are the world's richest in species of flora and also very rich in fauna.

On Java there is much habitat diversity from lowlands to mountains, from dry to wet localities, cultivated areas and tropical forest (deciduous and tree-fern forests).

The samples studied were collected from:

- evergreen tropical forests (moss from tree-trunk, rotten bark on dead tree trunk),
- tropical forest with trees shedding leaves in the dry season, with teak tree and bamboo in the shrub layer,
- mountainous forest, above 1500 m a.s.l.,
- dwarf forests, above 2000 m a.s.l.,
- palm forest,
- grassy river valley,
- Botanic Garden Bagor on Java (litter from under the vegetation, moss, lichens).

Brunei with a total area of 5 765 km^2 lies in the north-western part of the Borneo island. In the north and east it borders the Sarawak sultanate belonging to Malaysia, in the north-west it meets the South-China Sea. The territory of the country is divided into two parts by a narrow stretch of land, which belongs to Sarawak. The western part is an upland cut with the valleys of the rivers Belait, Tuntong and Brunei. In the eastern part, between the rivers Pandaruang and Temburong, the ground rises from the coastal lowland to the mountains, the highest summit Pagon reaches 1850 m a.s.l.

The climate is extremely wet equatorial. The dominant vegetation is rain forest accounting for 60% of the total area of the country. In the coastal area casuarina grow on the sands and mangrove forest on the swamps. The forest of Brunei is one of the richest in species in the world.

The samples were collected from the litter of rain forest.

2.2. BORDER ZONE OF THE ORIENTAL AND PALAEARCTIC REGIONS

C1. Pakistan

Pakistan occupies an area of 796 100 km² in southern Asia, northwest of the Indian Peninsula. Its territory forms a broad band extending from the Himalayas in the north-east to the Arab Sea in the south-west. The northern and western parts of the country are covered by high mountains formed during the alpine orogenesis, and uplands. In the east there is the Indus river valley, a part of the alluvial Hindustan Lowland formed in a tectonic depression and filled with sediments brought from the surrounding mountains and uplands. The Indus river separates the world's two highest mountain ranges: Himalayas and Karakoram, built mainly of gneiss and granite, and locally of Mesozoic limestone. The Karakoram Mountains are characterised by young alpine sculpture with sharp rocks, deeply cut valleys and almost inaccessible high passes. Near the north-western border of Pakistan, there are lower mountains extending along meridians, at first joined to the Hindu Kush and becoming separate ranges beyond the Kabul river valley. In the south, along the Himalayas there is the Potwar Upland and the range of Namak Ke Pahad, to the south it becomes a broad Penjabur Plain, which is a fragment of the Indus river valley reaching the Arab Sea. Between the rivers Indus and Cenab there is the sandy Thal Desert known as Thar when it reaches India. The Indus river valley lies on an average at 200 m a.s.l. In the west it meets the Sulaiman and Kithar Mountain ranges.

Most of the country lies in the dry tropical zone and the north-western part in the dry subtropical climate. In the mountains the climate zones are clearly marked.

Forests occupy only 5.3% of the area, they grow mostly on the slopes of the Himalayas, Karakoram and Hindu Kush. Small areas with tropical dry forest whose trees shed leaves in the dry season are found on the eastern slopes of the Suleiman Mountains. In the delta of the Indus river there is some mangrove vegetation. In the Hindu Kush forest develops on the southern slopes which receive more rainfall. The classical zonal vegetation has formed only in the wettest parts of the Himalayas. The natural vegetation of the remaining part of the country is xerophilous brushwood passing into a poor xeromorphous semidesert vegetation towards Belujistan and in the Thar Desert. In the lower parts of the mountains in the north-west the dominant feature is dry steppe.

The samples were collected from:

- litter and moss layer, at 2600 – 2700 m a.s.l.,
- rotten leaves and needles of *Viburnum*, pine tree, spruce, walnut, at 2600 – 2700 m a.s.l.,
- bark and wet moss from a rotten tree trunk, at 2600 m a.s.l.

C2. North India (Kashmir, Uttah Pradesh, Himalah Pradesh)

See the comments under India.

C3. Nepal, Bhutan

Nepal, occupying a total area of 140 800 km², lies between India and China, in the Himalayas. These mountains, the highest in the world, have a rich geological history.

In the southern part of the country there is a narrow alluvial plain Terai elevated to about 200 m a.s.l., which forms the northern part of the Hindustan Lowland. In the north are the Siwalik Mountains, then the Little Himalaya (Nahabharat) developed in the Cambrian and Tertiary periods, with elevations up to 3000 m a.s.l. and interspersed with numerous river valleys. The Mhabharat Mountains turn via a steep threshold into Great Himalayas, which are a sequence of granite and gneiss mountain massifs of average elevation of 6000 m a.s.l. with 10 summits exceeding 8000 m a.s.l. The world's highest peak Mount Everest of 8848 m a.s.l. is at the border with China. Between the Mahabharat Mountains and the Great Himalayas, in the east part of the country, is the Katmandu Valley.

The Himalayas make a distinct climatic border. Because of significant differences in altitude: from 300 to 8848 m a.s.l., five climatic zones have been distinguished in Nepal according to the elevation:

- to 1200 m a.s.l. – monsoon-equatorial climate; total precipitation in the summer season varies from 1000 to 1800 mm; hot summers (38°C), warm winters (11-13°C),
- from 1200 to 2100 m a.s.l. – temperate climate of monsoon type; total annual precipitation varies from 1000 to over 2000 mm,
- from 2100 to 3300 m a.s.l. – cool temperate climate, summers are warm (15°C) and winters cold (0°C), annual precipitation of 1500 mm,
- from 3300 to 5000 m a.s.l. – the alpine climate with cool summers and severe winters, mean annual precipitation of 1000 mm mostly as snow occur in winters,
- above 5000 m a.s.l. – high-mountain climate with precipitations only as snow, this is the region of perennial winter, snow and glaciers.

The zones of fauna and flora are clearly marked. The tropical evergreen wet forests reach 1200 m a.s.l., but their area has decreased due to intensification of agricultural development.

The samples were collected from:

- deciduous forest at 3000 m a.s.l.,
- mixed forest at 1500 m a.s.l.,
- litter from under *Rhododendron* bushes,
- litter from under ferns in a bamboo forest,
- moss layer at 1400-2430 m a.s.l.

Bhutan is a high-mountain country of a total area of 47 000 km^2, which borders with China in the north and west and India in the south and east. It lies in the eastern part of the Himalayas, between their main division along the border with China and the south border of the plateau bordering India. The territory of Bhutan is divided into three geographical units: a plateau called the Subhimalayas, built of sedimentary formations, mainly in the Tertiary period, rising to 600 to 1500 m a.s.l., the Little Himalayas are built of strongly undulated Palaeozoic and Mesozoic formations of 1500 to 4500 m a.s.l., and the Great Himalayas - of Precambrian and Palaeozoic formations, elevated above 4500 m a.s.l. In these mountain range there is Czomolhari (7315 m a.s.l.) the highest peak within Bhutan, and 20 peaks over 7000 m a.s.l.

Because of significant differences at altitudes of 600 to 7554 m a.s.l., the zonal character of climate and vegetation is well marked. Three climatic regions are distinguished which coincide with the Subhimalayas, Little Himalayas and Great

Himalayas. The first region lies in the zone of subtropical monsoon climate with a total annual precipitation (occurring mainly from June to September) of about 2000 mm. The mean temperature in January is 15°C, while in June (the hottest month) – 30°C. The natural vegetation is subtropical rain forest. In the second region of the Little Himalayas, in the zone of up to 2000 m a.s.l., there is the monsoon forest with deciduous trees, the storey at a height up to 3300 m a.s.l. is occupied by evergreen broadleaf and coniferous forest, and above 4500 m a.s.l., by dwarf vegetation and alpine meadows.

The soil samples were collected in the Little Himalayas.

C4. Russia (Far East)

The area of Russian Far East (5 442.2 thousand km^2) includes Sacha (Jakutia), Chabrowski Alin and Sihote Alin. There are many mountain ranges of Mesozoic origin; in the south the Bureinskij Mountains and Sihote Alin Range, in the north a massive formation of the Suntar Range, Chajata Range and Kolyma Range, cutting at an angle with the range of Chersky Mountains (up to 3147 m a.s.l.). Between the Verkhoyansk Range and the Central Siberian Plateau is a broad depression of the Central Jakutia Lowland or the Ren valley. North of the Chersky Range is the Kolyma Lowland extends spreads to the East Siberian Sea. The Parapolskij depression, between the Kolyma Range and Koriacki Range, separates the area of the Mesozoic formations of East Siberia from younger Tertiary mountainous formations along the eastern coast of Asia including: the Korakskij Mountains, Kamchatka Peninsula Mountains, Kuril Islands Mountains and Sakhalin range. The mountains in Kamchatka and the Kuril Islands show strong volcanic activity with active volcanoes and geysers. The highest peak in the area is the Kluczevska Stopka volcano in Kamchatka (4750 m a.s.l.).

The north-eastern part of Siberia has long and very cold winters, whereas in areas close to the Pacific the climate is warm as a result of the influence of monsoons. In summers the cold Kuril Current cools the major part of the Russian Far East. Tundra forests cover the mountains of the south-eastern Siberia (Verkhoyansk, Chersky, Kolyma Ranges), to the south they become coniferous forests of subarctic Eurasia (tajga) and farther south – mixed forests in Sihote Alin Range and on Sakhalin. In Sihote Alin there are the mixed forests known as the Ussurian Tajga.

The samples were collected from:

- coniferous forest,
- deciduous forest,
- mixed forest,
- moss growing on tree trunk,
- moss from mossy litter,
- moss growing on stones,
- tree-lichens.

C5. Korea

North Korea lies in the northern part of the Korean Peninsula and includes a part of the Manjurian-Korean Range in the north. The country is 122 762 km^2 in area. The

eastern coast of Korea is washed by the Japan Sea, the western coast by the Yellow Sea. The coast meeting the Japan Sea is high, of generally the same height with a few wide open bays, whereas the western coast has many peninsulas, islands and funnel-shaped river estuaries. The western coast is characterised by exceptionally large tide amplitudes, reaching 11 m.

As far as the geological structure is concerned, North Korea occupies a part of the China-Korean Massif on the north-eastern part of the China platform. In the north there are the North Korean Mountains comprising a few separate ranges: Chunkyuryong, Nagrim, Puyoltyong, Hamgyong and Changpaishan with the highest peak the volcano Pektu-san 2744 m a.s.l.

The climate of the country is temperate, transitory of monsoon type, in the north-western part temperate continental of monsoon type. Forests cover 74.5% of the area, they grow on almost all the mountains and form a large compact complex in the north. The dominant forest is mixed tree-stand with manjurian linden trees, poplars, ash trees, oaks and pine trees. At higher altitudes needle forest with Korean pine, larch trees, stone pines and fir trees occur, turning into alpine meadows at higher elevations. The natural vegetation of the east coast has been substantially anthropogenically changed.

The samples were collected in:

- deciduous forest,
- needle forest,
- mixed forest,
- acacia forest,
- litter and moss from under shrubs,
- moss growing on river stones,
- ant-hill,
- litter and soil from under a chestnut tree,
- dry pasture,
- litter from under ferns and moss growing on a steep cliff,
- needle litter from a sea sand dune.

C6. Japan

Japan occupies a chain of over 3000 islands separating the open Pacific Ocean from the Japan Sea, the total area of the country is 377 812 km^2. The largest island is Honsiu – 231 041 km^2, then Hokkaido 83 451 km^2, Kiusiu – 42 154 km^2, Sikoku – 18 784 km^2, and Okinawa 2265 km^2. Uplands and mountains occupy nearly 85% of the area of Japan, a characteristic feature is the lack of large plateaus. Even the coastal areas are narrow sandy beaches or rocky slopes going directly into the sea. There are a few alluvial lowlands.

The territory is divided into four main regions: the Hokkaido island, North-Eastern Region, Central Region and South-Western Region.

Japan lies in two climatic zones: warm temperate in the north and subtropical in the south. The climate diversity is also affected by the sculpture of the terrain and great latudinal extension of the country. The monsoon circulation of air masses that also significantly affects the climate is a result of the neighbourhood of the continent of Asia and the Pacific. Other factors influencing the climate of Japan are the two

warm currents: Kuro Siwo in the east and its branch Tsushima which reaches the islands of Honsiu and Hokkaido. Forests take as much as 66% of the area of the country, they are most abundant on the Hokkaido. The natural vegetation is classified as belonging to three zones: subtropical forests in the south, mixed forests in the centre and boreal forests in the north. Because of significant variation in altitude, the vegetation zones are well marked.

Samples were collected from:

- needle forest,
- mixed forest,
- litter from under *Casuarina litorella, Schima mertensima, Livistona chinensis* var. *boniensis, Ficus microcarpa, Castanopsis cuspidata* var. *sieboldi, Lucaena glauca, Dendrocacalina crepidifolia, Pinus pumila, Cryptomeria japonica,*
- litter from the forest *Abies mariesii, A. veitchii* and *Tsuga diversifolia,*
- detrytus from peat bog with *Spagnum,*
- litter from a laurel forest,
- litter from a coastal forest.

C7. China

Only 4 samples collected from the vicinity of Peking and Tsingato were available.

2.3. AUSTRALIAN REGION

B1. Papua New Guinea

The main part of the country is Papua, the eastern part of the world's second largest island New Guinea (785 000 km^2), together with two main archipelagos Bismarck and Solomon Islands, and smaller islands includes Louisiade, D'Entercasteaux. As indicated by their common geological origin, the island of New Guinea together with the Sundae Islands, formed a bridge connecting Asia and Australia. The terrain of New Guinea is mountainous. The main axis of the island is the young Central Mountain Range formed in the Tertiary, with the highest peaks of 5000 m a.s.l. They are built of Cenozoic sandstone, slates and limestone undulated with the old Cambrian formations of: diorites, gneiss, diabases and andesites. Numerous faults cut the massif into many ranges: Bismarck (Mt. Wilhelm 4694 m a.s.l.), Kuber (4358 m a.s.l.) Owen Stanley (Mt. Victoria 4073 m), Star (Antares 4168 m), Finister (Bangatea 4107 m). An extension of the main axis of the orogen is the Luisiade archipelago.

On New Guinea at altitudes higher than the limit of perennial snow,4250 m, there are glaciers. In the north-eastern part, there are lower elevations not exceeding 1700 m, which are the remains of volcanic activity. Volcanoes are most frequent in the Bismarck Range, the highest reach 4000 m. The Papua Upland is also of volcanic origin, its highest peak is Bosavi – 2895 m.

Papua New Guinea lies in the zone of equatorial climate, the mean annual temperature is 26-28^{0}C, and the daily amplitude is greater. The orography as well as monsoon and trade winds circulation of the air masses determine the mean precipita-

tion, which reaches 6000 mm. Locally and seasonally rainfall can be heavy and continuous, sometimes daily precipitation can reach 70 mm. In the northwestern part of the island, the climate is equatorial, hot and wet, under the influence of wet monsoon masses (July-September), in the south-eastern part – it is subequatorial, determined by trade wind circulation, with two seasons: wet (July – September) and dry (May – October). Above 1500 m, the climate changes into wet tropical and montane, and above 1800 m – into cold wet, and higher, above 3400 m – into high-mountain climate. The area of Papua is frequented by cyclones.

Almost 4/5 of the area of the island is covered by forests, abundant in rare species of trees growing in dense, almost inaccessible jungles. The coastal areas are overgrown with mangrove vegetation.

The samples in Papua were collected from:

- litter of deciduous forest, at 2930 m,
- litter from mixed forest, at 3000 m,
- litter from a plantation of rubber trees,
- litter from under bamboo shrubs,
- litter from under pineapple,
- Botanic Garden in Port Moresby.

B2. Northern Australia (Queensland)

The Queensland state lies in the north-eastern part of the continent of Australia and occupies the area of 1 736394 km^2. In the west it borders with the Northern Territory, in the south-west with South Australia and in the south – with New South Wales. The eastern borders of the state are the Tasman Sea and the Coral Sea, and the northern border is the Gulf of Carpentaria.

The Great Dividing Range whose mountains are built of Palaeozoic sedimentary rocks with many magma intrusions is in the eastern part of the state. The mountains do not form a compact orogen but are composed of a number of highly elevated (800 –1200 m) plateaus separated by depressions, valleys and areas of submontane character. The eastern slopes are usually steeper and cut with deep river valleys. Locally in the east there are coastal lowlands. In the west of the Great Dividing Range there is a plateau known as the Queensland Plain. The plain is cut with valleys of periodical rivers originating from the Great Dividing Range. To the west the plain turns into the Barkly Plateau. Lowlands of the type of Mesozoic tectonic synclines occur in the west and south-western part of the state.

The climate of Queensland is much diversified: its northern part lies in the zone of wet equatorial climate and towards the south the amount of precipitation decreases and the annual amplitude of temperatures increases, the south-western part of the state has a dry tropical climate.

The natural vegetation of the Great Dividing Range are forests, in the north-eastern area these equatorial and subequatorial rainforests, higher in the mountains, where rainfall is less abundant, we find eucalyptus forests. The Central Lowland is covered with savanna, brushwood or semidesert vegetation, depending on the amount of precipitation.

The samples were collected from:

- litter of equatorial rainforest,
- litter on the rocks.

B3. Western Australia

This is the largest Australian state, it occupies an area of 2 527 340 km² on the Australian Platform built of Precambrian formations. The west coast is a lowland while the east part is desert.

The northern part lies in the zone of equatorial climate of small annual amplitude of temperatures and mean annual rainfalls of above 1000 mm. The amount of precipitation decreases southward to 150 mm in desert areas.

In the north there is a dry tropical eucalyptus forest and mangrove vegetation along the coast. The desert area is covered by poor and sparse vegetation of grasses and halophytes. The western upland has scrubs, in the north – brigalow-scrub and mulga-scrub, while in the south – malee scrub. In the south-western part, rich in natural water sources, the natural formation is wet eucalyptus forest.

Only two soil samples collected from forest litter were available.

B4. South-Eastern Australia

This region comprises the territories of the states: New South Wales, Victoria, South Australia.

New South Wales, of an area of 801 339 km², lies in the south-eastern part of the continent. The eastern part of the state is taken by the Great Dividing Range, made mainly of the Paleozoic sedimentary rocks intruded with magma. They are the highest in the south, in the Australian Alps, with the highest elevation of Mt. Kosciuszko 2228 m a.s.l. To the north the Great Dividing Range mountains become smaller and assume the character of a number of plateaus of mean elevation of 1000 – 1300 m a.s.l., forming the range of the Blue Mountains, New England, with steep slopes cut with deep river valleys, falling to the east. Along the coast there is a narrow band of lowlands, although frequently the mountains reach directly the Tasman Sea. The west slopes of the Great Dividing Range fall gently to the Interior Lowlands: Murray to the south and Darling to the north.

The climate of New South Wales is determined by the surface configuration. On the coast there is marine tropical climate, characterised by low diversity of annual rainfalls due to the influence of the warm current. In the Great Dividing Range the rainfalls are somewhat more abundant and temperature drops significantly with altitude, in the highest parts of the Australian Alps the snow cover remains for a few months a year. The Great Dividing Range acts as a climatic barrier hindering the inflow of humid air masses from over the Pacific. The Interior Lowlands have dry tropical climate.

The coast and eastern slopes of the mountains have wet eucalyptus forest limited in extent by agriculture and housing. The western slopes of the mountains are covered with dry 'park' forest, turning into acacia scrub and halophytes in the Interior Lowlands where there are also steppes used as a place to breed cattle.

The soil samples studied were collected from:

- wet equatorial forest,
- litter from eucalyptus forest (Eucalyptus sp.),
- litter from forest growing in the temperate zone,
- slopes of Mt. Black.

Victoria is the smallest (227 593 km^2) of the land states of Australia, it lies in the south-eastern part of the continent. The physical and geographical units of the area are arranged in parallel to the coastline. The axis of the state is the Great Dividing Range built of the Paleozoic sedimentary rocks intruded with magma. In the western part the mountains turn into an upland (300 – 400 m a.s.l.) with the two peaks - Grampian (1167 m a.s.l.) and Camels Hump. In the eastern part, belonging to the Australian Alps, elevations reach 2000 m a.s.l. To the south there is a wide band of coastal lowlands, known as Gippsland in the east. The northern part of the state lies in the Murray Lowland cut with valleys of many rivers flowing down from the Great Dividing Range. The climate of the state is subtropical, the southern slopes of the mountains and coastal areas have a climate resembling that of the Mediterranean, of the highest altitudes (above 1000 m a.s.l.) there are occasional snowfalls.

Natural vegetation includes a variety of eucalyptus forests, which turn into shrub towards the north-west. In the high Australian Alps the vegetation is typical of alpine meadows. Natural vegetation has been substantially transformed by man: the coastal lowlands are used as arable fields and in the Murray Lowland much of the area with grassy steppe is used as pastures.

One sample with many species comes from a nature reserve.

South Australia with an area of 984 267 km^2 occupies the southern part of the continent and borders with Western Australia, Northern Territory, Queensland, New South Wales and Victoria.

The state spreads over many geographical units. The Australian Platform – constituting the western and central part of the state – reaches the highest elevation in the Musgrave Range, Mount Woodroffe (1440 m a.s.l.). To the south of the Range is the Great Victoria Desert and the Nullarbor Plateau built of limestone. The north-eastern part of the state consists of a large depression including the Eyre Lake and the Simpson Desert. The latter comprises long (up to tens of kilometres) dune ridges separated by elongated depressions. The south-eastern part of the state has Flinders Range built of Precambrian and Palaeozoic rocks. The climate of the majority of the state is tropical, except for the south-eastern fragment which has a subtropical climate. The mean temperature in January varies from 20 to 25^{0}C, while in June from 11 to 15^{0}C.

Natural vegetation is dominated by shrub formations associated with particular types of desert soils. Relatively wet slopes of the Flinders Range are over grown with eucalyptus forest. In the north-eastern part of the state halophytes are frequent.

Three samples come from the different types of forest.

B5. Tasmania

Tasmania, the smallest state of Australia, lies south of Australia at the latitude of central New Zealand and occupies an area of 67 889 km^2. Apart from the Island of

Tasmania, the state comprises smaller islands lying in the Bassa-King Strait: the Fourneux Islands (Flinders, Cape Barren, Clake and others) and Hunter's Islands.

Tasmania was broadly connected to Australia in the Pleistocene; it is a geological prolongation of the Great Dividing Range. The main geographical element is the upland, which lies in the centre of the island (1000 m a.s.l.) with many post-glacial lakes, surrounded by mountain ranges cut with deep river valleys. The highest elevation, Mt Ossa (1617 m a.s.l.), lies in the northern part of the island. The climate of Tasmania is similar to that of the South Island of New Zealand - typically marine, of a high humidity. The annual rainfall varies from 1800 mm on the west coast to 3500 mm in the mountains. The majority of the area is in the tropical climate of marine type, while the south coast of Tasmania – the coolest part of Australia besides the mountains - has a temperate climate with the mean temperature of of 8°C in July and 17°C in January.

Tasmania is the most forestated state of Australia, the rain forests of Tasmania occupy an area of 765 000 ha, i.e. about 11% of the total area of Australia. There are different types of rain forests: from wet evergreen deciduous forests with the dominance of *Notophagus*, and less frequent *Eucalyptus*, to mountainous forests at higher altitudes. Peat-bogs are frequent. A general feature of Tasmania is that it is depauperated, limited both in diversity and in total number of species. This is true of both vertebrates and invertebrates (DARLINGTON 1960).

The samples studied come from:

- evergreen deciduous forests with an admixture of coniferous species and *Notophagus*,
- moss layer on the soil and moss growing on dead log.

B6. NEW CALEDONIA

New Caledonia, an archipelago on the south-western Pacific, is the south border of Malaysia. The main element of the archipelago is the island of New Caledonia (16750 km^2), and islands: Belep, Pins, Kunie along with other much smaller islands, the total area of the archipelago is 19 103 km^2. New Caledonia (400 km long and 50 km wide) lies at 1200 km from Australia and 1400 from New Zealand. The landscape of the island has been shaped mainly by volcanic activity, the main geological part is built of crystalline, metamorphic and coral rocks. In the mountainous part of the island there are numerous peaks of which the highest are Mt Panie (1650 m) and Mt Humboldt (1634 m). The steep north-eastern slopes fall to the sea forming a cliff shore cut with deep narrow gulfs. The shore is almost entirely surrounded by coral reef.

The climate is mild, warm and wet, affected by south-eastern trade winds and north-western monsoon. The distance from the equator makes the climate more differentiated, with distinct hot and temperate seasons. The south-eastern slopes which get twice as much rainfall are grown with evergreen tropical forest, the other side of the slopes is covered with dry eucalyptus forests, savannah and shrubs. The coasts have mangrove vegetation.

Floristically and faunistically New Caledonia is characterised by extremely high levels of endemism for the majority of groups. The endemism of Angiospermes at

the generic level is 14.5% and at the level of species it is 75% (SCHMIDT 1987). An interesting feature is a great endemism of herpetofauna (SADLIER and BAUER 1997).

The samples come from;

- moss litter,
- soil from under tree-ferns.

B7. NEW ZEALAND

New Zealand is a group of islands in the Pacific, lying almost in the centre of the so-called oceanic hemisphere of the globe. Its three main islands are: South Island (150 523 km^2), North Island (114 293 km^2) and Stewart (1714 km^2), and then the Three Kings' Island, Great Barrier and other small islands in the open Pacific. The area of the whole archipelago is 268 680 km^2. New Zealand belongs to the seismically active band surrounding the Pacific fault, so earthquakes are frequent in the area, particularly on the North Island. About three quarters of the territory is taken by uplands and mountains, 8% of the area is elevated to above 1000 m. A large part of the South Island is occupied by the South Alps known also as New Zealand Alps. The highest peak is Mt Cook (3764 m). Lowlands, formed as a result of accumulating effect of rivers flowing down from the mountains, occupy only a few percent of the area. The central part of the North Island is the Volcanic Upland, which according to the name hosts a few volcanoes, geysers, solfatars and mofets (sites of release of volcanic gasses). To the east there are mountain ranges which are an extension of the South Alps. The east and south-eastern coasts are lowlands.

The climate of the islands is determined by masses of marine tropical air from the Pacific. The precipitations are diverse and occur throughout the year.

The vegetation shows relatively little diversity because of the mild marine climate. Previously dominant forest communites are at present substantially limited, the broadleaf forests of temperate zone can be found mainly on the South Island. The New Zealand forest (native bush) is abounds with giant trees and admixture of tree-ferns, lianas, an understorey of numerous species of ferns, cover of moss, liverworts and lichens hanging down from trunks and branches. The humidity is very high. On the South Island, *Notophagus* is the commonest tree in the forest. Decidous forests occupy only small areas. Non-forest localities comprise mixed scrub, open country with grass plots, meadows, bog and valleys with small brooks, salt marshes, penguin nests on high cliffs down to the sea and hilly terrain of dunes near the sea or almost desert-like mountains (HAMMER 1966). Large areas are covered with shrubs, which are usually degraded formations replacing damaged forests. The mountainous character of New Zealand makes the vegetation diversified into zones with increasing altitude.

Natural vegetation of New Zealand has suffered from human interference, forests have been frequently replaced by pastures and meadows or arable fields. Recently, some attempts at reforestation of the territory have been made, but with Australian eucalyptuses or conifers from America or Europe.

Almost the whole biota of New Zealand is anomalous, depauperate and rather different from that of Australia. The contemporary vegetation is fundamentally different from that of Australia.

The samples from the South and North Islands were collected from:

- pine forest litter,
- kauri forests,
- litter from under tree-ferns,
- broadleaf forests of the temperate zone with *Notophagus fusca, N. menziesi*, and conifers of the genera *Podocarpus* (*P. picantus*) at higher elevations,
- litter from beach forest,
- litter from stony beach,
- halophilious brushwood,
- a layer of lichens and moss growing on a dead trunk.

3. MATERIALS AND METHODS

The material on which the monograph has been based, includes species, determined by the author, from collections of various museums and other institutions. The largest part of the material studied are new species and those which were found in new localities. Particular specimens selected from samples were subjected to microscopic morphological analysis, identified or, when new, thoroughly described. Another part of the material studied comes from the earlier works of the author. In addition, the text includes redescriptions or additional descriptions of species on the basis of type material borrowed from museums.

The analysis was also based on literature data on the species described by other authors. I have not performed morphological studies on this material. Publications without detailed descriptions, or those documenting findings of a given species are not included. For example, SANYAL and BHADURI (1986) mention finding in India two species described by HAMMER (1961) from Peru: *S. ventosus* and *R. peruensis*. It is highly improbable that these two species occur in the Oriental region.

The material studied was obtained from the following museums and institutions: British Museum (Natural History), London; Canadian National Collection, Ottawa; College of Environmental Science and Forestry, State University of New York; CSIRO, Division of Entomology, Canberra; Department of Entomology, Zoologisk Museum, Copenhagen; Department of Soil Zoology, Yokohama National University; Department of Zoology, National Science Museum, Tokyo; Department of Zoology, University of Budapest; Rijksmuseum voor Natuurlijke Historie, Leiden; Smithsonian Institution, National Museum of Natural History, Washington; Systematics Section, Entomology Division, Auckland; Természettudomanyi Muzeum Allattara, Budapest; Zoological Museum University of Turku.

As a distance coefficient between the fauna of the subregions, the following statistic was calculated (SOKAL and ROHLF 1995):

$\chi^2 = a^2/(a+b+c)$,

where the number of species common to both communities, b and c - the number of species found only in the first and in the second faunas, respectively. The distance measured by the above equation has a χ^2 distribution with one degree of freedom. The minimum possible distance is 0 - for completely dissimilar faunas without common species, and the maximum equals to the total number of species in the faunas of both regions - for faunas with identical species composition. The above statistic was used to test the null hypothesis that the distribution of the number of

species common for both faunas and the number of uncommon species fit the expected distribution for completely dissimilar communities. The acceptance of the null hypothesis ($p>0.05$) means that the distribution of numbers of common and uncommon species does not differ from that of completely dissimilar communities.

In order to assess similarity of the faunas of particular subregions, we applied a simple probability index: s=w/a+b-w, where w is the number of common elements, a – the number of elements in one set, b- the number of elements in another set.

Although the material analysed is rather large, it still seems unrepresentative and thus prevents drawing any definite conclusions on the history of the fauna and a detailed zoogeographical analysis of speciation frequency, speciation rate and dispersal events of non-endemic species.

The type material is deposited in the DATE (Department of Animal Taxonomy and Ecology, Adam Mickiewicz University, Poznań, Poland)

All measurements are in micrometers.

Explanations and abbreviations:

Normal setae – notogastral or anal and adanal seta developed normally, not vestigial

Chaetotaxy of *Phthiracaroidea* legs complete or normal: I (1-4-2-5-17-1), II (1-3-2-3-12-1), III (2-2-1-2-10-1), IV (2-2-2-2-10-1), if only one seta is absent chaetotaxy is reduced or incomplete

in – interlamellar setae

le – lamellar setae

ro – rostral setae

ex – exobothridial setae

NC – New Caledonia

NG – New Guinea

NZ – New Zealand

TAS - Tasmania

4. ZOOGEOGRAPHIC CONCEPT

The question of the age of the ptyctimous fauna, centres of its origin or speciation possibilities can be approached assuming two mutually opposite zoogeographical concepts: that of vicariance and that of panbiogeography, or in simpler terms – on the basis of the movement or drift of continents and plate tectonics, or the process of passive dispersal.

4.1. BREAK-UP OF CONTINENTS AND FORMATION OF PRESENT PATTERN OF THE ORIENTAL AND NEAR-AUSTRALIA ISLANDS

Gondwana was separated from the northern part of Pangea – Laurasia, by the large Tethys sea about 200 million years ago. In the mid-Triassic the break-up of Gondwana commenced. In the late Jurassic or possibly in early Cretaceous (ca 125 million years ago) the rift system split Gondwana into the West (Africa and South America) and East (the remaining Gondwana continent) parts (Dietz and Holden

1970a, b). In the middle Cretaceous, about 100 million years ago, Australia, New Zealand, New Caledonia and Antarctica were united with South America and India-Madagascar-Africa, forming a part of Gondwanaland. The break-up of Africa and South America started in the Jurassic (180 million years ago) with the separation of South Africa from southern South America (TUXEN 1978). The complete disconnec-

1. Similarity of the *Ptyctima* fauna of particular subregions according to the index s, (s = w/a+b-w).

	A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	B_1	B_2	B_3	B_4	B_5	B_6	B_7	C_1	C_2	C_3	C_4	C_5	C_6	C_7
A_1			.19	.15	.18	.14	.19	.19	.13	.11				.10			.16	.14		.08	.10	
A_2																						
A_3				.19	.20	.14	.15	.18	.11	.09				.08			.15	.10		.10	.11	
A_4					.22	.19	.19	.27	.19	.15				.19			.08	.10		.09	.07	
A_5						.11	.21	.17	.14	.06				.06			.11	.10		.07	.12	
A_6							.16	.16	.09	.09				.09			.07	.08		.06	.08	
A_7								.27	.10	.07				.12			.16	.13		.12	.11	
A_8									.08	.10				.10			.09	.08		.05	.08	
B_1										.15		.02	.04	.11	.03		.06	.07		.07	.05	
B_2											.04	.10	.05	.10	.02		.04	.04		.04	.05	
B_3												.07										
B_4													.09		.05							
B_5														.07	.04							
B_6															.02		.09	.08	.03	.08	.04	
B_7																						
C_1																	.05		.09	.10	.02	
C_2																		.21	.11	.18	.16	
C_3																			.25	.16	.14	
C_4																				.27	.15	
C_5																					.18	
C_6																						
C_7																						

A_1 – India, Sri Lanka, Maldives; A_2 – China; A_3 – Indo-Chinese and Malaysian Peninsulas (Vietnam, Thailand, Malaysia); A_4 – Philipines; A_5 – Sumatra; A_6 – Borneo (Timur, Sabah, Brunei, Sarawak); A_7 – Sulawesi; A_8 – Jawa, Bali;

B_1 – Papua New Guinea; B_2 – Northern Australia; B_3 – Western Australia; B_4 – South-Eastern Australia; B_5 – Tasmania; B_6 – New Caledonia; B_7 – New Zealand;

C_1 – Pakistan; C_2 – North India (Kashmir, Uttar Pradesh, Himalah Pradesh); C_3 – Nepal, Buthan; C_4 – Far East Russia; C_5 – Korea; C_6 – Japan; C_7 – China.

tion of Africa from South America took place in the Lower Jurassic (100 – 110 million years ago), while the separation of Africa from Antarctica seems to have taken place as much as 20 million years later – Africa with India separated from Antarctica 120-150 million years ago.

South-eastern Asia comprised the eastern part of Gondwanaland and 100-135 million years ago, between the Upper Jurassic and the Lower Cretaceous, a separation of today's Orient (Thailand, Indo-China, Borneo, Java and Sumatra lying between India and Australia) from the rest of Gondwanaland took place (SCHLINGER 1974, RIDD 1980, AUDLEY-CHARLES, BALLANTYNE and HALL 1988). After the break-up of Gondwanaland, South-eastern Asia drifted northwards to collide with the mainland Asia in the same way as India did (RIDD 1971, HARBURY, JONES, AUDLEY-CHARLES, METCALTE and MOHAMED 1990). The collision of Australia with the Asian plate in the Miocene lead to formation of New Guinea and most of the islands constituting the recent Orient. Some fragments of land, southern Tibet, Burma, Thailand, Indochina and Malaya were transferred from Australia to the Asian continent (AUDLEY-CHARLES 1983, TROJAN 1997)). Wallace's line was established and the mixing of Oriental and Australian taxa commenced (GEORGE 1987). At that time the eastern and western parts of Sulawesi collided. In the Pliocene (a few million years later) the sea level was probably lower than today and the climate was drier. There is a hypothesis about a savannah land route between the Philippines, Sulawesi and Sundae islands. However, there is evidence which makes this land connection dubious (KEAST 1981). Almost all tectonic models of the region assumed that South-eastern Asia and Australia were not more separated in the early Caenozoic than they are today (AUDLEY-CHARLES 1996). According to other data, the Sundae islands were still connected with the Indochina Peninsula in the Pleistocene. This connection was broken a few times, following changes in the sea level. The Philippines were connected with Borneo in the Pleistocene. In the Pleistocene at low sea level, Sumatra, Java and Borneo were parts of the Asian mainland and most of the present-day Philippine islands were joined in one large island that was connected or nearly connected to Borneo by two narrow arms of land (DIAMOND and GILPIN 1983). According to other data the islands to the east of Borneo: the Philippines, Sulawesi, Moluccas, Little Sundae Islands were never connected to the continent of Asia or Australia, they changed their configuration: either submerged under the sea level or rose up due to the volcanic movements (PRÓSZYŃSKI 1961). In the Pleistocene a considerable part of today's Indonesia was connected with neighbouring continents. Java, Sumatra and Borneo constituted a part of the so-called Sundae land joined to Asia through the Indochina Peninsula. The connection between Palawan (the western part of the Philippines) with Borneo and Bali with Java existed but perhaps for a short time only. The Philippine Islands (except Palawan), Sulawesi, Moluccas and the Little Sundae Islands were joined neither to Asia nor Australia, creating a transitory region, a sphere of mixing of the oriental and Australian faunistic elements (PRÓSZYŃSKI 1961).

Eastern India was connected with western Australia, Madagascar with Kenya and Tanzania, western India with Arabia and Somalia (SHIELDS 1977). Separation of Great India commenced 140 million years ago in the Late Jurassic (JOHNSON, POWELL and VEEVERS 1976, PATTERSON and OWEN 1991) and took part in three phases: 1) slow

early separation from Australia-Antarctica, 125-80 million years ago, from Africa 75 million years ago, 2) rapid northward flight – 5000 km of drift taking place from 80 to 53 million years ago, 3) slower northward convergence and collision with Asia and rising up of the Himalayas from 53 million years ago to the present (Mc KENZIE and SCLATER 1971, SCHNELL 1976, KEAST 1981, PATRIAT and ACHACHE 1984). The rupture of the Seychelles and India probably occurred in the early Palaeocene (DAVIES 1968).

Disruption of the Australian Plate commenced probably in the late Cretaceous (80 million years ago). Also New Zealand has remained isolated from Australia – Antarctica and New Caledonia from Queensland for some 80 million years (BRUNDIN 1966, WIFFEN 1996, TILLER 1988) but has received immigrants from many sources. For example in the Eocene there was a connection between the Norfolk Island and New Zealand. Subtropical climates appeared in the northern North Island in the Miocene. Also at the same time, in the late Cretaceous (80-60 million years ago), New Caledonia started breaking up. The two islands drifted to the north and away at a date somewhat earlier than the break between Australia and South America and after New Caledonia separated from New Zealand (EDMUNDS 1972). 53 million years ago, Fiji lay fairly close to New Caledonia (KEAST 1981). Separation of New Caledonia from Fiji is estimated to have taken place about 50 million years ago, in the Eocene (TILLER 1988). New Zealand moved from Antarctica about 50-60 million years ago (Mc DOWALL 1973). South America and Australia separated 65 million years ago, 55 million years ago Australia started separating from Antarctica and the process was completed in the middle Eocene 45-55 million years ago (TAYLER 1985). New Giunea is considered to be part of the Australian Plate, which moved north and collided with the Oriental and Pacific Plates (PECK 1985). In the Eocene New Guinea was largely submerged. The uplift of these islands and the Solomon Islands began in the late Palaeocene (60-53 million years ago) and continued through the Miocene, it was a result of the interaction between the Australian and Asian Plates (Timor and Sulawesi) (RAVEN and AXELROD 1972, BELL 1985). New Guinea was colonised largely from the adjacent rich tropical lowlands of Malaysia. In the Pleistocene New Guinea together with surrounding islands was connected with Australia forming a land called Sahul. This connection was broken up a few times by rising sea level (PRÓSZYŃSKI 1961).

Tasmania was broadly connected to Australia in the Pleistocene (DARLINGTON 1960).

4.2. DISPERSAL EFFECT

In addition to historical and ecological conditions the extent and structure of the geographical range of a species, depends on its dispersal potential (ŻABKA 1997).

Active dispersal over long distances is improbable for mites.

The possibilities of oribatid dispersal over seas and long distances are very restricted mainly because of the slight tolerance of these animals to drying-up, salt water and lack of bearing surfaces in case of possible air transport, etc., but sometimes quiet and so far not properly grounded opinions were advanced that many

species can tolerate long periods of drought and can disperse over long distances. In general they can only spread together with moss, leaves or soil in which they live (HAMMER 1968).

Air transport also seems probable, although aerial dispersal by currents or wind blasts during hurricanes or cyclones cannot be excluded. The most probable paths of long distance passive transport seem to be hydrochorous and zoochorous - including transport by humans (SCHATZ 1998). The hydrochorous dispersal depends on the currents and most often involves washing out of natural rafts of vegetation, usually after heavy rainfalls, log drifting on the sea surface or attachment to floating seed. Mites can survive inside organic litter or tree branches, tree trunks, in which they hide to protect themselves from salt water. The zoochorus dispersal involves transport by other living organisms, mostly birds, and human introduction (SCHATZ 1991). Intentional and unintentional introduction by man is considered as a very important factor extending the distribution range (ŻABKA 1997). Human introduction is indicated by the presence of mites near ruderal synanthropic environments, tourists tracks and agriculturally used land (NIEDBAŁA 1998), however, in general it is not easy to distinguish between natural and human-induced dispersal (SWIFT and NORTON 1998).

If dispersal had a significant effect on the geographical distribution of animals, then at least some species should have increased their ranges in historical times (NOONAN 1985), however, in the case of ptyctimous mites it is difficult to point to such an event.

5. RESULTS AND DISCUSSION

5.1. ANALYSIS OF THE CURRENT STATUS OF THE *PTYCTIMA* FAUNA IN PARTICULAR SUBREGIONS OF THE ORIENTAL AND AUSTRALIAN REGIONS AGAINST A BACKGROUND OF CLIMATIC AND ENVIRONMENTAL DIFFERENCES

5.1.1 DESCRIPTIONS, REDESCRIPTIONS AND DIAGNOSES OF SPECIES OCCURING IN THE ORIENTAL REGION AND THE BORDER ZONE OF THIS REGION ADJACENT TO PALAEARCTIC

5.1.1.1. LIST OF SPECIES

***Protoplophoroidea* EWING, 1917**
***Protoplophoridae* EWING, 1917**
***Prototritia* BERLESE, 1910**
Aedoplophora GRANDJEAN, 1932
P. glomerata (GRANDJEAN, 1932)
P. grandjeani (MAHUNKA, 1977)

***Mesoplophoroidea* EWING, 1917**

***Mesoplophoridae* EWING, 1917**

***Archoplophora* HAMMEN, 1959**

A. rostralis (WILLMANN, 1930)

***Mesoplophora* BERLESE, 1904**
***Mesoplophora* (*Parplophora*) BERLESE, 1904**

M. (*P.*) *flavida* NIEDBAŁA, 1985
M. (*P.*) *japonica* AOKI, 1970
M. (*P.*) *leviseta* HAMMER, 1979
M. (*P.*) *paraleviseta* MAHUNKA, 1991
M. (*P.*) *polita* NIEDBAŁA, 1985
M. (*P.*) *subtilis* NIEDBAŁA, 1981

***Mesoplophora* (*Mesoplophora*) BERLESE, 1904**

M. (*M.*) *crassisetosa* SUBIAS et SARKAR, 1984
M. (*M.*) *invisitata* NIEDBAŁA, 1983
M. (*M.*) *vesca* NIEDBAŁA et CORPUZ-RAROS, 1998

***Apoplophoridae* NIEDBAŁA, 1984**

***Dudichoplophora* MAHUNKA, 1982**

D. reticulata MAHUNKA, 1982

***Apoplophora* AOKI, 1980**

A. cristata MAHUNKA, 1991
A. heterotricha MAHUNKA, 1987
A. malaya MAHUNKA, 1991
A. marcuardi MAHUNKA, 1991
A. ornata **sp. nov.**
A. pantotrema (BERLESE, 1913)
A. phalerata **sp. nov.**
A. spinosa MAHUNKA, 1987

***Euphthiracaroidea* JACOT, 1930**

***Oribotritiidae* GRANDJEAN, 1954**

***Oribotritia* JACOT, 1924**
Berndotritia MAHUNKA, 1987 **syn. nov.**
Philotritia MAHUNKA, 1988

O. anceps **sp. nov.**
O. angusta MAHUNKA, 1982
O. aokii MAHUNKA, 1987
O. asiatica HAMMER, 1977
O. bipartita **sp. nov.**
O. bulbifer (MAHUNKA, 1987)
O. capitanea NIEDBAŁA et CORPUZ-RAROS, 1998
O. chichijimensis AOKI, 1980
O. corporaali (OUDEMANS, 1926)
O. fennica FORSSLUND et MARKEL, 1963
O. gigas BAYOUMI et MAHUNKA, 1979
O. heterotricha **sp. nov.**
O. nepalensis **sp. nov.**
O. paraaoki **sp. nov.**
O. submolesta **sp. nov.**
O. tokukoae AOKI, 1973

***Mesotritia* FORSSLUND, 1963**

M. clara STARY, 1992
M. dissimilis HAMMER, 1977
M. markeli SHEALS, 1965
M. nitida HAMMER, 1977
M. okuyamai AOKI, 1980
M. similis **sp. nov.**

***Maerkelotritia* HAMMER, 1967**

M. kishidai (AOKI, 1958)

***Protoribotritia* JACOT, 1938**

P. ensifer AOKI, 1969

***Sobacarus* RAMSAY et SHEALS, 1969**

S. corneri RAMSAY et SHEALS, 1969
S. japonicus SHIMANO, AOKI 1997

***Indotritia* JACOT, 1929**

I. aspera **sp. nov.**
I. javensis (SELLNICK, 1923)
I. krakatauensis (SELLNICK, 1923)
I. lanceolata (AOKI, 1988)
I. propinqua NIEDBAŁA, 1991
I. undulata BAYOUMI et MAHUNKA, 1979

***Terratritia* RAMSAY & SHEALS, 1969**

T. askewi RAMSAY et SHEALS, 1969
T. seconda MAHUNKA, 1991

***Austrotritia* SELLNICK, 1959**

A. dentata AOKI, 1980
A. gibba BAYOUMI et MAHUNKA, 1979
A. glabrata **sp. nov.**
A. kinabaluensis RAMSAY et SHEALS, 1969
A. lebronneci (JACOT, 1935)
A. ramsayi MAHUNKA, 1991
A. robusta NIEDBAŁA et CORPUZ-RAROS, 1998
A. saraburiensis AOKI, 1965
A. unicarinata AOKI, 1980

***Euphthiracaridae* JACOT, 1930**

***Euphthiracarus* (*Euphthiracarus*) EWING, 1917**

E. (*E.*) *aggenitalis* AOKI, 1984
E. (*E.*) *bhutanicus* REDDY, 1988
E. (*E.*) *cribarius* (BERLESE, 1904)
E. (*E.*) *foveolatus* AOKI, 1980
E. (*E.*) *inglisi* SHEALS, 1965

E. (*E.*) *klabati* **sp. nov.**
E. (*E.*) *labyrinthicus* STARY, 1993
E. (*E.*) *pakistanensis* HAMMER, 1977
E. (*E.*) *parareticulatus* **sp. nov.**
E. (*E.*) *shogranensis* HAMMER, 1977
E. (*E.*) *takahashii* AOKI, 1980
E. (*E.*) *vietnamicus* STARY, 1993

***Euphthiracarus* (*Pocsia*) ?**

E. (*P.*) *sarawaki* **sp. nov.**

***Rhysotritia* MARKEL et MEYER, 1959**

R. aokii **sp. nov.**
R. ardua (C. L. KOCH, 1841)
R. comteae MAHUNKA, 1983
R. divida MAHUNKA, 1991
R. duplicata (GRANDJEAN, 1953)
R. furcata BAYOUMI et MAHUNKA, 1979
R. gracile **sp. nov.**
R. hauseri MAHUNKA, 1991
R. lucida NIEDBAŁA, 1998
R. penicillata MAHUNKA, 1982
R. rasile MAHUNKA, 1982
R. refracta NIEDBAŁA, 1998
R. simile MAHUNKA, 1982
R. sinensis JACOT, 1923
R. sinensis triheterodactylis JACOT, 1923
R. spiculifera MAHUNKA, 1991
R. vestita (BERLESE, 1913)

***Bukitritia* MAHUNKA, 1990**

B. timah (MAHUNKA, 1990)

***Sumatrotritia* MAHUNKA, 1989**

S. elegans MAHUNKA, 1991
S. inusitata MAHUNKA, 1989
S. xena MAHUNKA, 1989

***Microtritia* MARKEL, 1964**

M. minima (BERLESE, 1904)
M. tropica MARKEL, 1964

Synichotritiidae **WALKER, 1965**

Synichotritia **WALKER, 1965**

S. foveolata HU, WANG et AOKI, 1991
S. furcata HU et WANG, 1992
S. tianmuensis HU, WANG et AOKI, 1991

Sabahtritiidae **MAHUNKA, 1987**

Sabahtritia **MAHUNKA, 1987**

S. hauseri MAHUNKA, 1987
S. lienhardi MAHUNKA, 1995
S. mirabilis MAHUNKA, 1991
S. sarawak MAHUNKA, 1996

Temburongiidae **MAHUNKA, 1990**

Temburongia **MAHUNKA, 1990**

T. patoi MAHUNKA, 1990

Phthiracaroidea **PERTY, 1841**

Phthiracaridae PERTY, 1841
Phthiracarinae PERTY, 1841

Phthiracarus **PERTY, 1839**

P. abstemius NIEDBAŁA, 1989
P. anonymus GRANDJEAN, 1933
P. australis (AOKI, 1980)
P. boresetosus JACOT, 1930
P. bryobius JACOT, 1930
P. clemens AOKI, 1963
P. comatus NIEDBAŁA, 1983
P. comosus (AOKI, 1980)
P. compressus JACOT, 1930
P. crispus HAMMER, 1972
P. gibber AOKI, 1980
P. globosus (C. L. KOCH, 1841)
P. invenustus **sp. nov.**
P. japonicus AOKI, 1958
P. largus NIEDBAŁA, 1984
P. lentulus (C. L. KOCH, 1841)
P. longulus (C. L. KOCH, 1841)

P. membranifer PARRY, 1979
P. obscurus NIEDBAŁA, 1986
P. opacus NIEDBAŁA, 1986
P. ornatus MAHUNKA, 1991
P. paraglobosus NIEDBAŁA, 1982
P. paratubulus NIEDBAŁA, 1991
P. parmatus (NAKATAMARI, 1985)
P. paucus NIEDBAŁA, 1991
P. persimplex MAHUNKA, 1982
P. pygmaeus BALOGH, 1958
P. setosus (BANKS, 1895)

***Steganacaridae* NIEDBAŁA, 1986**
***Steganacarinae* NIEDBAŁA, 1986**

***Plonaphacarus* NIEDBAŁA, 1986**

P. aculeatus (MAHUNKA, 1995)
P. dispar **sp. nov.**
P. insignitus NIEDBAŁA, 1989
P. ishikawai (AOKI, 1980)
P. kaszabi (BALOGH, 1988)
P. kugohi (AOKI, 1959)
P. loebli (MAHUNKA, 1985)
P. rafalski NIEDBAŁA, 1997
P. scrupeus NIEDBAŁA, 1989

***Hoplophthiracarus* JACOT, 1933**

H. angustatus NIEDBAŁA, 1984
H. clavatellus NIEDBAŁA et CORPUZ-RAROS, 1998
H. concinuus NIEDBAŁA, 1982
H. cristatus (AOKI, 1980)
H. foveolatus AOKI, 1980
H. hamatus (HAMMER, 1973)
H. heterotrichosus **sp. nov.**
H. (?) nasalis MAHUNKA, 1991
H. nepalensis SHEALS, 1965
H. pakistanensis (HAMMER, 1977)
H. parafoveolatus **sp. nov.**
H. similis **sp. nov.**
H. stigmosus **sp. nov.**
H. vanderhammeni NIEDBAŁA, 1991

***Steganacarus* EWING, 1917**
***Rhacaplacarus* NIEDBAŁA, 1986**

S.(R.) spiniger (AOKI, 1980)

Tropacarus **EWING, 1917**

S. (T.) carinatus (C. L. KOCH, 1841)

Atropacarinae **NIEDBAŁA, 1986**

Austrophthiracarus **BALOGH et MAHUNKA, 1978**

A. inusitatus (NIEDBAŁA, 1983
A. latior (NIEDBAŁA, 1982)
A. mitratus (AOKI, 1980)
A. pullus (NIEDBAŁA, 1989)
A. sarawaki **sp. nov.**
A. tubercullatus NIEDBAŁA et CORPUZ-RAROS, 1998
A. villosus (NIEDBAŁA, 1982)

Arphthicarus **NIEDBAŁA, 1994**

A. evexus **sp.nov.**
A. furcatus NIEDBAŁA et CORPUZ-RAROS, 1998
A. indicus (BAYOUMI et MAHUNKA, 1979)
A. inenarrabilis (NIEDBAŁA, 1982)
A. ineptus (NIEDBAŁA, 1984)
A. parasentus **sp. nov.**
A. sentus (NIEDBAŁA, 1989)
A. sumatranus **sp. nov.**

Notophthiracarus **RAMSAY, 1966**

N. enigmaticus (MAHUNKA, 1996)
N. extraordinarius **sp. nov.**
N. hauseri MAHUNKA, 1995
N. ignobilis **sp. nov.**
N. lienhardi MAHUNKA, 1996
N. mirus **sp. nov.**
N. orientalis (MAHUNKA, 1985)
N. perparvus NIEDBAŁA, 1989
N. planus (MAHUNKA, 1985)
N. robertsi (SHEALS, 1965)
N. stenotus NIEDBAŁA et CORPUZ-RAROS, 1998
N. turgidus NIEDBAŁA, 1991
N. unqus NIEDBAŁA, 1991

Atropacarus **EWING, 1917**
Hoplophorella **BERLESE, 1923**

A. (*H.*) *cucullatus* (EWING, 1909)
A. (*H.*) *floridus* (JACOT, 1933)
A. (*H.*) *manipurensis* MISRA, BHADURI et RAYCHAUDHURI, 1983
A. (*H.*) *sabahnus* (MAHUNKA, 1991)
A. (*H.*) *singularis* (SELLNICK, 1959)
A. (*H.*) *stilifer* (HAMMER, 1961)
A. (*H.*) *vitrinum* (BERLESE, 1913)

***Atropacarus* EWING, 1917**

A. (*A.*) *clavatus* AOKI, 1980
A. (*A.*) *striculus* (C. L. KOCH, 1836)

5.1.1.2. DESCRIPTIONS, REDESCRIPTIONS OR DIAGNOSES OF GENERA AND SPECIES

***Protoplophoroidea* EWING, 1917**

DIAGNOSIS. Minute, weakly pigmented species, "notogaster"* is covered by four shields; the anterior is the largest – the unpaired pronotaspis, the posterior, also unpaired pygidium, and between them a lateral paired pseudaspis.

***Protoplophoridae* EWING, 1917**

***Prototritia* BERLESE, 1910**

Aedoplophora GRANDJEAN, 1932

DIAGNOSIS. "Notogastral" setae simple, thin; anal plates essentially longer than wide, shorter than genital plates, ten pairs of anal and adanal setae, formula: 4: 6.

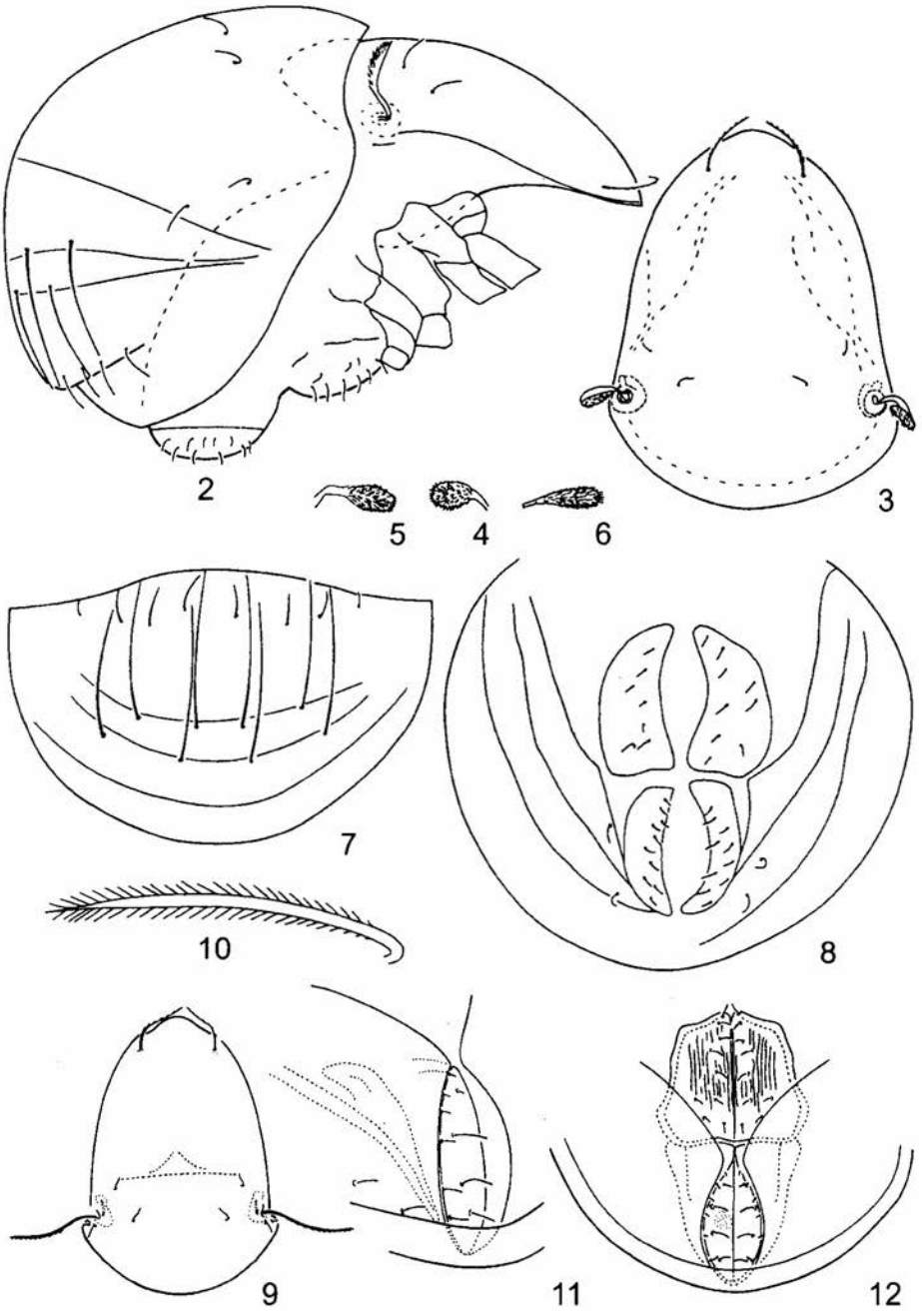
***Prototritia glomerata* (GRANDJEAN, 1932)**
(Figs 2-8)

Prototritia glomerata: NIEDBAŁA & CORPUZ-RAROS 1998

DESCRIPTION. Measurements of specimen from the Philippines prodorsum: length 180, width 134, height 68.3, sensillus 30.4, setae: rostral 32.9, interlamellar 10.1, lamellar and exobothridial 12.6, exobothridia 127.8; notogaster: length 228, width 215, height 139, setae: c_1 12.6, c_3 10.1; genitoaggenital plate 63.2x27.8, anoadanal plate 58.2x25.3.

DIAGNOSIS. Colour pale-yellow. Prodorsum with lateral carinae very long reaching end of rostrum; sensilli club-like with head rounded and densely covered with thin spines, rostral setae long covered with small spines, other setae smooth.

*This is not a "notogaster" in the true sense, since it only represents segments C, D, E.



2-8. *Prototritia glomerata* (GRANDJEAN, 1932) (specimen from Philippines): 2 - lateral view of body, 3 - prodorsum, dorsal view, 4 and 5 - sensilli, ventral view, 6 - sensillus - lateral view, 7 - posterior part of notogaster, 8 - ventral plates; 9-12. *Prototritia grandjeani* (MAHUNKA, 1977) (after MAHUNKA 1977): 9 - prodorsum, dorsal view, 10 - sensillus, 11 - genitoaggenital region, 12 - anoadanal region

Notogaster, divided in four parts, with 16 pairs of setae of different length, setae of rows *e* and *f* the longest, setae of rows d and *ps* the shortest. Ventral region, 9 pairs of genital setae present.

MATERIAL. Localities in the Oriental region: Philippines, Luzon Is., Mt. Makiling, Kapos, San Rafael, Santo Tomas, Batangas Prov., ex. leaves of *Garcinia dulcis*, 18 VII 1993, leg. R.C. GARCIA - (3 sp.) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. Colombia (GRANDJEAN 1932, 1954, BALOGH 1984), Venezuela (GRANDJEAN 1932, 1954) and Philippines. Probably a pantropical species.

Prototritia grandjeani (MAHUNKA, 1977)

(Figs 9-12)

DIAGNOSIS. Colour pale-yellow. Prodorsum with sensilli uniformly incrassate, with acuminate distal end, covered with distinct barbs; rostral setae long, meeting apically, barbed, all other setae minute. Chaetotaxy of notogaster as in *P. glomerata* (GRANDJEAN, 1932). Genitoaggenital plates ornamented with longitudinal lines, with 10 pairs of thin setae; Tarsi of legs heterotridactylous.

MATERIAL. Localities: Indonesia, Komodo, 12 m., under ratan palms (*Borassus* spec.), 8 X 1973, leg. P. SCHAUENBERG - (3 sp.); Indonesia, Western Java, Udjong-Kulon, 8 m., climax lowland rainforest, 8 VII 1973, leg. P. SCHAUENBERG - (2 sp.).

DISTRIBUTION. Indonesia, perhaps an endemic species.

Mesoplophoroidea EWING, 1917

DIAGNOSIS. "Notogaster" of adults formed by joined CDE segments with 8 pairs of setae, segments FP joined with adanal segments; genital and anal plates separated, adoral setae and rutellum of Hypo-Eniochthonius type; anathric; 7-10 pairs of "ventral" setae, 2-4 pairs of anal setae, 7-9 pairs of genital setae present; famulus of tarsi I bifurcated.

Mesoplophoridae EWING, 1917

DIAGNOSIS. Adults with transverse suture separating genital plates in two parts present, anterior with 1-2 pairs of setae, posterior with 5-8 pairs of setae, tibiae IV with 1-2 setae.

Archoplophora HAMMEN, 1959

DIAGNOSIS. Setae smooth, sensilli without head, spinose, exobothridial setae smaller than diameter of bothridia; genital setae quadrate, anal and genital plates almost touching, adanal plates distinct, "ventral" plates with 9 pairs of setae, 3 pairs of anal setae, 3 pairs of adanal setae, 9 pairs of genital setae with formula: 8+1.

Archoplophora rostralis (WILLMANN, 1930)

(Figs 13-15)

Phthiracarulus rostralis WILLMANN, 1930
Phthiracarulus laevis JACOT, 1938
Archoplophora villosa AOKI, 1980
Archoplophora rostralis: NIEDBALA 1984b

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli thick but without head, covered with several thin spines; setae fine, interlamellar setae slightly longer than other setae. Notogaster with 8 pairs of setae of unequal length, setae c_3 fine, situated near anterior border, setae *cp* the longest, setae c_{1-2} remote from anterior border, setae e_1 and e_2 thick; 5 posterior pairs of ventral setae thicker than 4 anterior pairs; formula of genital setae: 8+ 1.

MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: many specimens from: Far East of Russia (BULANOVA-ZACHVATKINA 1970; MAKARCHEVA 1970); Far East of Russia, Suputinsky reserve, valley of Suputinka river, mosses on stone, 17.V.1964 – (1 sp.); Suputinsky reserve, pasture, 17.VII.1963 – (41 sp.); Suputinsky reserve, ant-hill, 17.V.1964, leg. E.P. MAKARCHEVA – (5 sp.); Putiatin Island near Vladivostok, under alder on the border, 16.VIII.1965 – (33 sp.). Korea (PAIK 1980); Korea, Pyongyang-namdo prov., Kangso distr., Thesong-ho lake, in leafy forest, 12.VI.1981, leg. W. WEINER and A. SZEPTYCKI – (5 sp.). Japan - 97 specimens from 7 localities (AOKI 1961, 1962, 1967, 1977, 1980, AOKI, HARADA and MIYAWAKI 1977, AOKI, ISHIKAWA and SHIBA 1977, AOKI et al. 1978, AOKI and KURIKI 1978, SHIBA, AOKI and ISHIKAWA 1978, YAMAMOTO 1977); Thailand (AOKI 1965).

DISTRIBUTION. A semicosmopolitan species.

Mesoplophora BERLESE, 1904

DIAGNOSIS. Distance between anal and adanal plates equal to half length of anal plates, adanal plates absent, 9-10 pairs of "ventral" setae, 2-4 pairs of anal setae, 7 pairs of genital setae, formula 6+1 or 5+2; chaetotaxy of palps: 0-2-0-3-12+1.

Mesoplophora (*Palplophora*) BERLESE, 1904

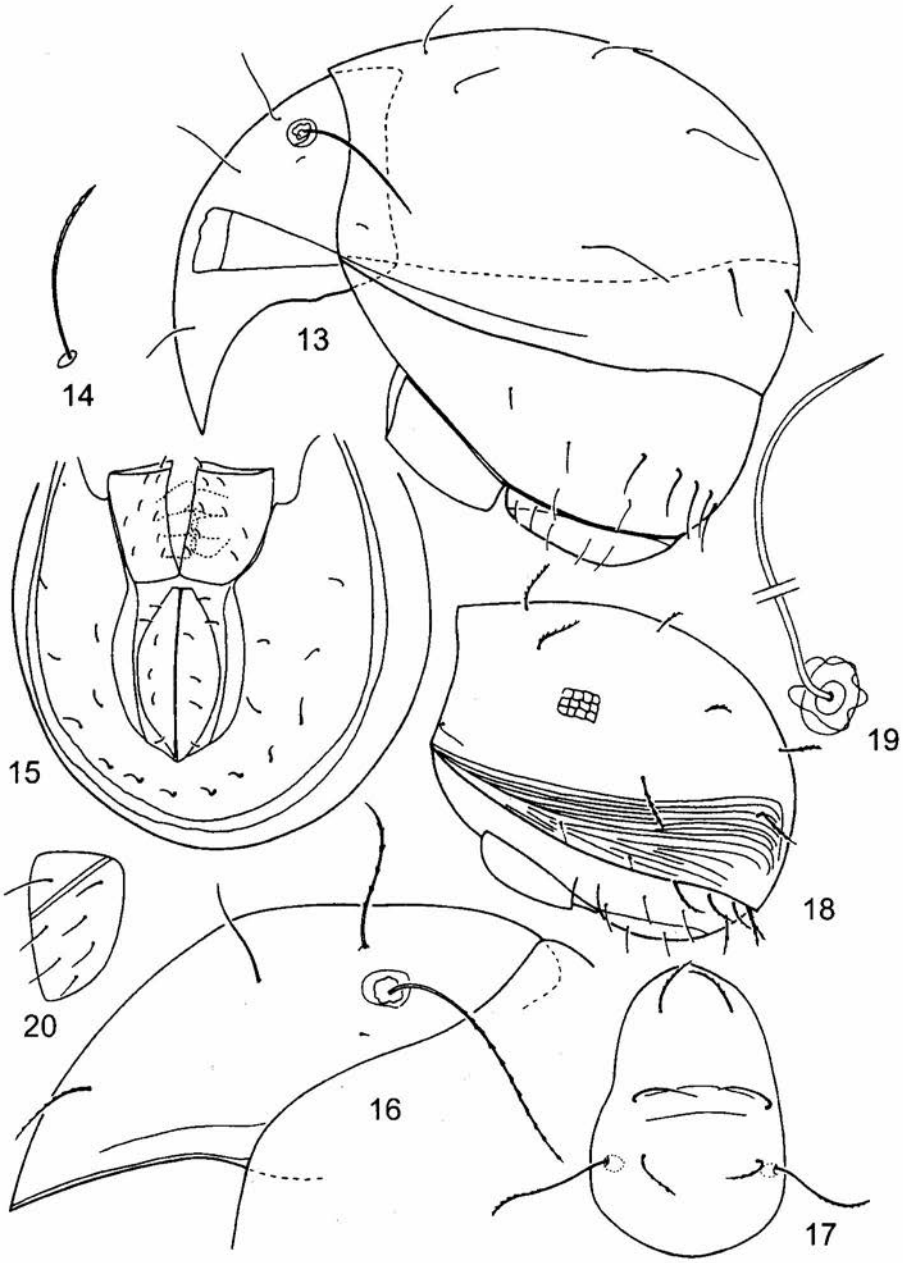
DIAGNOSIS. Three or four pairs of anal setae present.

Mesoplophora (*Parplophora*) *flavida* NIEDBALA, 1985

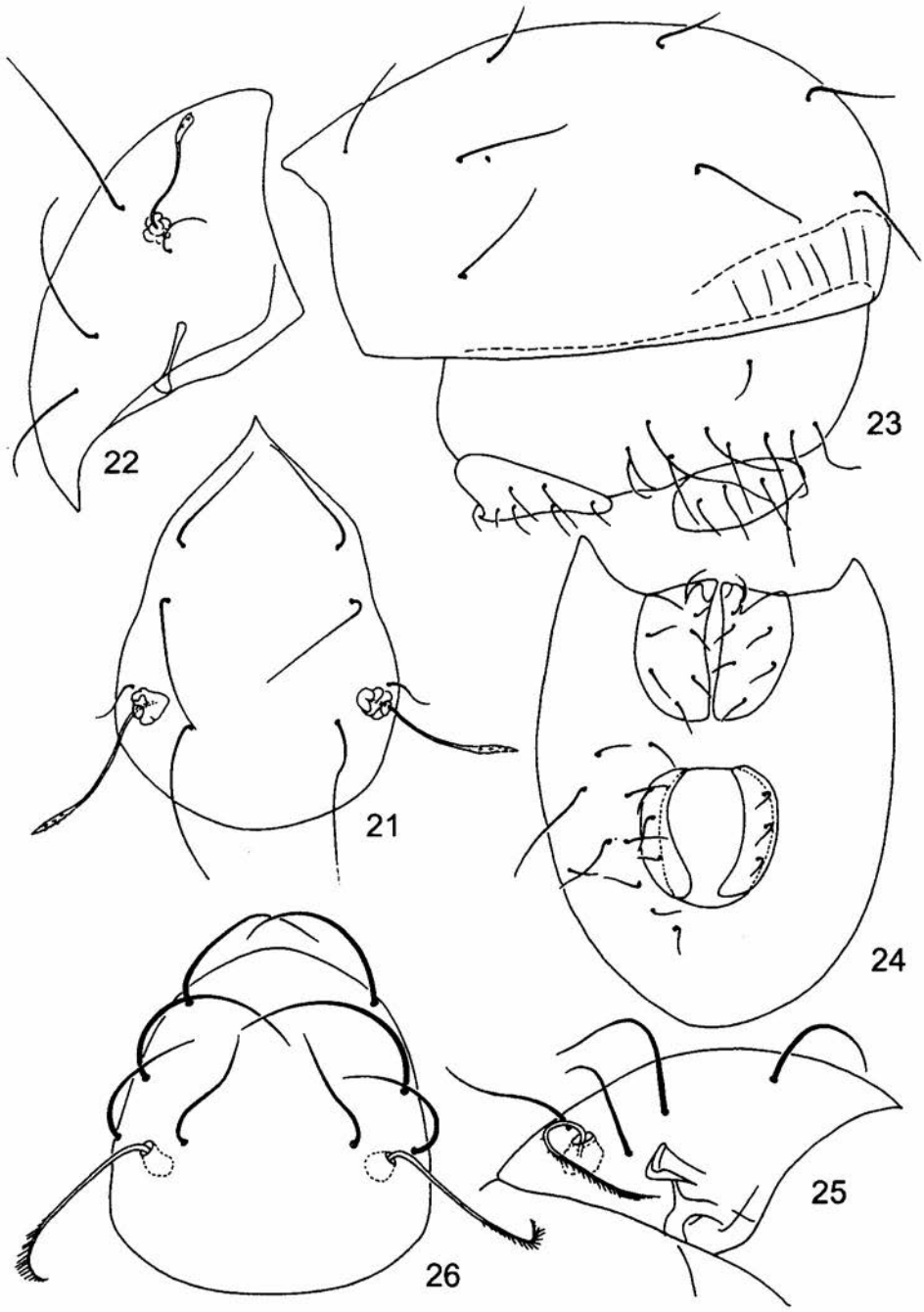
(Figs 21-24)

Mesoplophora (*Parplophora*) *flavida*: NIEDBALA & CORPUZ-RAROS 1998

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli shorter than interlamellar setae with long pedicel and fusiform head covered with small spines; setae smooth of equal thickness, interlamellar setae longer than rostral and lamellar setae, exobothridial



13-15. *Archoplophora rostralis* (WILLMANN, 1930) (specimen from Korea): 13 - lateral view of body, 14 - sensillus, 15 - ventral region; 16-18. *Dudichoplophora reticulata* MAHUNKA, 1982 (specimen from Korea): 16 - prodorsum, lateral view, 17 - prodorsum - dorsal view, 18 - notogaster, lateral view; 19, 20. *Mesoplophora* (*Palplophora*) *japonica* AOKI, 1970: 19 -sensillus, 20 - genital plate



21-24. *Mesoplophora* (*Parplophora*) *flavida* NIEDBAŁA, 1985(holotype): 21 - prodorsum, dorsal view, 22 - lateral view, 23 - notogaster, lateral view, 24 - ventral view; 25, 26. *Mesoplophora* (*Palplophora*) *leviseta* HAMMER, 1979 (holotype): 25 - prodorsum, lateral view, 26 - prodorsum, dorsal view

setae relatively long, longer than diameter of bothridia. Notogastral setae c_1, c_2, c_3 and d_3 are smooth and longer than setae d_1, d_2, e_1, e_2 covered with thin spines, length of setae c_2 and c_3 variable, setae c_2 and c_3 more remote from anterior border than setae c_1. Ventral region with 10 pairs of ventral setae, smooth, unequal in length; formula of genital setae: 6+1, aggenital setae absent; anal plates with 3 pairs of smooth anal setae.

MATERIAL. Locality in the Oriental region. Thailand, Asiatic Primate Expedition, Ex. *Aceraius helferi* KUWERT, GRISWALD coll. - 47 specimens (NIEDBAŁA 1985a). Indonesia, Sumatra, Pemetang Siantar, Ex. *Macrolinus latipennis* (PERC), June 1937, C.T. and B.B. BRUES, coll - 4 (NIEDBAŁA 1985a, MARSHALL, REEVES and NORTON 1987); Sumatra, Langkat, *Aceraius laevicollis* (ILLIGER) – (11 sp.); Sumatra, Pematang Siantar, *Macrolinus latipennis* (PERC), VII.1937, leg. C.T. and B.B. BRUES – (4 sp.). Philippines, Basilan Is., 15 km NE of Malusa, *Aceraius pilifer* (PERCH.), leg. B. LAWRENCE – (39 sp.) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. An Oriental species.

Mesoplophora (Parplophora) japonica AOKI, 1970

(Figs 19, 20)

Mesoplophora japonica AOKI, 1970, 1980

DIAGNOSIS. Prodorsum with one pair of small incisions at the level of rostral setae; sensilli setiform, thick and smooth; lamellar, interlamellar and rostral setae of almost the same length, exobothridial setae fine, shorter than diameter of bothridia. Notogastral setae smooth, except rough setae e_1 and e_2, setae c_2 more remote from anterior margin than setae c_1 and c_3. Ventral region with 10 pairs of smooth ventral setae, three pairs of lateral setae the longest; formula of genital setae : 6+1; anal plates with 3 pairs of smooth setae.

MATERIAL. Localities in extreme parts of the Oriental region: perhaps Far East of Russia (KURCHEVA 1977). Japan, 6 specimens from 3 localities (AOKI 1965, 1970, 1980, FUJIKAWA 1970,1972, YAMAMOTO 1977, AOKI and KURIKI 1978, AOKI and HARADA 1981).

DISTRIBUTION. Eastern border of Palaearctic.

Mesoplophora (Palplophora) leviseta HAMMER, 1979

(Figs 25-28)

Mesoplophora leviseta HAMMER, 1979
Mesoplophora (Palplophora) leviseta: NIEDBAŁA, 1985a
Mesoplophora gibba MAHUNKA, 1988 **syn. nov.**

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli thick tapering towards distal end covered with 23 small spines; lamellar setae longer and thicker than interlamellar, rostral and exobothridial setae, rostral setae longer and thicker than interlamellar setae, exobothridial setae long, longer than diameter of bothridia, all these setae smooth. Notogastral setae smooth and thick, setae c_3 near anterior

margin, setae c_1 and c_2 remote from margin. Ventral region with 8 pairs of ventral setae, one pair of lateral setae extremely long; formula of genital setae: 5+2; anal plate with 3 pairs of smooth setae.

REMARK. I did not study the *M. gibba* type specimen from Seychelles but I do not believe that such a small difference as setae c_3 shorter than c_2 could justifies introduction of a new species. There are no significant differences in the structure of sensillus (compare the relevant figures in the papers of HAMMER 1979, NIEDBAŁA 1985a and MAHUNKA 1988a).

MATERIAL. Locality in the Oriental region: Indonesia, Java, The Botanical Garden at Bogor with very tall, dark trees, dense under growth and numerous bushes and flowers, mosses everywhere, lichens, liverworts, *Selaginella* and dead leaves and debris - (2 sp.) (HAMMER 1979).

DISTRIBUTION. A Pantropical species.

Mesoplophora (Parplophora) paraleviseta MAHUNKA, 1991

(Figs 29-31)

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli long with 19-21 very long branches, their length is five times diameter of sensilli; setae smooth, thick, tapering towards distal end, *ro* > *le* > *in* > *ex*. Notogastral setae long, thick, tapering towards distal end, setae of row *c* smooth, setae of rows *d* and *e* finely roughened, setae c_{1-3} remote from anterior border, setae c_{1-2} more so than setae c_3. Ventral region with 10 pairs of ventral setae, one pair is thick, similar to notogastral setae, the other 9 pairs fine; formula of genital setae: 5+ 2, one pair of vestigial aggenital setae; 3 pairs of anal setae present.

REMARK. This species is distinguishable from *M. (P.) leviseta* HAMMER, 1979 by the number of ventral setae (10 pairs), presence of vestigial aggenital setae and presence of 4 pairs of smooth anterior notogastral setae and 4 pairs of roughened posterior setae.

MATERIAL. Locality in the Oriental region: Malaysia - (2 sp.) (MAHUNKA 1991b).

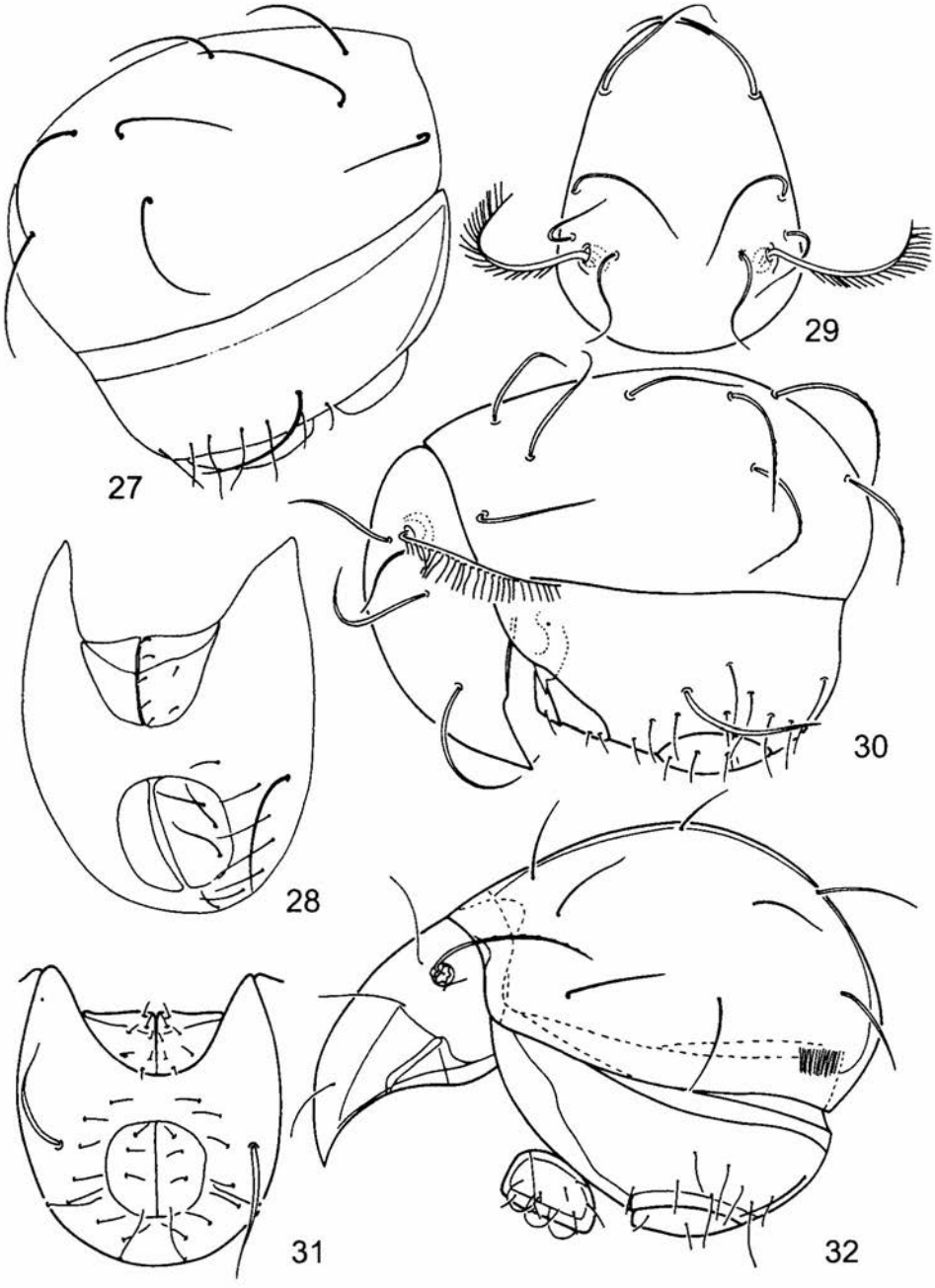
DISTRIBUTION. Malaysia, probably an an endemic species.

Mesoplophora (Palplophora) polita NIEDBAŁA, 1985

(Figs 35-39)

Mesoplophora (Mesoplophora) polita: NIEDBAŁA 1985a
Mesoplophora villosa MAHUNKA, 1987 **syn. nov.**

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli with long pedicel and fusiform head covered with thin spines; interlamellar setae the longest, narrow and smooth, lamellar and rostral setae thicker and rough, exobothridial setae longer than diameter of bothridia. Notogastral setae very long, thick and covered with spines, setae c_2 and c_3 the longest, setae c_1 and d_1 the shortest, setae c_1 nearer anterior border than setae c_2 and c_3. Ventral region with 10 pairs of unequal setae covered with spines; formula of genital setae: 5+2, aggenital setae absent; anal plates with 3 pairs of setae, posterior setae and one pair of lateral setae longer than other setae.



27, 28. *Mesoplophora* (*Palplophora*) *leviseta* (holotype): 27 - notogaster, lateral view, 28 - ventral view; 29-31. *Mesoplophora* (*Palplophora*) *paraleviseta* MAHUNKA, 1991 (after MAHUNKA 1991b): 29 - prodorsum, dorsal view, 30 - lateral view of body; 31 - ventral region; 32. *Mesoplophora* (*Mesoplophora*) *invisitata* NIEDBAŁA, 1983 (holotype) - lateral view of body

REMARK. I have not seen the type of *M. villosa*, but a comparison of the morphological features suggests that it is a synonym of *M.* (*P.*) *polita*. In the description of MAHUNKA (1987) one pair of ventral setae probably has been omitted.

MATERIAL. Locality in the Oriental region: sub *M. villosa*: Sabah, Sepilok - (26 sp.) (MAHUNKA 1987b).

DISTRIBUTION. An An Oriental species introduced to Papua - New Guinea.

Mesoplophora (*Parplophora*) *subtilis* NIEDBAŁA, 1981

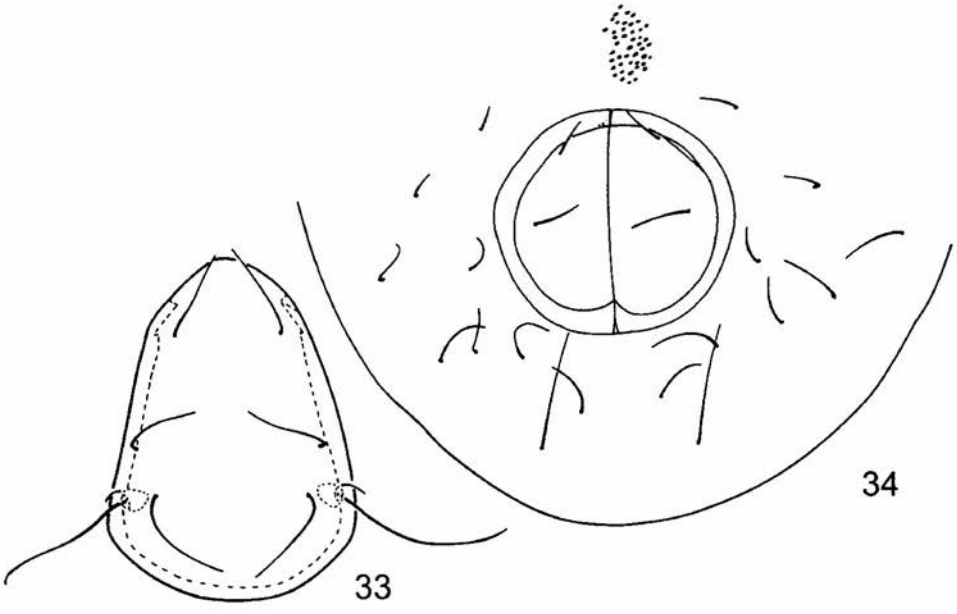
(Figs 40-43)

Mesoplophora subtilis NIEDBAŁA, 1981
Mesoplophora (*Parplophora*) *subtilis*: NIEDBAŁA 1985a

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli with long pedicel and fusiform head covered with small spines; interlamellar, lamellar and rostral setae of almost equal length, exobothridial setae short, shorter than diameter of bothridia. Notogastral setae smooth, setae c_1 and c_3 near anterior border, setae c_2 remote from border. Ventral region with 9 or 10 pairs of setae of unequal length, formula of genital setae: 5: 2; 3 pairs of anal setae present.

MATERIAL. Localities in the Oriental region: Sri Lanka, Rat. Dist., Kalu Ganga, Induruwa Jungle, 1000 feet elev. Ex. *Salganea passloides*, 23 III 1973, BAUMANN et CROSS, coll. - 21 (sp.). Sumatra, Langkat, Ex. *Aceraius laevicollis* (ILLIGER) - (2 sp.).

DISTRIBUTION. A Pantropical species.



33, 34. *Mesoplophora* (*Mesoplophora*) *invisitata* NIEDBAŁA, 1983 (holotype): 33 - prodorsum, dorsal view, 34 - posterior part of ventral region

Mesoplophora (*Mesoplophora*) BERLESE, 1904

DIAGNOSIS. Two pairs of anal setae present.

Mesoplophora (*Mesoplophora*) *crassisetosa* SUBIAS et SARKAR, 1984
(Fig. 44)

Mesoplophora crassisetosa SUBIAS et SARKAR, 1984
Mesoplophora (*Mesoplophora*) *crassisetosa*: NIEDBAŁA 1985a

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli thick, tapering towards distal end and covered with 15 small spines; setae smooth, interlamellar setae the thickest, exobothridial setae minute, smaller than diameter of bothridia. Notogastral setae smooth and thick. Ventral region with more than 5 pairs of ventral setae; formula of genital setae: 5+2;

MATERIAL. Locality in the Oriental region: India, Tripura, Atharamura, 10 V 1975, leg. S. SARKAR - (2 sp.) (SUBIAS and SARKAR 1984).

DISTRIBUTION. India, perhaps an endemic species.

Mesoplophora (*Mesoplophora*) *invisistata* NIEDBAŁA, 1983
(Figs 33, 34)

DIAGNOSIS. Prodorsum with pointed rostrum; sensilli long, setiform, covered with 8 small spines; setae smooth, interlamellar the longest, exobothridial minute, but slightly longer than diameter of bothridia. Notogastral setae covered with small, dense, spines, setae e_1 and e_2 the thickest. Ventral region with 9 pairs of unequal setae, formula of genital setae: 5+2.

MATERIAL. Locality in the Oriental region: India, Western Ghats, Goa prov., Bendla reserve, bamboo forest, 8.VI.1981, leg. J. CHOJNACKI – (1 sp.).

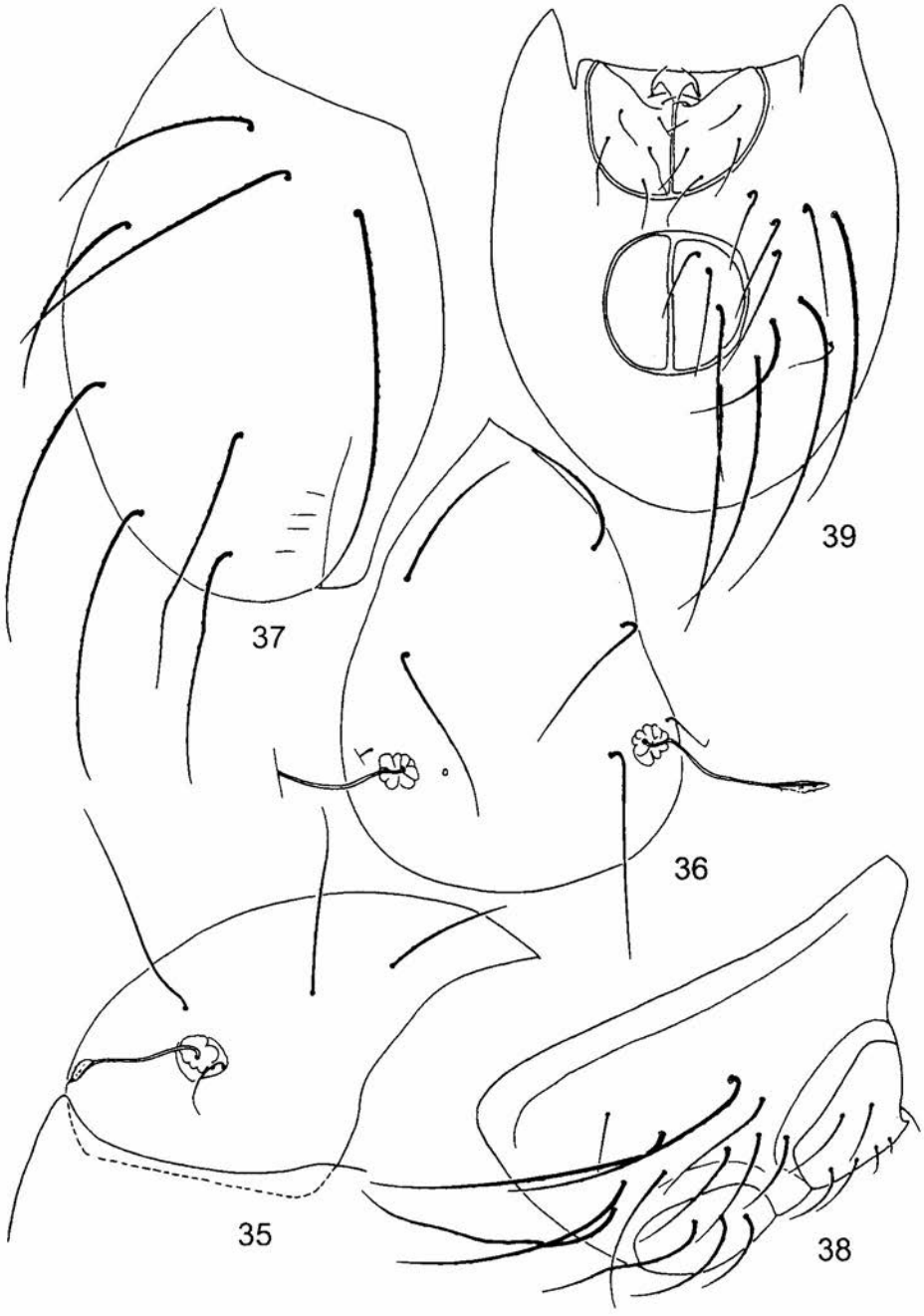
DISTRIBUTION. Probably a Pantropical species as yet known only from the Ethiopian and Oriental regions.

Mesoplophora (*Mesoplophora*) *vesca* NIEDBAŁA et CORPUZ-RAROS, 1998
(Figs 45-47)

DIAGNOSIS. Surface of body smooth, some longitudinal striae visible only on the sides of prodorsum. Prodorsum with pointed rostrum; sensilli long, setiform with 4 barbs on the distal end; setae smooth, flagellate, $in > le = ro > ex$, exobothridial setae longer than diameter of bothridia. Notogastral setae of medium length (c_1/c_1-d_1 = 0.47), smooth, setae c_{1-3} situated in one row remote from anterior border. Ventral region with 8 pairs of smooth ventral setae of unequal length; formula of genital setae: 6+1; anal setae smooth.

MATERIAL. Locality in the Oriental region: Philippines, Mindanao Is., Pandapan, Tagum, Davao del Norte Prov., ex. bamboo leaf litter, 12.VIII.1992, leg. I.J. LIT jr. (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. Philippines, probably an endemic species.



35-39. *Mesoplophora* (*Palplophora*) *polita* NIEDBAŁA, 1985 (holotype): 35 - prodorsum, lateral view, 36 - prodorsum, dorsal view, 37 - notogaster, lateral view, 38 - ventral region, lateral view, 39 - ventral region, ventral view

Apoplophoridae NIEDBAŁA, 1984

DIAGNOSIS. Genital plates without sutures, with 6-9 pairs of setae, tibiae IV with 3 setae.

Dudichoplophora MAHUNKA, 1982

DIAGNOSIS. Most setae spinose, exobothridial setae smaller than diameter of bothridia; genital plates quadrate, genital and anal plates almost touching, adanal plates present, 10 pairs of "ventral" setae, 9 pairs of genital setae and, one pair of aggenital setae, 2 pairs of anal setae present, adanal setae absent.

Dudichoplophora reticulata MAHUNKA, 1982
(Figs 16-18)

Dudichoplophotra reticulata: NIEDBAŁA 1984b

DIAGNOSIS. Surface of body covered with reticulation. Prodorsum with pointed rostrum; sensilli long, setiform, covered with small barbs; interlamellar setae longer than lamellar and rostral setae, interlamellar and rostral setae sparsely covered with small barbs, lamellar setae smooth, exobothridial setae fine, smaller than diameter of bothridia. Notogastral setae short covered with small spines, except setae c_3 smooth, setae c_1-$_2$ remote from anterior border, setae c_3 near the border. Ventral region: 7 pairs of setae covered with small spines; 3 pairs near adanal plates smooth;

MATERIAL. Localities. Korea - 20 specimens from 2 localities (MAHUNKA 1982, NIEDBAŁA 1984b); Korea, vicinity of Kaesong, Chonma-san Mts., in leafy forest near waterfall, 15.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (1 sp.).

DISTRIBUTION. Korea, probably an endemic species.

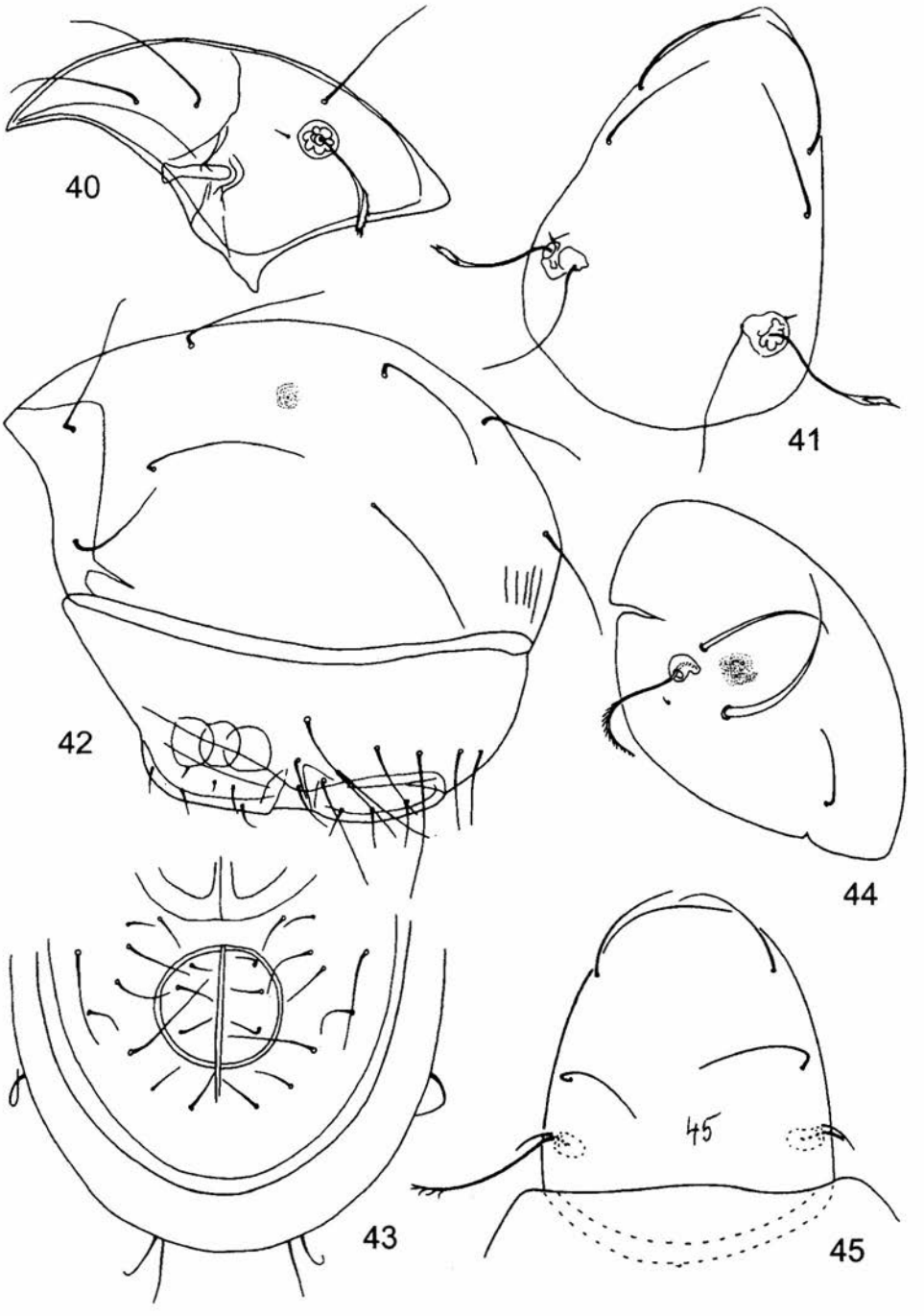
Apoplophora AOKI, 1980

DIAGNOSIS. Exobothridial setae longer than diameter of bothridia (with exception of *A. ornata*); distance between genital and anal plates longer than length of anal plates, genital plates triangular, adanal plates absent, 6 pairs of "ventral" setae, 2-4 pairs of anal setae, 6 pairs of genital setae, 1-2 pairs of aggenital setae present.

Apoplophora cristata MAHUNKA, 1991
(Figs 48-50)

DESCRIPTION. Measurements of paratype: prodorsum: length 238, width 164, height 116, sensillus 121, setae: interlamellar 48.1, lamellar 93.6, rostral 104, exobothridial 43.0; notogaster: length 296, width 243, height 210, seta c_1 30.4; anal plate 70.8x37.9.

DIAGNOSIS. Surface of prodorsum ornamented by longitudinal striae and lateral margin of notogaster serrate medially. Prodorsum with robust lateral carinae; sensilli with 33-40 comparatively long branches; setae covered with dense barbs, *ro* > *le* > *in*



40-43. *Mesoplophora* (*Palplophora*) *subtilis* NIEDBALA, 1981 (holotype): 40 - prodorsum, lateral view, 41 - prodorsum, dorsal view, 42, notogaster, lateral view, 43 - posterior part of ventral region; 44. *Mesoplophora* (*Mesoplophora*) *crassisetosa* SUBIAS et SARKAR, 1984 (paratype) - prodorsum; 45. *Mesoplophora* (*Mesoplophora*) *vesca* NIEDBALA et CORPUZ-RAROS, 1998 (holotype) - prodorsum, dorsal view

> *ex*. Notogaster with thick setae, densely barbed, setae c_2 more remote from anterior border than setae c_1 and c_3. Two pairs of smooth, long aggenital setae and 4 pairs barbed anal setae present.

MATERIAL. Paratype in alcohol labelled: "*Apoplophora cristata* sp. n. Malaisie 1977 i 74 leg T. JACCOUD det MAHUNKA" (courtesy Dr. S. MAHUNKA, Természettudományi Múzeum Állattára, Budapest). Locality in the Oriental region: Malaysia, Pehang - (6) (MAHUNKA 1991b).

DISTRIBUTION. Malaysia, probably an endemic species.

REMARK. I am not fully convinced whether this species is distinct from *A. pantotrema*, as, apart from the presence of lateral carinae of prodorsum, all the other morphological features of these two species are the same.

Apoplophora heterotricha MAHUNKA, 1987

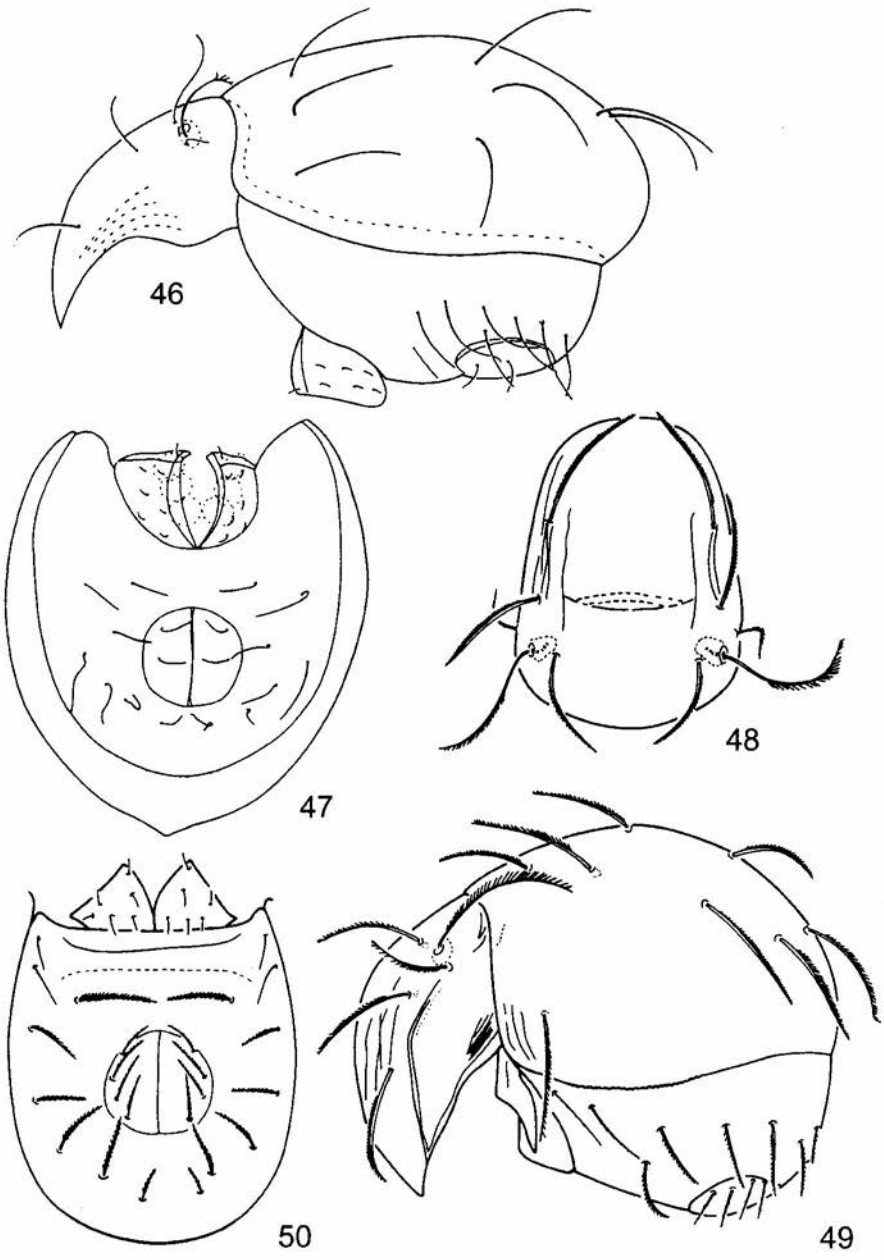
(Figs 51-54)

ADDITIONAL DESCRIPTION. Measurements of paratype: prodorsum: length 220, width 147, height 93.6, sensillus 116, setae: interlamellar and exobothridial 60.7, lamellar 73.4, rostral 70.8; notogaster: length 281, width 215, height 169, seta c_1 55.7; anal plate 65.8x35.4. Measurements of specimen from India (Meghalaya, Umran): prodorsum: length 263, width 156, height 116, sensillus 111, setae: interlamellar 75.9, lamellar 86.0, rostral 91.1, exobothridial 78.4; notogaster: length 358, width 288, height 268, setae c_1 81.0 d_1 and e_1 86.0; genital plate 86x53.1, anal plate 86x43. Measurements of specimen from Nepal: prodorsum: length 278, width 212, height 151, sensillus 146, setae: interlamellar 85.9, lamellar 111, rostral 95.9, exobothridial 75.7; notogaster: length 409, width 308, height 288, setae: c_1 93.6, c_3 53.1, d_2 116, genital plate 45.5x50.6, anal plate 83.5x45.5. Body chagrined, with irregular patterns within the cuticle. Prodorsum with weak lateral carinae present. Sensilli covered with 15 or much more barbs, longer in distal part of sensilli than in proximal part. Setae robust, covered with short barbs, *ro* and *le* > *ex* and *in*. Notogastral setae robust, similar to prodorsal setae, except setae c_3, smooth, thin and short, located posterior to c_1 and c_2 setae. Ventral setae covered with small barbs, 1 or 2 pairs of smooth aggenital setae. 2, 3 or 4 pairs of anal setae covered with thin barbs.

REMARK. This species is easily distinguished from its congeners by the long exobothridial setae, longer than interlamellar setae, short and smooth setae c_3 and smooth aggenital setae.

MATERIAL. Paratype in alcohol labelled: " *Apoplophora heterotricha* sp. n. Sab-82/41 Borneo, Sabah leg. B. HAUSER det S.MAHUNKA" (courtesy Dr. S MAHUNKA, Természettudományi Múzeum Állattára, Budapest). Localities in the border zone of the Oriental region and in the Oriental region: North India, Uttar Pradesh, Kumaon, Mainital Mallital (1940 m), in jungle litter, 15.IV.1979, leg. P.T. LEHTINEN – (1). Nepal, Bagmati, Phulchoki, at 2000 m, dry litter of sparse bush, 12.V.1979, leg. P.T. LEHTINEN – (2). India, West Bengal, Darjeeling, Tiger Hill (2000 m), in litter of cloud forest, 29.IV.1979, leg. P.T. LEHTINEN – (5); West Bengal, Darjeeling, Tiger Hill, 2600 m, in litter of cloud forest, 29.IV.1979, leg. P.T. LEHTINEN – (1); India, Meghalaya, East Khasi Hills, Umran 1100 m, jungle litter, 4.V.1979, leg. P.T. LEHTINEN – (12); Meghalaya, East Khasi Hills, Shillong, Mawlai 1500 m, pine litter, 4.V.1979, leg. P.T. LEHTINEN – (4); Meghalaya, Kast-Khasi Hills, Mawphlohg Law-

Lyngdoh, in jungle litter, 5.V.1979, leg. P.T. LEHTINEN – (4); India, West Bengal, Darjeeling, Bhanjan Road 4 km W of Ghoom, at 2300 m, litter in cloud forest, 1.V.1979, leg. P.T. LEHTINEN – (3); West Bengal, Darjeeling 12 km NW of Sukhiapokri, at 2350 m, in cloud forest with stones, 1.V.1979, leg. P.T. LEHTINEN – (10); West



46, 47. *Mesoplophora* (*Mesoplophora*) *vesca* NIEDBAŁA et CORPUZ-RAROS, 1998 (holotype): 46 - lateral view of body, 47 - ventral region; 48-50. *Apoplophora cristata* MAHUNKA, 1991 (after MAHUNKA 1991b): 48 - prodorsum, dorsal view, 49 - lateral view of body, 50 - ventral region

Bengal, Darjeeling, Bhanjan Road 4 km W od Ghoom, at 2300 m, litter in cloud forest, 1.V.1979, leg. P.T. LEHTINEN – (4). Malaysia, Sabah - 10 specimens from 2 localities (MAHUNKA 1987b); Malaysia, Sabah, Tawan d., Bal Estate, Tiger Hill, jungle litter, 2.XI.1979, leg. P.T. LEHTINEN – (1). Indonesia, Kalimantan, Timur, Samarinda d., Samarinda Ulu, Lac Bahu, rain forest, 27.X.1979, leg. P.T. LEHTINEN – (3).

DISTRIBUTION. An Oriental species, apparently introduced to the southern Palaearctic.

Apoplophora malaya MAHUNKA, 1991

(Figs 55-59)

DESCRIPTION. Measurements of paratype: prodorsum: length 338, width 227, height 141, sensillus 151, setae: interlamellar and rostral 116, lamellar 131, exobothridial 80.8; notogaster: length 454, width 358, height 308, seta c_1 126; anal plate 101x50.5. Measurements of specimen from sample from Malaysia, Jahor: prodorsum: length 308, width 212, height 151,sensillus 136, setae: interlamellar and lamellar 106, rostral 90.9, exobothridial 70.7; notogaster: length 358, width 308, height 293, setae: c_1, d_1, e_1 90.9, c_1/c_1-d_1 = 0.75; genital plate 88.5x90.9, anal plate 81.0x48.1.

DIAGNOSIS. Surface of prodorsum ornamented by longitudinal striation, lateral part and surface of notogaster smooth. Prodorsum with one pair of lateral carinae; sensilli covered with 11-13 barbs, setae covered with dense barbs, *in* = *le* > *ro* > *ex*. Notogaster with 8 pairs of setae, all setae, except smaller and smooth setae c_3, long and with dense barbs. Ventral setae barbed; 2 pairs of aggenital setae present, anterior pair short and smooth, posterior pair longer and rough; 4 pairs of anal setae present, setae an_3 situated outside of row of anal setae, near antiaxial border of plates.

REMARK. This species is distinguishable from *A. pantotrema* by smooth setae c_3 of notogaster, smooth anterior aggenital setae and location of setae an_3 outside of row of anal setae, near the antiaxial border of anal plates.

MATERIAL. Paratype in alcohol labelled: "*Apoplophora malaya* sp. n. Malaisie 1977 i 96 leg. T. JACCOUD det. MAHUNKA" (courtesy Dr. S. MAHUNKA, Természettudományi Múzeum Állattára, Budapest). Localities in the Oriental region: Malaysia, Pehang – (21) (MAHUNKA 1991b); Malaysia, Jahor, Kota Tinggi, Jalan Lombong, BFS, rain forest, 31.X.-4.XI.1976, leg. P.T. LEHTINEN – (2).

DISTRIBUTION. Malaysia, probably an endemic species.

Apoplophora marcuardi MAHUNKA, 1991

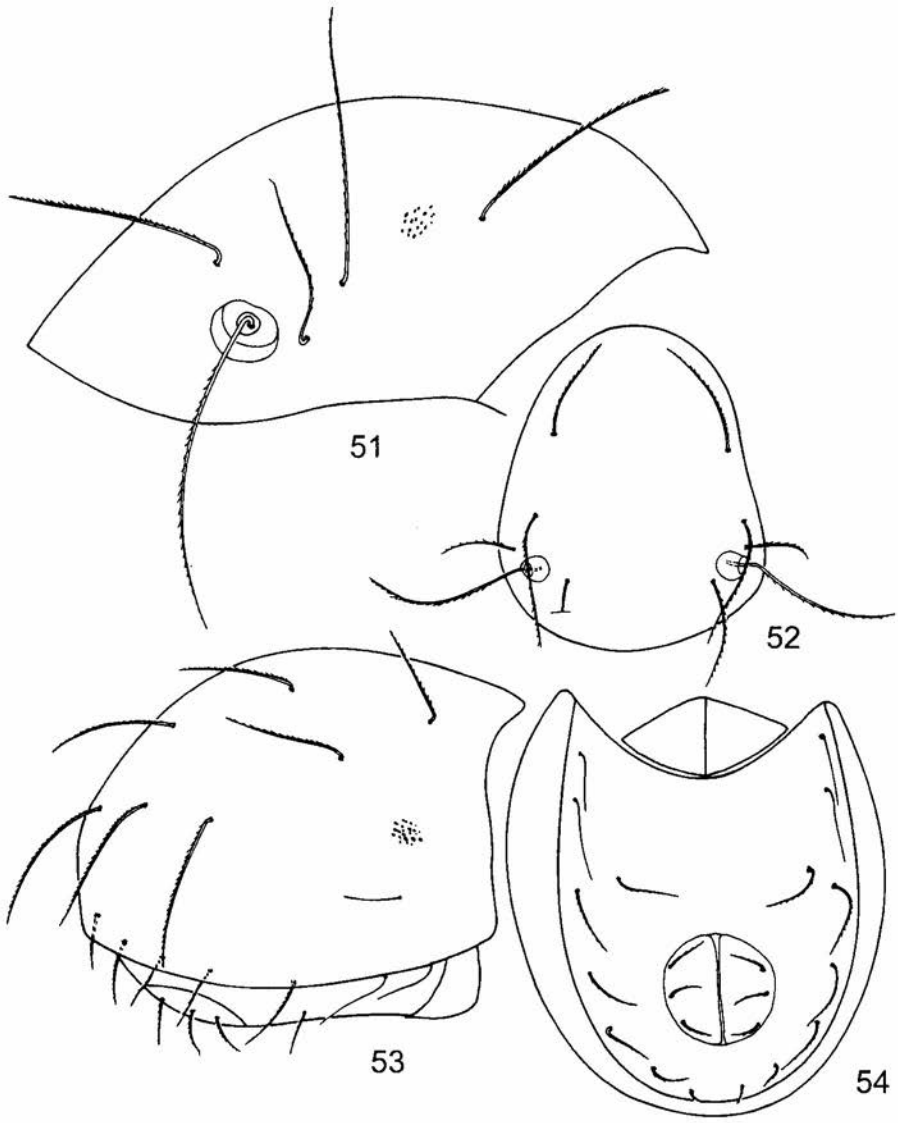
(Figs 61-63)

Apoplophora triseta MAHUNKA, 1991 **syn. nov.**

DESCRIPTION. Measurements of paratype of *A. triseta*: prodorsum: length 212, width 146, height 101, sensillus 101, setae: interlamellar 55.7, lamellar 68.3, rostral 70.8; notogaster: length 278, width 222, height 172, seta c_1 55.6; anal plate 65.8x37.9.

DIAGNOSIS. Surface of body striated. Prodorsum with sensilli covered with 33-40 short barbs; setae *in*, *le*, *ro*, robust, thick, densely barbed, exobothridial setae finer than others. Surface of notogaster covered with spines. Setae densely barbed, setae c_2 more remote from anterior margin than setae c_1 and c_3. Ventral setae densely barbed; 2 pairs of aggenital setae, anterior pair smooth and posterior pair rough or barbed; 4 pairs of densely barbed anal setae present.

MATERIAL. Paratype in alcohol labelled: "*Apoplophora triseta* sp. n. Malaisie 1977 i 34 leg. T. JACCOUD det. MAHUNKA" (courtesy Dr. S. MAHUNKA, Természettudo-



51-54. *Apoplophora heterotricha* MAHUNKA, 1987 (specimen from Nepal): 51 - prodorsum, lateral view, 52 - prodorsum, dorsal view, 53 - notogaster, lateral view, 54 - ventral region

mányi Múzeum Állattára, Budapest). Locality in the Oriental region: Malaysia, Perak - (1) (MAHUNKA 1991b). sub. *A. triseta*: Malaysia, Perak - (11) (MAHUNKA 1991b).

DISTRIBUTION. Malaysia, probably an endemic species.

REMARKS. *A. triseta* seems to be a synonym of *A. marcuardi* because it differs from the latter only in characters subject to individual variation, i.e. a smooth surface of body and the presence of 3 pairs of anal setae. The species may turn out to be a synonym of *A. pantotrema*. The only important morphological feature distinguishing these two species is the presence of the barbed posterior aggenital setae.

Apoplophora ornata sp. nov.

(Figs 67-70)

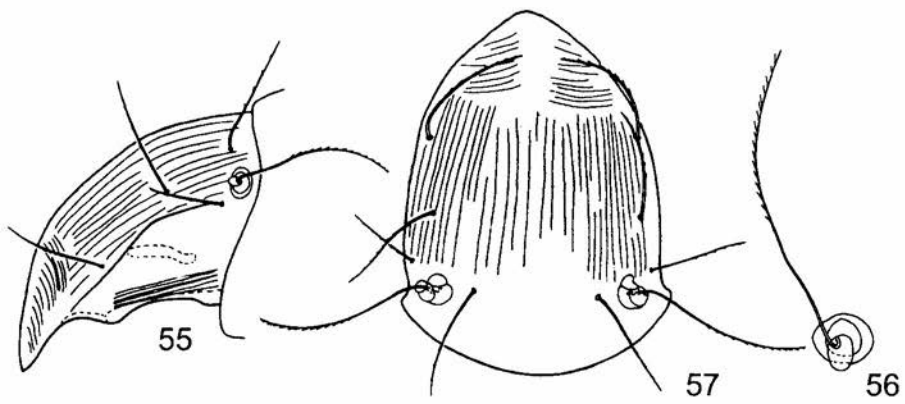
DESCRIPTION. Measurements of holotype: prodorsum: length 253, width 190, height 111, sensillus 68,3, setae: interlamellar 35,4, lamellar 32,9, rostral 30,4, exobothridial 7,5; notogaster: length 353, width 154, height 230, seta c_1 43,0; genital plate 58,2x60,7, anal plate 91,1x37,9. Colour yellow, prodorsum chagrined, covered by irregular patterns within the cuticle, surface of notogaster and ventral region reticulate. Prodorsum with sensilli covered with short barbs. Setae short, smooth, *in* > *le* > *ro* > *ex*, exobothridial setae smaller than diameter of bothridia. Notogaster with short, pectinate setae, setae of row *c* remote from anterior border, setae c_{2-3} more so than setae c_1. Ventral setae short, pectinate. One pair of pectinate adanal setae. 4 pairs of pectinate anal setae present.

MATERIAL. Holotype: Indonesia, Borneo, Roy Soc. N. Borneo exped. 1964, leg. G.P. ASKEV B124.

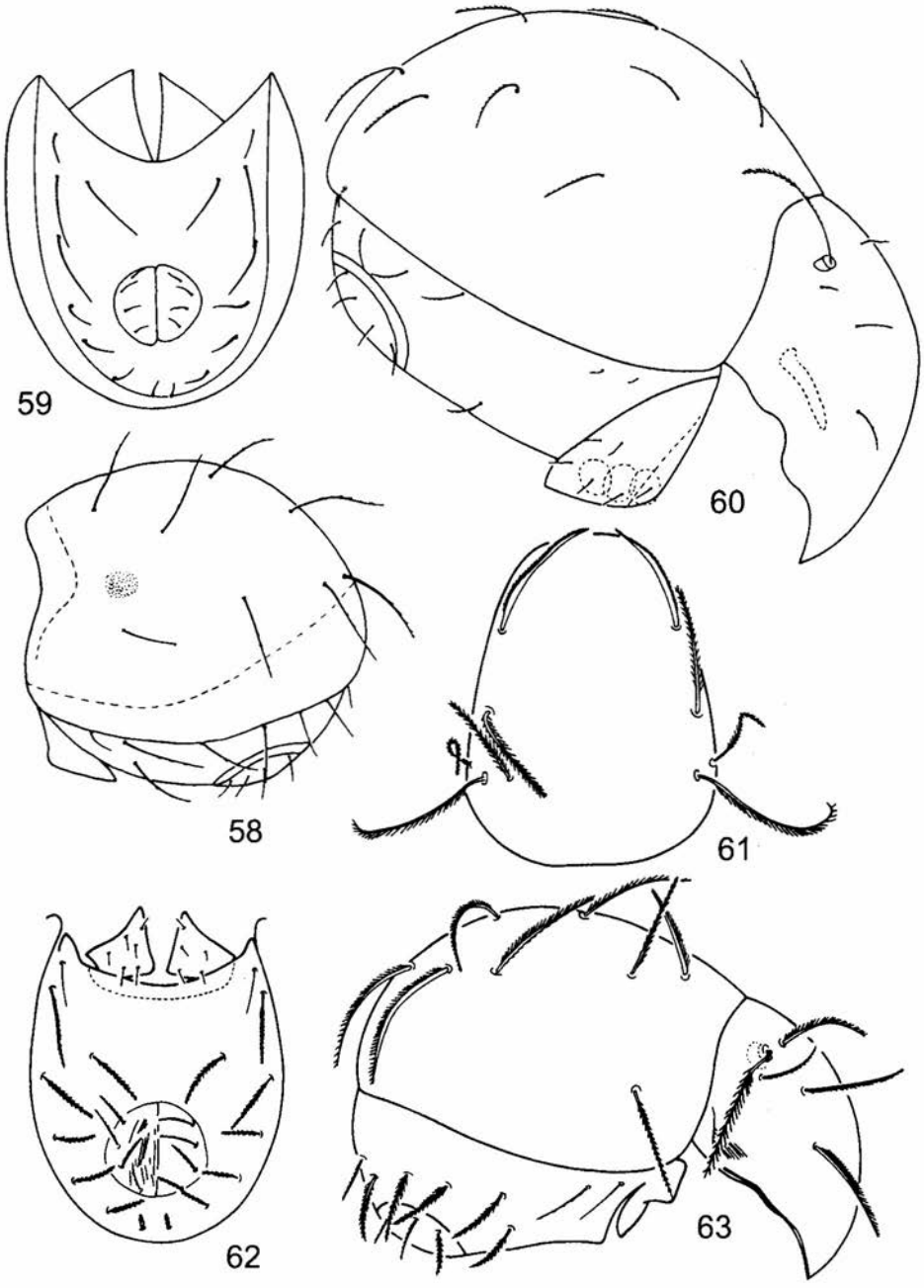
ETYMOLOGY. The name of the new species, *ornata*, is Latin for "ornamented" and alludes to the reticulated ornamentation of the surface of the notogaster and ventral region.

REMARK. The new species is similar to *A. spinosa* MAHUNKA,1987 from Sabah, and is distinguishable by the smooth prodorsal setae, one pair of pectinate aggenital setae and reticulate surface of notogaster and ventral region.

DISTRIBUTION. Borneo, perhaps an endemic species.



55-57. *Apoplophora malaya* MAHUNKA, 1991 (holotype): 55 - prodorsum, lateral view, 56 - sensillus, 57 - prodorsum, dorsal view



58, 59. *Apoplophora malaya* MAHUNKA, 1991 (holotype): 58 - notogaster, lateral view, 59 - ventral region; 60. *Apoplophora spinosa* MAHUNKA, 1987 (specimen from Sabah)), lateral view of body; 61-63. *Apoplophora marcuardi* MAHUNKA, 1991 (after MAHUNKA 1991b): 61 - prodorsum, dorsal view, 62 - ventral region, 63 - lateral view of body of *Apoplophora triseta* MAHUNKA, 1991 - synonym of *Apoplophora marcuardi*

Apoplophora pantotrema (BERLESE, 1913)

(Figs 64-66)

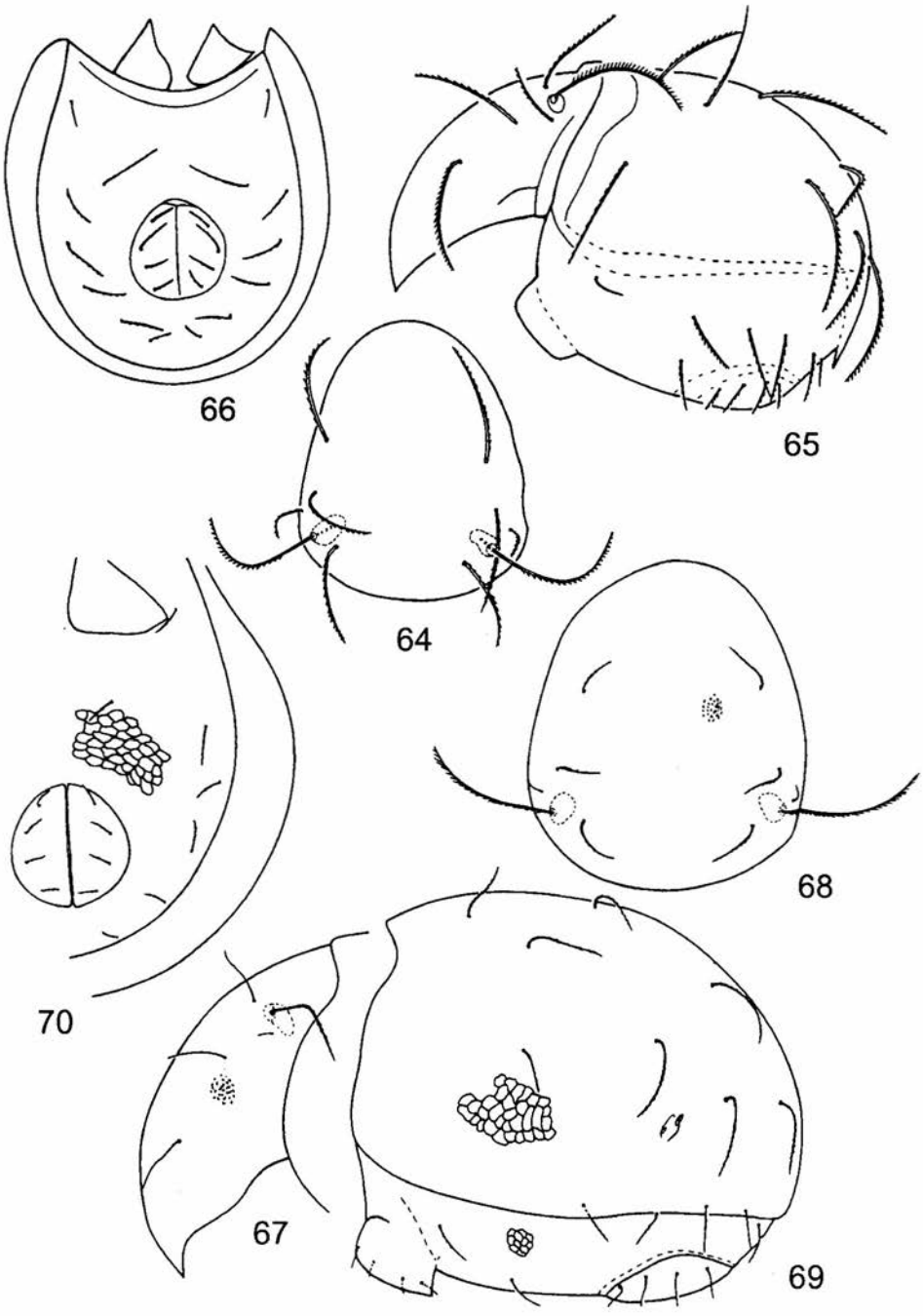
Mesoplophora pantotrema BERLESE, 1913
Mesoplophora discreta BERLESE, 1913
Mesoplophora rostrorugosa HAMMER, 1979
Apoplophora remota AOKI, 1980
Apoplophora pantotrema: NIEDBAŁA 1984b, NIEDBAŁA & CORPUZ-RAROS 1998
Mesoplophora indica MAHUNKA, 1985 **syn. nov.**
Mesoplophora striata MAHUNKA, 1985 **syn. nov.**
Apoplophora lineata MAHUNKA, 1987 **syn. nov.**
Apoplophora ornatissima MAHUNKA, 1988 **syn. nov.**
Apoplophora jaccoudi MAHUNKA, 1991 **syn. nov.**

DESCRIPTION. Measurements: Paratype of *M. indica*: prodorsum: length 227, width 162, height 101, sensillus 124, setae: interlamellar 101, lamellar 81, rostral 98.7, exobothridial 86.0; notogaster: length 328, width 237, height 197, seta c_1 75.9; anal plate 75.7x40.4. Paratype of *M. striata*: prodorsum: length 343, width 252, height 177, sensillus 137, setae: interlamellar 126, lamellar 134, rostral 121, exobothridial 75.9; notogaster: length 470, width 353, height 308, seta c_1 96.1; anal plate 116x60.6. Paratype of *A. lineata*: prodorsum: length: 378, width 283, height 182, sensillus 121, setae: interlamellar 147, lamellar 137, rostral 121, exobothridial 88.5; notogaster: length 505, width 404, height 399, seta c_1 131; anal plate 151x70.7. Paratype of *A. ornatissima*: prodorsum: length 328, width 232, height 278, sensillus 157, setae: interlamellar 96.1, lamellar 106, rostral 75.9, exobothridial 55.7; notogaster: length 404, width 333, height 303, seta c_1 50.6; anal plate 101x53. Paratype of *A. jaccoudi*: prodorsum: length 252, width 182, height 116, sensillus 126, setae: interlamellar 81.0, lamellar and rostral 93.6, exobothridial 58.2; notogaster: length 374, width 273, height 252, seta c_1 81.0; anal plate 85.8x40.4. One specimen approaching the "form" of „*striata*" from Sumatra: prodorsum: length 252, width 182, height 111, sensillus 152, setae: *in* 93.6, *le* and *ro* 101, *ex* 63.2; notogaster: length 338, width 263, height 217, setae c_1 91.1, c_1/c_1-d_1 = 0.97, d_1 83.5, e_1 126; genital plate 53.1x40.5, anal plate 78.4x43. One specimen approaching the "form" of „*ornatissima*" from Sabah: prodorsum: length 454, width 323, height 202, sensillus192, setae: interlamellar 197, lamellar and rostral 187, exobothridial 126; notogaster: length 602, width 488, height 406, setae c_1 192, d_2 227. One specimen approaching the "form" of „*ornatissima*" from Jahor (Malaysia): prodorsum: length 243, width 177, height 104, sensillus 104, setae: interlamellar 70.8, lamellar 68.3, rostral 75.9, exobothridial 45.5; notogaster: length 308, width 273, height 202, setae: c_1 65.8, d_1 68.3, e_1 75.9, c_1/c_1-d_1=0.79; genital plates 50.6x53.1, anal plates 65.8x35.4.

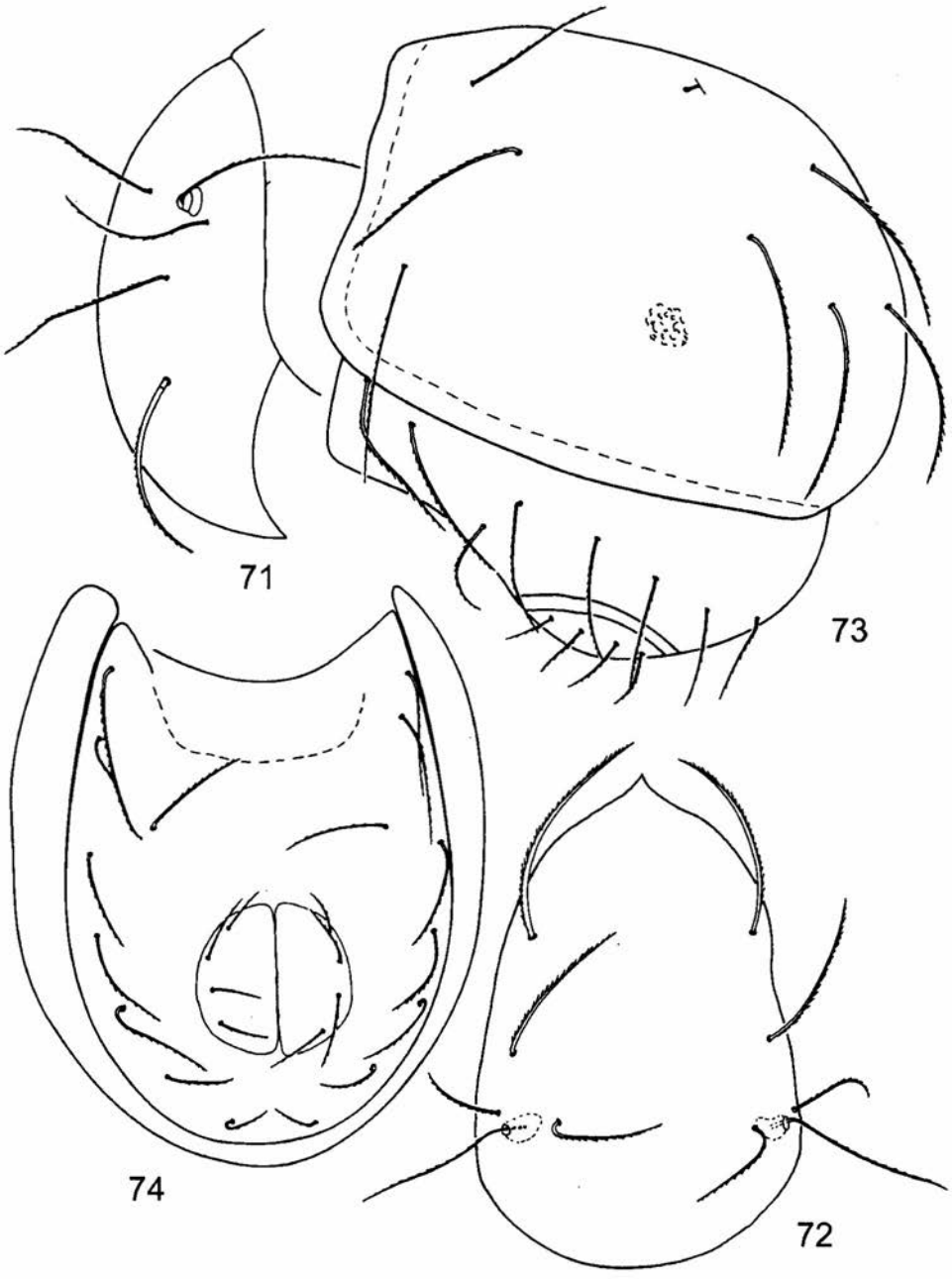
DIAGNOSIS. All setae of body except genital and aggenital setae long and densely covered with small barbs. Prodorsum with sensilli longer than setae, densely covered with small barbs; exobothridial setae long, several times longer than diameter of bothridia. Notogaster with setae c_2 more remote from anterior border than setae c_1 and c_3; one or two pairs of aggenital setae; three or four pairs of anal setae present.

MATERIAL. Paratypes in alcohol labelled: " *Mesoplophora indica* sp. n. Ind.72/18 leg C. BESUCHET and I. LOEBL det MAHUNKA", "*Mesoplophora striata sp. n.* Ind 72/18 leg C. BESUCHET and I. LOEBL det. MAHUNKA", "*Apoplophora lineata* sp. n. Sab-82/15 Borneo, Sabah leg. B. HAUSER det. S. MAHUNKA", "*Apoplophora ornatissima* sp. n.

Pal 83/8 Borneo, Sabah, leg.B. HAUSER det S. MAHUNKA", "*Apoplophora jaccoudi* sp. n. Malaisie 1977 i 74 leg. T. JACCOUD det. MAHUNKA" (courtesy Dr. S. MAHUNKA, Természettudományi Múzeum Állattára, Budapest). Localities in the Oriental region, in the border zone of the Oriental region and in the Australian region. sub *M. indica*: India, Kerala - (33) (MAHUNKA 1985). sub. *A. jaccoudi*: Malaysia, Pehang - (24) (MAHUNKA 1991b). sub *A. lineata*: Sabah, Mt. Kinabalu - (7) (MAHUNKA 1987b). sub *A. ornatissima*: Sabah - (15) (MAHUNKA 1988a). sub *A. pantotrema*: Indonesia, Bali - 4 specimens from 3 localities (HAMMER 1982). Philippines - 7 specimens from 7 localities (CORPUS-RAROS 1979). India - (2) (NIEDBAŁA 1984b). Java - (1) (NIEDBAŁA 1984b). Philippines, Luzon Is., Benguet La Trinidad, grassy pine forest, 11.XI.1979, leg. P.T. LEHTINEN – (1); Luzon Is., Mt. Banahaw, Dolores, Quezon Prov., ex. forest litter, XII. 1980, leg. S.G. REYES – (4); Luzon Is., Batangas Prov., Mt. Makiling, Kapos, San Rafael, Santo Tomas, ex decomposing log at edge of creek, 8 VI.1993, leg. R.C. GARCIA – (2); Luzon Is., Laguna Prov., Mt. Makiling, Puting Lupa, Calamba, ex. litter from *Leucaena leucocephala*, *Gliricidia sepum* plantation, 5.IV.1978, leg. Upland Hydroecology Program staff – (2); Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., litter mixed upland crops, IX.1979, leg. L. SANCHEZ – (1); Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., ex. litter from *Imperata cylindrica – Saccharum spontaneum* grassland, 17.I.1978, leg. Upland Hydroecology Program staff – (1); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, secondary forest litter, 14 VI 1976, leg. R.C. GARCIA and C.C. CALIBO – (2); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter of *Vitex parviflora*, 11 V 1975, leg. I.M. SOTTO and R.C. GARCIA – (1); Luzon Is, Quezon National Park, Atimonan, Quezon, forest litter, 18 I 1976, leg. R.C. GARCIA – (2); Luzon Is., Mudspring area, alt. ca. 300 m, Mt. Makiling, Los Baños, Laguna Province, litter from young plantation of *Gmelina arborea – Swietenia macrophylla*, 29 IX 1974, leg. R. and L. RAROS – (13); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter of *Vitex parviflora*, 19 VII 1975, leg. I.M. SOTTO and R.C. GARCIA – (1); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter of *Swietenia macrophylla*, 30 VIII 1976, leg. I.M. SOTTO and R.C. GARCIA – (5); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, soil from plantation of *Vitex parviflora*, 23 II 1976, leg. R.C. GARCIA and C.C. CALIBO – (1); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, undisturbed secondary forest litter, 26 VI 1975, leg. I.M. SOTTO and R.C. GARCIA – (3); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, secondary forest litter, 31 V 1976, leg. R.C. GARCIA and C.C. CALIBO – (3); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter of *Vitex parviflora*, 30 VIII 1975, leg. I.M. SOTTO and R.C. GARCIA – (8); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, undisturbed secondary forest litter, 9 II 1976, leg. R.C. GARCIA – (6); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter from mixed dipterocarp plantation, 13 XII 1974, leg. M. MACLIING – (1); Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, undisturbed secondary forest litter, 9 II 1976, leg. R.C. GARCIA – (4); Luzon Is., Mt. Makiling along trail to peak, Los Baños, Laguna, mossy forest litter, 4 V 1975, leg. R.S. RAROS – (9); Luzon Is., Quezon National Park, Atimonan, Quezon Province, decomposing litter from basalt area, 11 X 1974, leg. R. ASPIRAS – (3); Palawan Is., Irawan, litter of jungle, 23.VIII.1981, leg. P.T. LEHTINEN – (14); Philippines, Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna, soil from plantation of *Swetenia macrophylla*,



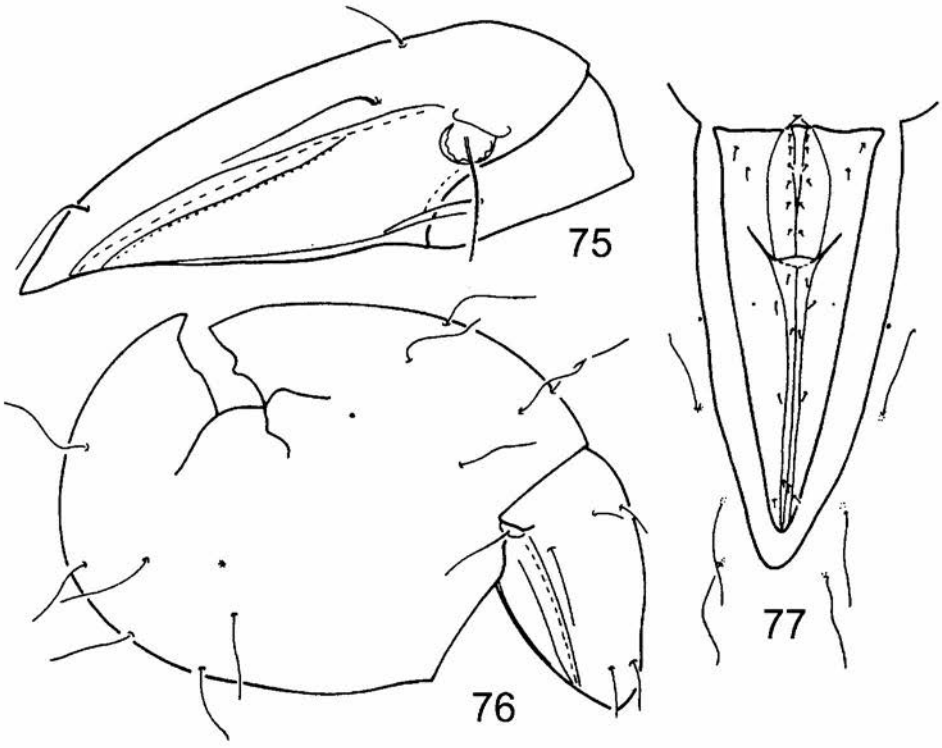
64-66. *Apoplophora pantotrema* (BERLESE, 1913) (specimen from Papua): 64 - prodorsum, dorsal view, 65 - lateral view of body, 66 - ventral region; 67-70. *Apoplophora ornata* sp. nov.(holotype): 67 - prodorsum, lateral view, 68 - prodorsum, dorsal view, 69 - notogaster -lateral view, 70 - part of ventral aspect



71-74. *Apoplophora phalerata* sp. nov. (holotype): 71 - prodorsum, lateral view, 72 - prodorsum, dorsal view, 73 - notogaster, lateral view, 74 - ventral region

J.M. SOTTO and R.C. GARCIA – (2) (NIEDBAŁA & CORPUZ-RAROS 1999). sub *A. remota*: Japan - (5) (AOKI 1980). Thailand - (24) (AOKI 1965), sub *M. rostrorugosa* and *M. pantotrema*: Indonesia, Java - 26 specimens from 3 localities (HAMMER 1979). sub *A. striata*: India, Kerala - (26) (MAHUNKA 1985). New localities in the Oriental region: India, Nandi Hills, ca 400 km N from Bangalore, mixed, thick, moisty deciduous litter, at. 1400 m, 2.VIII.1986, leg. V. BEHAN – (ca 170); Nandi Hills, ca 400 km N from Bangalore, mixed moss from tree trunks, at. 1400 m, 2.VIII.1986, leg. V. BEHAN – (1); Nandi Hills, ca 400 km N from Bangalore, Liverworts, lichens and mosses on bank, at. 1400 m, 2.VIII.1986, leg. V. BEHAN – (8); Nandi Hills, ca 400 km N from Bangalore, *Ficus* litter, at. 1400 m, 2.VIII.1986, leg. V. BEHAN – (5). Sri Lanka, Nuwara Eliya, moss forest, 23-24.VI.1968, leg. J. BALOGH – (12); Sri Lanka, Central Prov., Nuwara Eliya 1800 m, litter of mixed forest, 16.X.1984, leg. P.T. LEHTINEN – (11). Thailand, Chienamai Pr. Doi Suthep, jungle, 14.XI.1976, leg. P.H. LEHTINEN – (2); Thailand, Malaya Peninsula, Sungai, Buloh Selangor soil from forest floor, 15.III.1962, leg. NADCHOTRAM – (1). Vietnam, Dalat, 320 km N from HoChiMinh, moist mixed litter in old tropical forest, at 1500 m, 11.XI.1985, Leg. M. ZACHARDA – (3); Dalat, 320 km N from HoChiMinh, moist mixed litter in old tropical forest, at 1500 m, 11.XI.1985, Leg. M. ZACHARDA – (3); Vietnam, Tam Dao Nat. Park, tropical forest, 11 X 1996, leg. W. JĘDRYCZKOWSKI – (3); Tam Dao Nat. Park, tropical forest, alt. 900 m, 2 X 1996, leg. W. JĘDRYCZKOWSKI – (1). Malaysia, Jahor, Kota Tinggi, Jalan Lombong, BFS, rain forest, 31.X.-4.XI.1976, leg. P.T. LEHTINEN – (2); Malaysia, Sabah, Tawan d., Bal Estate, Tiger Hill, 2.XI.1979, leg. P.T. LEHTINEN – (1); Malaysia, Sabah, Tawan d., Bal Estate, Tiger Hill, 2.XI.1979, leg. P.T. LEHTINEN – (8); Malaysia, Pahang, Jerantut 14 km S, litter of jungle, 17.XI.1984, leg. P.T. LEHTINEN – (2). Indonesia, Sumatra, Utara Simalungun, Simarpalatuk Bangun Dolok, 1500 m, jungle litter, 23.IX.1978, leg. P.T. LEHTINEN – (1); Indonesia, Sumatra, Barat Distr., Padangpanjang 4 km SE, jungle slope, 26.IX.1978, leg. P.T. LEHTINEN – (13); Sumatra Barat Distr., Padangpanjang, Gunnung Singalang, 2500 m, cloud forest (TF), 27.IX.1978, leg. P.T. LEHTINEN – (2); Indonesia, Sumatra 655 – (2); Indonesia, Borneo, Roy Soc. N. Borneo exped. 1964, leg. G.P. ASKEV B124 – (2); Indonesia, Sarawak. Mulu, Lowl rain forest path, 3.X.1977, leg. B. BOLTON – (1); Sabah Mt Kinabalu N.P., below Layang Layang, at 2590 m, 1.V.1987, leg. A. SMETANA – (18); Indonesia, Kalimantan, Timur, Samarinda d., Sanga Sanga, Muara, jungle litter, 29.X.1979, leg. P.T. LEHTINEN – (4); Indonesia, Cibodas, volcano, 2000 m, tropical forest, 23.VIII.1979, leg. J. BŁOSZYK – (1); Indonesia, Java, Timur Fudjon Cuban Rondo, 28.X.1984, leg. P.T. LEHTINEN – (14); Java, Barat, Bongor district Ciampos Gunung Cipodas, dry grassy mountain slope, 7.X.1979, leg. P.T. LEHTINEN – (1); Java, Timur, Gubuh Klakah, litter of mountain forest, 29.X.1984, leg. P.T. LEHTINEN – (3); Java, Mt. Pangrango Gunung, alt. 2000 m, litter in tropical forest, 23 VIII 1979, leg. J. BŁOSZYK and J. MICHEJDA – (1) Indonesia, Sulawesi, Utara, Minahassa, Tonsea d. Airmadidi, in garden, 22.X.1979, leg. P.T. LEHTINEN – (2); Sulawesi, Utara, Minahassa, Tonsea d. Gunung, Klabat, at 1000 m, jungle litter, 21.X.1979, leg. P.T. LEHTINEN – (10); Sulawesi 1954, Celebes Klabat, leg. A.H.G. ALSKON – (1); Sulawesi Forest Ternate, 5.VIII.1954, leg. A.H.G. ALSKON – (2); Sulawesi, Tomohon, 5.VIII.1954, leg. A.H.G. ALSKON – (9). New localities in the Australian region: Papua New Guinea, 35 km NE of Port Moresby, litter under trees of plantation of rubber trees, dry place, 1 IX 1979, leg. J. BŁOSZYK and J. MICHEJDA – (2); 40 km NE

of Port Moresby, litter in mixed forest above stream, 1 IX 1979, leg J. Błoszyk – (8); Hummock above Ambunti City, litter under pineapples, 22 IX 1979, leg. J. Błoszyk – (2); Mt. Hagen, near Ketanga village, litter under *Notophagus* sp., 16 IX 1979, leg J. Błoszyk and J. Michejda – (2); W of Tagoba, at 2400 m, litter in mountain forest, 3 IX 1979, leg. J. Błoszyk – (2); W of Tagoba, at 2100 m, litter in mountain forest, 3 IX 1979, leg. J. Błoszyk – (1); Mt. Hagen, at upper limit of forest, at 3100 m, litter, 5 IX 1979, leg. J. Michejda – (1); 30 km E of Port Moresby, at 400 m, at the start of the "Kokoda Trail", bushes above river, litter among herbs and ferns, 1 IX 1979, leg. J. Błoszyk – (2); Hummock above Ambunti City, under bamboos, 22 IX 1979, leg. J. Błoszyk – (4); Mt. Wilhelm, at 2930 m, dry litter in leafy forest, 10 IX 1979, leg. J. Błoszyk – (1) (Niedbała 1984b). Australia, Cairns, litter of bushes above stream, 28 VIII 1979, leg. J. Błoszyk – (2); Cairns, litter among herbs near road, very dry place, 28 VIII 1979, leg. J. Błoszyk – (1) (Niedbała 1984b); Cairns, S of ville, in forest, 28 VIII 1979, leg. J. Błoszyk – (2); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. Taylor, Fechan – (24); QLD Seymour Range, 50 m, 17° 26'S, 146° 00'E, rainforest, 6 VII 1971, leg. R.W. Taylor, Feehan – (27); QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. Taylor, Feehan – (5); QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. Taylor, Feehan – (6); QLD Crawford's



75-77. *Oribotritia angusta* Mahunka, 1982 (after Mahunka 1982): 75 - prodorsum, lateral view, 76 - lateral view of body, 77 - ventral region

Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FECHAN – (27); QLD, Eachan Nat. Park, 17° 18'S, 145° 37'E, rainforest, at 760 m, 16 II 1973, leg. R.W. TAYLOR – (8); QLD Mc Namee CK, 300 m, 17° 40'S, 145° 49'E, rainforest, 8 VII 1971, leg. R.W. TAYLOR, FEEHAN – (17); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (6); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (11); Queensland, southern part of Cape Tribulation, N. Cairns, rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (9); ca 200 m far from Cape tribulation, the same forest and date – (2); Queensland, near Ellis Beach, N. Cairns, forest with high humidity, transitional zone to the rain forest, soil and litter, July 1992, leg. R. SCHUSTER - (30).

DISTRIBUTION. An Oriental species introduced to Palaearctic (Japan), Australian (Papua-New Guinea and Queensland) and the west Pacific islands (Solomon and Fiji) regions.

REMARKS. *A. pantotrema* is probably currently undergoing a strong speciation, mainly in the Oriental region. This is supported by the fact of recent descriptions of many species by MAHUNKA, which either did not show morphological differences from *A. pantotrema*, differed from the latter in certain morphological characters subject to individual variation, or showed significant differences from *A. pantotrema* but only in single features. Only the latter group can be regarded as different species, the other can be only forms within *A. pantotrema*.

The following "species": *A. remota, A. rostrorugosa, A. ornatissima, A. indica*, and similarly *A. striata, A. lineata* are characterised by the dorsal surface of prodorsum ornamented by longitudinal lines or striae; there are no other morphological differences among them.

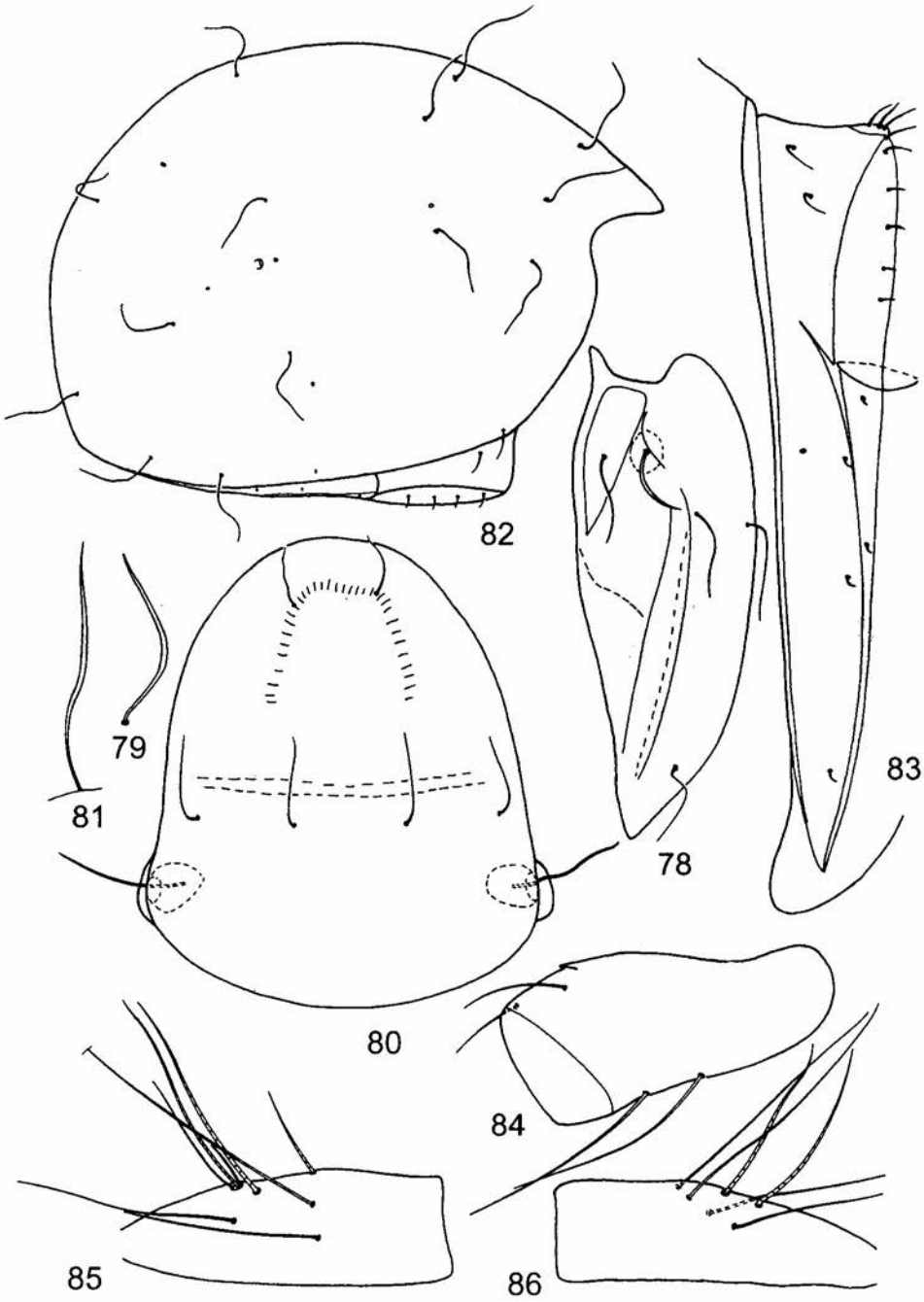
A. jaccoudi differs from *A. pantotrema* only in the presence of 2 pairs of aggenital setae, which is a feature subject to individual variation.

In specimens of *A. ornatissima* from Sabah, a notable feature is that the anterior pair of ventral setae is situated near genital plates. However, the specimens found in Borneo and Jahor did not have the pair of setae shifted as much anteriorly. Moreover, *M. indica* and *A. jaccoundi* did not differ from *A. pantotrema* in any morphological features other than the presence of 2 pairs of aggenital setae, which is a character subject to individual variation.

Apoplophora phalerata sp. nov.

(Figs 71-74)

DESCRIPTION. Measurements of holotype: prodorsum: length 379, width 247, height 156, sensillus 142, setae: interlamellar 114, lamellar 147, rostral 157, exobothridial 134; notogaster: length 495, width 384, height 338, setae: c_1 121, e_1 157, anal plate114x55.7. Measurements of specimen from Sumatra: prodorsum: length 348, width 247, height 151, sensillus 157, setae: interlamellar 116, lamellar 121, rostral 134, exobothridial 96.1; notogaster: length 470, width 394, height 298, setae c_1 121, d_1, 147, e_1 172, c_1/c_1-d_1 = 1,0; anal plate111x58.2. Colour brown, surface of body granulate. Prodorsum with pointed rostrum, better developed in specimens from Sumatra. Sensilli covered with 15 (holotype) or 23 (specimen from Sumatra)



78-86. *Oribotritia anceps* sp. nov. (holotype): 78 - prodorsum, lateral view, 79 - sensillus, lateral view, 80 - prodorsum, dorsal view, 81 - sensillus, dorsal view, 82 - notogaster, lateral view, 83 - right part of ventral region, 84 - femur of leg I, 85 - fragment of tarsus I, 86 -fragment of tarsus II

barbs. Setae thick, rostral setae the thickest and the longest, all setae densely barbed, *le* > *in* >*ex*. Notogaster with long setae densely covered with barbs, setae c_2 more remote from anterior margin than setae c_1 and c_3. Ventral setae densely barbed,2 pairs of aggenital setae long and barbed, more so in holotype than in specimen from Sumatra. 4 pairs of barbed anal setae present.

ETYMOLOGY. The specific epithet *phalerata* is Latin for "adorned" and alludes to the appearance of body setae.

REMARK. The new species is easily distinguishable from *A. pantotrema* and other congeneric species by the presence of 2 pairs of long and barbed aggenital setae and the thick and the long rostral setae.

MATERIAL. Holotype: India, Tamil Nadu Nilgiri Poddabeta, 2700 m, on bush, 22.IV.1979, leg. P.T. LEHTINEN. Other localities in the Oriental region: Indonesia, Sumatra Barat Distr., Padangpanjang 4 km SE, jungle slope, 26.IX.1978, leg. P.T. LEHTINEN – (2); Indonesia, Sulawesi, Forest Ternate, 5.VIII.1954, leg. A.H.G. ALSKON – (3).

DISTRIBUTION. An Oriental species.

Apoplophora spinosa MAHUNKA, 1987

(Fig. 60)

DESCRIPTION. Measurements of paratype: prodorsum: length 217, width 167, height 98.7, sensillus 83.5, setae: interlamellar and lamellar 32.9, rostral 40.5, exobothridial 15.2; notogaster: length 281, width 271, height 177, seta c_1 35.4; anal plate 70.8x31.6. Measurements of specimen from sample from Sabah (Tawan d.): prodorsum: length 197, height 96.1, sensillus 83.5, setae: interlamellar, lamellar and rostral 20.2, exobothridial 7.6; notogaster: length 255, height 169, setae c_1 35.4, d_1 37.9,e_1 45.5.

DIAGNOSIS. Small, grey-yellow species. Sensilli covered with dense barbs; setae short and barbed, exobothridial setae smallest, slightly longer than diameter of bothridia. Notogaster with short (c_1/c_1-d_1), pectinate setae, setae of row *c* remote from anterior border, setae c_3 more so than setae c_{1-2}. Ventral setae short and pectinate; 2 pairs of minute, smooth aggenital setae and 4 pairs barbed anal setae present.

MATERIAL. Paratype in alcohol labelled: "*Apoplophora spinosa sp. n.* Sab-82/27 Borneo Sabah leg. B. HAUSER det. S. MAHUNKA" (courtesy Dr. S. MAHUNKA, Természettudományi Múzeum Állattára, Budapest). Localities in the Oriental region: Malaysia, Sabah, Sepilok - (31) (MAHUNKA 1987b); Sabah, Tawan d., Bal Estate, Tiger Hill, 2.XI.1979, leg. P.T. LEHTINEN – (1); Indonesia, Borneo, Roy Soc. N. Borneo exped. 1964, leg. G.P. ASKEV B124 – (3).

DISTRIBUTION. An Oriental species.

Euphthiracaroidea JACOT, 1930

DIAGNOSIS. Body considerably compressed laterally. Anogenital region narrow, V-shaped.

Oribotritiidae GRANDJEAN, 1954

DIAGNOSIS. Bothridia without tracheoles or brachytracheae; ventral region divided by genitoaggenital and/or anoadanal sutures, or fusion of genital and aggenital as well anal and adanal plates only partial, interlocking triangle absent, transversal cleft (trv) only exceptionally absent.

Oribotritia JACOT, 1924

Berndotritia MAHUNKA 1987 **syn. nov.**
Philotritia MAHUNKA, 1988

DIAGNOSIS. Prodorsum without median carina and with one or two pairs of lateral carinae, bothridial squamae situated above the bothridia, posterior median apodeme absent, sensilli setiform, interlamellar and rostral setae in median position, lamellar setae situated near bothridia; notogaster with 14 pairs of setae, setae ps_1 dorsal to setae ps_{2-3};one pair of lateral opisthosomal glands and five pairs of lyrifissures *ia, im, ip ips, ih* present, genitoaggenital and anoadanal sutures well developed, oblique anogenital cleft visible, infracapitulum of stenarthrous type, normal formula of epimera: 3-0-2-2, genital plates with narrowed, free extension anteriorly; palps 5-segmented with setal formula: 0-(2-4)-0-(2-3)-9 and one solenidion on tarsi; legs, trochanters I and II with one seta, trochanters III and IV with 3 setae, femora I with anterodorsal hooked spine, neotrichy on tarsi I and II, solenidia on genua IV present, setae d on tibiae IV reduced and coupled with solenidia, tarsi heterotridactylous.

Two basic features were supposed to distinguish the genus *Berndotritia* from *Oribotritia*: a 4-segmented palp and posteriorly located h_3 and ps_3 setae. However, in *Berndotritia bulbifer,* type species of the genus *Berndotritia,* the palps are not 4 but 5-segmented (connection between the 2nd and the 3rd segments not always complete). Similarly the posteriorly located h_3 and ps_3 setae are found also in other species of *Oribotritia,* e.g. the species *O. aokii* described below. In view of the above, the synonymy of *Berndotritia* seems justified.

Oribotritia anceps sp. nov.
(Figs 78-86)

DESCRIPTION. Measurements of holotype: prodorsum: length 495, width 389, height 182, sensillus 101, setae: interlamellar 81.0, lamellar 75.9, rostral 65.8, exobothridial 86.0; notogaster: length 936, width 716, height 660, c_1 126, ps_1 116; genital and aggenital plates 212x111, anal and adanal plates 424x85.8. Colour brown, integument finely punctate. Prodorsum with two pairs more or less parallel lateral carinae. Sensilli short, thick, somewhat swollen medially, smooth. Setae short, smooth, procumbent, comparative length: *ex* > *in* > *le* > *ro*. Notogastral setae fine, flexible and short (c_1/c_1-d_1 = 0.59), setae c_{1-3} remote from anterior margin, setae c_1 and c_2 slightly more so than setae c_3. Ventral region. Epimera, palps and infracapitulum typical of the genus. Genital plates each with 9 setae, 3 in pregenital

position. Aggenital plates each with 2 setae; setae of anal plates (2 pairs) and adanal plates (3 pairs) minute. Lyrifissures *iad* placed antiaxially of ad_3 setae. Leg chaetotaxy and solenidiotaxy (tarsi excluded): I: 1-4-5(2)-5(1),II:1-4-4(1)-5(1), III: 3-2-3(1)-4(1), IV: 3-2-2(1)-3(1). A small tooth-like projection is present slightly proximally to setae d on femora I.

DIAGNOSIS. The new species is slightly similar to *O. submolesta* sp. nov. from Vietnam and to *O. concortula* NIEDBAŁA, 1993 from New Zealand but differs in the presence of long exobothridial setae, 9 pairs of genital setae, 2 pairs of anal setae and a different arrangement of the anal and adanal setae.

ETYMOLOGY. The specific name *anceps* is latinized Greek for „twofold" and alludes to two lateral carinae of the prodorsum.

MATERIAL. Holotype and 6 paratypes: Nepal, Bagmati, Phulchoki, 2000 m, dry litter of sparse bush, 12 05 1979, leg. P.T. LEHTINEN. Another locality in Nepal: Bagmati, Shivapuri Mohanpokhari, 2000 m., mountain bush (TF), 14 V 1979, leg. P.T. LEHTINEN - (5).

DISTRIBUTION. Nepal, perhaps an endemic species.

Oribotritia angusta MAHUNKA, 1982

(Figs 75-77)

DIAGNOSIS. Prodorsum with two pairs of lateral carinae, sensilli long, smooth, tapering, setae fine, interlamellar shorter than lamellar and exobothridial, notogaster with fine, slightly flagelliform setae, 8 (?) pairs of genital, 2 pairs of aggenital, 3 pairs of anal and 3 pairs of adanal setae present.

MATERIAL. Locality in the border zone of the Oriental region: North Korea, Prov. South Phenan, Bong-ha ri, on the river Te-dong, about 45 km E of Pyongyang, from ferns and mosses of steep, isolated cliffs on river bank, 23 V 1970, leg. S. MAHUNKA and H. STEINMANN - (1) (MAHUNKA 1982).

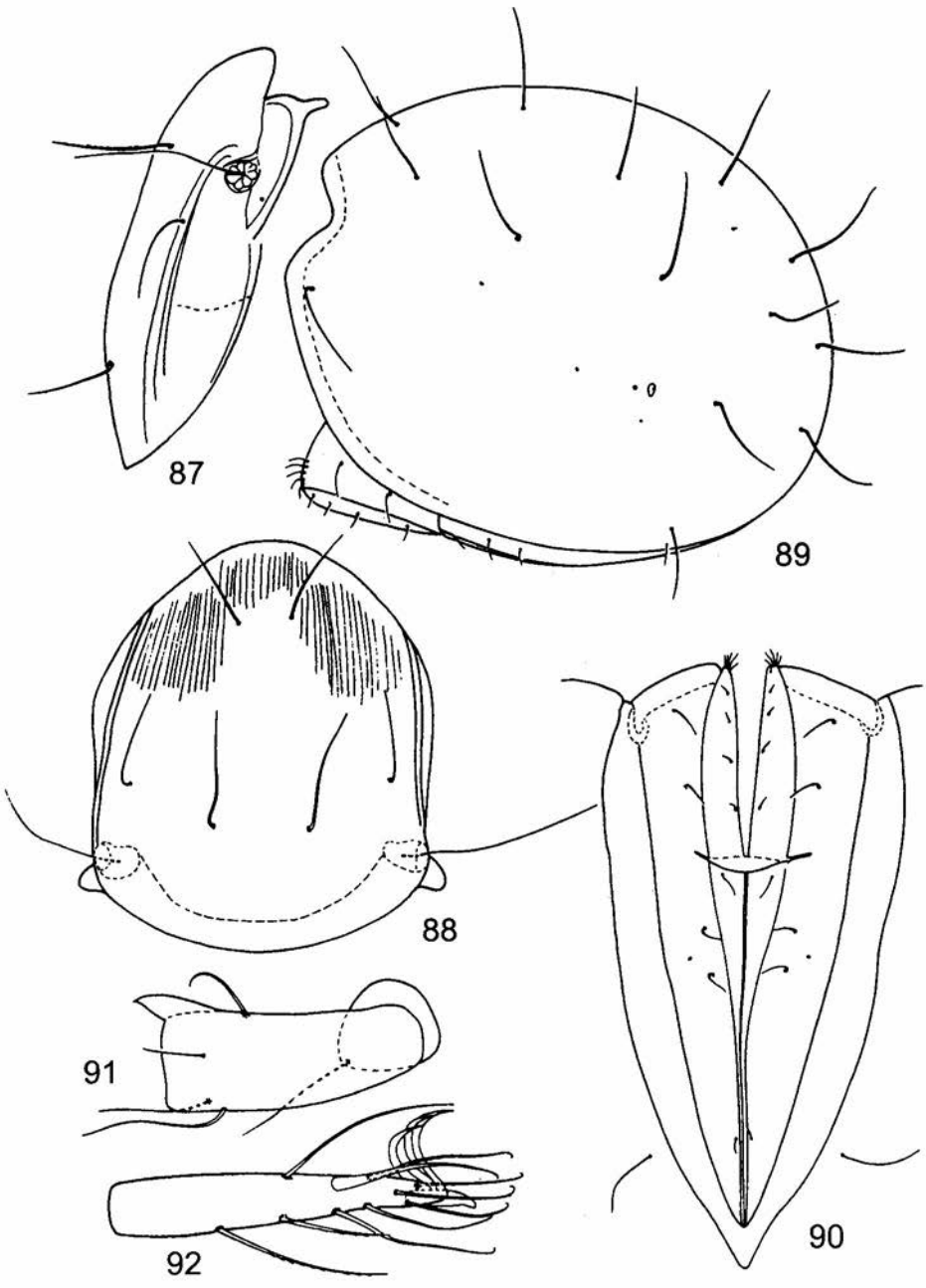
DISTRIBUTION. North Korea, perhaps an endemic species.

Oribotritia aokii MAHUNKA, 1987

(Figs 87-92)

Oribotritia aoki: NIEDBALA & CORPUZ-RAROS 1998

REDESCRIPTION. Measurements of one specimen from Sumatra: length 399, width 304, height 133, sensillus 167, setae: interlamellar 111, lamellar and rostral 85.8; notogaster: length 653, with 469, height 515, setae: c_1, c_3 and h_1 121, ps_1 101; genital and aggenital plates 182x95.9, anal and adanal plates 343x95.9. Colour yellow, integument finely punctate. Prodorsum with lateral carinae consisting of three lines. Sensilli very long, longer than setae of body, interlamellar and rostral setae erect, covered with small spines, thicker than smooth lamellar setae, exobothridial setae vestigial, *in* > *le* > *ro*. Notogaster with robust, fairly short (c_1/c_1-d_1 = 0.86) setae, covered with small spines (except smooth c_3 setae), setae c_1 and c_2 remote from anterior border, setae c_3 near the border. Vestigial setae f_1 anterior to h_1 setae. Ventral



87-92. *Oribotritia aokii* MAHUNKA, 1987 (specimen from Sumatra): 87 - prodorsum, lateral view, 88 - prodorsum, dorsal view, 89 - notogaster, lateral view, 90 - ventral region, 91 -femur of leg I, 92 - tarsus of leg I

region. Setae *h* of mentum longer than distance between them. Genital plates each with 9 genital setae (8 setae in MAHUNKA (1987)), aggenital plates each with 2 aggenital setae. One pair of anal setae and 3 pairs of adanal setae present, setae ad_2 located near ad_3 setae and distanced from ad_1 setae; lyrifissures *iad* positioned between ad_2 and ad_3 setae. Legs. Femora I anteriorly with sharp spines, setae *u'* on tarsi IV thick and spiniform, leg chaetotaxy and solenidiotaxy (without tarsi): I: 1-4-5(2)-5(1), II: 1-4-4(1)-3(1), III: 3-2-3(1)-3(1), IV: 3-2-2(1)-3(1).

MATERIAL. Localities in the Oriental region: Malaysia, Sabah (Sandakan Residency): Sepilok (14 km W from Sandakan): „Kabili-Sepilok Forest Reserve", forest „Orang Utan Rehabilitation Station", Lowland Dipterocarp Forest, 30 m, 22.IV.1982, leg. B. HAUSER – (1) (MAHUNKA 1987b); Sabah Tawan d., Bal Estate, Tiger Hill (TF), 2.XI.1979 leg. P.T. LEHTINEN – (1); Indonesia, Kalimantan, Timur, Samarinda d., Sanga Sanga Muara, jungle litter, 29.X.1979, leg. P.T. LEHTINEN – (3); Indonesia, Kalimantan Selatan Tapin Miawa, forested rock slope, 8.XI.1984, leg. P.T. LEHTINEN – (2); Indonesia, Sumatra, Barat Padangpanjang, 4 km SE, jungle slope, (TF), 26.IX.1978, leg. P.T. LEHTINEN – (2); Philippines, Luzon Is., Gagabutan, Rizal, Cagayan Prov. primary forest litter, 29.III.1977, leg. R.C. GARCIA - (1); Philippines, Luzon Is., Biyaan, Mariveles, Bataan Prov., bat guano inside cave, 28.VIII.1978, leg. L.S. CUY - (2); Philippines, Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna Prov., undisturbed secondary forest litter, III.1975, leg. L.A.C. RAROS - (1); Philippines,. Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna, undisturbed secondary forest litter, 26.VI.1975, leg. J.M. SOTTO and R.C. GARCIA - (1); Philippines,. Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna, undisturbed secondary forest litter, 13.VIII.1975, leg. J.M. SOTTO and R.C. GARCIA - (1); Philippines,. Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna, undisturbed secondary forest litter, 10.XI.1976, leg. J.M. SOTTO and R.C. GARCIA - (2); Philippines,. Luzon Is., Quezon National Park, Atimonan, Quezon Prov., forest litter, 17.I.1976, leg. R.C. GARCIA - (1); Philippines, Lapata Is., (off Luzon Is.) Padre Burgos, Quezon Prov., leaf litter, 26.II.1994, leg. O.L. EUSEBIO – (1); Philippines, Samar Is., Rawis, Basey, Samar Prov., litter outside cave, 30.XII.1981, leg. M.P.J. CAÑETE – (1); Philippines, Mindanao Is., Antipolo, Tungao, Angusan del Norte Prov., litter under kiri plant, 28.IV.1975, leg. R.S. RAROS - (1) (NIEDBAŁA & CORPUZ-RAROS 1998).

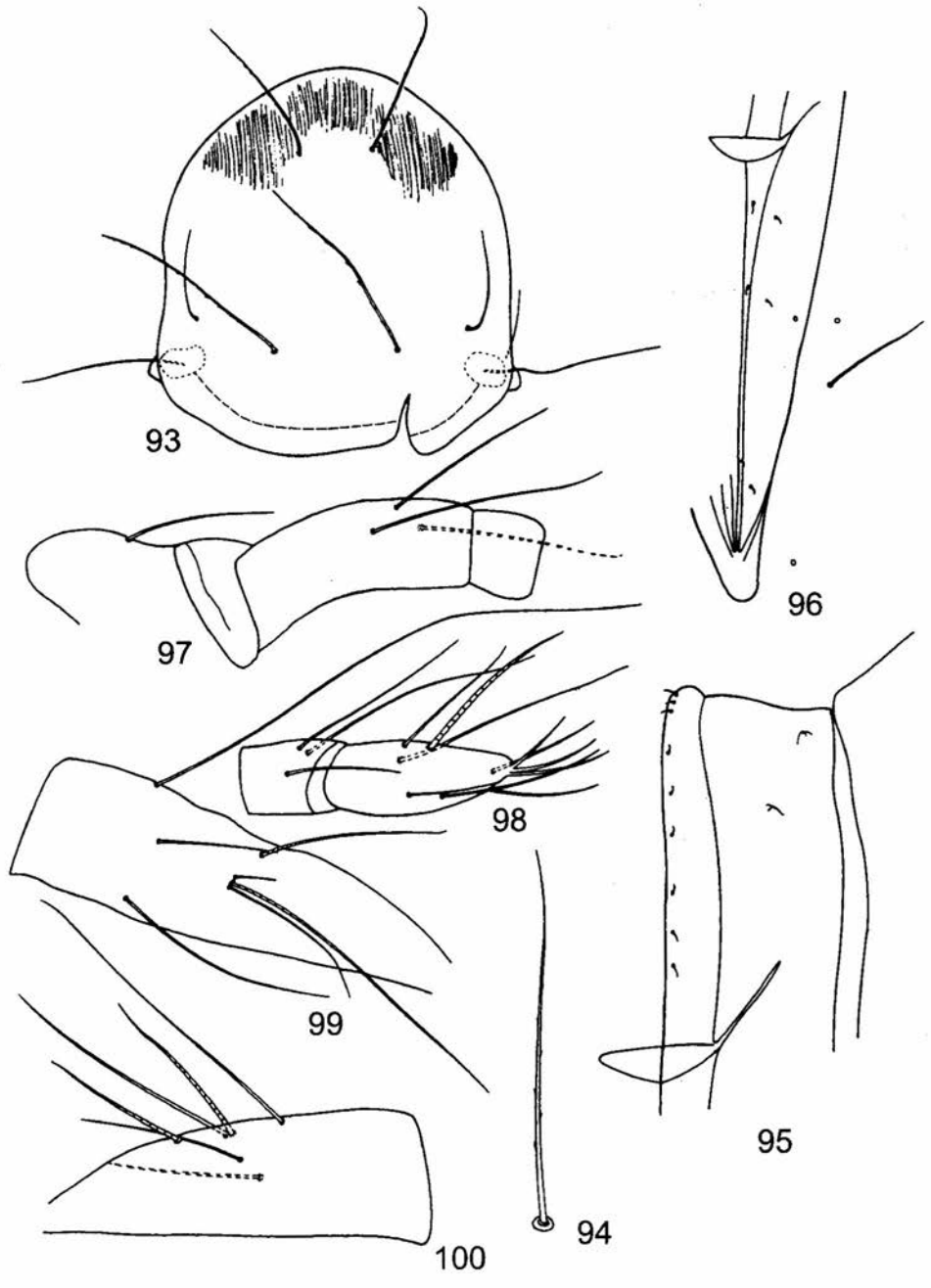
DISTRIBUTION. An Oriental species.

Oribotritia asiatica HAMMER, 1977

(Figs 93-104)

Oribotritia koreense MAHUNKA, 1982 **syn. nov.**

REDESCRIPTION. Measurements of „type": prodorsum: length 571, width 513, sensillus 222, setae: interlamellar 292, lamellar 158, rostral 222; genital and agenital plates 285x146, anal and adanal plates 621x133. Large species, colour light brown, integument densely punctate. Prodorsum with simple, distinct lateral carinae. Sensilli filiform, fine as lamellar setae. Interlamellar and rostral setae very long, thick, covered with small spines, *in* > *ro* > *le* > *ex*. Notogastral setae stiff, thin and sparsely barbed, setae of row *c* remote from anterior margin, setae c_1 and c_2 more so than c_3



93-100. *Oribotritia asiatica* HAMMER, 1977 (type): 93 - prodorsum, dorsal view, 94 - seta ps_3, 95 - genital and aggenital plate, 96 - anal and adanal plate, 97 - palpus, trochanter, femur genual, 98 - palpus, tibia, tarsus, 99 - fragment of tarsus I, 100 - fragment of tarsus II

setae. Ventral region. Setae *h* of mentum considerably longer than distance between them; chaetotaxy and solenidiotaxy of palps: 0-3-0-3-9(1);epimeral formula: ?-0-4-3. 9 pairs of genital, 2 pairs of aggenital; 3 pairs of anal and 3 pairs of adanal setae present, all these setae are minute; lyrifissures *iad* situated at the level of ad_2 setae or between ad_2 and ad_3 setae. Leg chaetotaxy and solenidiotaxy (without tarsi I and II): I: 1-4-5(2)-5(1), II: 1-4-4(1)-4(1), III: 3-2-3(1)-3(1)-15, IV: 3-2-3(1)-3(1)-12. femora I without anterior spines.

MATERIAL. A „type" in alcohol with the label: „*Oribatidae Oribotritia asiatica* n. sp. Shograu dissekeret W. Pakistan 107 M. HAMMER 1960 Type" (courtesy Dr. H. ENGHOFF, Zoologisk Museum Copenhagen). Localities in the border zone of the Oriental region: West Pakistan, Naran valley with Kunhar river, Shogran Forest Research Station, about 2600 m a.s.l., 1961, leg. M. HAMMER: rich moss, *Brunella*, on a slope with running water - (2); needles and dead leaves on a slope with *Pinus*, *Picea*, walnut, dry - (1); bark fallen from tree, collected on the ground - (3) (HAMMER 1977). sub *O. koreense*: North Korea, Chagang Prov., Mt. Myohyang-san, Chongehon river valley, sifted litter in 350 m, 13 IX 1980, leg. G. TOPAL and L. FORRO - (1) (MAHUNKA 1982).

REMARK. There is no character distinguishing *O. koreense*.

DISTRIBUTION. SE border of Palaearctic; West Pakistan, Korea.

Oribotritia bipartita sp. nov.

(Figs 105-121)

DESCRIPTION. Measurements of holotype: prodorsum: length 524, width 416, height 169, sensillus 192, setae: interlamellar 154, rostral and lamellar 92.4; notogaster: length 941, width 647, height 672, setae: c_1 146, h_1 154, ps_1 162; genital and aggenital plates 223x108, anal and adanal plates 462x100. Colour brown, surface of body densely punctate. Prodorsum with double lateral carinae, lower branch not reaching end of rostrum. Sensilli very long, smooth. Interlamellar and rostral setae robust, erect, rather smooth, covered with 2-3 small spines only, lamellar setae not so robust, smooth, exobothridial setae vestigial, $in > le = ro$. Notogastral setae robust, fairly short (c_1/c_1-d_1 =0.61) covered with 2-3 small spines, only setae c_3 and d_2 longer, thiner and smooth, setae c_1 and c_2 remote from anterior border, setae c_3 near border. Vestigial setae f_1 anterior to h_1 setae. Lyrifissures *ips* and *ih* not visible. Ventral region. Setae *h* of mentum considerably longer than distance between them; chaetotaxy and solenidiotaxy of palps: 0-2-0-2-9(1); normal epimeral formula: 3-0-2-2. 9 pairs of genital setae present, anterior five pairs in pregenital position, 2 pairs of aggenital; 1 pair of anal and 3 pairs of adanal setae present, all setae minute; lyrifissures *iad* positioned between ad_2 and ad_3 setae. Leg chaetotaxy and solenidiotaxy: I: 1-4-5(2)-5(1)-19(3), II: 1-3-4(1)-3(1)-19(2),III: 3-2-3(1)-3(1)-15, IV: 3-2-2(1)-3(1)-11, femora I with distinct spine at anterior end and setae d erect and bent.

DIAGNOSIS. This species can be distinguished from its congeners by the double lateral carinae of prodorsum, robust, erect, not so long interlamelar and rostral setae, sensilli fairly long, setiform, and presence of one pair of anal and three pairs of adanal setae.

ETYMOLOGY. The specific epithet bipartita is Latin for „in two parts" and refers to the double pair of lateral carinae of prodorsum.

MATERIAL. Holotype and one paratype: Nepal, litter, detritus and moss under bamboo and *Rhododendron* at road Hinko-Chumru, 12 IX 1981, leg. J. BŁOSZYK, 4 paratypes: Nepal, litter, leaves and detritus under *Rhododendron* and other trees, under Hinko, moist, 12 IX 1981, leg. J. BŁOSZYK. Other localities in Nepal: 20B (BŁASZAK) Nepal – (12); 24B Nepal – (1); Nepal, Near Hinko, litter leaves and detritus under rododendrons and other trees, moist, 12.IX.1981, leg. J. BŁOSZYK – (4)

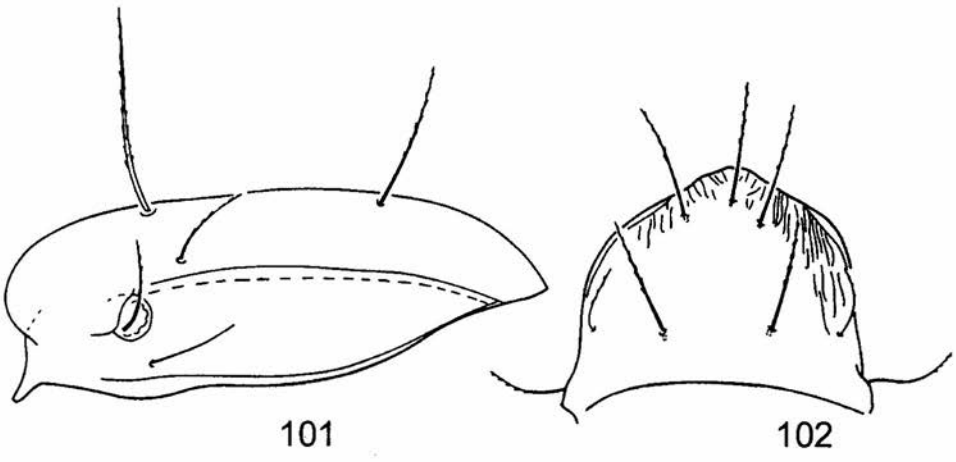
DISTRIBUTION. Nepal, perhaps an endemic species.

Oribotritia bulbifer (MAHUNKA, 1987)

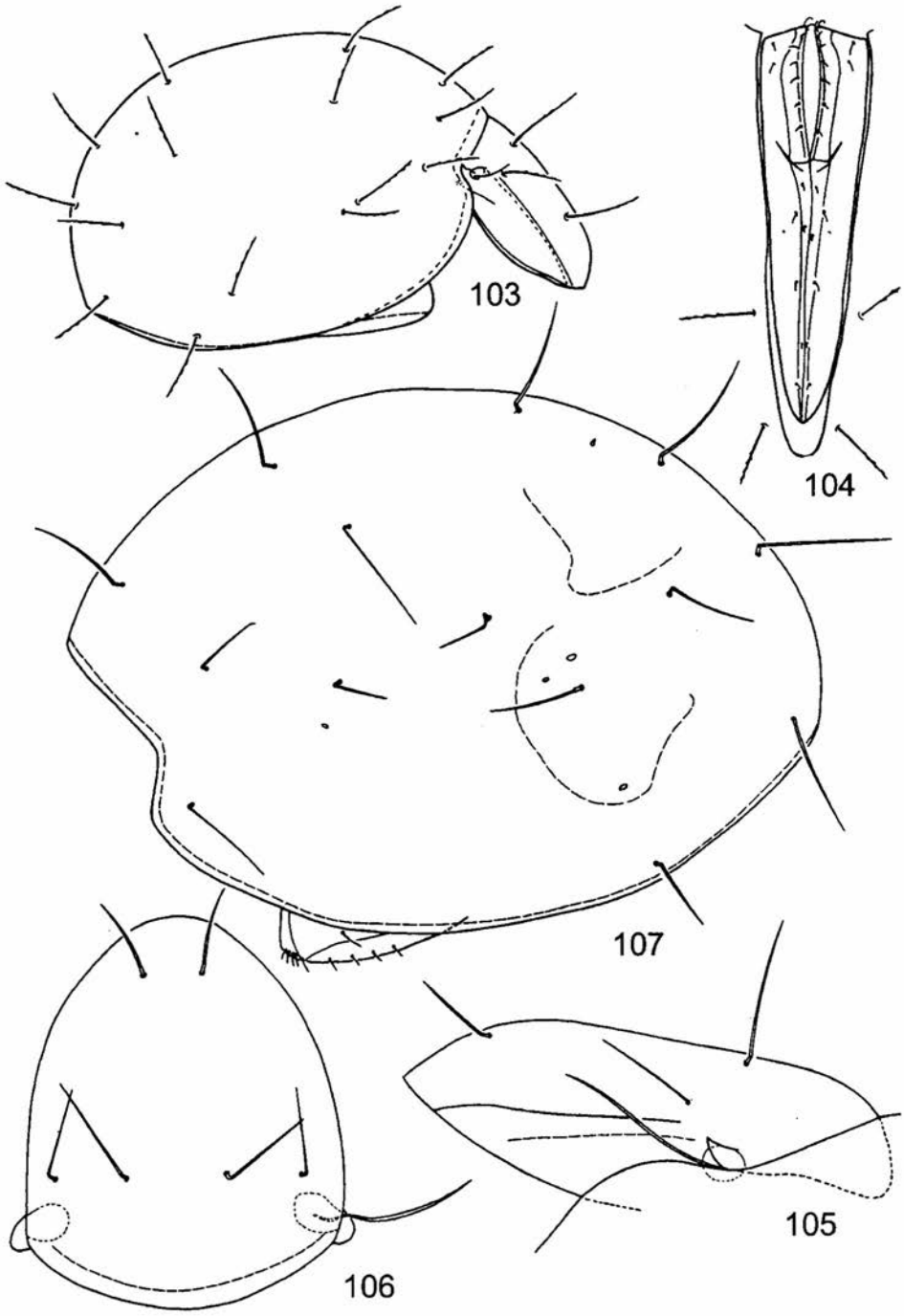
(Figs 122-133)

Berndotritia bulbifer MAHUNKA, 1987; MAHUNKA 1990

REDESCRIPTION. Measurements of one specimen from Kalimantah, Indonesia: prodorsum: length 263, width 192, height 98.5, sensillus 114, setae: interlamellar 58.2, lamellar 43.0, rostral 53.1; notogaster: length 393, width 330, height 355, setae: c_1 75.9, h_1 and ps_1 68.3; genital and aggenital plates 88.5x60.7, anal and adanal plates 212x55.7. Measurements of one specimen from Borneo: prodorsum: length 338, width 247, height 106, setae:interlamellar75.7,lamellar 70.7, rostral 60.6; notogaster: length 634, height 475, setae: c_1 85.8, c_3 95.9, h_1 90.9, ps_1 80.8; genital and aggenital plates 323x85.8, anal and adanal plates 151x90.9. Colour brown, integument finely punctate. Prodorsum with lateral carinae consisting of three lines, two convergent, one curving to lateral margin, fine striation anteriorly in region of rostral setae present. Sensilli bulbiform proximally and tapering, with long, setiform distal half. Interlamellar and rostral setae robust, erect, covered with small spines, lamellar setae smooth and thinner, exobothridial setae vestigial, *in* > *ro* > *le*.



101, 102. *Oribotritia koreense* MAHUNKA, 1982 - synonym *of Oribotritia asiatica* HAMMER, 1977 (after MAHUNKA 1982): 101 - prodorsum, lateral view, 102 - prodorsum, dorsal view



103, 104. *Oribotritia koreense* MAHUNKA, 1982 - synonym of *Oribotritia asiatica* HAMMER, 1977 (after MAHUNKA 1982): 103 - lateral view of body, 104 - ventral region; 105-107. *Oribotritia bipartita* sp. nov. (holotype): 105 - prodorsum, lateral view, 106 - prodorsum, dorsal view, 107 - notogaster, lateral view

Notogastral setae fairly short (c_1/c_1-d_1 = 0.68 or 0.88), rough in distal half (except smooth setae c_3), setae c_1 and c_2 remote from anterior margin, setae c_3 distanced from margin, setae h_3 and ps_3 displaced much posteriorly. Vestigial setae f_1 positioned at the level of h_1 setae. Ventral region. Palp chaetotaxy: 0-2-0-2-9 and one solenidion, setae *h* of mentum two times longer than distance between them. 9 pairs of genital setae (8 pairs in MAHUNKA (1987)), 2 pairs of aggenital setae. One pair of anal and 3 pairs of adanal setae present; lyrifissures *iad* located between ad_2 and ad_3 setae. Legs. Femora I anteriorly with sharp spines, setae u' on tarsi IV thick and spiniform, chaetotaxy and solenidiotaxy (without tarsi): I: 1-4-5(2)-5(1), II: 1-4-4(1)-4(1), III: 3-2-3(1)-3(1), IV: 3-2-2(1)-3(1).

MATERIAL. Localities in the Oriental region: Malaysia, Sabah (Sandakan age de feuilles mortes et de bois pourri preleves dans les angles formes par les contreforts ailes de grands arbres, 30 m, 3. V 1982, leg. B. HAUSER - (13) (MAHUNKA 1987b); Sabah Mt. Kinabalu Nat. Park Poring Hot Springs 500 m, 10.V.1987, leg. A. SMETANA – (3); Sabah Mt. Kinabalu Nat. Park Poring Hot Springs 500 m, 12.V.1987 leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat. Park above Poring Hot Springs 520 m, 9.V.1987, leg. A. SMETANA – (2); Sabah Mt. Kinabalu Nat. Park Poring Hot Springs 480 m, 8.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat. Park above Poring Hot Springs 530 m, 9.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu N.P. Por. H.S. area biw Langanan Fall 850 m, 12.V.1987, leg. A. SMETANA – (3); Sabah Mt. Kinabalu Nat. P. Poring Hot Springs 495 m, sifting leaf litter and old dry fruits, 25.VIII.1988, leg. A. SMETANA (B 148) – (27); Sarawak, Mulu, Lowl rein forest peth, 3.X.1977, leg. B. BOLTON – (4); Indonesia, Kalimantan Selatan Tapin Miawa, forested rock slope, 8.XI.1984, leg. P.T. LEHTINEN – (11).

DISTRIBUTION. An Oriental species.

Oribotritia capitanea NIEDBAŁA et CORPUZ-RAROS, 1998

(Figs 134-137)

DIAGNOSIS. Large species. Prodorsum with weakly marked lateral carinae; sensilli long, smooth, tapering; setae very fine, smooth, exobothridial setae the longest. Notogastral setae, except ps_2 and ps_3 setae, vestigial. Ventral region, genital plates with 9 pairs of setae, aggenital plates with 2 pairs; anal plates with 3 pairs and adanal plates with 3 pairs of setae. Legs not examined.

MATERIAL. Locality in the Philippines: Mindanao Is., Mt. Apo, alt. 4500 ft., Baracatan, Davao City, forest litter, 20 V 1977, leg. J.M. SOTTO and R.C. GARCIA (NIEDBAŁA & CORPUZ-RAROS 1998).

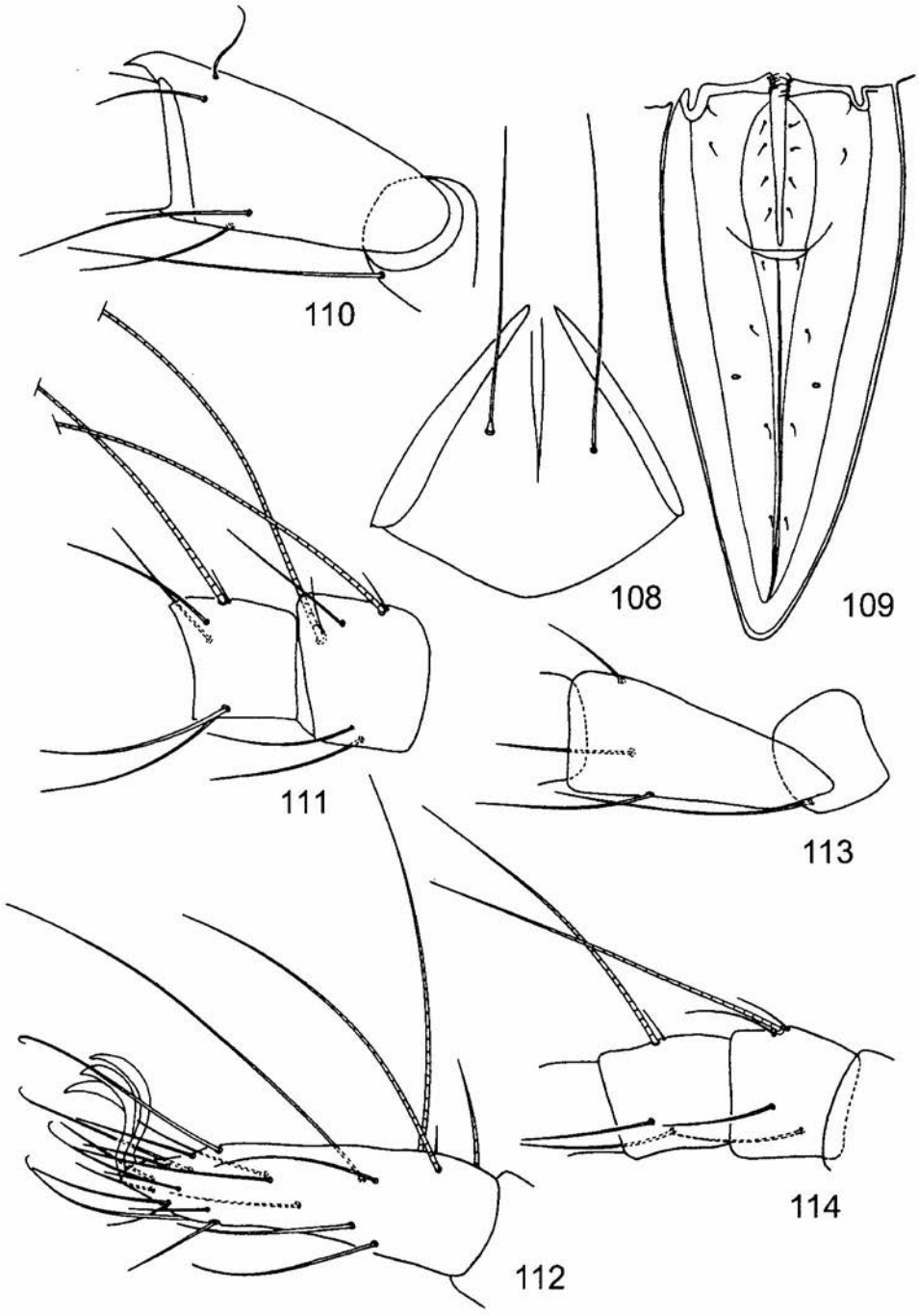
DISTRIBUTION. Philippines, probably an endemic species.

Oribotritia chichijimensis AOKI, 1980

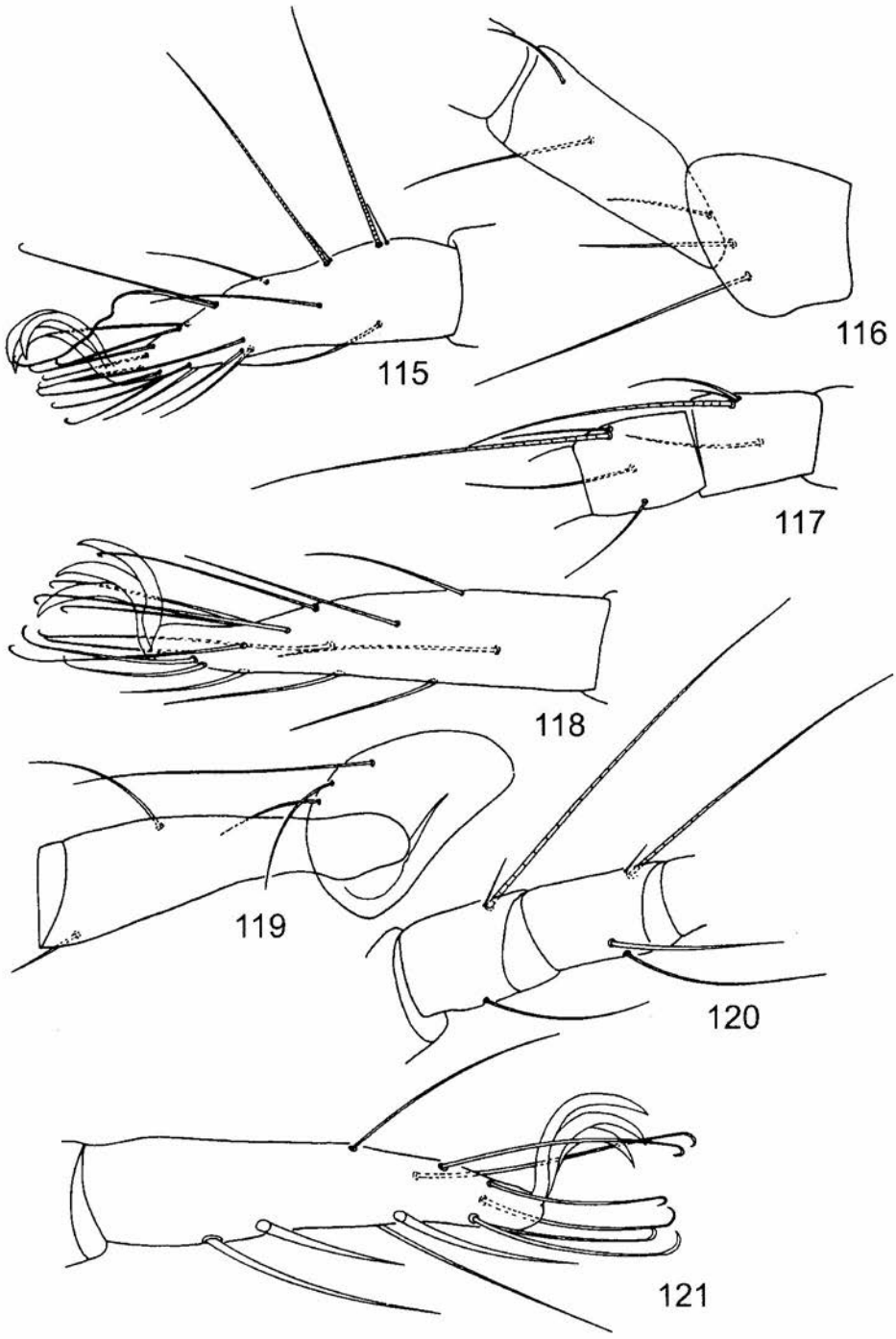
(Figs 138-144)

Oribotritia chichijimensis ryukyuensis NAKATAMARI, 1985 **syn.nov.**

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of paratype of *O. chichijimensis*: prodorsum: length 628, sensillus 105, setae: interlamellar 76.1, lamellar

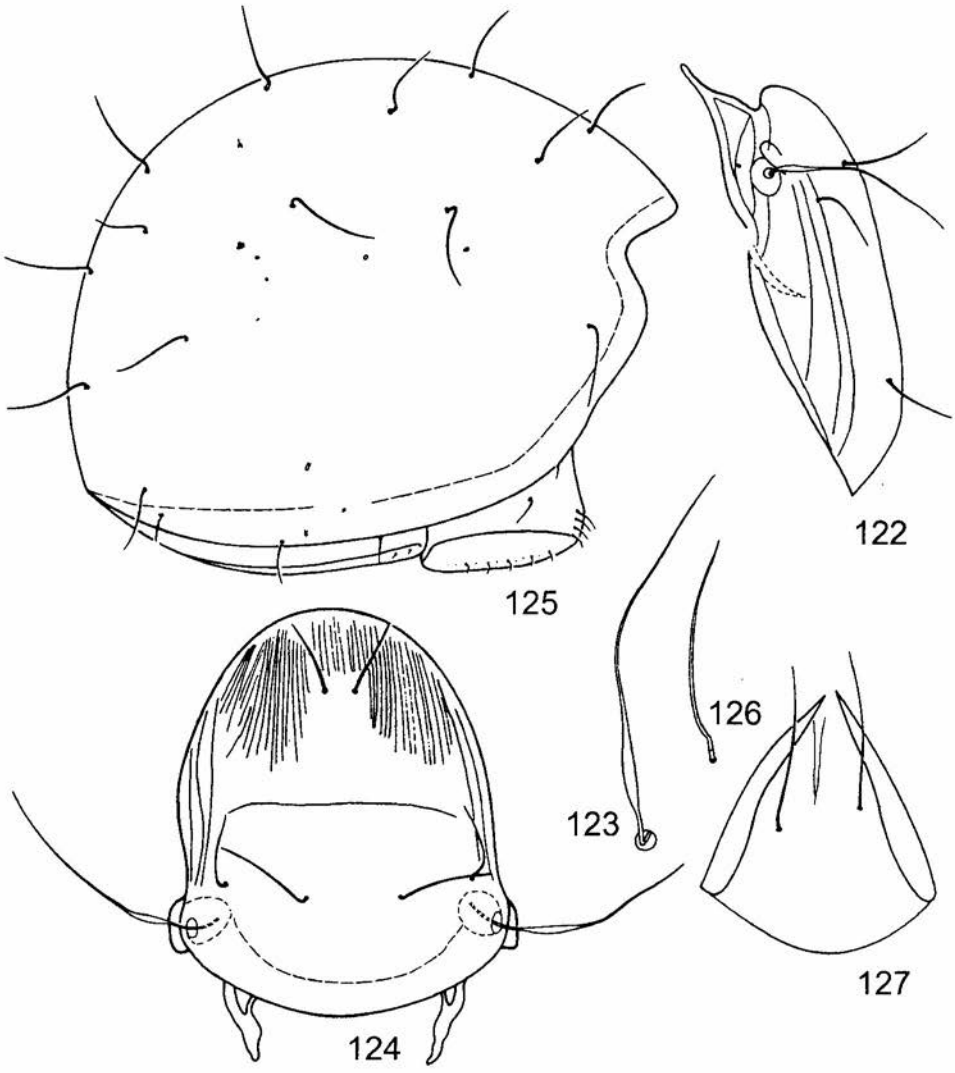


108-114. *Oribotritia bipartita* sp. nov. (holotype): 108 - mentum of infracapitulum, 109 - ventral region, 110 - trochanter and femur leg I, 111 - genu and tibia of leg I, 112 - tarsus of leg I, 113 - trochanter and femur of leg II, 114 - genu and tibia of leg II



115-121. *Oribotritia bipartita* sp. nov. (holotype): 115 - tarsus of leg II; 116 - trochanter and femur of leg III, 117 - genu and tibia of leg III, 118 - tarsus of leg III, 119 - trochanter and femur of leg IV, 120 - genu and tibia of leg IV, 121 - tarsus of leg IV

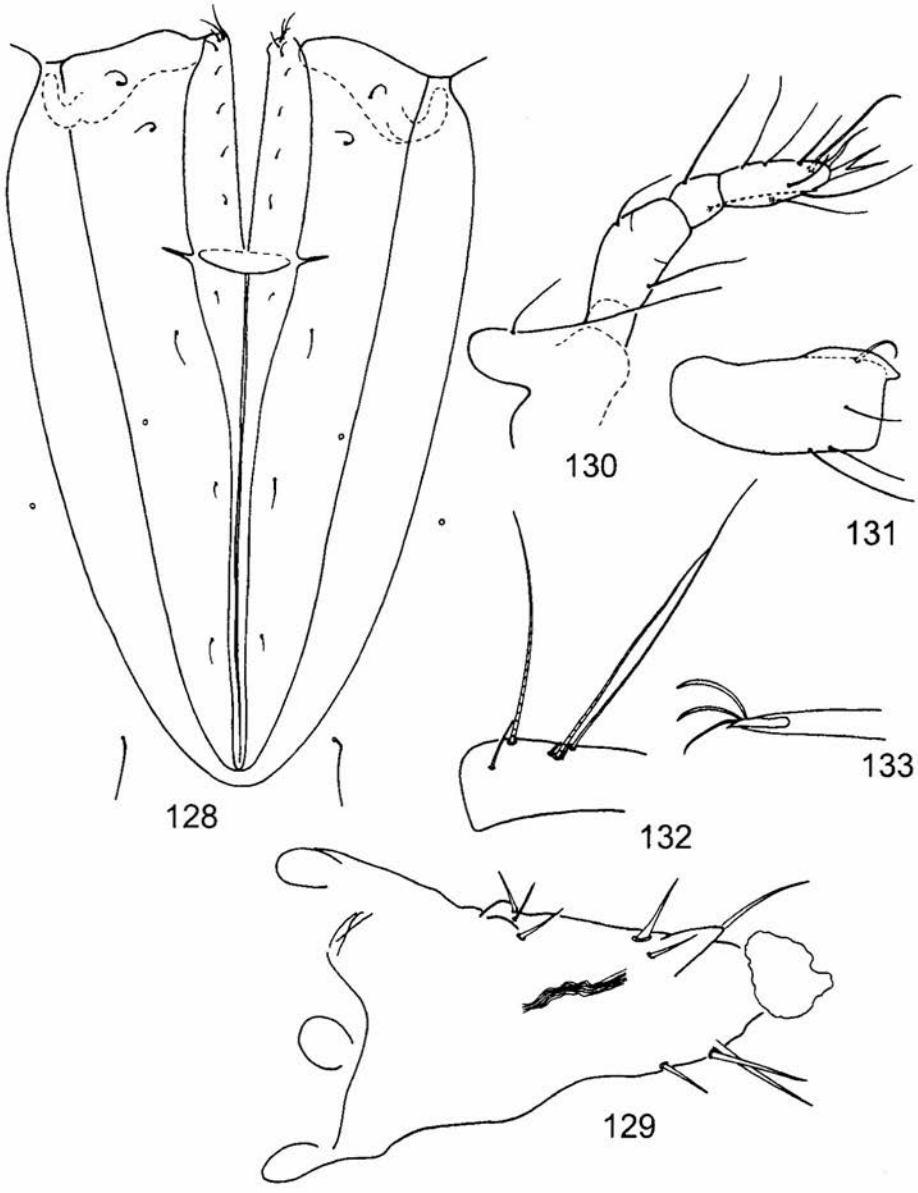
69.7, rostral 95.1, exobothridial 121; genital and aggenital plates 257x156, anal and adanal plates 596x151; measurements of *O. chichijimensis ryukyuensis*: „paratype 1": prodorsum: length 539, width 456, sensillus 95.1, setae: interlamellar 76.1, lamellar 63.4, rostral 101; „paratype" 2: prodorsum: length 506, width 147; notogaster: length 1113, setae: c_1 184, d_1 128, h_1 138. Colour dark brown, body surface punctate. Prodorsum with simple lateral carinae; sensilli short, thick, slightly thickened towards distal end; setae fine, smooth, exobothridial setae the longest, *ex* > *ro* > *in* > *le*. Notogastral setae fine, short ($c_1 < c_1$-d_1); vestigial setae f_1 located anterior to h_1 setae. Ventral region. Setae *h* of mentum very long, considerably longer than distance



122-127. *Oribotritia bulbifer* (MAHUNKA, 1987) (specimen from Borneo): 122 - prodorsum, lateral view, 123 sensillus, lateral view, 124 - prodorsum, dorsal view, 125 - notogaster, lateral view, 126 - seta c_1, 127 - mentum of infracapitulum

between them; chaetotaxy of palps: 0-4-0-3-9 and one solenidion; epimeral formula: right 3-0-3-2, left 3-0-3-3; 8 pairs of genital, 2 pairs of aggenital; 2 pairs of anal and 3 pairs of adanal setae present; lyrifissures *iad* located at the level of ad_3 setae. Leg chaetotaxy and solenidiotaxy (without tarsi I and II): I: 1-4-5(2)-5(1), II: 1-3-4(1)-5(1),III: 2-2-3(1)-4(1)-16, IV: 3-2-2(1)-3(1)-16.

MATERIAL. Three microscopic slides of *Oribotritia chichijimensis* labelled: first: „NSMT - Ac 9115 2/4 QM23F *Oribotritia chichijimensis* AOKI, 1978 (paratopotypus



128-133. *Oribotritia bulbifer* (MAHUNKA, 1987) (specimen from Borneo): 128 - ventral region, 129 - ovipositor, 130 - palpus, 131 - femur of leg I, 132 - fragment of tarsus II, 133 - end of tarsus IV with seta *w* and dactyli

A2/4)", second: as above: „1/4", third: as above: „3/4"; four microscopic slides of *Oriboitritia chichijimensis ryukyuensis* labelled: „Paratypes NSMT-Ac 9647 *Oribotritia chichijimensis ryukyuensis*" (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Localities in the border zone of the Oriental region: Japan, Mt. Mikazuki, Chichijima Island, Bonin Islands, from litter of *Leucaena glauca*, 2 VII 1977, leg. J. AOKI - (9); Miyanohama, Chichijima Is., from litter of *Leucaena glauca*, 2 VII 1977, leg. J. AOKI - (3); Suzaki, Chichijima Is., from litter of *Casuarina litorea*, 1 VII 1977 - (2); Kiyose, Chichijima, from litter of *Schima mertensiana*, 1 VII 1977, leg. J. AOKI - (1); Mt. Chuo, Chichijima Is., from litter of *Schima mertensiana*, 1 VII 1977, leg. J. AOKI - (1); East side of Mt. Mikazuki, Chichijima Is., from litter of *Livistona chinensis* var. *boninensis*, 1 VII 1977, leg. J. AOKI - (2); Sakaigatake, Hahajima Is., from litter of *Dendrocacalia crepidifolia*, 24 VI 1977, leg. J. AOKI, H. HARADA - (1) (AOKI 1980); Japan, Naha-shi, Okinawa, 13 VIII 1980, S. NAKATAMARI - (6) (NAKATAMARI 1985).

REMARK. In my opinion the three characters distinguishing the main species from the subspecies are not sufficient for discrimination. These are: greater mutual distance between rostral setae, presence of vestigial exobothridial setae and short, second branch of lateral carinae in anterior part of prodorsum in the "subspecies".

DISTRIBUTION. Japan, perhaps an endemic species.

Oribotritia corporaali (OUDEMANS, 1926)

(Figs 145-148)

Tritia corporaali OUDEMANS, 1926

REDESCRIPTION. Prepared on the basis of examination of slides of type series and original drawings of OUDEMANS. Measurements: prodorsum: length 590, width 545, sensillus 177, setae: interlamellar 101, lamellar 96.1, rostral 106, notogaster: length 1042, width 856. Prodorsum with distinct, long lateral carinae. Sensilli smooth. Setae fine, *ro* > *in* >*le*. Notogaster in the slide is obscure. Setae very fine and short. Ventral region. Setae *h* of mentum longer than distance between them, chaetotaxy of palps: 0-2-0-2-9 and one solenidion. Genital plate invisible but probably 9 pairs of genital setae, 2 pairs of aggenital. 3 pairs of anal and 2 pairs of adanal setae present, genital and anal setae minute, adanal setae longer, aggenital setae the longest; lyrifissures *iad* located anterior to ad_2 setae. Leg chaetotaxy and solenidiotaxy (without tarsi): I: 1-4-5(2)-5(1),II:1-4-4(1)-4(1), III: 3-2-3(1)-4(1), IV: 3-2-2(1)-3(1).

MATERIAL. Four microscopic slides (type-series) labelled: „*Tritia corporaali* OUDEMANS 1926 onder losse bast van een op den ground biggenden rotten boomstam Poeloe Berhala Str. v. Malacca 2 XI 1919 J.B. CORPORAAL" slide 1: propodosoma ronder pooten I en II, slide 2: hysterosoma ronder pooten III en IV, slide 3: gnathosoma, slide 4: 9 pooten (courtesy Dr P.J. VAN HELSDINGEN, Rijksmuseum van Natuurlijke Historie, Leiden). Locality in the Oriental region: Sumatra, Varela island (Pulu Berhala), Malakka, under rotting bark of a dead tree lying in the ground, XI 1919, leg J.B. CORPORAAL - (3) (OUDEMANS 1926).

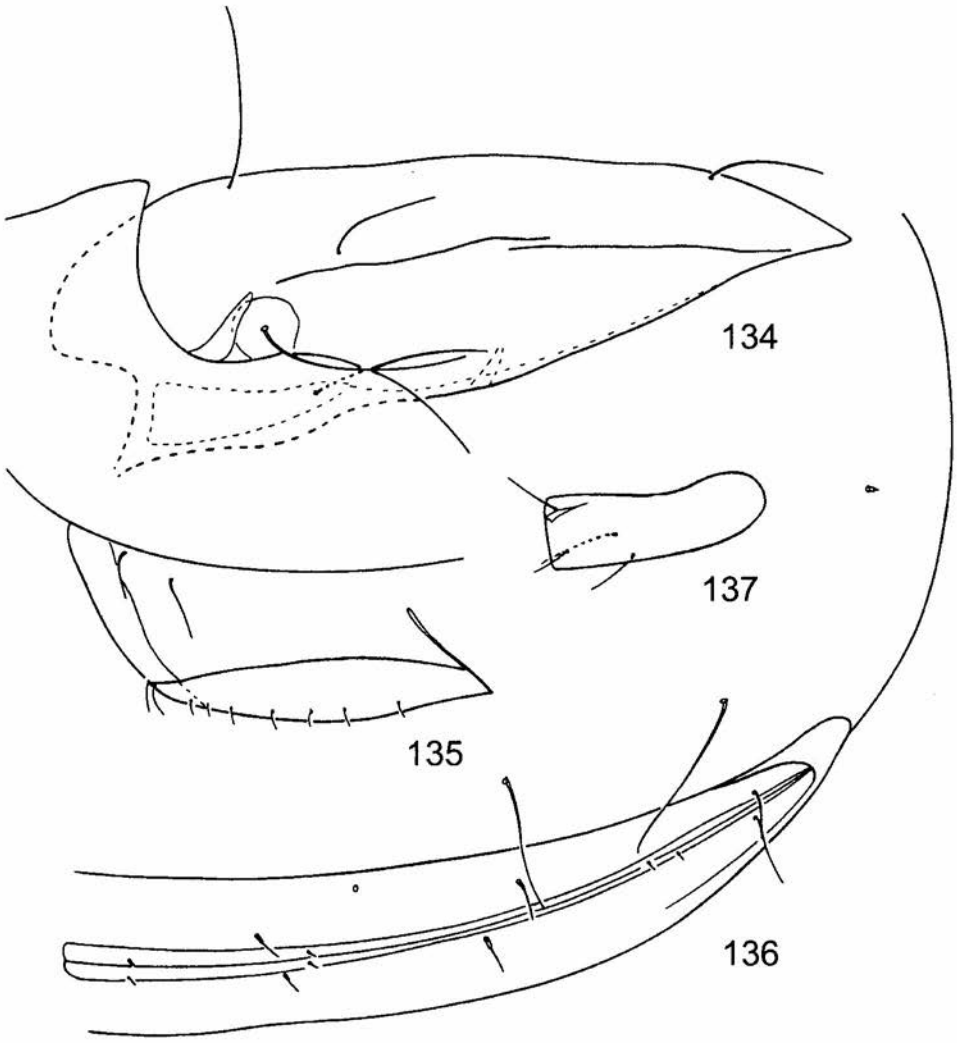
DISTRIBUTION. Sumatra, perhaps an endemic species.

Oribotritia fennica Forsslund et Markel, 1963

(Figs 149-154)

Oribotritia fennica: Aoki & Ohnishi 1974, Aoki 1980

Diagnosis and additional description. Measurement of „Typus": prodorsum: length 558, width 425, sensillus 133, setae: interlamellar 317, lamellar 146, rostral 152, exobothridial 73.4; notogaster: length 1074, width 735, height 651, setae: c_1 266, h_1 254, ps_1 228; genital and aggenital plates 196x117, anal and adanal plates 507x101. Prodorsum with lateral carinae distinct; sensilli slender, smooth, slightly bacilliform; setae smooth, interlamellar the thickest, very long, erect, rostral directed



134-137. *Oribotritia capitanea* Niedbała 1998: 134 - prodorsum, lateral view, 135 - genital and aggenital plate, 136 - anal and adanal plates with fragment of notogaster, 137 - femur of leg I

inwards, lamellar procumbent, *in* > *ro* > *le* > *ex*. Notogastral setae fairly long (c_1/c_1-d_1 = 0.86), smooth, rigid, setae of row c remote from anterior margin, setae c_1 less so than setae c_2 and c_3; vestigial setae f_1 anterior to h_1 setae, one pair of opening of lateral opisthosomal glands and five pairs of lyrifissures *ia, im, ip, ih, ips* present. Ventral region. Setae *h* of mentum longer than distance between them; epimeral formula: 3-0-3-3; chaetotaxy of palps: 0-3-0-3-9 and one solenidion; 9 pairs of genital, 3 pairs of aggenital; 3 pairs of anal and 3 pairs of adanal setae present; lyrifissures *iad* located slightly anteriorly to ad_3 setae. Leg chaetotaxy and solenidiotaxy (without tarsi I and II): I: 1-5-5(2)-5(1), II: 1-5-5(1)-5(1), III: 3-2-3(1)-4(1)-16, IV: 3-2-2(1)-3(1)-14. Chaetotaxy of genital plates, palps and some leg articles is different from that in the original description of FORSSLUND and MARKEL (1963).

REMARK. I suppose that the specimen drawn as "Typus" does not belong to the type series and judging from the number of specimens, it comes from Sweden.

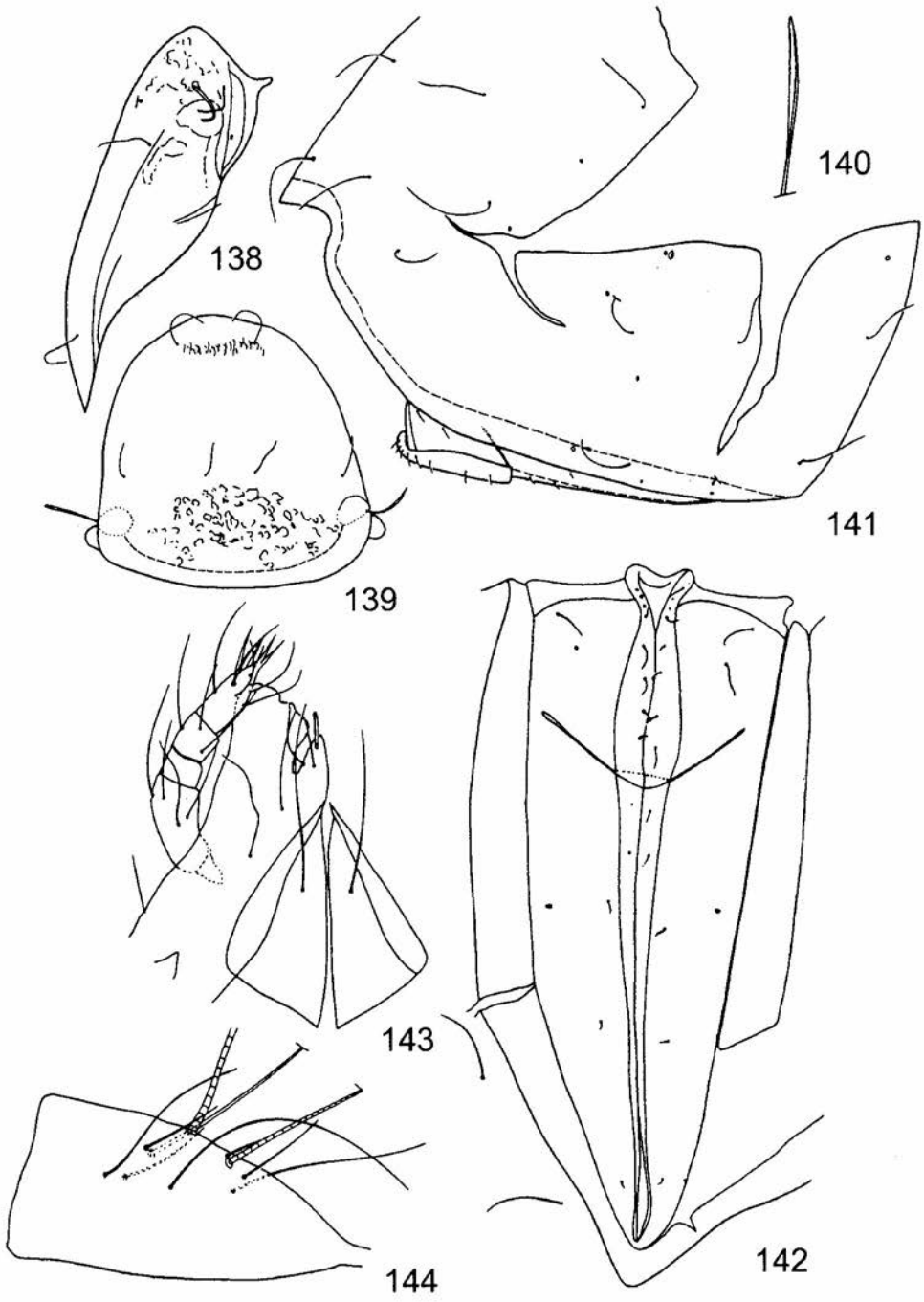
MATERIAL. One of 30 specimens preserved in alcohol labelled:" *Oribotritia* n. sp. 1048 Finland 1959 Forsslund Typus" (courtesy Dr. K.H. FORSSLUND) and one paratype in alcohol labelled: „*Oribotritia fennica* FORSSL.+MARK. PARATYPE 1964.7.13.51SWEDEN: Upl. Radmanso Sin 1962 Coll a det. K.H. FORSSLUND" (courtesy Dr.A.S. BAKER, Department of Entomology, British Museum, Natural History, London). Localities in the border zone of the Oriental region: Japan, Kamioboro, Akkeshi, Hokkaido, 2 V 1971, leg. J. OHNISHI - (3); Kamioboro, 24 V 1971, leg. J. OHNISHI, - (1); Kamioboro, 25 VIII 1971, leg. J. OHNISHI - (25);Kamioboro,23 IX 1971, leg. J. OHNISHI - (2); Kami-setsuri, Kushiro, Hokkaido, 7 IV 1971, leg. J. OHNISHI - (3) (AOKI and OHNISHI 1974, AOKI 1980).

DISTRIBUTION. A Palaearctic species; Sweden, Finnland (FORSSLUND & MARKEL 1963), Japan (AOKI and OHNISHI 1974, AOKI 1980)

Oribotritia gigas BAYOUMI et MAHUNKA, 1979

(Figs 155-162)

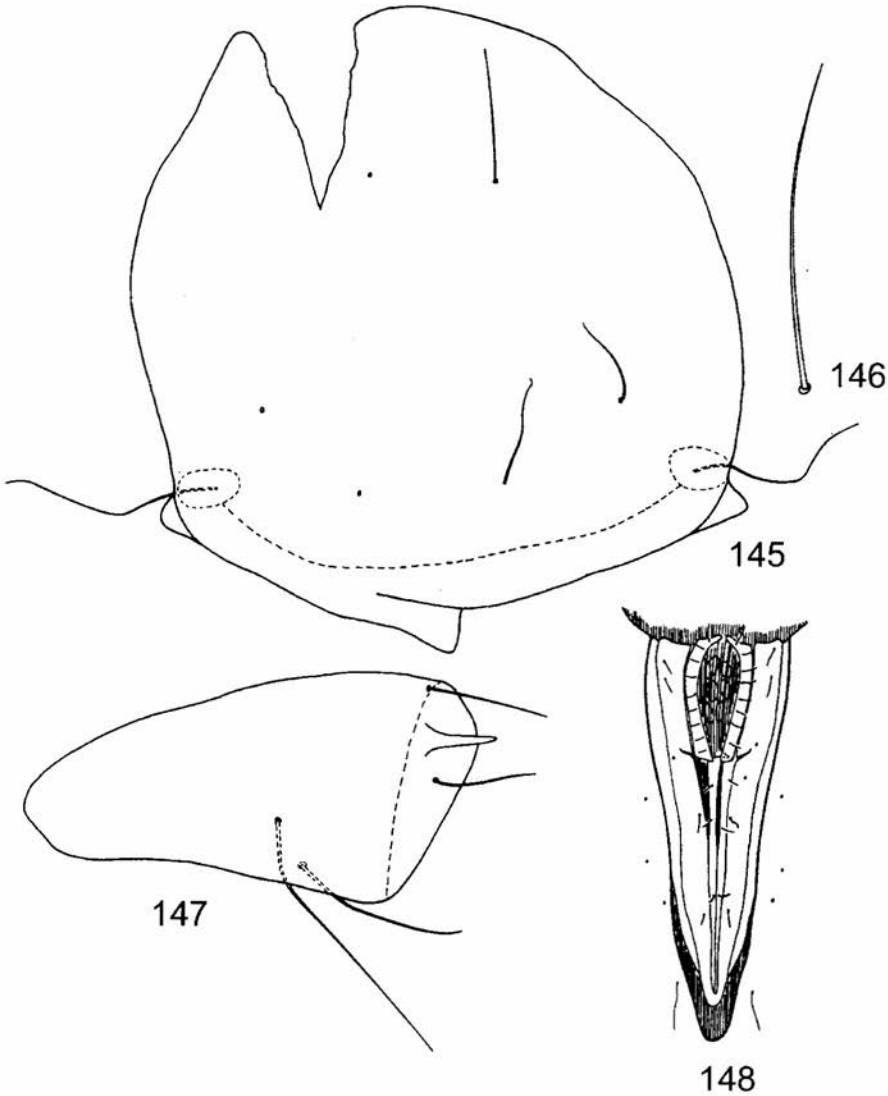
REDESCRIPTION. Measurements of the specimen from Rasuva Dis., Nepal: prodorsum: length 577, width 456, height 222, sensillus 134, setae: interlamellar 285, lamellar 114, rostral 190, exobothridial 88.8; notogaster: length 1107, width 865, height 818, setae: c_1 197, h_1 237, ps_1 192; genital and aggenital plates 260x152, anal and adanal plates 450x120. Large species, colour yellow to brown, integument densely punctate. Prodorsum with distinct, simple lateral carinae. Sensilli stout, smooth, tapering. Interlamellar and rostral setae robust, very long, erect sparsely covered with small spines, lamellar and exobothridial setae simple, smooth, *in* > *ro* > *le* > *ex*. Notogastral setae robust, fairly short (c_1/c_1-d_1= 0.6), covered with 5-7 pairs of barbules, setae of row c remote from anterior border, setae c_1 more so than setae c_2 and c_3. Vestigial setae f_1 situated anterior to h_1 setae. Ventral region. Setae *h* of mentum considerably longer than distance between them. Chaetotaxy and solenidiotaxy of palps: 0-3-0-3-9(1). Epimeral formula: 3-0-3-3. 8 pairs of genital, 2 pairs of aggenital. Two pairs of anal and 3 pairs of adanal setae present, all these setae minute; lyrifissures *iad* located slightly posteriorly of ad_3 setae. Legs. Chaetotaxy and solenidiotaxy (without tarsi): I: 1-4-5(2)-5(1),II:1-4-4(1)-4(1), III: 3-2-3(1)-3(1), IV: 3-2-2(1)-3(1). Femora I with distinct callosity at anterior end.



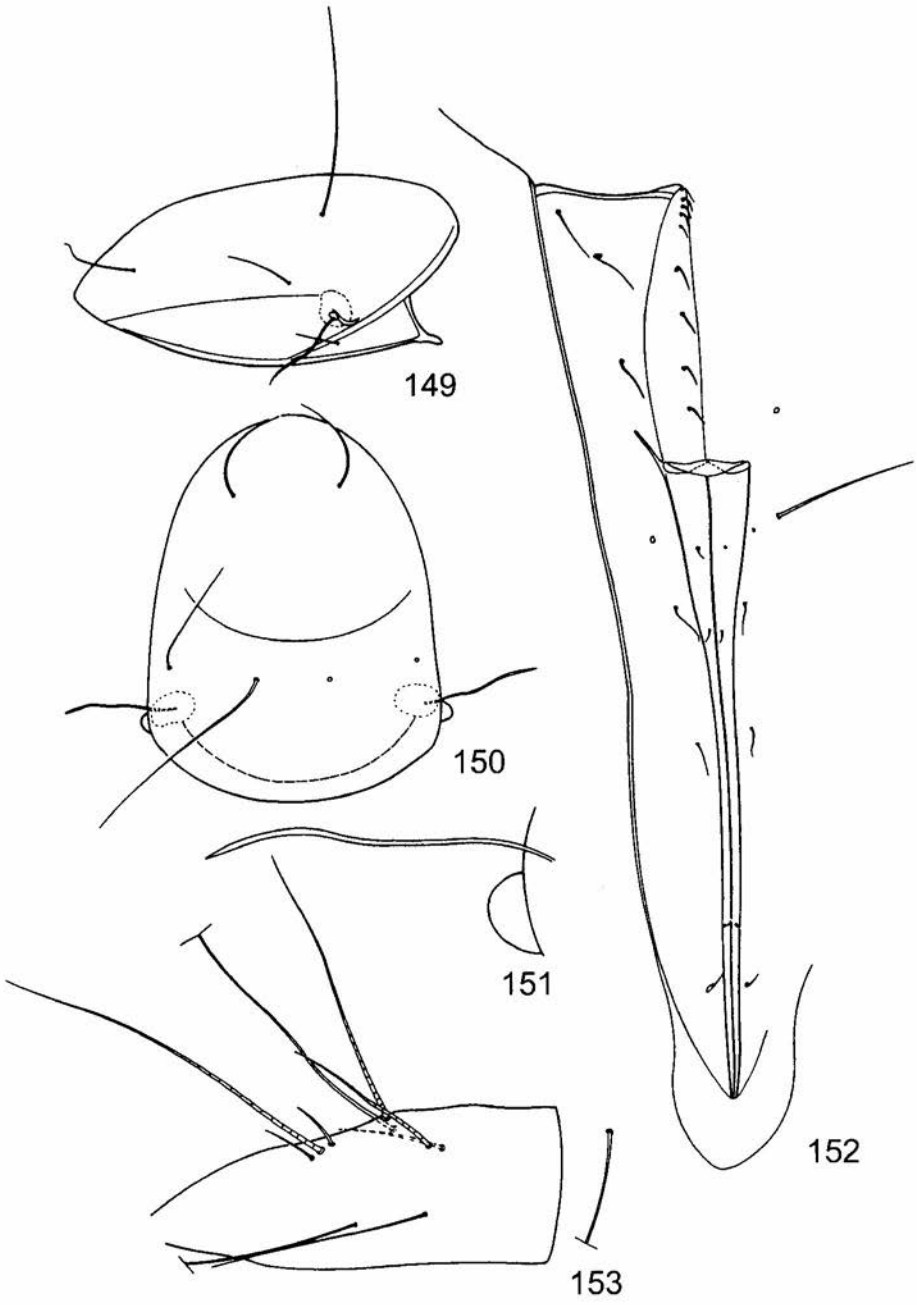
138-144. *Oribotritia chichijimensis* Aoki, 1980 (paratype): 138 - prodorsum, lateral view, 139 - prodorsum, dorsal view, 140 - sensillus, dorsal view. 141 - notogaster, lateral view, 142 - ventral region, 143 - infracapitulum with palpus, 144 - fragment of tarsus of leg I

MATERIAL. Localities in the border zone of the Oriental region: Kashmir, Gulmarg, 2650/3000 m, 1. 3. 76, leg. W. WITMER - (34) (BAYOUMI & MAHUNKA 1979). Nepal, Rasuva Dis., north slope above Syabru, 3600 m, 17 IV 1985, leg. A. SMETANA;Siwapuri Dara, 2500 m, 1 V 1985, leg. A. SMETANA - (1); Kathmandu, Dis. Siwapuri Dara, 2400 m, 29 IV 1985, leg. A. SMETANA - (1); Kathmandu Dis. Sivapuri Dara 2400 m, 30.IV.1985, leg. A. SMETANA – (1); Rasuva Dis. north slope above Syabru 3600 m, 19.IV.1985, leg. A. SMETANA – (1); Prov. Bagmati below Thare Pati, alt. 3500 m, 12 IV 1981, leg. LÖBL and SMETANA – (47).

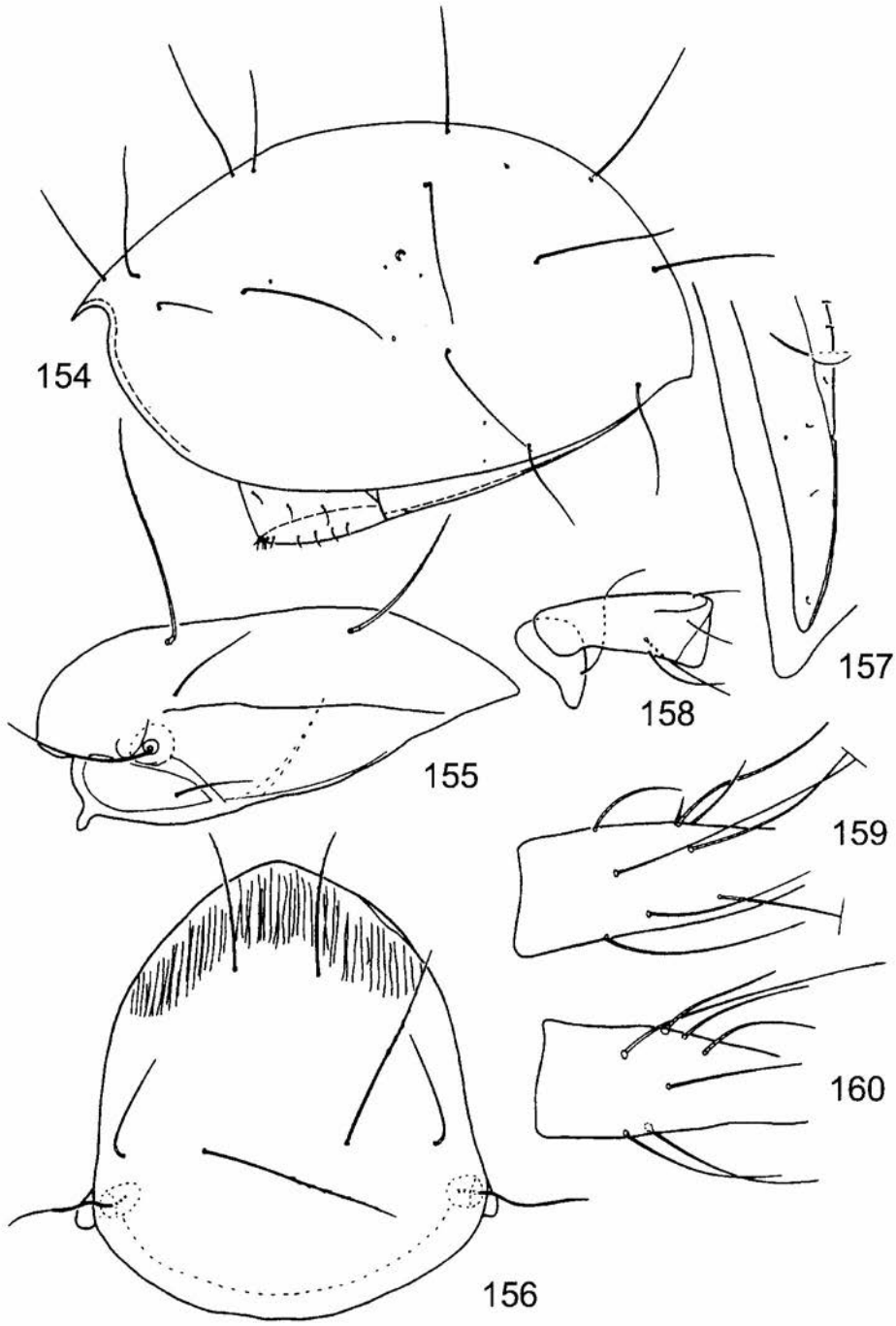
DISTRIBUTION. Kashmir, Nepal, south border of Palaearctic .



145-148. *Oribotritia corporaali* (OUDEMANS, 1926) (type): 145 - prodorsum, dorsal view, 146 - seta ps_2, 147 - femur of leg I, 148 - ventral region (after OUDEMANS 1926)



149-153. *Oribotritia fennica* Forsslund et Markel, 1963 (specimen from Sweden): 149 - prodorsum, lateral view, 150 - prodorsum, dorsal view, 151 - sensillus dorsal view, 152 - ventral region, 153 - fragment of tarsus of leg I



154. *Oribotritia fennica* FORSSLUND et MARKEL, 1963 (specimen from Sweden) - notogaster, lateral view; 155 - 160. *Oribotritia gigas* BAYOUMI, MAHUNKA, 1979 (specimen from Nepal): 155 - prodorsum, lateral view, 156 - prodorsum, dorsal view, 157 - anal and adanal plate, 158 - trochanter and femur of leg I, 159 - fragment of tarsus of leg I, 160 - fragment of tarsus of leg II

Oribotritia heterotricha sp. nov.

(Figs 163-171)

DESCRIPTION. Measurements of holotype: prodorsum: length 505, width 404, height 167, sensillus 121, setae: interlamellar 91.1, lamellar 83.5, rostral 106; notogaster: length 892, width 699, height 681, setae: c_1 139, h_1 70.8, ps_1 81; genital and aggenital plates 237x124, anal and adanal plates 414x75.7. Large species, colour light brown, integument punctate. Prodorsum with one pair of robust lateral carinae. Sensilli filiform, smooth, narrow. Interlamellar setae erect, obtuse, roughened, rostral setae robust, roughened, tapering, lamellar setae fine, exobothridial setae vestigial. Notogastral setae short (c_1/c_1-d_1 = 0.6), smooth, majority of them flagelliform, setae: e_1, h_1, ps_1, robust, erect, rough, setae c_3 robust, bent and short, setae c_1 and c_2 remote from anterior border, setae c_3 near the border. Vestigial setae f_1 situated anterior to h_1 setae. Ventral region, setae *h* of mentum twice as long as distance between them. 9 pairs of genital, 2 pairs of aggenital. One pair of anal and 3 pairs of adanal setae present; lyrifissures *iad* situated posterior to ad_3 setae. Leg chaetotaxy and solenidiotaxy (without tarsi): I: 1-4-5(2)-5(1),I:1-4-4(1)-5(1),III: 3-2-3(1)-3(1), IV: 3-2-2(1)-3(1); dorsal spines on femora I dentate; setae u" of tarsi IV spinilike.

DIAGNOSIS. This species is distinguishable from congeneric species by heterotrichy of notogastral setae and dentate dorsal spine of femur I.

MATERIAL. Holotype and 11 paratypes: Indonesia, Kalimantan, Timur, Samarinda d., Samarinda Ulu, Lac Bahu, rain forest, 27.X.1979, leg. P.T. LEHTINEN. Another locality in Indonesia: Kalimantan, Timur, Samarinda d., Sanga Sanga Muara, jungle litter, 29.X.1979, leg. P.T. LEHTINEN – (11).

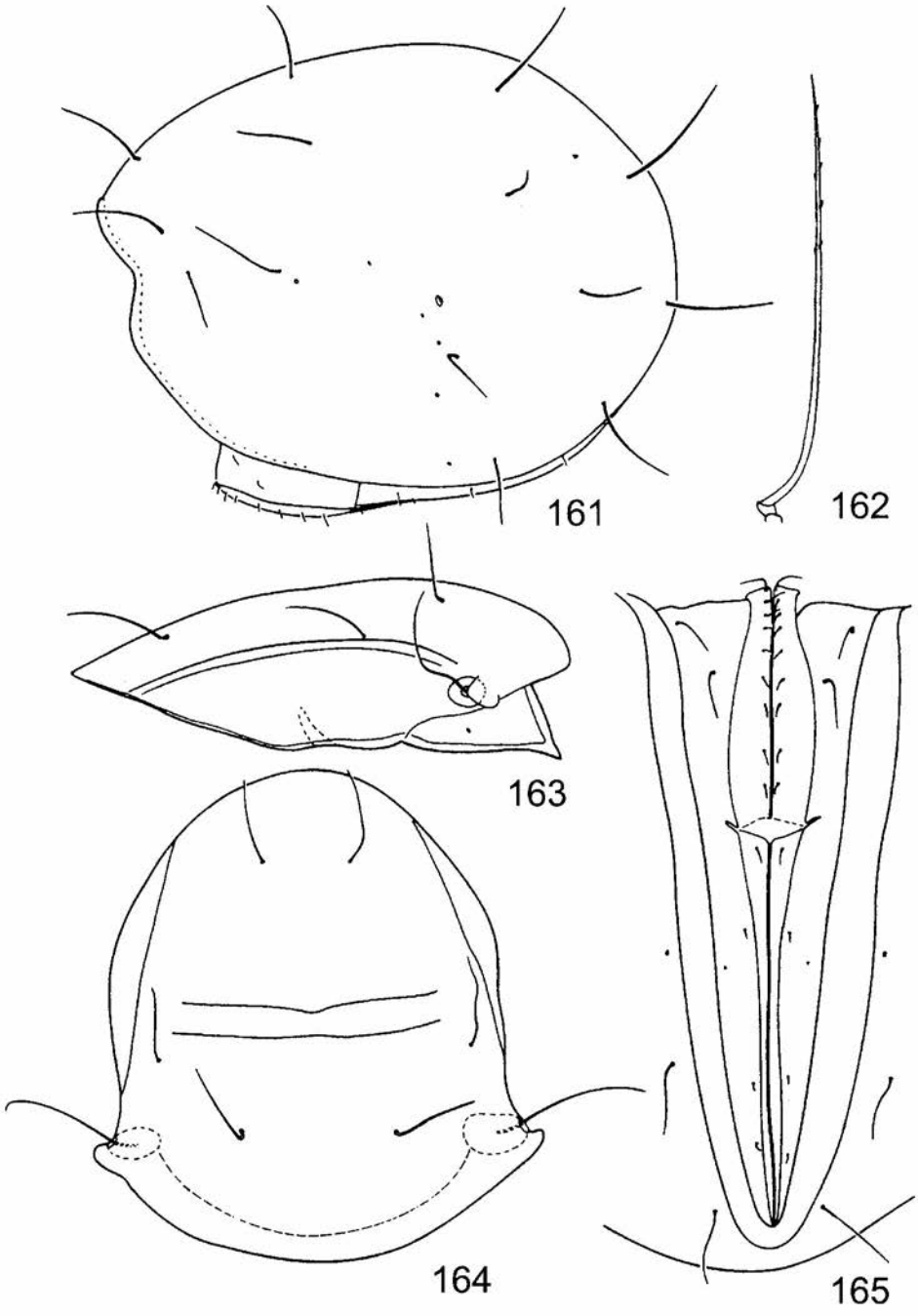
DISTRIBUTION. Indonesia, Borneo, perhaps an endemic species.

Oribotritia nepalensis sp. nov.

(Figs 172-176)

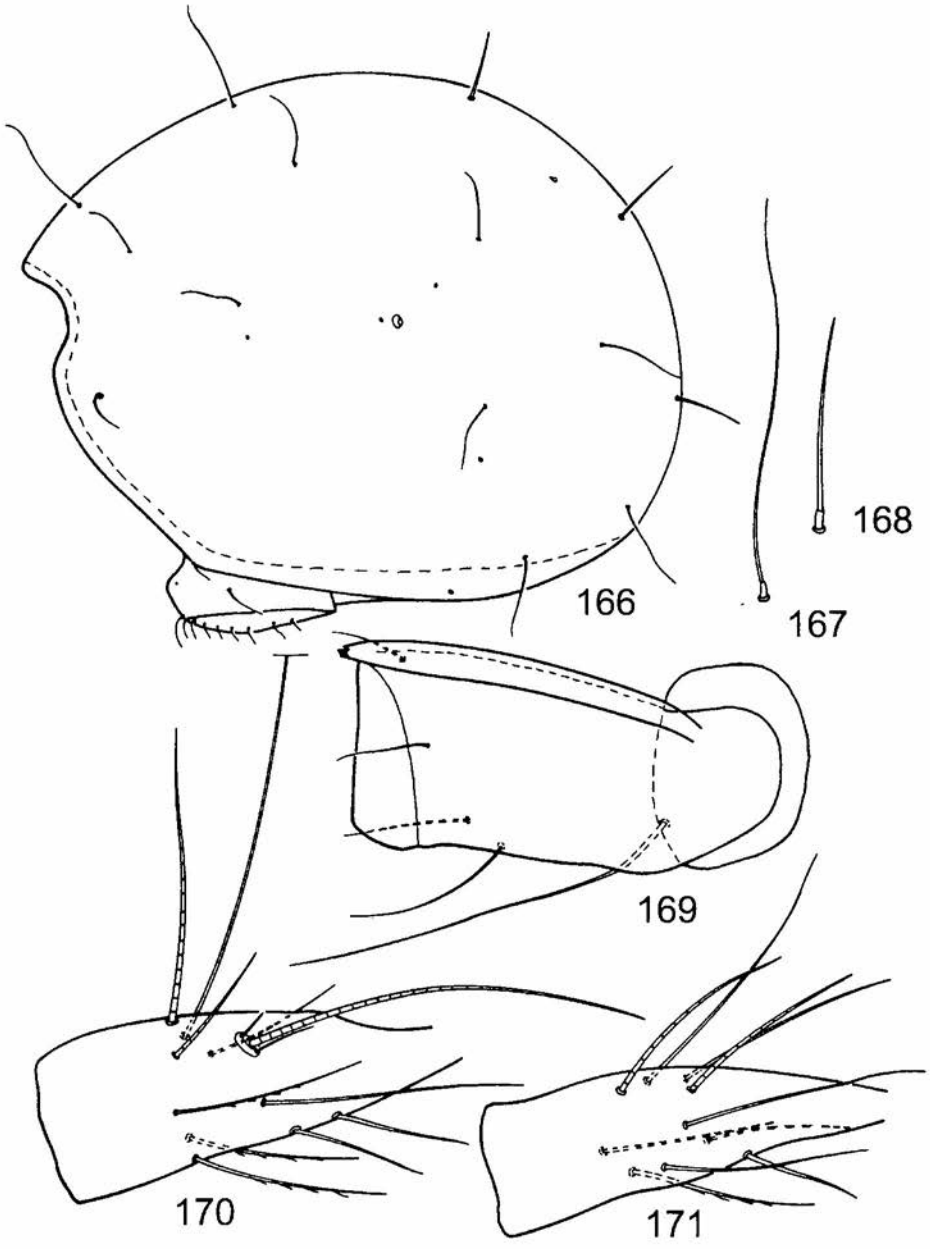
DESCRIPTION. Measurements of holotype: prodorsum: length 639, width 477, height 231, sensillus 169, setae: interlamellar 308, lamellar 146, rostral 246, exobothridial 115; notogaster: length 1235, width 823, height 823, setae: c_1 208, h_1 223, ps_1 169; genital and aggenital plates 293x77, anal and adanal plates 585x61.6. Large species, colour brown, integument densely punctate. Prodorsum with simple, lateral carinae. Sensilli smooth, tapering. Interlamellar and rostral setae robust, long, erect, covered with 2-3 pairs of small spines, lamellar setae thinner, smooth, exobothridial setae relatively long, *in* > *ro* > *le* > *ex*. Notogastral setae robust, fairly short (c_1/c_1-d_1= 0.75) setae covered with 2-3 pairs of small spines, setae of row c remote from anterior margin, setae c_3 more so than c_1 and c_2 setae. Vestigial setae f_1 anterior to h_1 setae. Lyrifissures *ips* and *ih* invisible. Ventral region. Setae *h* of mentum considerably longer than distance between them. Chaetotaxy and solenidiotaxy of palps: 0-2-0-3-9(1). Epimeral formula: 3-0-2-2. 8 pairs of genital, 2 pairs of aggenital. One pair of anal and 3 pairs of adanal setae present, all setae minute. Leg chaetotaxy and solenidiotaxy: I: 1-3-4(2)-5(1)-22(3), II:1-3-3(1)-4(1)-18(2), III: 3-2-3(1)-3(1)-15, IV: 3-2-2(1)-2(1)-14.

DIAGNOSIS. The new species is very similar to *O. asiatica* HAMMER,1977 and *O. subsolana* sp. nov. It is distinguishable from *O. asiatica* by the longer exobothridial

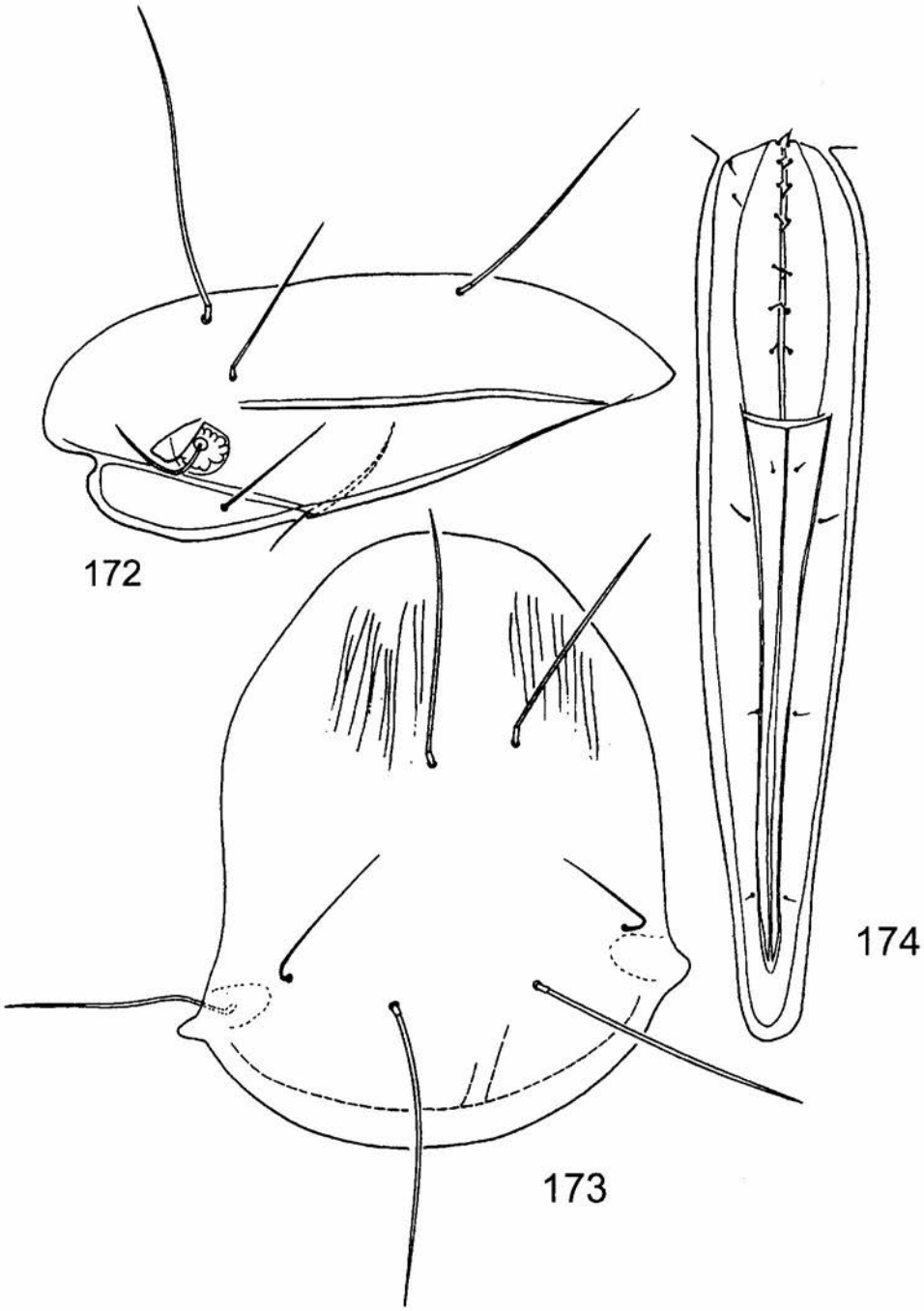


161, 162. *Oribotritia gigas* BAYOUMI, MAHUNKA, 1979 (specimen from Nepal): 161 - notogaster, lateral view, 162 - seta h_3; 163-165. *Oribotritia heterotricha* sp. nov. (holotype): 163 - prodorsum, lateral view, 164 - prodorsum, dorsal view, 165 - ventral region

setae, setae with smaller number of barbules, presence of 8 pairs of genital and 1 pair of anal setae. It differs from *O. subsolana* in longer exobothridial setae, smaller number of barbules of setae, presence of 1 pair of anal setae and considerable differences in chaetotaxy of epimeres, palps and all legs.



166-171. *Oribotritia heterotricha* sp. nov. (holotype): 166 - notogaster, lateral view, 167 - seta c_1, 168 - seta h_1, 169 - trochanter and femur of leg I, 170 - fragment of tarsus of leg I, 171 - tarsus of leg II



172-174 *Oribotritia nepalensis* sp. nov. (holotype): 172 - prodorsum, lateral view, 173 - prodorsum, dorsal view, 174 - ventral region

MATERIAL. Holotype and one paratype: Nepal, bamboo forest at road Hinko-Chumru, 12 IX 1981, leg. J. BŁOSZYK; 4 paratypes: Nepal, litter under old trees near Machapuchara Camp, 11 IX 1981, leg. J. BŁOSZYK; 4 paratypes: Nepal, litter and leaves under old trees under stream near Machapuchara Camp, 3500 m a.l.s., 11 IX 1981, leg. J. BŁOSZYK; 6 paratypes: Nepal, litter, leaves, detritus under Rhododendrons and other trees, moist, under Hinko, 12 IX 1981, leg. J. BŁOSZYK.

REMARK. The three species *O. asiatica*, *O. nepalensis* and *O. subsolana* are very similar in size and shape and have many similar morphological characters. Perhaps having the same origin they might be subject to relatively recent adaptative radiation.

DISTRIBUTION. Nepal, perhaps an endemic species.

Oribotritia paraaokii sp. nov.

(Figs 14-188)

DESCRIPTION. Measurements of holotype: prodorsum: length 495, width 358, height 176, sensillus 85.8, setae: interlamellar 11, lamellar 106, rostral 80.8; notogaster: length 899, height 646, setae: c_1 126, h_1 and ps_1 141; genital and aggenital plates 212x111, anal and adanal plates 465x101. Colour brown, cuticle finely punctate. Prodorsum with three pairs of lateral carinae. Sensilli rigid, baciliform, smooth. Interlamellar setae rough, lamellar and rostral setae smooth, rostral setae erect, *le* > *ro* > *in*. Notogastral setae robust, covered with small spines, only setae c_3 smooth and longer than other setae, setae c_1 and c_2 remote from anterior margin, setae c_3 near margin. Tendon attachment points, vestigial setae and lyrifissures typical of the genus. Ventral region. Mentum, epimera and palps typical of the genus. Setae *h* of mentum longer than distance between them. Genital plates each with nine setae, aggenital plates each with two setae. One pair of anal and three pairs of adanal setae present (seta ad_2 on left side of holotype is absent); lyrifissures *iad* located anterior to ad_2 setae. Leg chaetotaxy and solenidiotaxy as *O. aokii*, femora I with distal and dorsal hook.

DIAGNOSIS. This species is similar to *O. aokii* MAHUNKA, 1987 but sensilli are baciliform and rostral setae much more slender.

ETYMOLOGY. After it similarity to *O. aokii*.

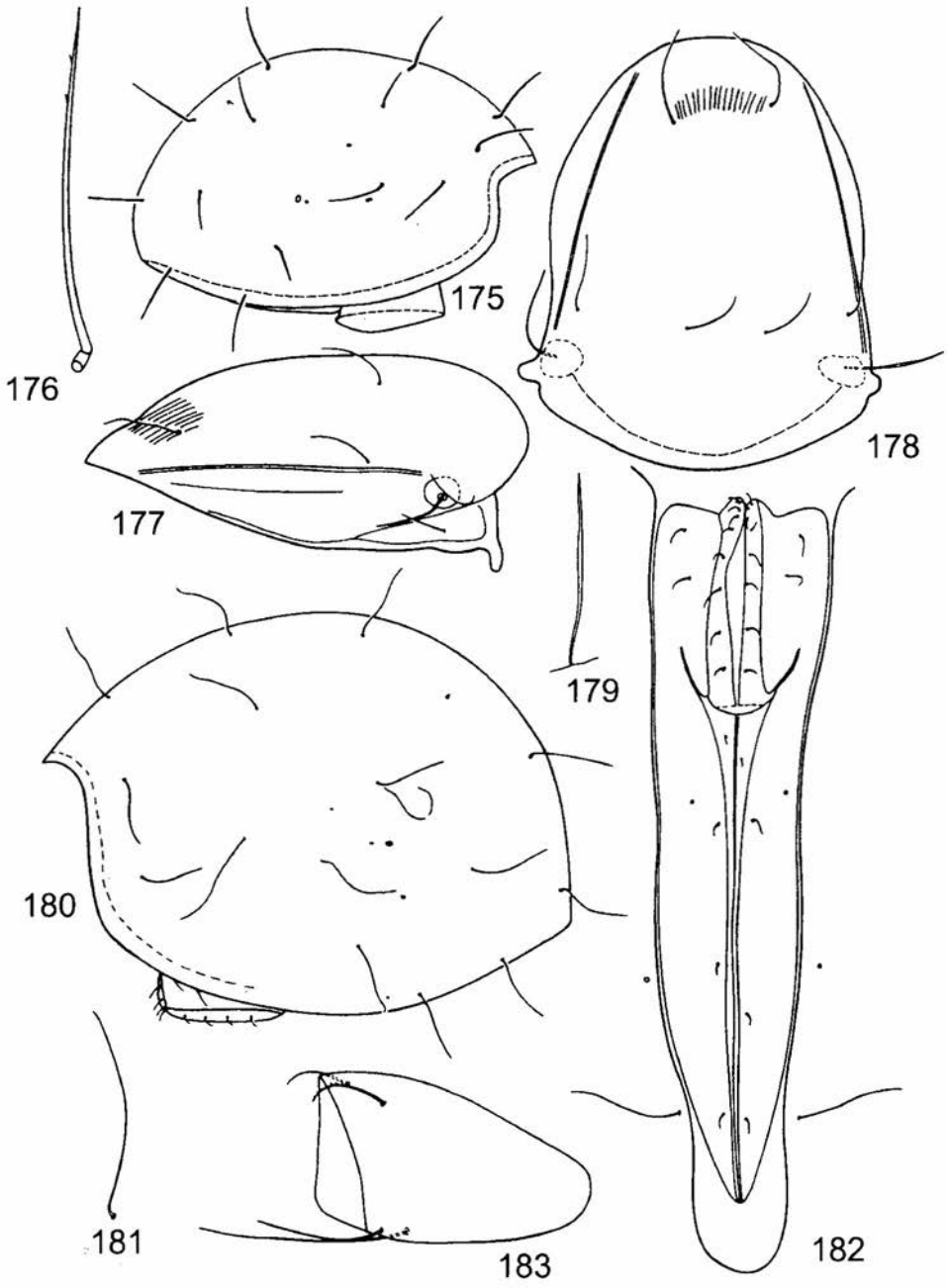
MATERIAL. Holotype: Vietnam, Tam Dao National Park, mountain tropical forest, 900 m, 11.10.1996, leg. W. JĘDRYCZKOWSKI.

DISTRIBUTION. Vietnam, probably an endemic species.

Oribotritia submolesta sp. nov.

(Figs 177-183)

DESCRIPTION. Measurements of holotype: prodorsum: length 530, width 419, height 222, sensillus 101, setae: interlamellar 63.2, lamellar 68.3, rostral 109; notogaster: length 1012, height 727, setae: c_1 197, h_1 146, ps_1 126; genital and aggenital plates 202x75.7, anal and adanal plates 495x75.7. Colour dark brown, surface of body punctate. Prodorsum with one pair of lateral carinae, lower carinae



175, 176. *Oribotritia nepalensis* sp. nov.(holotype): 175 - notogaster, lateral view, 176 - seta h_1; 177-183. *Oribotritia submolesta* sp. nov. (holotype): 177 - prodorsum, lateral view, 178 - prodorsum, dorsal view, 179 - sensillus, dorsal view, 180 - notogaster, lateral view, 181 - seta ps_1, 182 - ventral region, 183 - femur of leg I

shorter, not reaching bothridium. Sensilli short, robust, stick-like somewhat swollen medially. Setae fine, short, *ro* > *le* > *in* > *ex*. Notogastral setae fine, flagellate, short (c_1/c_1-d_1 = 0.81), setae of row c remote from anterior margin, setae c_1 more so than setae c_2 and c_3. Vestigial setae f_1 anterior to h_1 setae. Ventral region. Setae *h* of mentum approximately three times longer than distance between them. Palps five-segmented with formula: 0-3-0-3-9(1). Epimeral formula: 3-0-3-3. 8 pairs of genital, 2 pairs of aggenital. One pair of anal and 3 pairs of adanal setae present, lyrifissures *iad* situated between setae *an* and ad_3. Leg chaetotaxy and solenidiotaxy (without tarsi): I: 1-4-5(2)-5(1),II: 1-4-4(1)-5(1), III: 3-2-3(1)-4(1), IV: 3-2-2(1)-3(1).

DIAGNOSIS. This new species is similar to *O. bipartita* sp. nov. from Nepal, differs in the fine setae and location of *iad* lyrifissures between anal and ad_3 setae.

ETYMOLOGY. The specific epithet *submolesta* (*molesta*) is Latin for "troublesome" and „burdensome" and refers to difficulty of making a drawing of a very dark specimen.

MATERIAL. Holotype and 7 paratypes: Vietnam, Quang Minh, Ha Long 40 m. jungle litter, 13 X 1978, leg. P.T. LEHTINEN. Another locality in the border zone of the Oriental region: India, Uttar Pradesh Kumaon Bhimtal (1380 m), in litter of bush (TF), 17.IV.1979, leg. P.T. LEHTINEN – (1).

DISTRIBUTION. An Oriental species, towards northern border of the region.

Oribotritia tokukoae AOKI, 1973

(Figs 189-201)

Oribotritia tokukoae: AOKI 1980

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of paratype: prodorsum: length 616, width 524; sensillus 202 notogaster: length 1242, width 1104, ps_1 75.9; genital and aggenital plates 353x141, ag_1 27.8, ag_2 12.6. Second paratype: prodorsum: length 679, sensillus 167, *ro* 91.1, *le* 137. Measurements of specimen from Hokkaido sample: prodorsum: length 595, width 471, height 223, sensillus 180, setae: interlamellar 143, lamellar 112, rostral 143, exobothridial 74.4; notogaster: length 1256, width 863, height 801, setae: c_1 124, h_1 and ps_1 112; genital and aggenital plate 304x124, anal and adanal plate 601x102. Prodorsum with simple lateral carinae; sensilli needle-shaped being almost equal in thickness throughout length; setae thin and smooth, *in* > *le* > *ro* > *ex*. Notogastral setae fine, short (c_1/c_1-d_1); vestigial setae f_1 located anterior to h_1 setae. Ventral region. Setae *h* of mentum longer than distance between them; chaetotaxy of palps: 0-3-0-3-9 and one solenidion; epimeral formula: 3-0-2-2; 8 pairs (in specimen from Hokkaido sample - 9 pairs) of genital, 2 pairs of aggenital; 3 pairs of anal and 3 pairs of adanal setae present, distance between setae an_1 and an_2 greater than between setae an_2 and an_3; distance between setae ad_1 and ad_2 greater than between setae ad_2 and ad_3; lyrifissures *iad* situated between setae ad_2 and ad_3. Leg chaetotaxy and solenidiotaxy: I: 1-4-5(2)-5(1)-26(3), II: 1-4-4(1)-4(1)-20(2), III: 3-2-3(1)-3(1)-16, IV: 3-2-2(1)-3(1)-13.

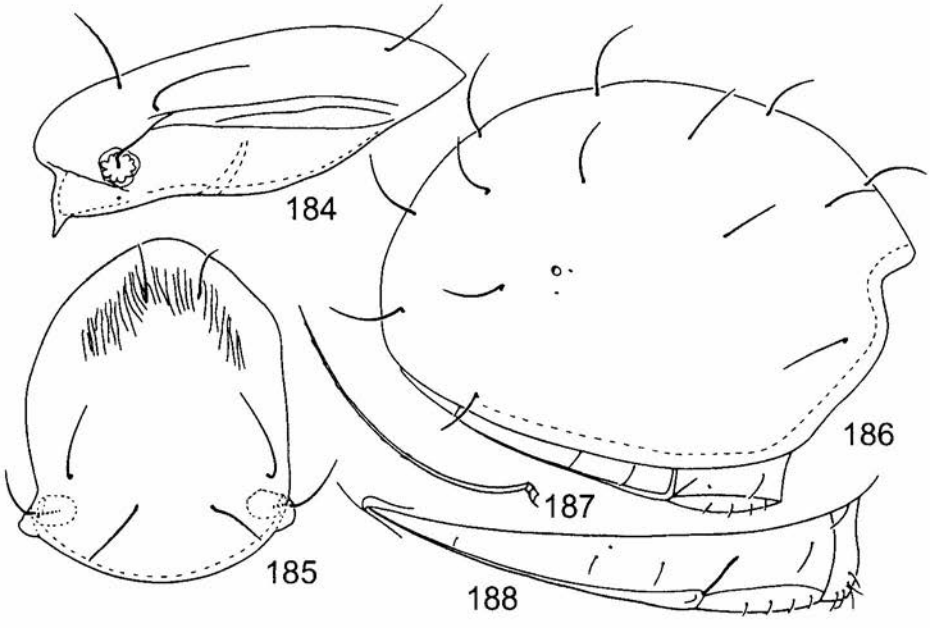
REMARK. This species differs from *O. fennica* FORSSLUND et MARKEL in the lyrifisssures *iad* located between ad_2 and ad_3 setae and the presence of two pairs of aggenital setae.

MATERIAL. Two microscopic slides labelled: first: „NSMT-Ac 6641 25-VII-1971 1365 *Oribotritia tokukoae* AOKI, 1973 (paratypus)" and second: as above „no 6643" (courtesy Dr. H. ONO, Department of Zoology, Natural Science Museum, Tokyo). Localities in the border zone of the Oriental region: Japan, Kita Cirque of Mt. Poroshiri, Hidaka, Hokkaido, from litter of *Pinus pumila* and *Sasa*, 25 VII 1971, leg. J. AOKI - (6); N. Japan, Nanatsu-numa of Mt. Poroshiri, Hidaka, Hokkaido, from litter of *Pinus pumila*, 26 VII 1971, leg. J. AOKI- (3); N. Japan, near Poroshiri-sanso at the foot of Mt. Poroshiri, Hidaka, Hokkaido, from forest litter, 27 VII 1971, leg. J. AOKI - (21) (AOKI 1973, 1980); Japan, Hokkaido, S of Kushiro, in leafy forest, 2.VI.1974, leg. T. WOJTERSKI – (2).

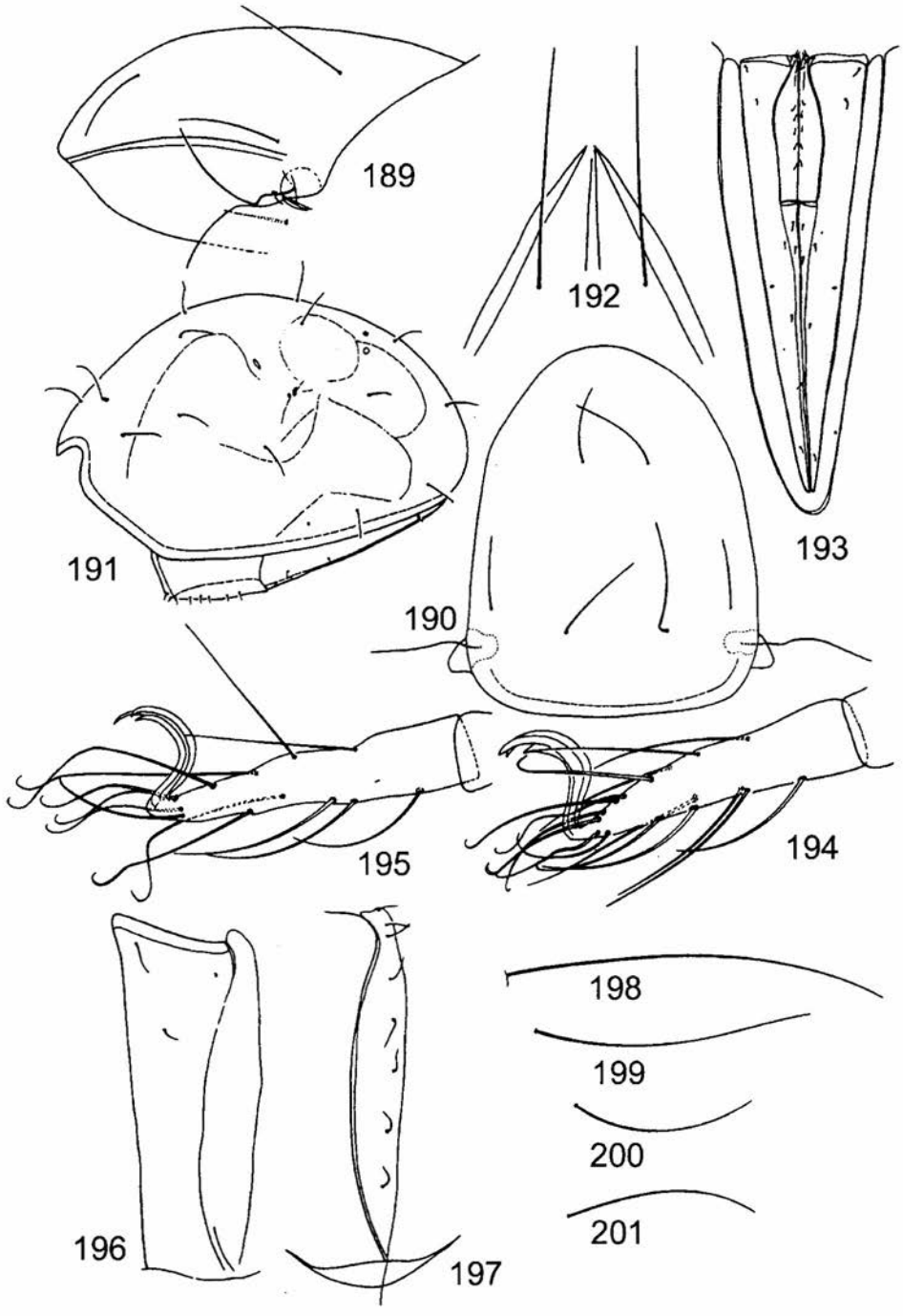
DISTRIBUTION. Japan, perhaps an endemic species.

Mesotritia FORSSLUND, 1963

DIAGNOSIS. Prodorsum without median carina, lateral carinae present, posterior median apodeme present, bothridial squamae situated below bothridia, rostral setae arising medially from rostrum, lamellar and interlamellar setae arising laterally; notogaster with terminal sinus or fissure; genitoaggenital and anoadanal sutures well developed, anogenital cleft absent, genital setae never situated anterior to kag tectum of genitoaggenital plates; legs heterotridactylous, neotrichy on tarsi I and II, famuli bifurcate, solenidia of tarsi II without coupled setae, genua IV without solenidia, setae d on tibiae IV long, not coupled with solenidia.



184-188. *Oribotritia paraaoki* sp. nov.(holotype): 184 - prodorsum, lateral view, 185 - prodorsum, dorsal view, 186 - notogaster, lateral view, 187 - seta h_1, 188 - ventral region



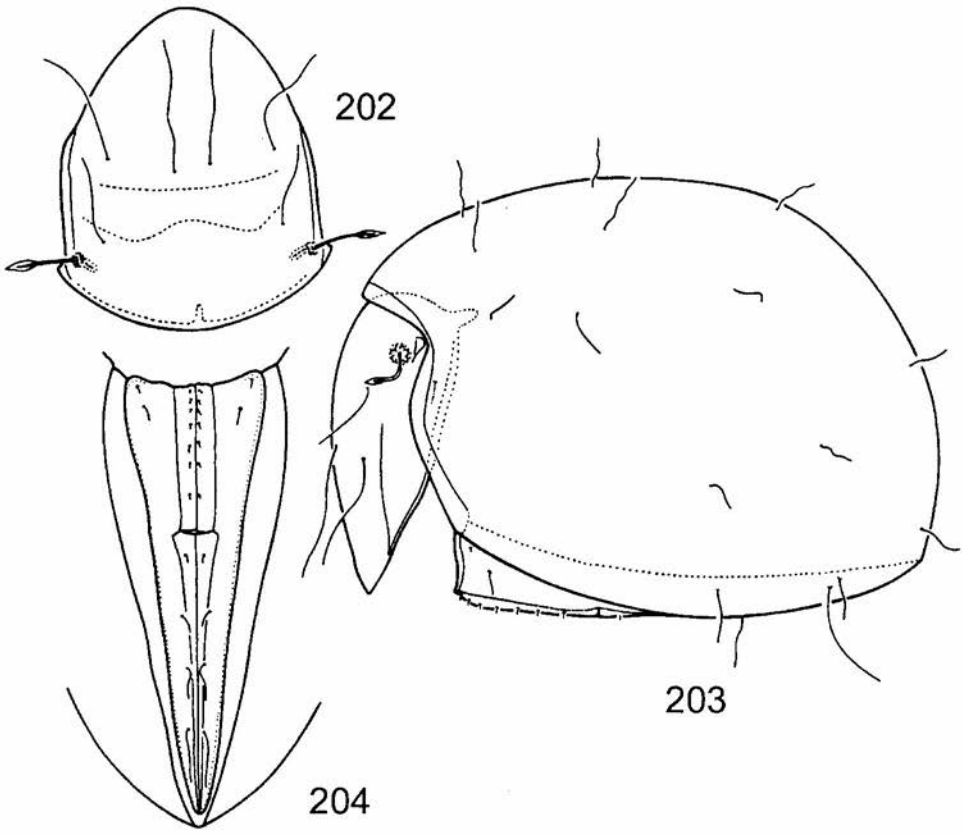
189-195. *Oribotritia tokukoae* Aoki, 1973 (specimen from Japan): 189 - prodorsum, lateral view, 190 - prodorsum, dorsal view, 191 - notogaster, lateral view, 192 - mentum of infracapitulum, 193 - ventral region, 194 - tarsus of leg III, 195 - tarsus of leg IV; 196-201. *Oribotritia tokukoae* Aoki, 1973 (paratype): 196 - aggenital plate, 197 - genital plate, 198 - sensillus, 199 - lamellar seta, 200 - rostral seta, 201 - seta ps_1

Mesotritia clara STARY, 1992
(Figs 202-204)

DIAGNOSIS. Prodorsum with one pair of lateral carinae not reaching bothridia; sensilli long, with lanceolate head; setae fairly long, flagellate and smooth, rostral setae situated nearer lamellar than interlamellar setae, distance between interlamellar setae equal to distance between lamellar setae, rostral setae the longest, exobothridial setae the shortest. Notogaster with 14 pairs of short, flagellate setae. Ventral region. Palps three segmented with formula: 1-2-8(1); 7 pairs of genital setae and 2 pairs of aggenital setae present, posterior pair of aggenital setae longer than anterior pair; one pair of anal and 3 pairs of adanal setae present, ad_1 the longest, ad_3 the shortest. Leg chaetotaxy and solenidiotaxy:I:1-2-4(2)-5(1)-15(3), II: 1-3-3(1)-4(1)-12(2),III:1-2-2(1)-2(1)-11, IV: 2-3-2-1(1)-10.

REMARK. This species differs from *M. dissimilis* HAMMER in the number of pairs of anal setae and rostral setae being located nearer lamellar setae than interlamellar setae.

MATERIAL. Localities in the border zone of the Oriental region: India, Kashmir, near Srinagar, south slope, detritus and litter , 13 IX 1976, leg. C. BŁASZAK and J.



202-204. *Mesotritia clara* STARY, 1992 (after STARY 1992): 202 - prodorsum, dorsal view, 203 - lateral view of body, 204 - ventral region

BŁOSZYK - (6) (STARY 1992); Kashmir, near Sorbal, old pine tree, litter sifting, 13. IX1976, leg C. BŁASZAK and J. BŁOSZYK - (30); Kashmir, way from Srinagar to Korgil, 20 km from Sonamarg, mixed forest with pine, spruce, fir and walnut, litter, decaying wood, 6 IX 1976,leg. C. BŁASZAK and J. BŁOSZYK - (1).

DISTRIBUTION. India, Kashmir, probably an endemic species.

Mesotritia dissimilis HAMMER, 1977

(Figs 205-208)

Mesotritia (Entomotritia) dissimilis HAMMER, 1977

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of „type": prodorsum: length 333, width 263, sensillus 75.7; length of notogastral seta 65.8, length of genital and aggenital plates 167, length of anal and adanal plates 323. Prodorsum with simple lateral carinae; sensilli fairly long, narrow, distal end swollen, rough; rostral setae located between interlamellar and lamellar setae, $ro > le > in$. Notogaster with 14 pairs of simple, fine setae. Ventral region, chaetotaxy of palps: 2-2-8 and one solenidion; 7 pairs of genital, 2 pairs of aggenital; 2 pairs of anal and 3 pairs of adanal setae present, lyrifissures *iad* situated anterior to an_2 setae, $ad_1 > ad_2 > ad_3$.

MATERIAL. One specimen on microscopic slide labelled: „*Oribatidae Mesotritia dissimilis* n. sp. diss tegnet.W. Pakistan 96 M. HAMMER 1969 Type" (courtesy Dr. H. ENGHOFF, Zoologisk Museum, Copenhagen). Locality in the border zone of the Oriental region:West Pakistan,Naran valley with Kunhar river, Shogran Forest Research Station, about 2600 m a.s.l., moist moss at the side of a creek , 1969, leg. M. HAMMER - (1) (HAMMER 1977).

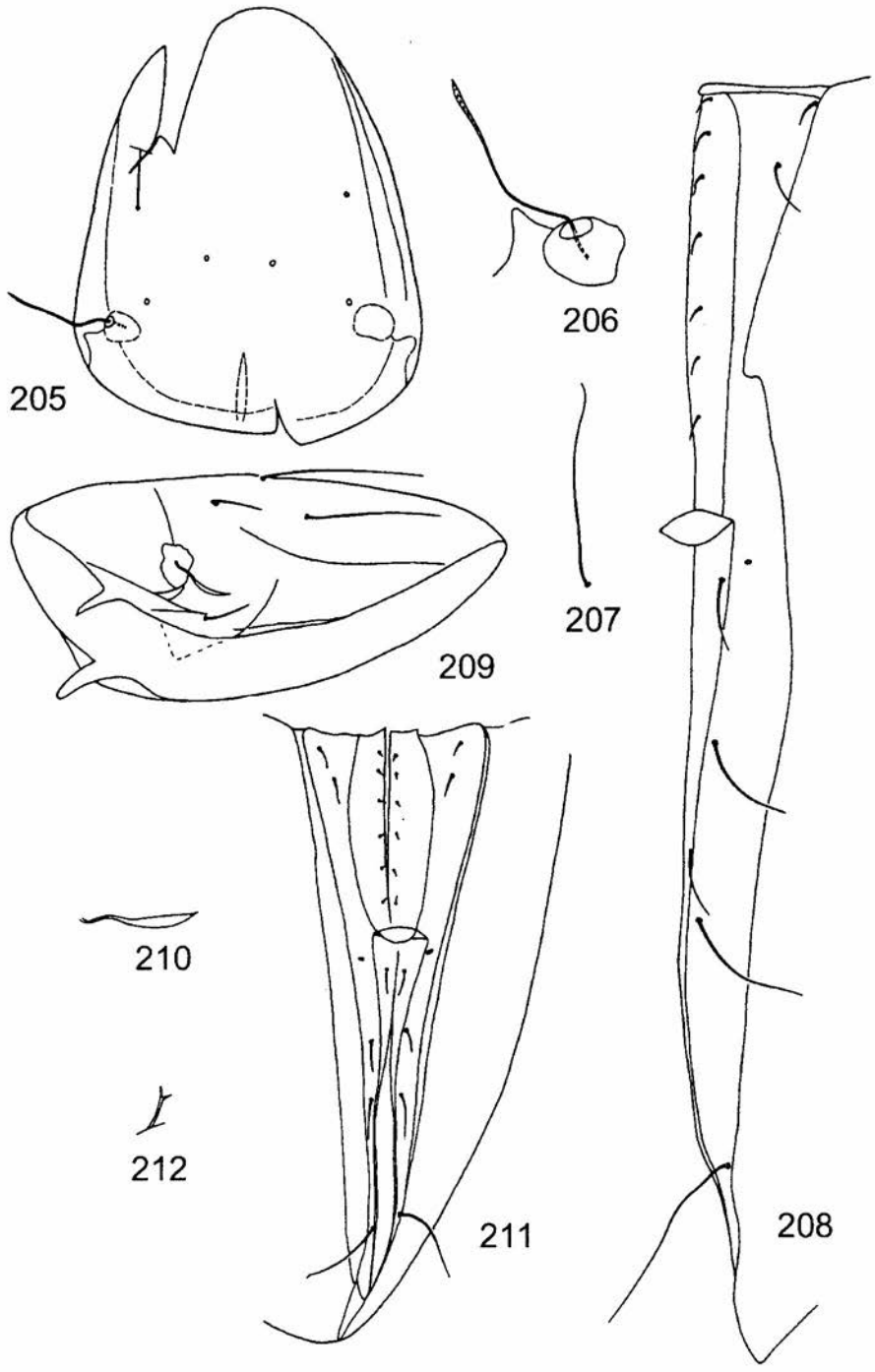
DISTRIBUTION. West Pakistan, perhaps an endemic species.

Mesotritia markeli SHEALS, 1965

(Figs 209-230)

Mesotritia flagellata BAYOUMI et MAHUNKA, 1979 **syn. nov.**
Mesotritia spinosa AOKI, 1980 **syn. nov.**

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of holotype of *M. markeli*: prodorsum: length 384, height 126, sensillus 48.1, setae: interlamellar 101, lamellar 45.5, rostral 144, exobothridial 40.5; notogaster: length 744, height 530, setae: c_1 50.6, h_1 and ps_1 40.5, length of genital and aggenital plates 177, length of anal and adanal plates 278; measurements of paratype: length of prodorsum 311, length of notogaster 602. Measurements of holotype of *M. spinosa*: prodorsum: length 364, width 313, sensillus 55.5, setae: interlamellar 121 lamellar 80.8, rostral 45.4, seta h_3 43.0; genital and aggenital plates 136x50.5, anal and adanal plates 278x55.5; measurements of specimens from Maczapuchara (Nepal) sample: prodorsum: length 422, width 322, height 161, sensillus 69.6, setae: interlamellar 79.2, lamellar 144, rostral 211, exobothridial 68.2; notogaster: length 863, width 534, height 487, setae: c_1 99, h_1 81, ps_1 63; genital and aggenital plates 219x75, anal and adanal plates 354x57. Prodorsum (in *M. spinosa* surface between bothridia covered with minute spines)



205-208. *Mesotritia dissimilis* HAMMER, 1977: 205 - prodorsum, dorsal view, 206 - sensillus, dorsal view, 207 - seta c_1, 208 - left side of ventral region; 209-212. *Mesotritia markeli* SHEALS, 1965 (paratype): 209 - prodorsum, lateral view, 210 - sensillus, lateral view, 211- ventral region, 212 - famulus

with simple lateral carinae or not; sensilli short, knife-like with pointed distal end; setae fine, rostral setae located between interlamellar and lamellar setae, interlamellar setae slightly longer than rostral setae, lamellar setae about half length of interlamellar ones, exobothridial setae shorter than lamellar setae; *ro* > *le* > *in* >*ex*. Notogaster with 14 pairs of very fine, fairly short flagellate (c_1/c_1-d_1 = 0.34) setae, setae of row c remote from anterior border; vestigial setae f_1 anterior to h_1 setae. Ventral region, setae *h* of mentum considerably longer than distance between them, chaetotaxy of palps: 2-2-8 and one solenidion; 6 (or 5) pairs of minute genital and 2 pairs longer aggenital setae; anal plates each with one, short seta, adanal plates with 3 pairs of setae, setae ad_1 longer than setae ad_2 and ad_3, lyrifissures *iad* located slightly anterior to anal setae. Leg chaetotaxy and solenidiotaxy: I: 1-3-5(2)-5(1)-17(3), II:1-4-4(1)-4(1)-12(2), III: 2-3-2(1)-2(1)-11, IV: 2-3-2-2(1)-10.

REMARK. According to BAYOUMI & MAHUNKA (1979) *M. flagellata* differs from *M. markeli* in the shape of sensilli and interlamellar, rostral and notogastral setae. In my opinion these features are subject to intraspecific variability.

MATERIAL. Two microscopic slides, one with holotype (9 000ft) and second with paratype (10 000 ft) labelled: „*Mesotritia markeli* SHEALS, Holotype o+ 1964.7.20.1 Coll. No 673 Brit. Mus. Nepal Exp. 1961-1962 TAMUR RIVER SELAP 27o38»N 87o49»E *Rhododendron* litter under chin snow 4.2.1962K.H.H.(c)" (courtesy Dr A.S. BAKER, British Museum (Natural History), London), one microscopic slide labelled: „NSMT-Ac 9130JA 1713 *Mesotritia spinosa* AOKI 1979 (Holotypus) (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Localities in the border zone of the Oriental region: sub *M. markeli*: Nepal, Selap forest, Tamur River, under *Rhododendron*, 4 II 1962. leg. Brit. East Nepal Exped. - (4) (SHEALS 1965); Nepal, old trees in Maczapuchara Camp., litter, 11.IX.1981, leg. J. BŁOSZYK – (2). sub. *M. flagellata*: Bhutan, Phuntsholing, 87 km, 22. 5.72, W. WITTMER - (4) (BAYOUMI & MAHUNKA 1979); sub *M. spinosa*: Japan, S. Japan, Hirauchi, Yaku Island, from litter, 15XI 1974, J. AOKI - (1) (AOKI 1980).

DISTRIBUTION. SE border of Palaearctic, Nepal, Bhutan, Japan.

Mesotritia nitida HAMMER, 1977

(Figs 231-236)

Mesotritia (Entomotritia) nitida HAMMER, 1977

REDESCRIPTION. Measurements of „type": prodorsum: length 419, width 353, sensillus 101, setae: interlamellar 111, lamellar 156, rostral 177; length of genital and aggenital plates 187, length of anal and adanal plates 409. Prodorsum with simple lateral carinae. Sensilli long, slender, with two small spines pointed the distal end (in figures 7 of HAMMER (1977) the shape is different). Rostral and lamellar setae placed at the same level, thicker than interlamellar setae, *ro* > *le* > *in*. Notogaster with 14 pairs of fine and short (c_1<c_1-d_1) setae, setae of row c remote from anterior margin, setae c_1 and c_2 more so than c_3 setae. Ventral region. Setae *h* of mentum considerably longer than distance between them. Chaetotaxy and solenidiotaxy of palps: 2-2-8(1), epimeral chaetotaxy: 3-0-3-3. 9 pairs of genital and 2 pairs of aggenital setae present, aggenital setae longer than genital. Anal plate without setae,

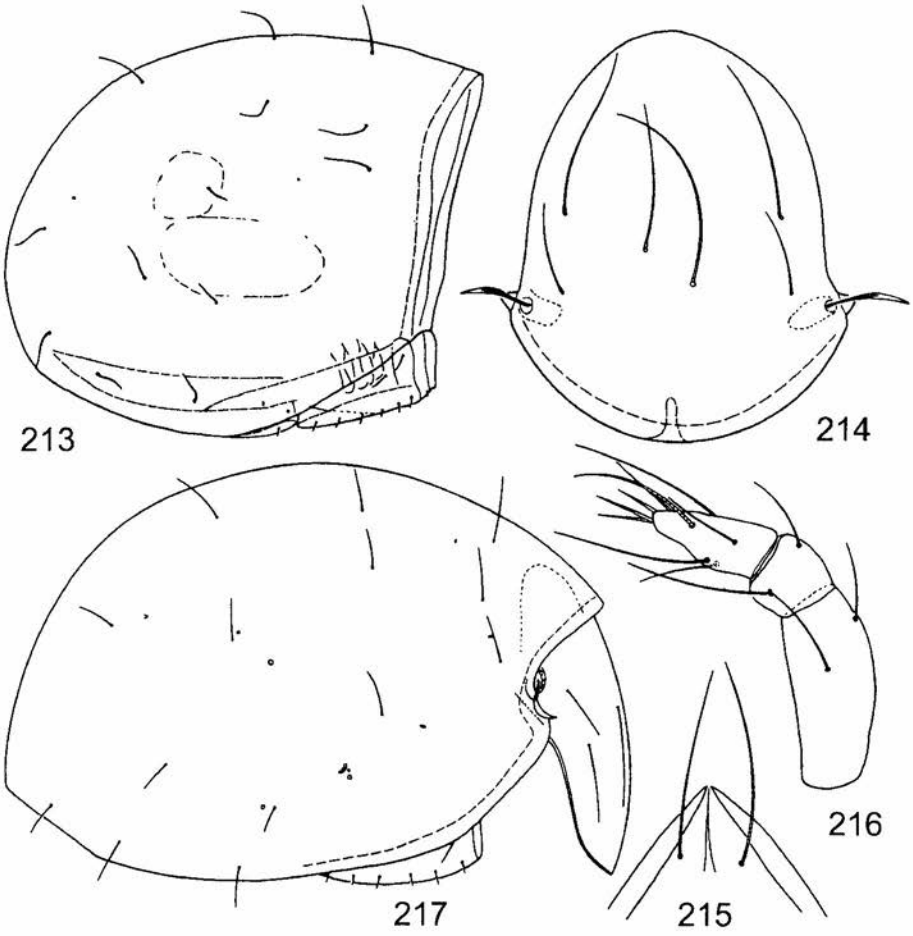
4 pairs of adanal setae, setae ad_1 the longest, lyrifissures *iad* situated anterior to ad_4 setae. Leg chaetotaxy and solenidiotaxy (without tarsi): I:1-3-4(2)-4(1), II: 1-4-3(1)-4(1), III: 2-3-3(1)-2(1), IV:2-4-2-2(1).

MATERIAL. A „type" in alcohol with label: „*Oribatidae Mesotritia nitida* n. sp. W. Pakistan M.HAMMER 1969 Type" (courtesy Dr. H. ENGHOFF, Zoologisk Museum, Copenhagen). Locality in the border zone of the Oriental region:West Pakistan,Naran valley with Kunhar river, Shogran Forest Research Station, about 2600 m a.s.l., moist moss under mouldering tree trunk, 1969, leg. M. HAMMER - (2) (HAMMER 1977).

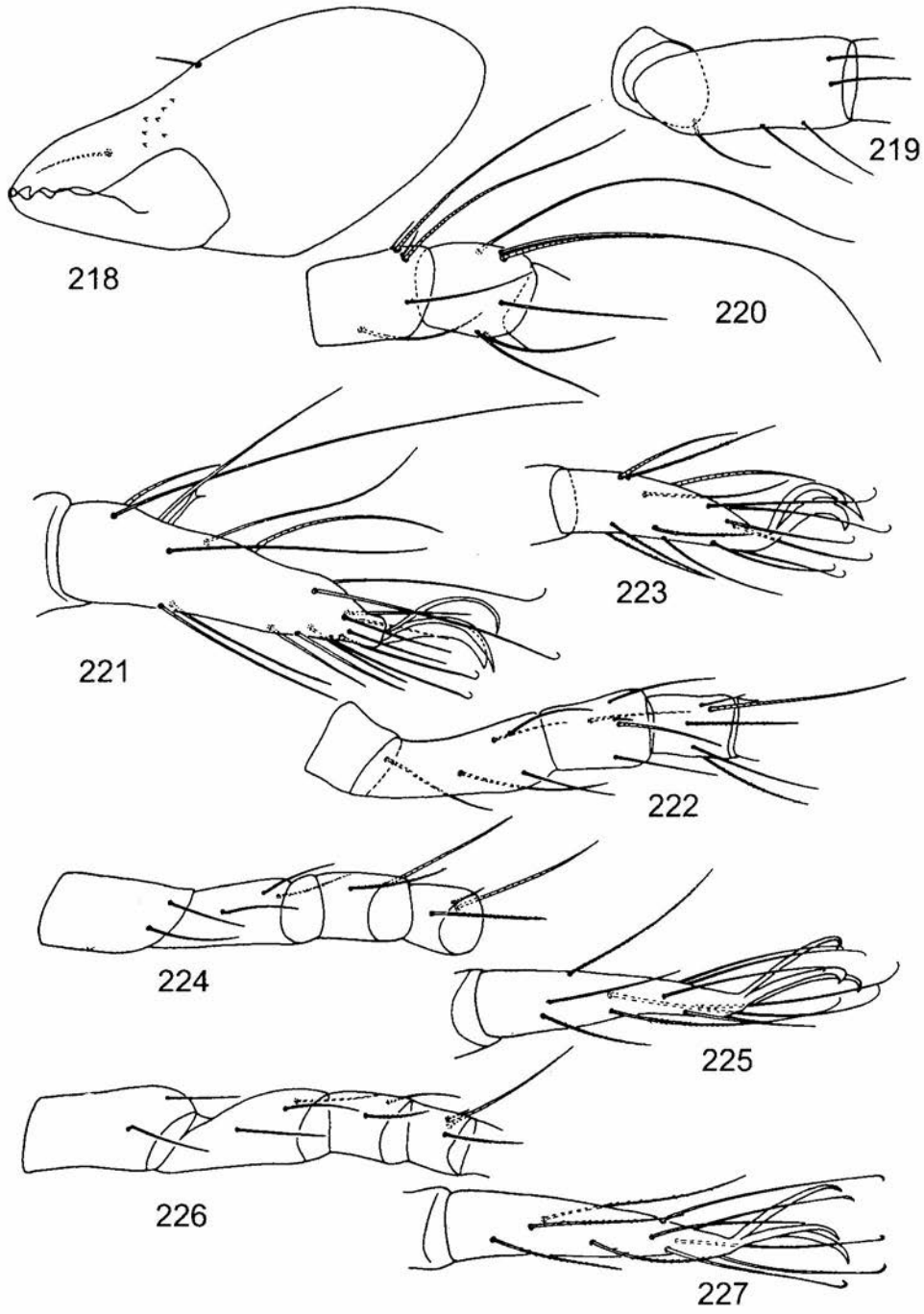
DISTRIBUTION. West Pakistan, perhaps an endemic species.

Mesotritia okuyamai AOKI, 1980

(Figs 237-247)



213. *Mesotritia markeli* SHEALS, 1965 (paratype) - notogaster, lateral view; 214-217. *Mesotritia markeli* SHEALS, 1965 (specimen from Nepal): 214 - prodorsum, dorsal view, 215 - fragment of mentum of infracapitulum, 216 - palpus, 217 - lateral view of body



218-227. *Mesotritia markeli* SHEALS, 1965: 218 - mandibule, 219 - trochanter and femur of leg I, 220 - tibia and genu of leg I, 221 - tarsus of leg I, 222 - trochanter, femur, genu and tibia of leg II, 223 - tarsus of leg II, 224 - trochanter, femur, genu and tibia of leg III, 225 - tarsus of leg III, 226 - trochanter, femur, genu and tibia of leg IV, 227 - tarsus of leg IV

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Prodorsum with simple lateral carinae; sensilli knife-shaped; rostral setae inserted near the level of lamellar setae, mutual distance between interlamellar setae shorter than between lamellar setae, rostral setae the longest, *ro* > *le* > *in* > *ex*. Notogaster with 14 pairs of short setae; vestigial setae f_1 located anterior to h_1 setae. Ventral region, setae *h* longer than distance between them, chaetotaxy of palps: 2-2-9(1); epimeral formula: ?-0-3-3; 6 pairs of genital, 2 pairs of aggenital; one pair of anal and 3 pairs of adanal setae, lyrifissures *iad* located anterior to anal setae. Leg chaetotaxy and solenidiotaxy: I: 1-3-3(2)-6(1)-19(3), II: 1-4-3(1)-5(1)-12, III:2-3-(1)-2(1)-11, IV: 2-3-2-2(1)-10.

REMARK. This species differs from *M. markeli* SHEALS in the following characters: mutual distance between interlamellar setae is shorter than between lamellar setae, rostral setae are located nearer lamellar setae than interlamellar setae, some differences in leg chaetotaxy.

MATERIAL. A microscopic slide labelled:"NSMT-Ac 9131 2/2 2 XI 1969 JA 1203 *Mesotritia okuyamai* AOKI,1979 (Holotypus) part.2" (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Locality in the border zone of the Oriental region: Japan, C. Japan, Moppu-bara, Mt. Ode-yama near Tatebayashi, Tochigi-ken, from moss, 2 XI 1969, H. OKUYAMA - (1) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.

Mesotritia similis sp. nov.

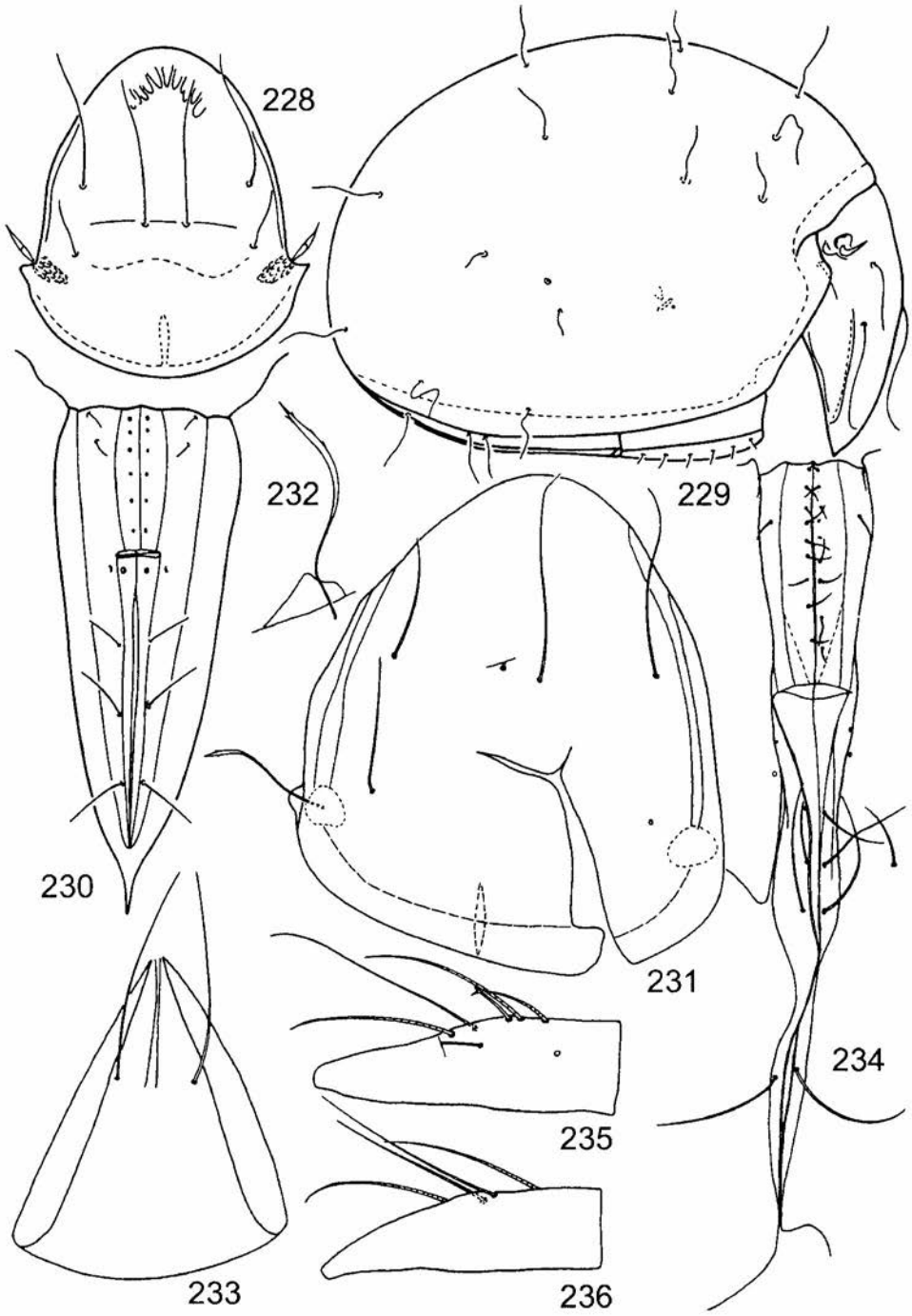
(Figs 248-264)

DESCRIPTION. Measurements of holotype: prodorsum: length 346, width 293,height 123, sensillus 75, setae: interlamellar 150, lamellar 105, rostral 180, exobothridial 39; notogaster: length 739, height 493, setae c_1 90, h_1 51, ps_1 54, genital and aggenital plates 192x61.6 anal and adanal plates 308x46.2. Colour brown, integument finely punctate. Prodorsum with distinct lateral carinae. Sensilli fusiform with pointed distal end. Setae long, flexible, rostral setae near each other and located between interlamellar and lamellar setae, *ro* > *le* > *in* > *ex*. Notogaster with 14 pairs of fine, short (c_1/c_1-d_1 = 0.51) setae, setae of row c remote from anterior margin. Vestigial setae f_1 located anterior to h_1 setae. Ventral region. Setae *h* of mentum longer than distance between them. Chaetotaxy of palps: 2-2-8 and one solenidion. 6 pairs of genital, 2 pairs of aggenital setae. One pair of anal and 3 pairs of adanal setae present, setae ad_1 and ad_2 longer than ad_3 setae, lyrifissures *iad* situated between ad_3 and *an* setae. Leg chaetotaxy and solenidiotaxy. I: 1-3-4(2)-4(1)-17(3), II:1-3-3(1)-4(1)-11(2), III: 2-3-2(1)-3(1)-11, IV: 2-3-2-2(1)-10.

DIAGNOSIS. The new species is very similar to *M. markeli* SHEALS, 1965 from Nepal and differs in distinct lateral carinae of prodorsum, rostral setae situated near each other, slightly different shape of sensilli, setae *iad* located between anal and ad_3 setae, setae ad_1 and ad_2 longer than ad_1 setae.

ETYMOLOGY. The specific name *similis* is Latin for "similar" and refers to the similarity of *M. similis* and *M. markeli*.

MATERIAL. Holotype and 24 paratypes: India, Kashmir, near Sorbal, under old fir, 7 IX 1976, leg. Cz. BŁASZAK and J. BŁOSZYK. Localities in the border zone of the Oriental region and in the Oriental region: India, Kashmir, road between Srinagar



228-230. *Mesotritia flagellata* Bayoumi et Mahunka, 1979 - synonyme of *Mesotritia markeli* (after Bayoumi and Mahunka 1979): 228 - prodorsum, dorsal view, 229 - lateral view of body, 230 - ventral region; 231-236. *Mesotritia nitida* Hammer, 1977 (type): 231 - prodorsum, dorsal view, 232 - sensillus, dorsal view, 233 - mentum of infracapitulum, 234 - ventral region, 235 - fragment of tarsus I, 236 - fragment of tarsus II

and Kargil, in mixed forest, 6.IX.1976, leg.Cz. BŁASZAK and J. BŁOSZYK – (3); Kashmir, in valle of Indus, under bushes, IX.1976, leg. Cz. BŁASZAK and J. BŁASZAK – (1); Kashmir, between Sorbal and Sonamarg, moss and litter under fir, 13.IX.1976, leg. Cz. BŁASZAK and J. BŁOSZYK – (1); Kashmir, between Svinagar and Kargil, slope above road (50 m), 20 km from Sonamarg. litter from pine-spruce-fir forest, 6.IX.1976, leg. Cz. BŁASZAK and J. BŁOSZYK – (3). Northern Thailand, Chieng Dao, 1800 m. 16.VII.1958, leg. Birgid DEGERBØL – (1).

DISTRIBUTION. An Oriental species introduced to southern (Kashmir) Palaearctic .

Maerkelotritia HAMMER, 1967

DIAGNOSIS. Prodorsum without median and lateral carinae, bothridial squamae situated below the trichobothria, posterior median apodeme absent; notogaster with terminal sinus; genitoaggenital and anoadanal sutures completely developed, anogenital cleft reduced or absent, genital setae not situated anteriorly of tectum kag of genitoaggenital plates; palps 4-segmented with setal formula: 2-0-2-8+1, legs tridactylous with tarsal neotrichy, solenidia of legs II without coupled setae, solenidia of tibiae IV with coupled setae d, trochanters III and IV with 2-3 setae.

Maerkelotritia kishidai (AOKI, 1958)

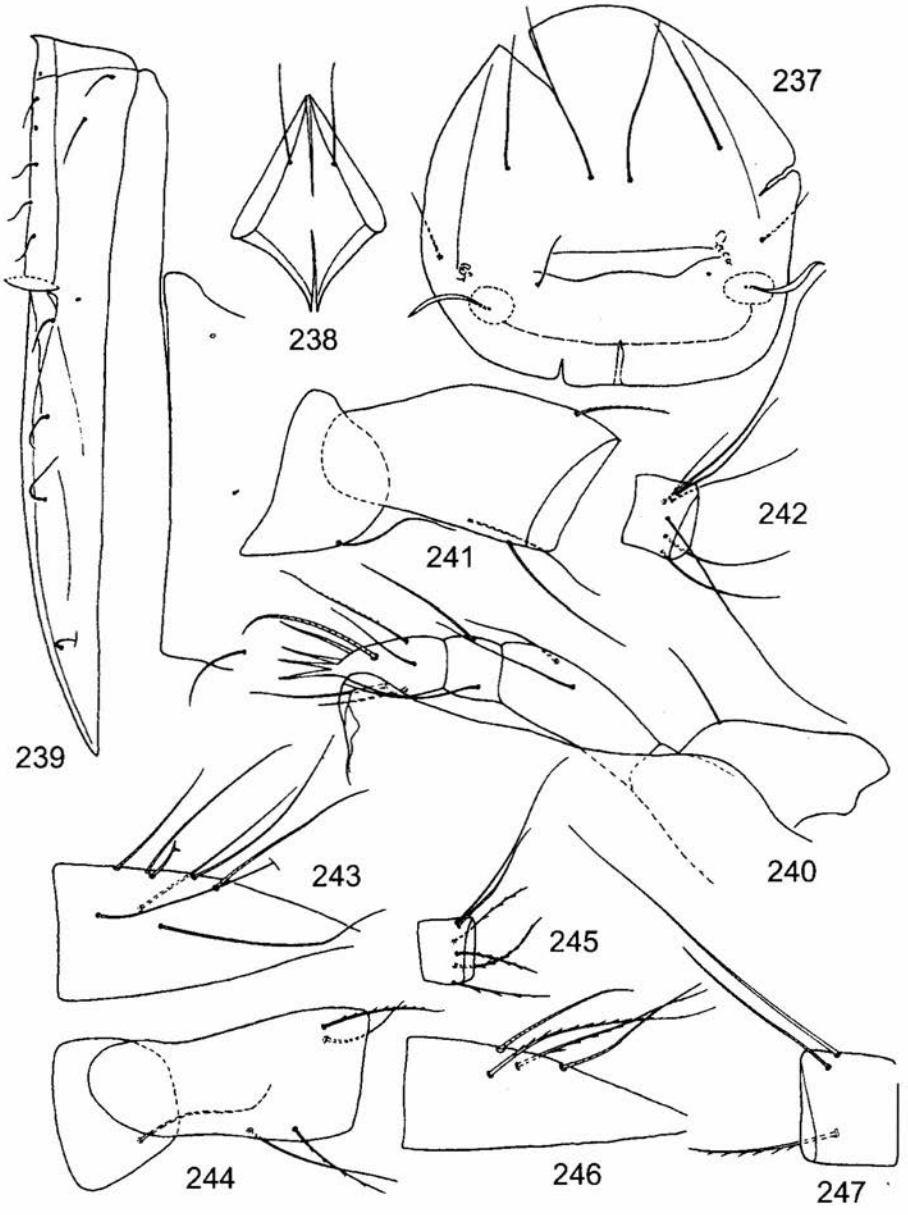
(Figs 265-276)

Oribotritia kishidai AOKI, 1958
Maerkelotritia alaskensis HAMMER, 1967

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements: prodorsum: length 475, width 490, sensillus 151; seta ps_2 195; genital and aggenital plates 303x164, anal and adanal plates 520x121; *M. alaskensis*: prodorsum: length 520, width 540, sensillus 152, setae: interlamellar 330, lamellar 247, rostral 222; genital and aggenital plates 292x108, anal and adanal plates 488x57.1. Prodorsum with slender sensilli, weakly thickened in the mid portion, sharply pointed at distal end; triangular and anterior margin rather irregularly dentate; setae long, interlamellar and lamellar sparsely spinose, rostral setae rough, mutual distance between interlamellar setae longer than distance between lamellar and rostral setae, exobothridial setae long, reaching least to point of insertion of lamellar setae, *in* > *le* > *ro*. Notogaster with 15 pairs of fairly long setae, slightly barbed, vestigial setae f_1 anterior to h_1 setae. Ventral region, Setae *h* of mentum considerably longer than distance between them; epimeral formula: 3-0-2-2; 9-12 pairs of genital setae, 2 pairs of aggenital setae, aggenital setae longer than genital setae; one pair of anal and 4 pairs of adanal setae present, ad_1 setae the longest, lyrifissures *iad* situated between ad_3 and ad_4 setae, anogenital cleft (trv) short, transverse, with rounded end. Chaetotaxy and solenidiotaxy of legs: 1-4-4(2)-5(1)-21(3), II:1-4-3(1)-5(1)-17(2), III: 3-3-3(1)-2(1)-14, IV:3-3-2(1)-2(1)-11.

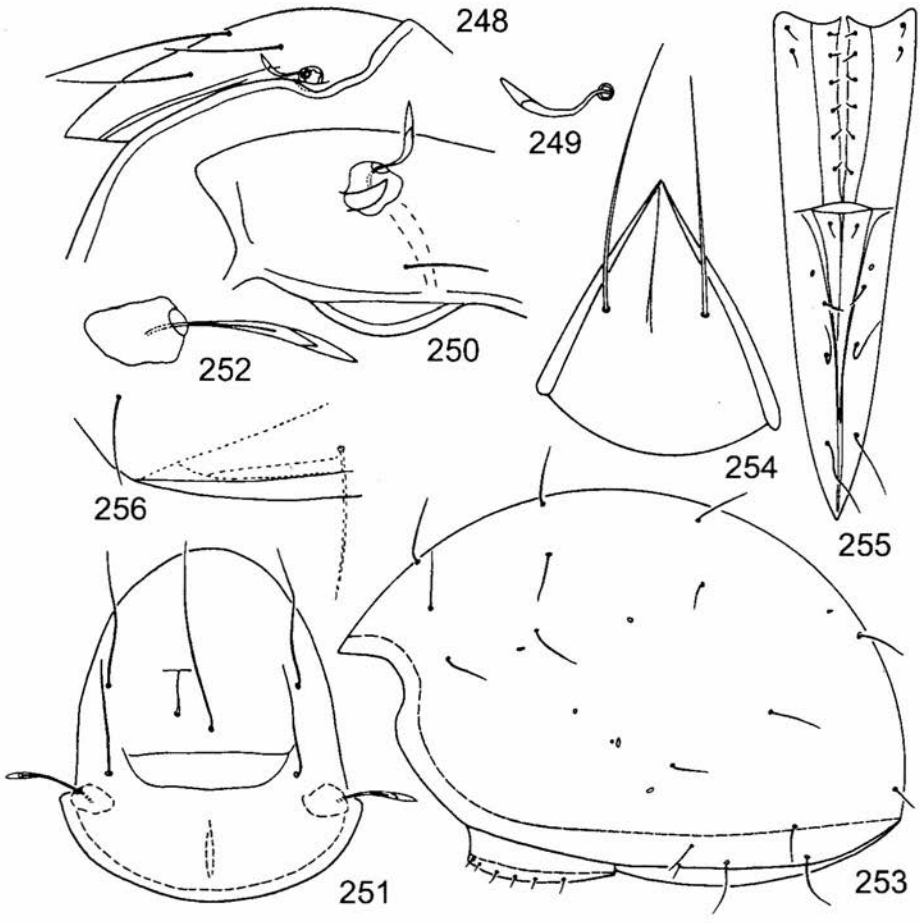
REMARK. This species is widespread and shows considerable variation in some characters. These are: shape of bothridial scale, more or less dentate, length of exobothridial and notogastral setae, number of genital setae. In my opinion *O. sellnicki* WALKER, although very similar to *M. kishidai*, is a distinct species.

MATERIAL. Two microscopic slides labelled: first: „NSMT-Ac 8682 22 X 1957 J. AOKI 46 *Oribotritia kishidai* AOKI, 1958 (paratypus), second: as above „no 8684" (courtesy Dr. H. ONO, Department of Zoology, Natural Science Museum, Tokio); one microscopic slide labelled: „Type *Oribatidae Maerkelotritia alaskensis* n.g.



237-247. *Mesotritia okuyamai* AOKI, 1980 (holotype): 237 - prodorsum, dorsal view, 238 - mentum of infracapitulum, 239 - ventral region, 240 - palpus, 241 - trochanter and femur of leg I, 242 - tibia of leg I, 243 - fragment of tarsus I, 244 - trochanter and femur of leg II, 245 - tibia of leg II, 246 - fragment of tarsus II, 247 - tibia of leg IV

n.sp. Kodiak 6 22-6-62 M. HAMMER" (courtesy of G.F. HEVEL, Smithsonian Institution, United States National Museum of Natural History, Washington). Both slides are in poor state and many features are invisible. Localities in the border zone of the Oriental region: North Japan, top of Mt. Poroshiri, Hidaka, Hokkaido, from litter of *Pinus pumila*, 26 VII 1971, J. AOKI - (3); North Japan, Nanatsu-numa of Mt. Poroshiri, Hidaka, Hokkaido, from litter of *Pinus pumila*, 26 VII 1971, J. AOKI - (4); North Japan, Poroshiri-sanso at the foot of Mt. poroshiri, Hidaka, Hokkaido, from forest litter, 30 VIII 1971, J. AOKI - (1); North Japan, near Poroshiri-sanso at the foot of Mt. Poroshiri, Hidaka, Hokkaido, from forest litter, 27 VII 1971, J. AOKI - (1); North Japan, Kita Cirque of Mt. Poroshiri, Hidaka, Hokkaido, from forest litter, 26 VII 1971, J. AOKI - (24) (AOKI 1958, 1980); Central Japan, Karenuma in Nikko, Tochigi-ken, from litter under a conifer forest, 22 X 1957, J. AOKI - (3); Central



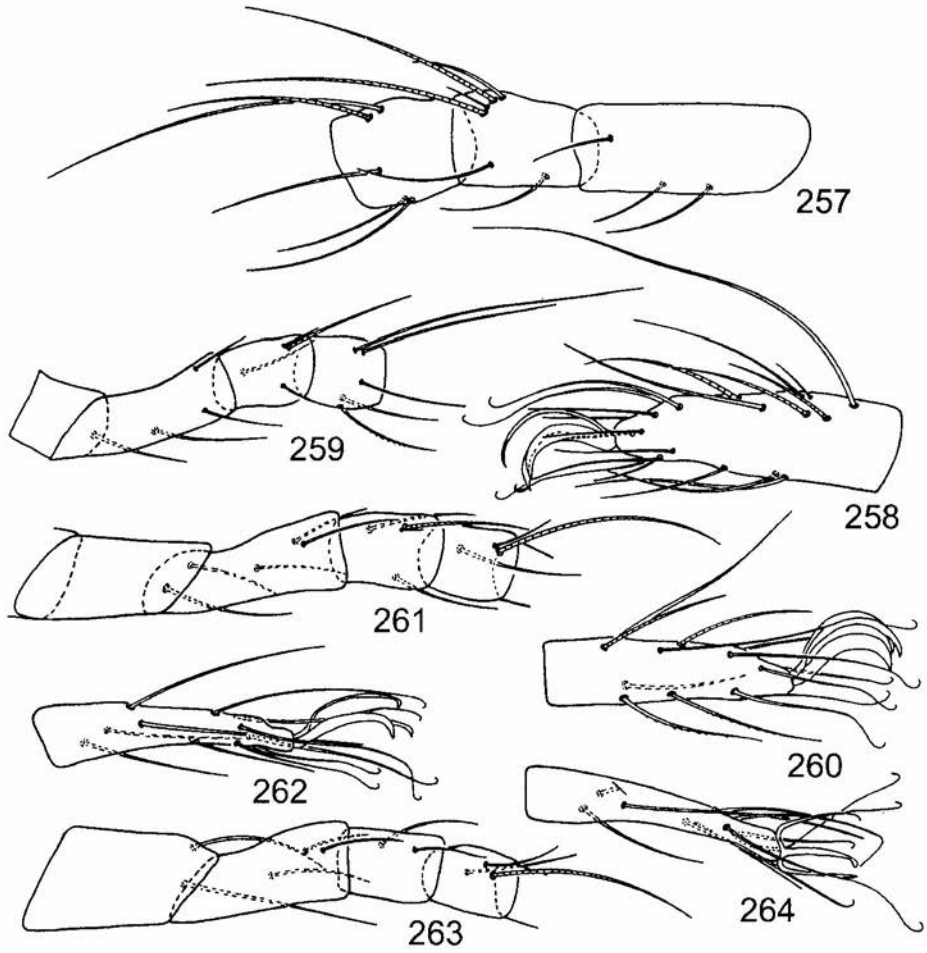
248-256. *Mesotritia similis* sp. nov. (holotype): 248 - prodorsum, lateral view, 249 - sensillus, lateral view, 250 - posterior part of prodorsum, lateral view, 251 - prodorsum, dorsal view, 252 - sensillus, dorsal view, 253 - notogaster, lateral view, 254 - mentum of infracapitulum, 255 - ventral region, 256 - posterior part of notogaster, lateral view

Japan, OtanoCemosu-no-taira, Shiga Heights, Nagano-ken, from litter under a forest of *Abies mariesii* and *Tsuga diversifolia*, 30VII 1971, J. AOKI - (5).

DISTRIBUTION. An Amphipacific species; Alaska, Japan (HAMMER 1967, AOKI 1980)

Protoribotritia JACOT, 1938

DIAGNOSIS. Prodorsum without median and lateral carinae, bothridial squamae situated below the bothridia; genitoaggenital and anoadanal sutures present, anogenital cleft absent; legs monodactylous, genua IV with solenidia, solenidia on tibiae IV with paired setae *d*.

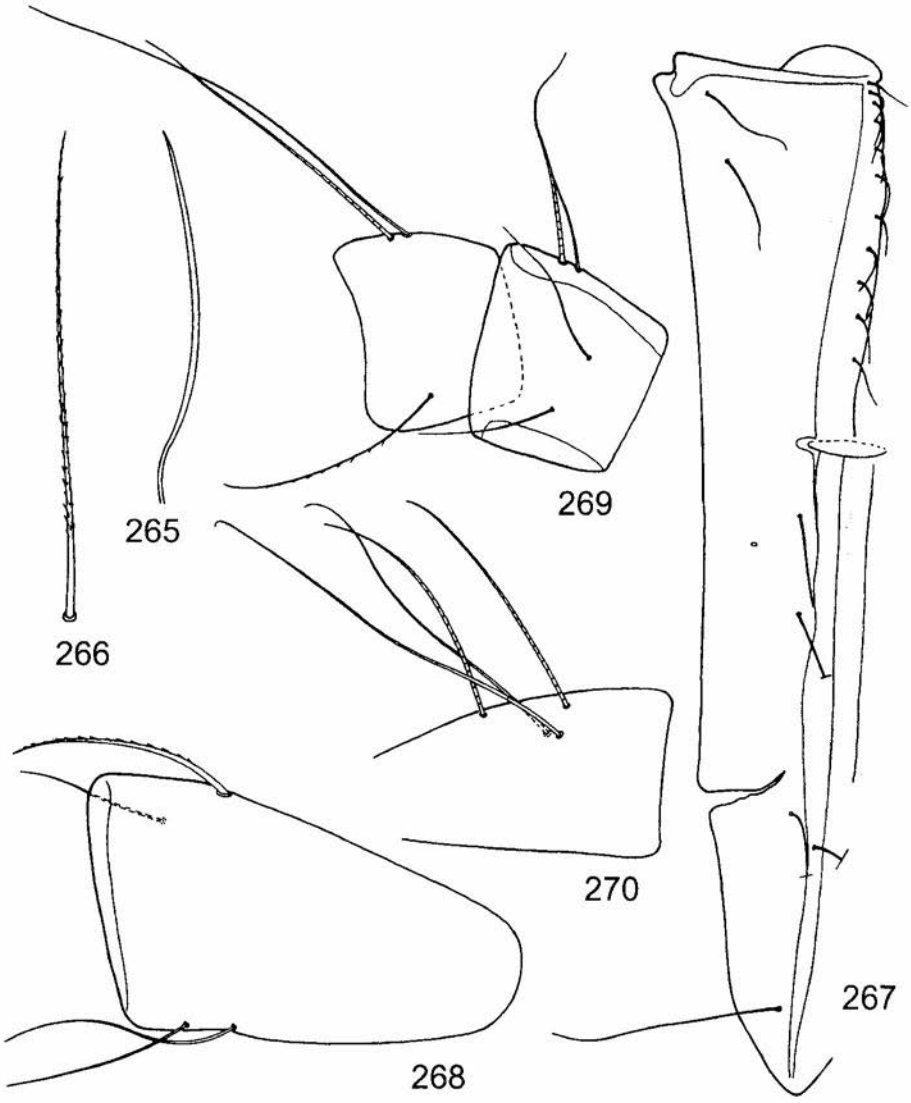


257-264. *Mesotritia similis* sp. nov. (holotype): 257 - femur, genu and tibia of leg I, 258 - tarsus of leg I, 259 - trochanter, femur, genu and tibia of leg II, 260 - tarsus of leg II, 261 - trochanter, femur, genu and tibia of leg III, 262 - tarsus of leg III, 263 - trochanter, femur, genu and tibia of leg IV, 264 - tarsus of leg IV

Protoribotritia ensifer Aoki, 1969
(Figs 277-286)

Protoribotritia aberrans ensifer Aoki, 1969
Protoribotritia ensifer: Aoki 1980

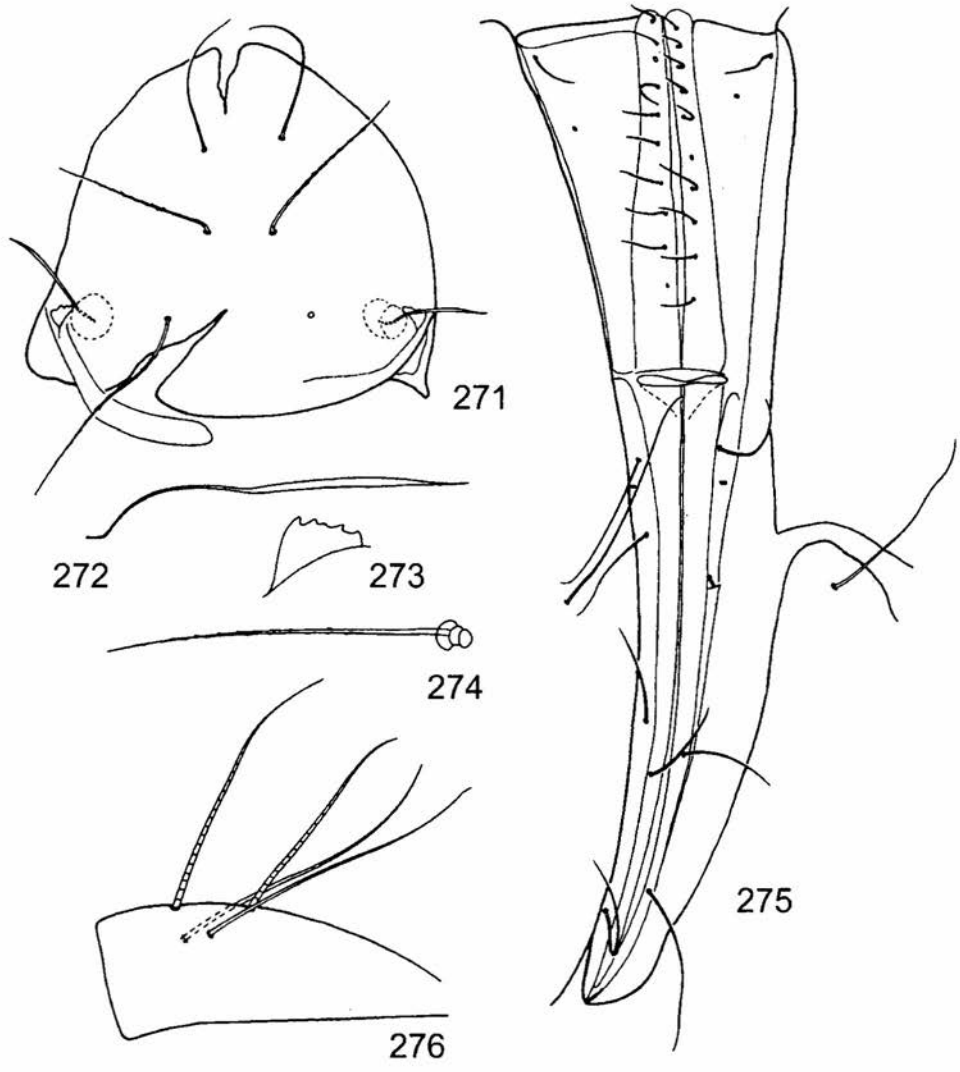
Diagnosis and additional description. Measurements of holotype: prodorsum: length 215, width 164, sensillus 68.3, setae: interlamellar 104, lamellar 60.7, rostral 73.4; measurements of paratype: prodorsum: length 202, setae: interlamellar 75.9, lamellar 63.2, rostral 50.6; notogaster length 313, height 217, seta c_1 37.9; length of



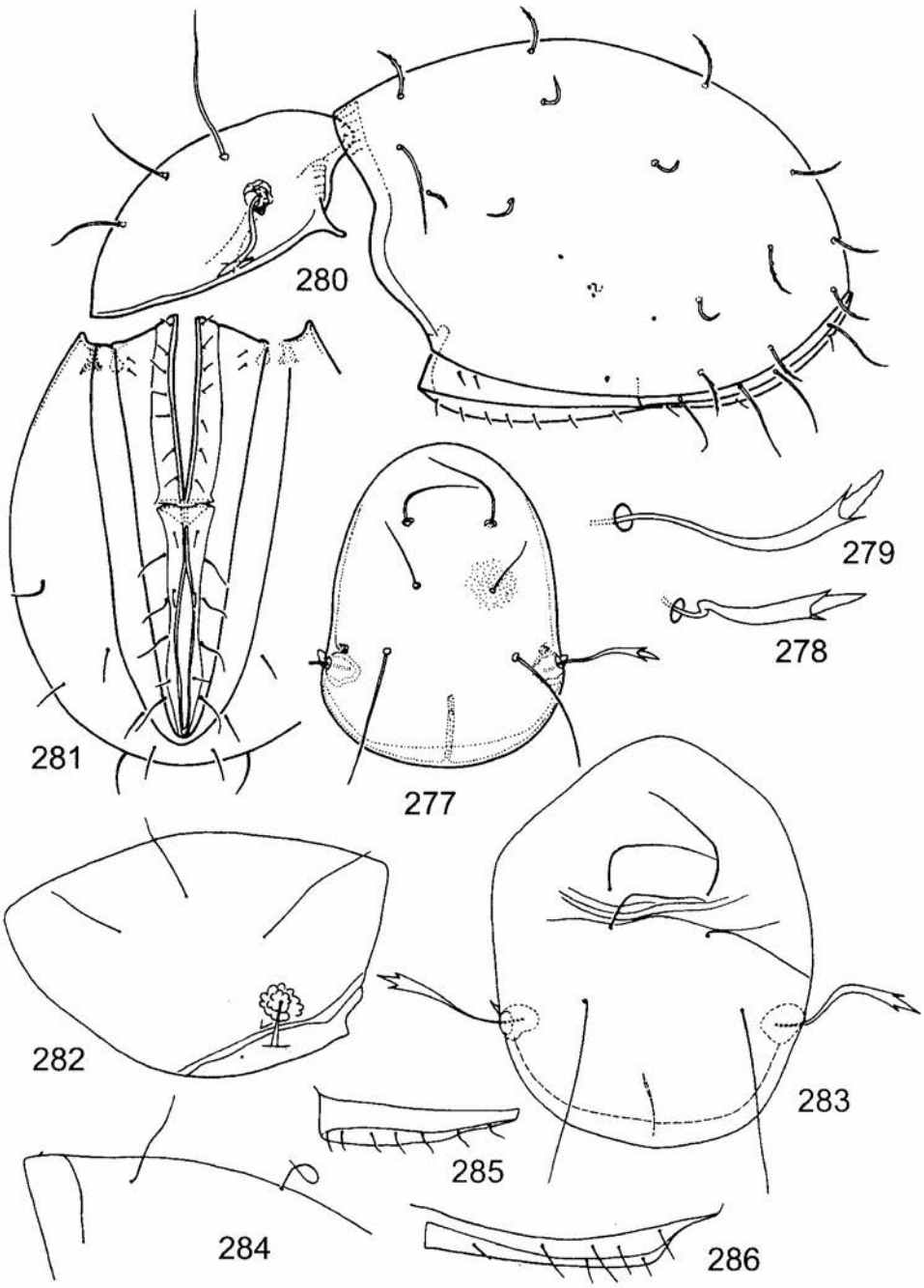
265-270. *Maerkelotritia kishidai* Aoki, 1958 (paratype): 265 - sensillus, dorsal view, 266 - seta ps_1, 267 - ventral region, right side, 268 - femur of leg I, 269 - genu and tibia of leg III, 270 - fragment of tarsus of leg II

genital and aggenital plates 101, length of anal and adanal plates 136. Prodorsum with sensilli gradually thickened distally, covered with sharp spines; setae long, attenuate, smooth and except exobothridial setae erect, *in* > *le* > *ro*; mutual distance between setae: *in-in* 83.5, *le-le* 53.1, *ro-ro* 50.6, mutual distance of lamellar setae subequal in length to that of rostral setae. Notogaster with 15 pairs of short (c_1/c_1-d_1 = 0.5), fine setae, rough only in holotype. Ventral region, palps three segmented; 7 pairs of genital, 2 pairs of aggenital; 3 pairs of anal and 4 pairs of adanal setae present.

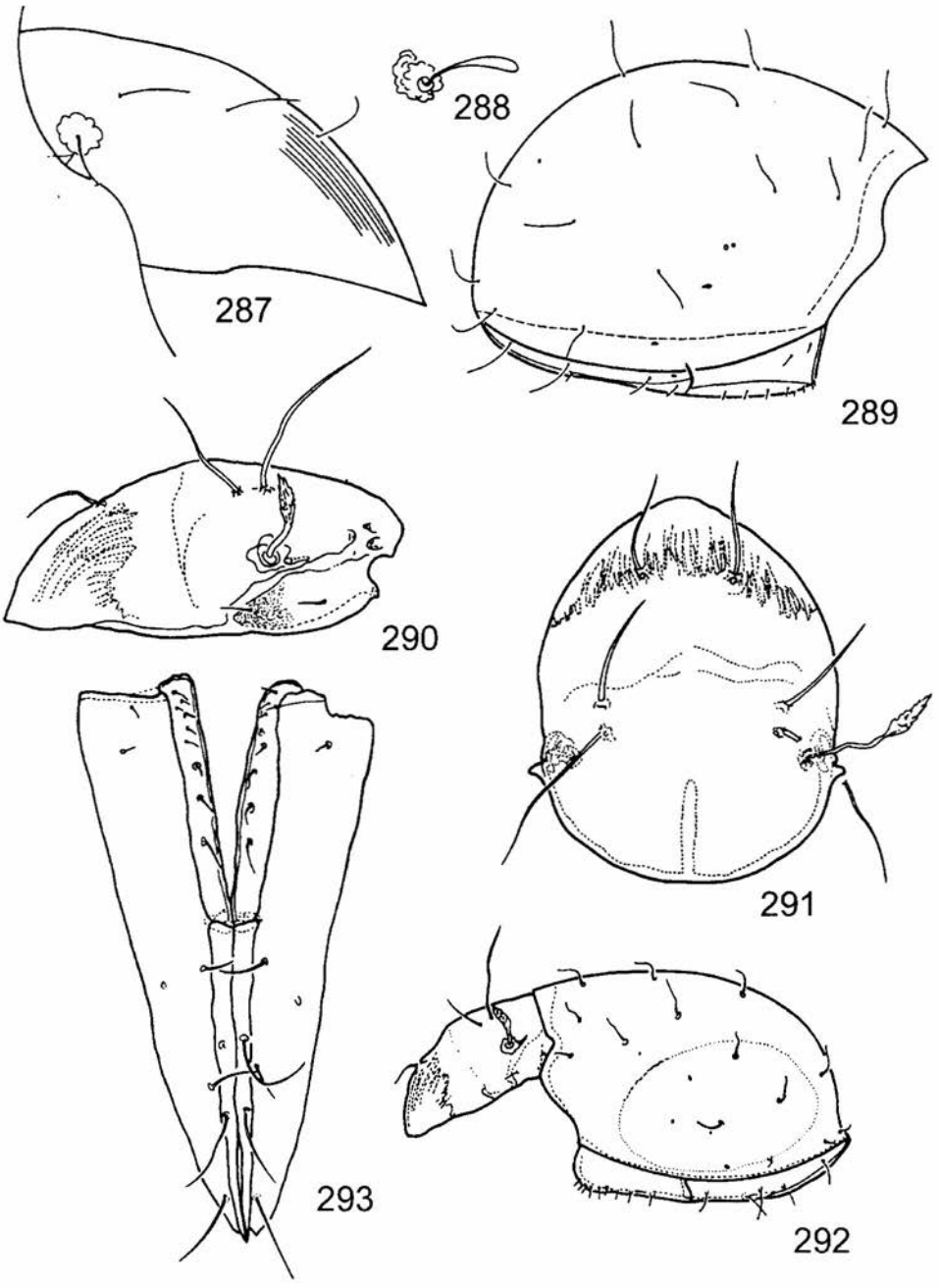
REMARK. The principal diagnostic features are: presence of sensilli spines, *le-le* subequal to *ro-ro*, 15 pairs of notogastral setae, 7 pairs of genital setae.



271-276. *Maerkelotritia alaskensis* HAMMER, 1967 (type) - synonym of *Maerkelotritia kishidai* (AOKI, 1958): 271 - prodorsum, dorsal view, 272 - sensillus, dorsal view, 273 - scale ofbothridium, 274 - seta c_1, 275 - ventral region, 276 - fragment of tarsus of leg II



277-281. *Protoribotritia ensifer* Aoki, 1969 (after Aoki 1980): 277 - prodorsum, dorsal view, 278 - sensillus, dorsal view, 279 - sensillus, lateral view, 280 - lateral view of body, 281 - ventral region; 282-286. *Protoribotritia aberrans ensifer* Aoki, 1969 (paratype): 282 - prodorsum, lateral view, 283 - prodorsum, dorsal view, 284 - anterior part ofnotogaster with setae c_1 and d_1, 285 - genital plate, lateral view, 286 - anal and adanal plate, lateral view



287-289. *Sobacarus corneri* RAMSAY et SHEALS, 1969 (specimen from Solomon islands): 287 - prodorsum, lateral view, 288 - sensillus, lateral view, 289 - notogaster, lateral view; 290-293. *Sobacarus japonicus* SHIMANO et AOKI, 1997 (after SHIMANO et AOKI 1997): 290 - prodorsum, lateral view, 291 - prodorsum, dorsal view, 292 - lateral view of body, 293 - ventral region

MATERIAL. Three microscopic slides labelled: first: „NSMT-Ac-3 6 IX 1969 Ja(19) *Protoribotritia aberrans ensifer* AOKI, 1970 Holotypus (notogaster) det. J. AOKI", second: as above „aspis", third: „NSMT-Ac 8699 5 IX 1969119 *Protoribotritia aberrans ensifer* AOKI, 1070 Paratypus det. J. AOKI" (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Localities in the border zone of the Oriental region: Japan: Central Japan, near Fuji-fuketsu Cave, west side of Mt. Fuji, Yamanashi-ken, from moss and litter in a forest of *Abies veitchii* and *Tsuga diversifolia*, 6 IX 1969, S. UENO (J. AOKI) - (4) (AOKI 1969, 1980). North Korea, Kaesong, near 6 km of city, in acacia forest, 13.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (1).

DISTRIBUTION. Japan, Korea, E part of Palaearctic .

Sobacarus RAMSAY and SHEALS, 1969

DIAGNOSIS. Prodorsum without lateral carinae, bothridial squamae situated below the bothridia, posterior median apodeme present, rostral setae arising far posteriorly from rostrum, lamellar setae inserted comparatively close to each other; notogaster with terminal sinus; genitoaggenital and anoadanal sutures complete, anogenital cleft absent; palp 3-segmented with formula: 1-2-7+1; legs monodactylous, famulus of tarsi I remote from solenidia, solenidia of tarsi II without paired setae, setae *d* on tibiae IV long and separated from solenidia, genua IV without solenidia.

Sobacarus corneri RAMSAY & SHEALS, 1969

(Figs 287-289)

Sobacarus corneri: NIEDBAŁA and CORPUZ-RAROS 1998

DIAGNOSIS. Prodorsum with short sensilli, with swollen head, setae fine. Notogaster with short (c_1/c_1-d_1 = 0.39 or 0.5) fine setae; one pair of openings of lateral opisthosomal glands and two pairs of lyrifissures *ih* and *ips* present. Ventral region, setae *h* of mentum longer than distance between them; each genital plate with 6 or 7 setae, each aggenital plate with two setae; two pairs of anal and three pairs of adanal setae. Leg chaetotaxy and solenidiotaxy: I: 1-2-3(2)-5(1)-15(3), II:1-2-3(1)-3(1)-11(2), III: 2-2-2(1)-2(1)-10, IV: 2-2-2-2(1)-9.

MATERIAL. Localities in the Oriental region. Sabah (North Borneo), Pinosuk Plateau, site near R. Mesilau, Kinabalu region, elevation approximately 1 615 m, humus podzol: „old" soil on mixed drift of granodiorite and shale, leg. G.P. ASKEW - (2) (RAMSAY & SHEALS 1969). Philippines, Mindanao Is., Magor, Tungao, Agusan del Norte Prov., litter from 4-year old plantation of *Eucalyptus deglupta*, 29 IV 1975, leg. R.S. RAROS - (1) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. A Pantropical species.

Sobacarus japonicus SHIMANO et AOKI, 1997

(Figs 290-293)

DIAGNOSIS. Prodorsum with short, low median carina, lateral carinae absent, sensilli with lanceolate head and with scale-like sculpture, setae fine, lamellar setae inserted near interlamellar setae, two pairs of exobothridial setae. Notogaster with brim on the posterior margin, with 14 pairs of short, fine setae. Ventral region, genital plate each with 9 genital setae and 2 aggenital setae; 2 pairs of anal and 3 pairs of adanal setae.

MATERIAL. Locality in the border zone of the Oriental region. Japan, Toyama Prefecture, Ohyama-machi, Arimine area, Nishitani, 1100 m, from litter and surface soil in Larix forest, leg. Hisashi NEGORO (- 14) (SHIMANO and AOKI 1997).

DISTRIBUTION. Japan, probably an endemic species.

Indotritia JACOT, 1929

DIAGNOSIS: Median carina absent, 1 or 2 pairs of lateral carinae present. Bothridial squama situated above the bothridium, lamellar setae arising posteriorly, rostral setae in normal position, posterior median apodeme absent; notogaster with a terminal sinus; one pair of openings of lateral opisthosomal glands and five pairs of lyrifissures: *ia, im, ip, ips,* ih present; genitoaggenital suture incomplete, these plates are fused anteriorly, internal transversal apodeme present, anogenital cleft present, but mostly short, genital plates with an extension anteriorly; palps 5-segmented, but their genua and femora immovably hinged, palpal setal formula: 0-2-0-2-9+1; legs heterotridactylous, with normal chaetotaxy, solenidia on tarsi II with paired setae, solenidia on genua IV present, setae *d* on tibia IV reduced and coupled with the solenidia.

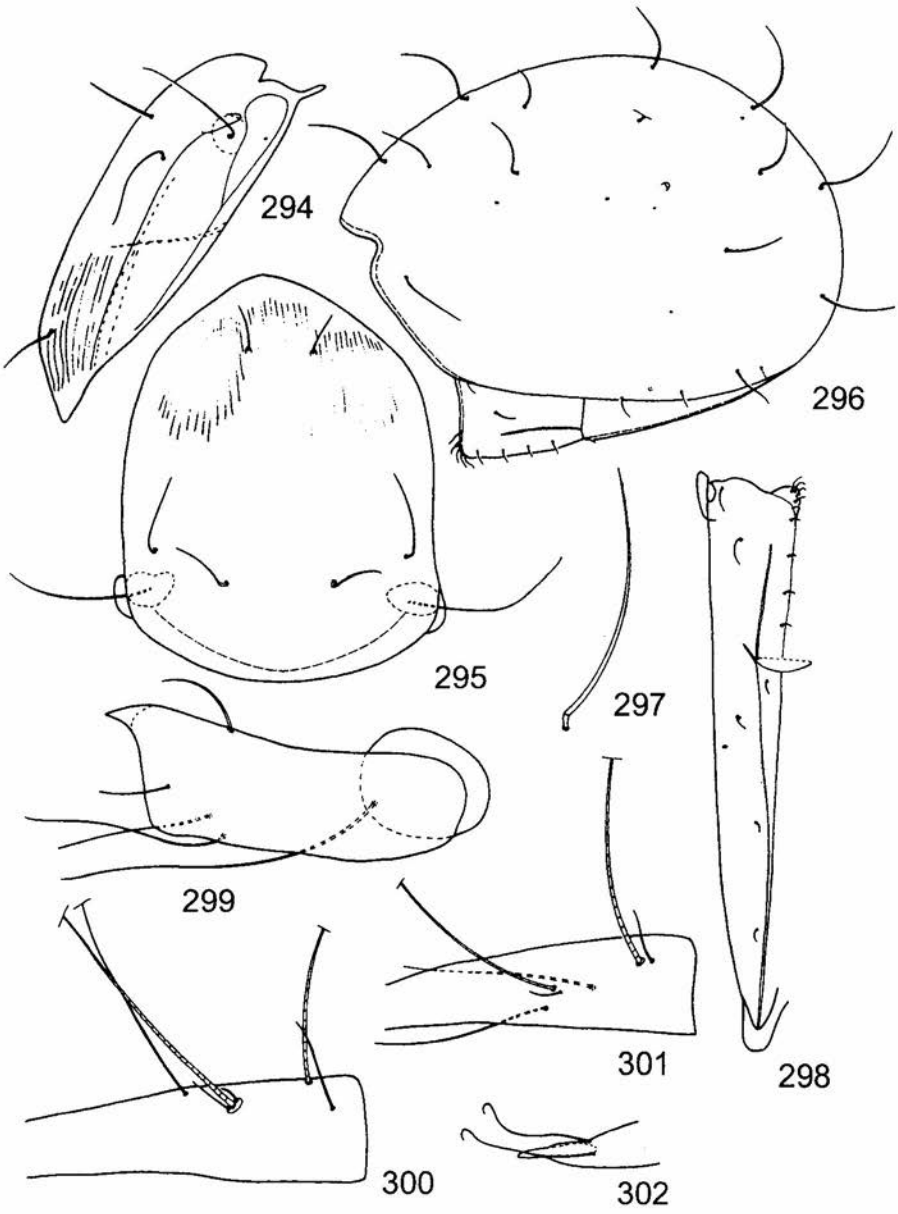
Indotritia aspera sp. nov.

(Figs 294-302)

DESCRIPTION. Measurements of holotype: prodorsum: length 539, width 399, height 165, sensillus 142, setae: interlamellar 88.5, lamellar 106, rostral 65.8; notogaster: length 939, width 634, height 651, setae: $c_1$154, $h_1$177, ps_1 159; genitoaggenital plates 217x121, anal and adanal plates 459x106. Colour brown, microsculpture of integument finely porose. Prodorsum with single long lateral carina extending anteriorly as far as bases of rostral setae, ventral of these is visible the outline of second, short carina. Sensilli long, setiform, smooth. Interlamellar and rostral setae short, erect and rigid, rough, lamellar setae fine, procumbent, comparative length: *le* > *in* > *ro*, exobothridial setae vestigial. Notogaster with 14 pairs of erect, robust and fairly short (c_1/c_1-d_1 = 0.78) setae, covered sparsely by small spines, except setae c_3 which are fine and smooth, setae c_1 and c_2 slightly remote from anterior margin, setae c_3 closer to anterior margin. Vestigial setae f_1 situated slightly anterior to h_1 setae. Ventral region. Infracapitulum with very long setae h, epimera and palps typical for genus. Genitoaggenital plates each with 9 genital setae (4 in pregenital position) and with 2 aggenital setae. One pair of anal and 3 pairs of adanal minute setae present, lyrifissure *iad* located posterior to ad_3 setae. Legs. Formulae of

setae and solenidia (without tarsi): I:1-4-5(2)-5(1),II:1-4-4(1)-3(1), III: 3-2-3(1)-3(1), IV:3-2-2(1)-3(1). Anterodorsal spines on femora I short but distinct.

DIAGNOSIS. The new species is similar to *I. javensis* (SELLNICK, 1923) and *I. propinqua* NIEDBAŁA, 1991 but differs in the indistinct lower lateral carina of prodorsum, the larger distance between the interlamellar setae and between rostral setae, and shorter genital and adanal setae.



294-302. *Indotritia aspera* sp. nov.(holotype): 294 - prodorsum, lateral view, 295 - prodorsum, dorsal view, 296 - notogaster, lateral view, 297 - seta h_1, 298 - right side of ventral region, 299 - trochanter and femur of leg I, 300 - fragment of tarsus of leg I, 301 - fragment of tarsus of leg II, 302 - end of tarsus of leg IV with seta *u'*

REMARK. The new species has probably recently speciated from an Oriental species (*I. javensis* or *I. propinqua*).

ETYMOLOGY. The name *aspera* is Latin for „rough" and alludes to the rough microsculpture of the interlamellar, rostral and notogastral setae.

MATERIAL. Holotype and 13 paratypes: Nepal, Kathmandu, Dis. Sivapuri Dara, 2500 m, 1 V 1985, leg. A. SMETANA. Localities in the border zone of the Oriental region: Nepal, Kathmandu Dis. Sivapuri Dara 2400 m, 30.IV.1985, leg. A. SMETANA – (8); Kathmandu Dis. Sivapuri Dara 2300 m, 3.V.1985, leg. A. SMETANA – (5); Kathmandu Dis. Sivapuri Dara 2450 m, 30.IV.1985, leg. A. SMETANA – (6); Kathmandu Dis. Sivapuri Dara 2450 m, 29.IV.1985, leg. A. SMETANA – (5); Kathmandu Dis. Sivapuri Dara 2400 m, 30.IV.1985 leg. A. SMETANA – (3).

DISTRIBUTION. Nepal, probably an endemic species.

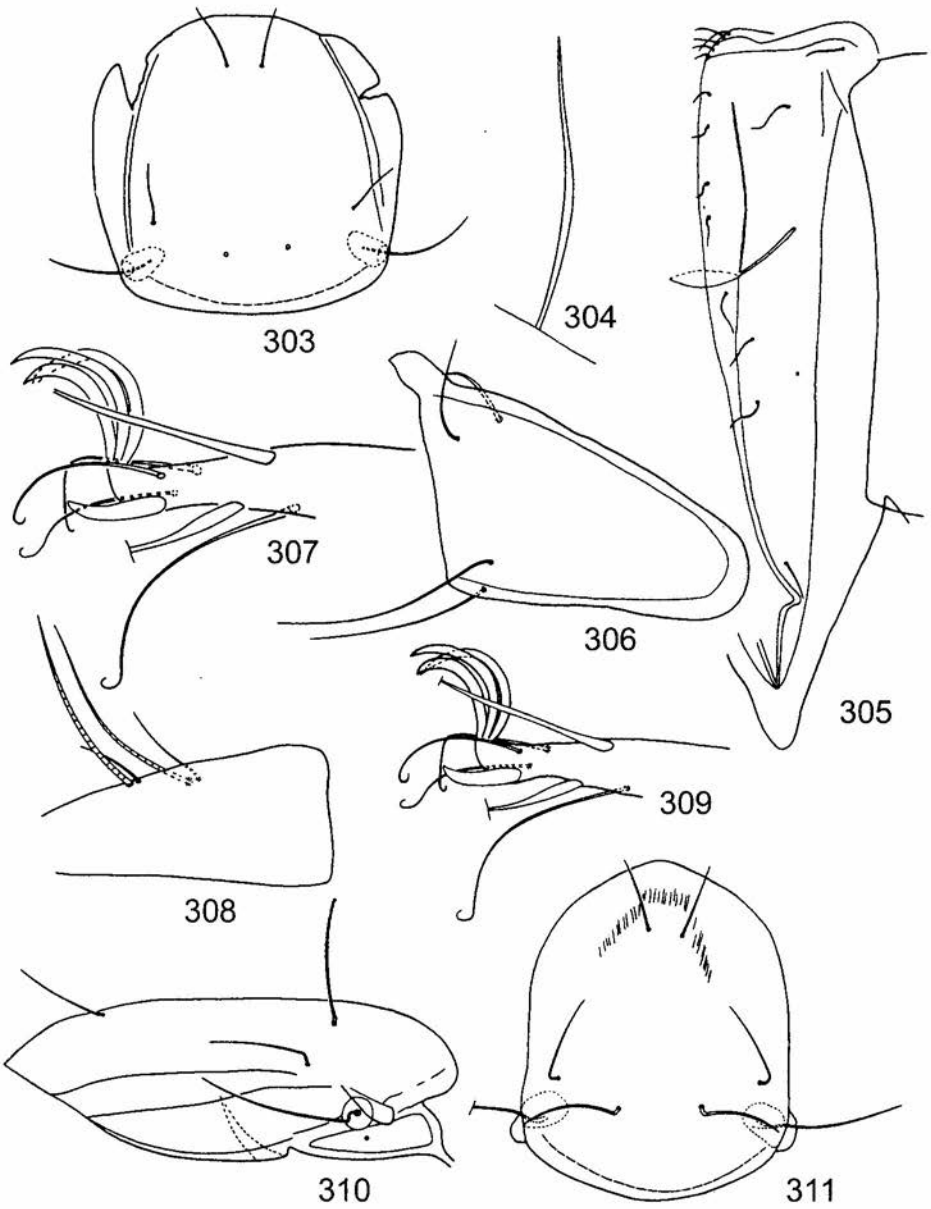
Indotritia javensis (SELLNICK, 1923)

(Figs 303-324)

Tritia javensis SELLNICK, 1923
Tritia javensis: SELLNICK 1925
Indotritia javensis: AOKI 1980, NIEDBAŁA & CORPUZ-RAROS 1998
Oribotritia mollis AOKI, 1959
Indotritia completa MAHUNKA, 1987 **syn. nov.**

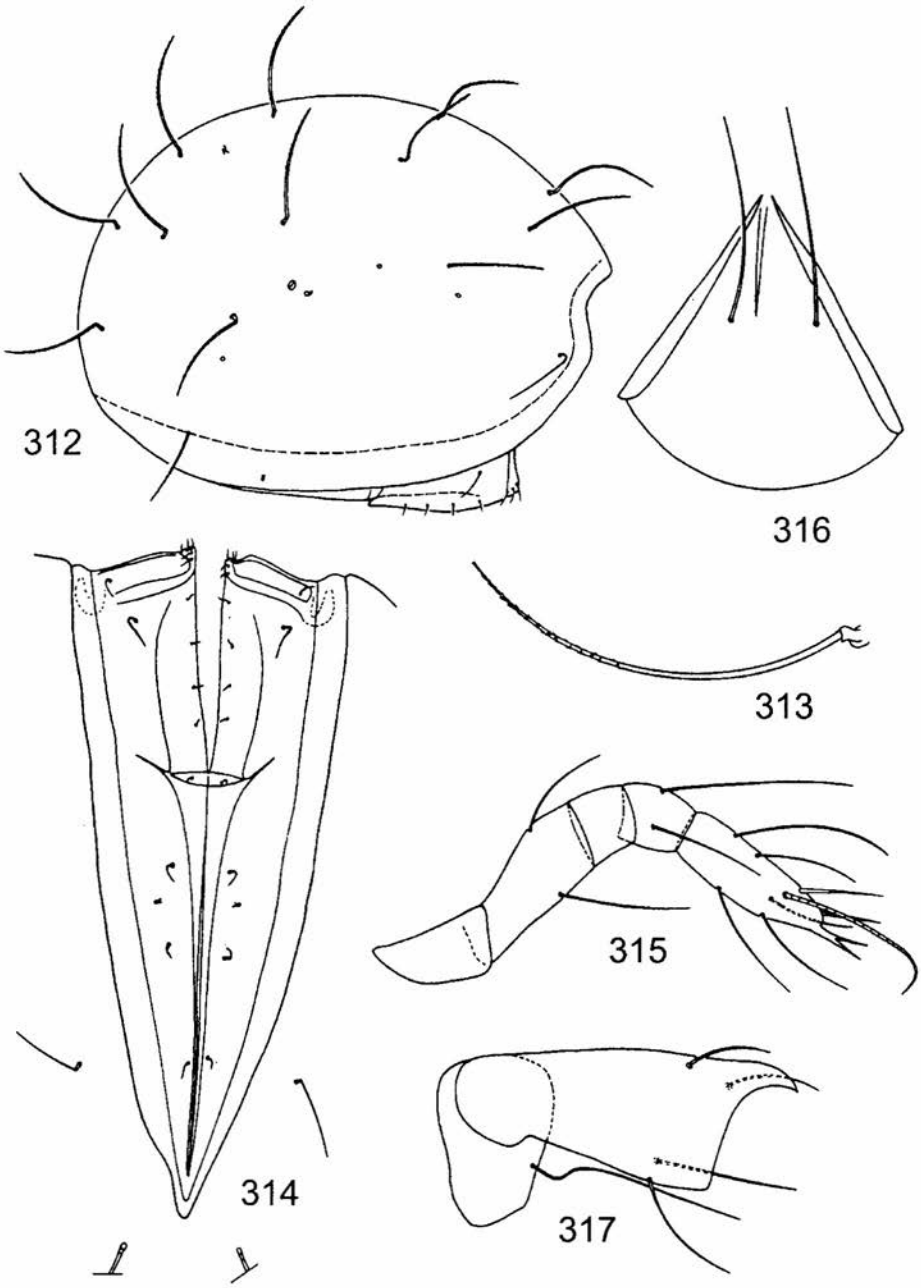
REDESCRIPTION. Measurements of specimen of AOKI (1980): prodorsum: length 564, width 570, sensillus 108, setae: lamellar 82.4, rostral 108; seta of notogaster 177, genitoaggenital plate 318x151, anal and adanal plates 545x136. Measurements of specimen from Vietnam: prodorsum: length 437, width 336, height 158, sensillus 165, setae: interlamellar 133, lamellar 76,1, rostral 95.1; notogaster: length 902, width 644, height 681, setae: c_1 177, h_1 and ps_1 203, c_1/c_1-d_1 = 0.78; genitoaggenital plate 222x95.1, anal and adanal plates 488x82.4. Measurements of specimen from Indonesia: prodorsum: length 477, width 339, height 154, sensillus 131, setae: interlamellar 146, lamellar 131, rostral 115; notogaster: length 862, width 598, height 617, setae c_1 192, h_1 185, ps_1 177, c_1/c_1-d_1 = 0.89; genitoaggenital plate 223x100, anal and adanal plates 408x80.8. Prodorsum with two robust, divergent lateral carinae. Sensilli setiform, smooth. Rostral and interlamellar setae robust, setiform, interlamellar setae covered with small spines, rostral setae rough, lamellar setae thin, simple exobothridial setae vestigial. Notogaster with 14 pairs of short ($c_1 < c_1$-d_1), setiform setae covered with small spines, setae c_3 and ps_3 thinner than other, setae c_1 and c_2 remote from anterior margin, setae c_3 near the border. Vestigial setae f_1 anterior to h_1 setae. Ventral region, setae h of mentum very long, much longer than distance between them, epimeral formula: 3-0-2-2. Suture between genital and aggenital plates sometimes long, reaching setae g_6. 9 pairs of genital, 2 pairs of aggenital (in two specimens from Japan 3 pairs of aggenital setae). One pair of anal and 3 pairs of adanal setae present, distance between setae ad_1 and ad_2 greater than between setae ad_2-ad_3, lyrifissures *iad* situated between setae ad_2 and ad_3. Leg chaetotaxy and solenidiotaxy: I: 1-4-5(2)-5(1)-22(3)-3, II: 1-4-4(1)-3(1)-19(2)-3,III: 3-2-3(1)-3(1)-14-3, IV:3-2-2(1)-3(1)-11-3, femora I with distinct spines in dorso-distal end, setae u' on tarsi IV in shape of thick spines.

REMARK. The diagnostic feature of *I. completa* is supposed to be a long well-developed suture between genital and aggenital plates, however, the length of suture in some species is variable, and hence not suitable for taxa differentiation. Therefore, I have synonymized *I. completa* with *I. javensis*.

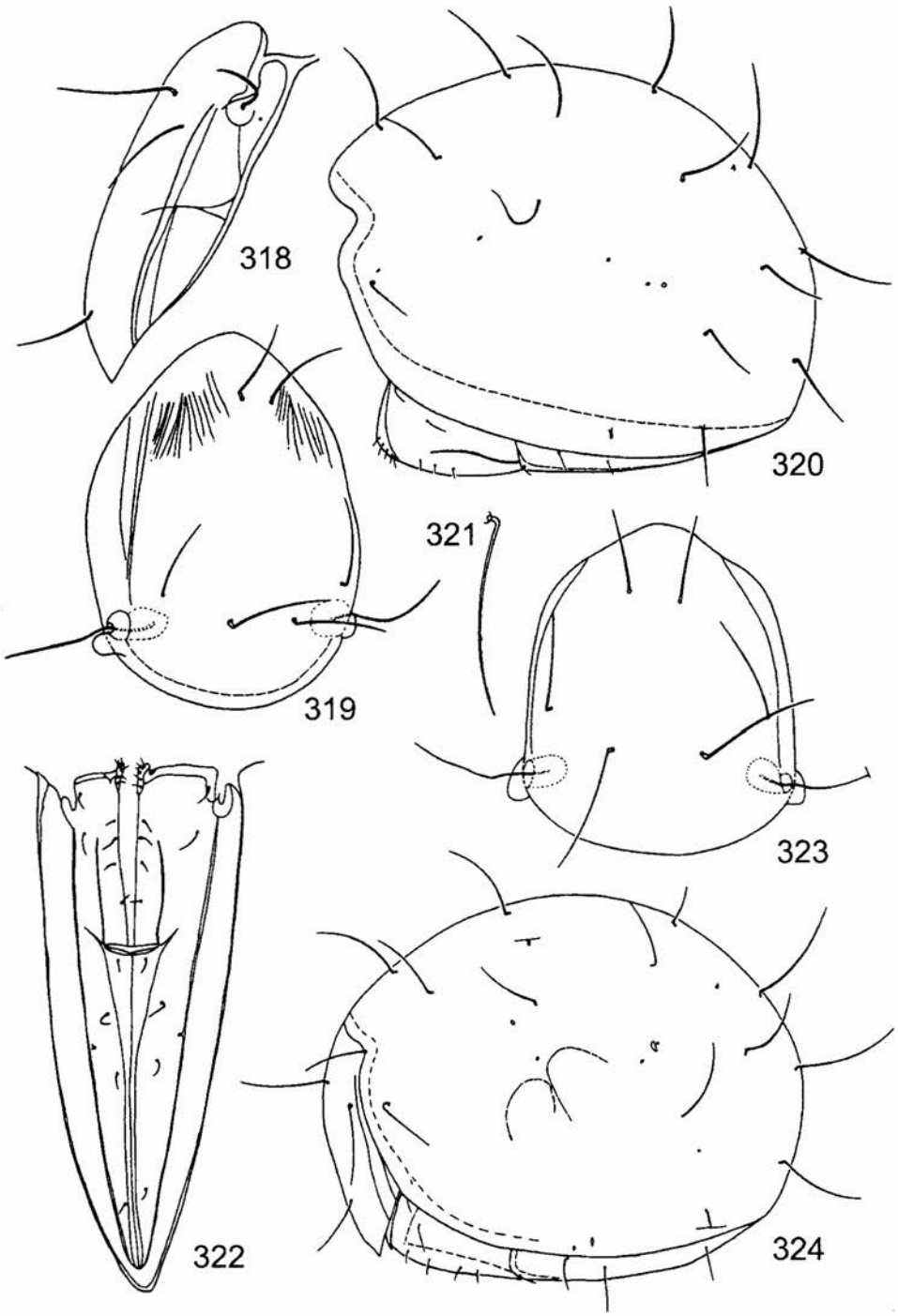


303-309. *Indotritia javensis* (SELLNICK, 1923) (redescribed specimen figured by AOKI 1980, from Japan): 303 - prodorsum, dorsal view, 304 - sensillus, dorsal view, 305 - left side of ventral region, 306 - femur of leg I, 307 - fragment of tarsus of leg IV, 308 - fragment of tarsus of leg II, 309 - fragment of tarsus of leg IV; 310, 311. *Indotritia javensis* (SELLNICK, 1923): 310 - prodorsum, lateral view, 311 - prodorsum, dorsal view

MATERIAL. Three out of seven microscopic slides labelled „NSMT-Ac 9/23 3/3 5 II 1973 *Indotritia javensis* (SELLNICK, 1923) JA 1553, JA 1715, JA 2190 (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Localities in the border zone of the Oriental region and in the Oriental region: Japan: S. Japan,



312-317. *Indotritia javensis* (SELLNICK, 1923): 312 - notogaster, lateral view, 313 - seta h_1, 314 - ventral region, 315 - palpus, 316 - mentum of infracapitulum, 317 - trochanter and femur of leg I



318-322. *Indotritia javensis* (SELLNICK, 1923) (specimen from Indonesia): 318 - prodorsum, lateral view, 319 - prodorsum, dorsal view, 320 - notogaster, lateral view, 321 - seta ps_3, 322 - ventral region; 323, 324. *Indotritia javensis* (SELLNICK, 1923): 323 - prodorsum, dorsal view, 324 - lateral view of body

Yoon, Ishigaki Island, from litter, 6 XII 1972, leg. J. AOKI - (1); S. Japan, Yudomari, Yaku Island, from litter under a large *Ficus microcarpa* tree, 16 XI 1974, leg. J. AOKI - (8); C. Japan, Kurokawa-mura, Niigata-ken, from litter,5 II 1973, leg. K. BABA - (2); C. Japan, Miyake Island, 30 IV 1977, leg. T. TAKAHASHI - (2); C. Japan, top of Mt. Yu, Miyake Island, 1 V 1977, leg. T. TAKAHASHI- (2) (AOKI 1980); sub *O. mollis*: Japan, Iwakiri, Miyazaki-Shi, Miyazaki-Praf., 6 II 1958, leg. T. KUGOH - (1sp.) (AOKI 1959). India, Himalach Pradesh, 11 km from Simla, litter under old larches, 19.IX.1976, leg. Cz. BŁASZAK i J. BŁOSZYK – (1). Nepal, Phulcoki, Lalitpur Distr. N 155, 2650 m, sitting litter around bases of large trees, 13.X.1983, leg. A. SMETANA and I. LÖBL – (12). sub *I. completa*: Java, Buitenzorg, leg. DAMMERMAN - (65) (SELLNICK 1923, 1925). Vietnam, Thanh Hoa, Tho Xuan, from moss growing on living trees,25 I 1986, leg. S. MAHUNKA and J. OLAH - (4) (MAHUNKA 1987a). Vietnam, Tam Dao Mtns. 90 km N. Hanoi Ex. old tropical forest at 1200 m alt. 25.X.1985, leg. M. ZACHARDA – (1); Tam Dao Mts. 90 km N. Hanoi Ex. forest litter at 1200 m alt., Tullgrened, 20.X.1985, leg. M. ZACHARDA – (2); Vietnam, Vinh Phu Tam Dao, 1450 m, stony jungle slope (TF), 19.X.1978, leg. P.T. LEHTINEN – (1); Vietnam N., Cha-Pa, moulder, 20.III.1961, leg. A. BARTKE – (2). Indonesia, Sumatra, Barat Distr. Padangpanjang, Gunnung Singalang, 2500 m, cloud forest (TF), 27.IX.1978, leg. P.T. LEHTINEN – (22); Sumatra, Utara Distr. Simalungun, Simarpalatuk Bangun Dolog, 1500 m, jungle litter, 23.IX.1978, leg. P.T. LEHTINEN – (4); Indonesia, Volcano Cibodas, alt. ca. 2000 m, in litter of tropical forest, 23.VIII.1979, leg. J. BŁOSZYK – (2); Volcano Cibodas, alt. 2580 m, dry litter of tropical forest, 23.VIII.1979, leg. J. BŁOSZYK – (2). Malaysia, Sabah Mt. Kinabalu N.P. Summit Tr. Pondok Lowii 2300-2400 m, 28.IV.1987, leg. A. SMETANA – (7); Sabah Mt. Kinabalu N.P.Summit Trail 1890 m, leg. A. SMETANA – (3); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv. 1500 m, 21.V.1987, leg. A. SMETANA – (3); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv. 1490 m, 18.V.1987, leg. A. SMETANA – (7); Sabah Mt. Kinabalu Nat.P. below Layang Layang, 2590 m, 1.V.1987, leg. A. SMETANA – (3); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv., 1500 m, 25.IV.1987, leg. A. SMETANA – (2). Philippines, Luzon Is. Makiling Botanic Gardens, Los Banos, Laguna Prov., undisturbed secondary forest litter, 26 VI 1975, leg. J.M. SOTTO and R.C. GARCIA - (10); Makiling Botanic Gardens, Los Banos, Laguna, undisturbed secondary forest litter, 13 VIII 1975, leg. J.M. SOTTO and R.C. GARCIA - (1) (NIEDBAŁA & CORPUZ-RAROS 1998). Sri Lanka, Central Pr. Pidurktalagalla, 1900 m, litter of mountain slope near road side, 17. X.1984, leg. P.T. LEHTINEN – (3); Sri Lanka, Central Pr. Pidurktalagalla, 1600 m, broad leaved jungle litter, 17. X.1984, leg. P.T. LEHTINEN – (2); Sri Lanka, Nuwara Elya, moss forest (secondary), mosses on branches of trees and bamboo, 23-24. VI.1968, leg. J. BALOGH – (1).

DISTRIBUTION. An Oriental species introduced in the border zone of the Palaearctic

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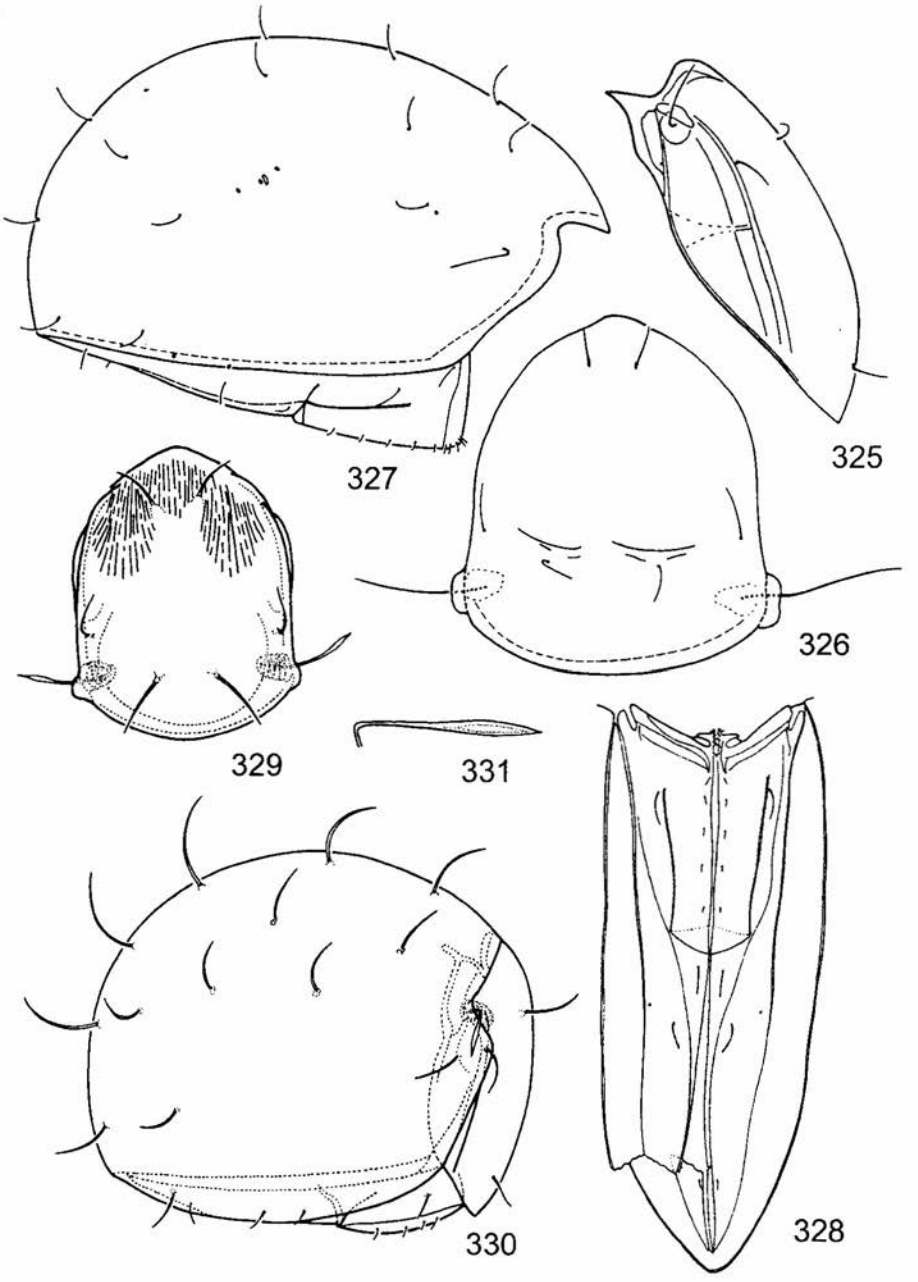
Indotritia krakatauensis (SELLNICK, 1923)

(Figs 325-328)

Indotritia acanthophora MARKEL, 1964
Indotritia sellnicki AOKI, 1965
Indotritia krakatauensis: NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Prodorsum with two well developed lateral carinae, dorsal longer and thicker than ventral; sensilli long, thin, smooth, tapering gradually; setae short, fine, interlamellar setae bent distally, exobothridial setae vestigial. Notogaster with 14



325-328. *Indotritia krakatauensis* (SELLNICK, 1923) (specimen from Papua): 325 - prodorsum, lateral view, 326 - prodorsum, dorsal view, 327 - notogaster, lateral view, 328 - ventral region; 329-331. *Indotritia lanceolata* (AOKI, 1988) (after AOKI 1988): 329 - prodorsum, dorsal view, 330 - lateral view of body, 331 - sensillus, lateral view

pairs of short ($c_1 < c_1$-d_1), stout setae. Ventral region, 9 pairs of genital, 2 pairs (rarely 3 or even 4 pairs) of aggenital;2 pairs of anal and 2 pairs of adanal setae present, lyrifissures *iad* located antero-dorsally of ad_2 setae.

MATERIAL. Localities in the Oriental region: Krakatau, Batavia III 1921 - (4) (SELLNICK 1923, 1925); Java - (10) (SELLNICK 1923, 1925). sub *I. sellnicki*: Thailand, Nakon Pathom, 27 IX 1961, leg. G. IMADATE - (6) (AOKI 1965). Maldives Islands, Tari Island within Mali Atoll, near the coast line but terrestrial, dead coral rubble, January 1987 – (10). Malaysia, Pullan Pinang Batu Ferringgi, high grass, 22.X. – 13.XI.1976, leg. P.T. LEHTINEN – (1). Philippines, Panay Is., Mambusao, Capiz Prov., grass litter, 12.X.1990, leg. A.M. ALMERODA – (3); Luzon Is., Mt. Makiling, Los Baños, Laguna Prov., leaf litter, X.1975, leg. A.A. BARROSO – (1) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. A Pantropical species.

Indotritia lanceolata (AOKI, 1988) n. comb.

(Figs 329-335)

Austrotritia lanceolata AOKI, 1988

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of holotype: prodorsum: length 404, sensillus 126, interlamellar seta 101, lamellar and rostral setae 80.9; gastronotal setae 114-139; genitoaggenital plate 404x232; anal and adanal plates 707x162. Prodorsum with 2 pairs of lateral carinae; sensilli with a slender apical spindle; interlamellar setae rough, slightly longer than rostral and lamellar setae. Notogaster with 14 pairs of thick, anteriorly curved setae, slightly roughened in distal half. Ventral region, 9 pairs (not 7 pairs) of genital and 2 pairs of aggenital setae present; one pair of anal and 3 pairs of adanal setae present; lyrifissures *iad* laterally and slightly posterior to ad_1 setae; formulae of legs (without tarsi): I: 1-4-5(2)-5(1); II: 1-4-4(1)-3(1); III: 3-2-3(1)-3(1); IV: 3-2-2(1)-3(1).

MATERIAL. Holotype in microscopic slide labelled: "*Austrotritia lanceolata* AOKI, 1988, holotypus NSMT-Ac 10205" (courtesy Prof. J. AOKI, Department of Soil Zoology, Yokohama National University). Locality in the border zone of the Oriental region: Southern Japan, Nakanoshima Island, near Sokonashi-numa, 15 III 1987, leg. J. AOKI - (1) (AOKI 1988).

DISTRIBUTION. Japan, probably an endemic species.

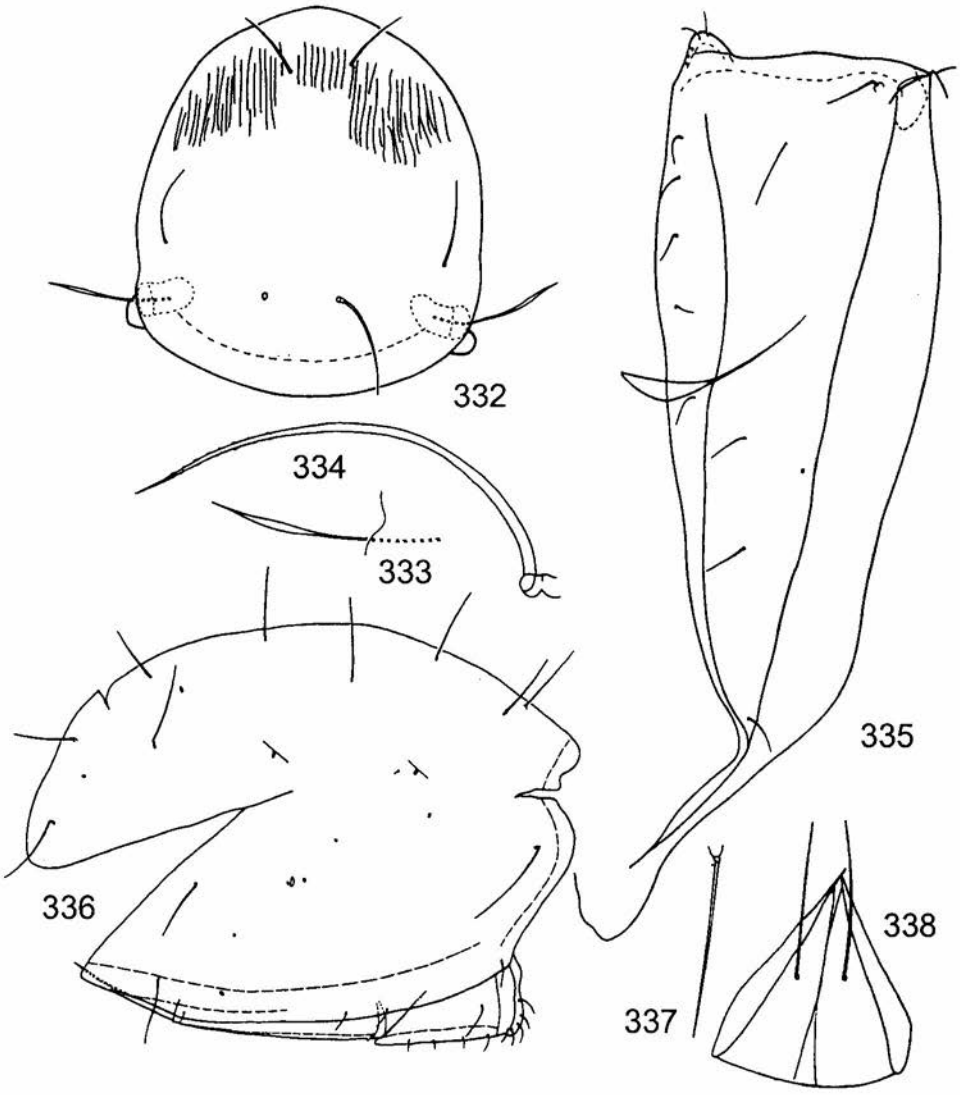
Indotritia propinqua NIEDBAŁA, 1991

(Figs 336-341)

DIAGNOSIS. Prodorsum with two pairs of lateral carinae, upper thicker, longer and reaching end of rostrum; sensilli long, smooth, filiform; interlamellar and rostral setae erect, rough, lamellar setae fine, exobothridial setae vestigial. Notogaster with 14 pairs of relatively thick, slightly rough setae ($c_1 < c_1$-d_1); vestigial setae f_1 slightly anterior to h_1 setae. Ventral region, setae *h* of mentum very long; epimeral formula is 3-0-2-2;9 pairs of genital and 2 pairs of aggenital setae present; anal plate each with 1 seta, adanal plate each with 3 setae, lyrifissures *iad* located posterior to ad_2 setae.

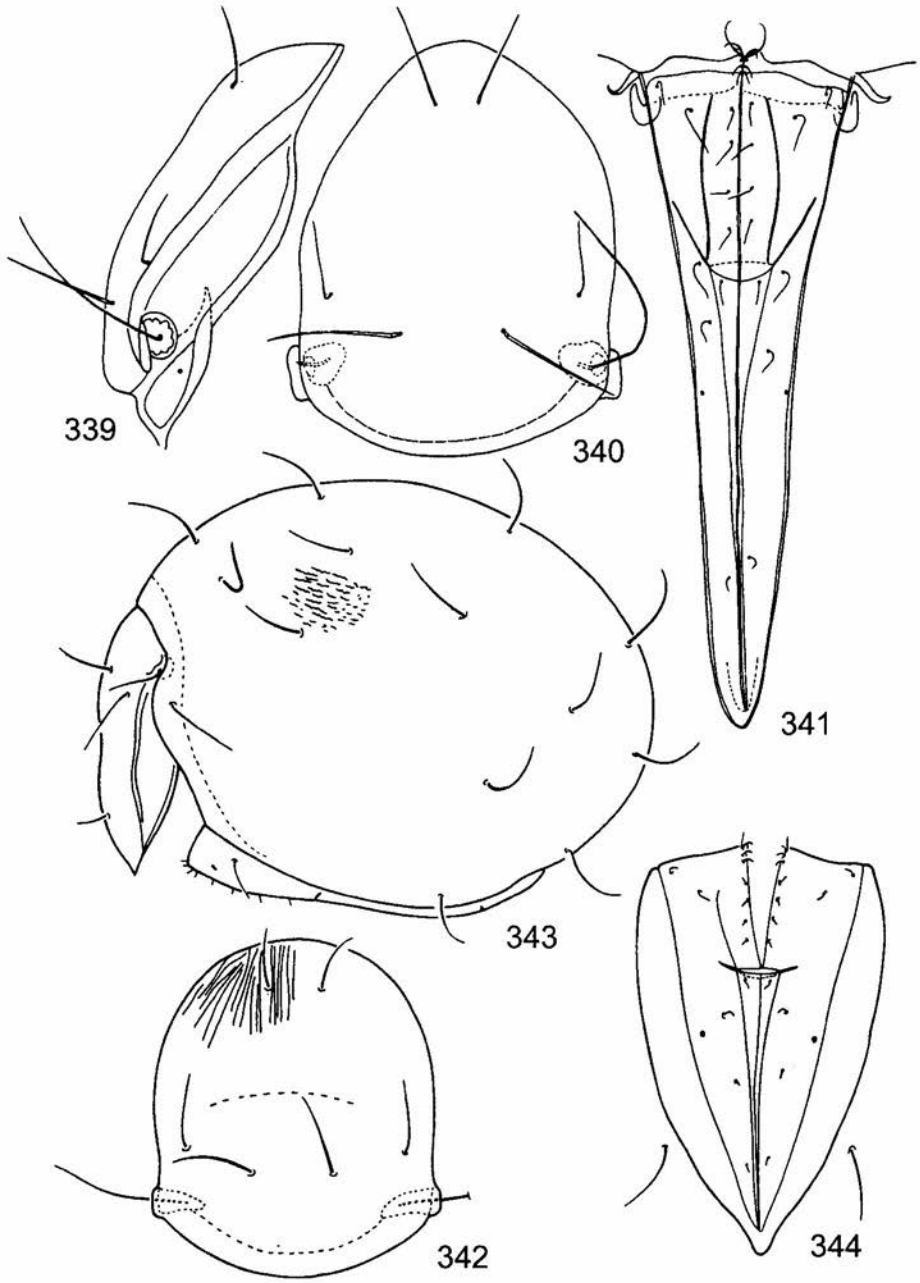
Leg chaetotaxy and solenidiotaxy (without tarsi I and II): I:1-4-5(2)-5(1), II: 1-4-4(1)-3(1), III: 3-2-3(1)-3(1)-13(1), IV:3-2-2(1)-3(1)-11, femora I hooked dorsodistally, tarsi IV with paraxialunguinalsetae thick and spiniform.

MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: Sri Lanka, Akuressa (Matara district), tropical rain forest, hanging moss, 3 VII 1968, leg. BALOGH and LOKSA (code CMB-B 75) - (2) (NIEDBAŁA 1991a). India, West Bengal, Darjeeling, Bhanjan Road, 4 km W of Ghoom (2300 m), in litter of cloud forest (TF), 1.V.1979, leg. P.T. LEHTINEN – (20); West Bengal, Darjeeling, 12



332-335. *Indotritia lanceolata* (AOKI, 1988): 332 - prodorsum, dorsal view, 333 - sensillus, lateral view, 334 - seta d_1, 335 - left side of ventral region; 336-338. *Indotritia propinqua* NIEDBAŁA, 1991 (holotype): 336 - notogaster, lateral view, 337 - seta c_1, 338 - mentum of infracapitulum

km NW of Sukhlapokri, 2350 m, cloud forest with stones, 1.V.1979, leg. P.T. LEHTINEN – (1); West Bengal, Darjeeling, Bhanjan Road, 4 km W of Ghoom (2300 m), in litter of cloud forest, (TF), 1.V.1979, leg. P.T. LEHTINEN – (1);West Bengal,



339-341. *Indotritia propinqua* NIEDBAŁA, 1991 (holotype): 339 - prodorsum, lateral view, 340 - prodorsum, dorsal view, 341 - ventral region; 342-344. *Indotritia undulata* BAYOUMI et MAHUNKA, 1979 (after BAYOUMI and MAHUNKA 1979): 342 - prodorsum, dorsal view, 343 - lateral view of body, 344 - ventral region

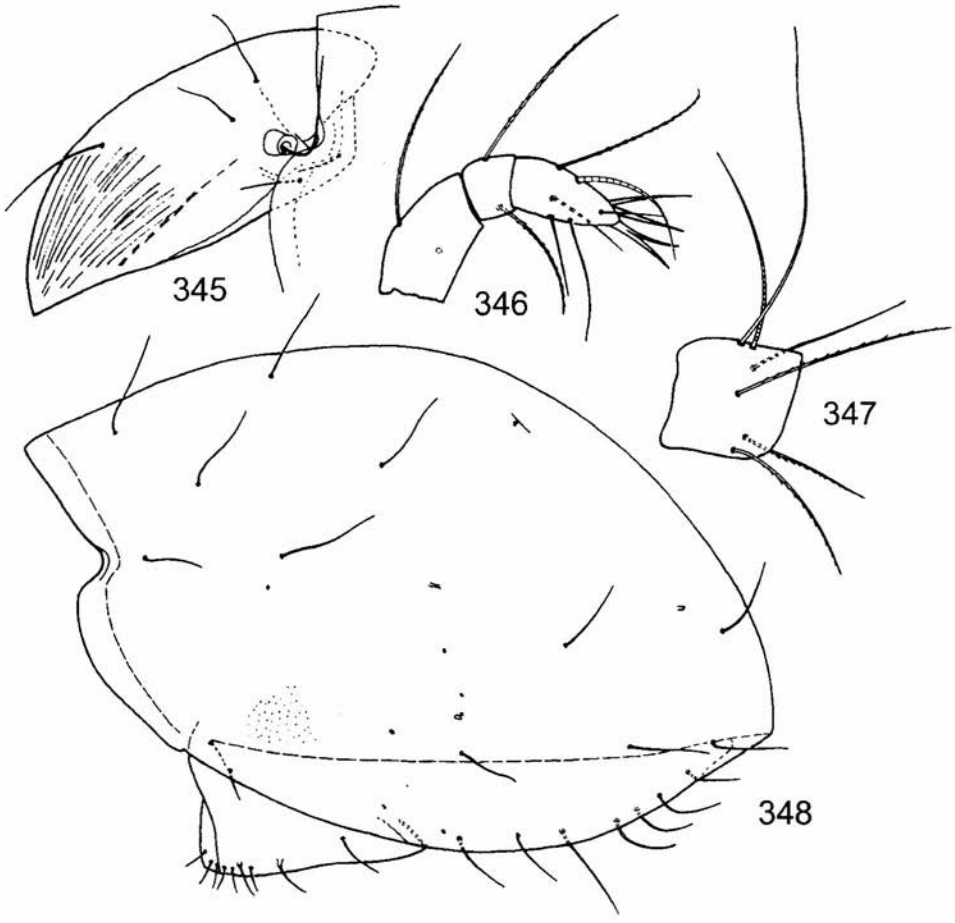
Darjeeling, Tiger Hill (2000 m), in litter of cloud forest, (TF), 29.IV.1979, leg. P.T. LEHTINEN – (1). India, Uttar Pradesh, Kumaon, Mainital, Pains (1920 m), mountain forest, (TF), 16.IV.1979, leg. P.T. LEHTINEN – (3).

DISTRIBUTION. An Oriental species introduced in southern part (Uttar Pradesh) of Palaearctic .

Indotritia undulata BAYOUMI et MAHUNKA, 1979

(Figs 342-344)

DIAGNOSIS. Prodorsum with distinct lateral carinae; sensilli fairly long, setiform, smooth; setae simple, *in* > *le* >*ro*. Surface of notogaster sculptured with discontinuous wavy, faint furrows, 14 pairs of simple, short ($c_1 < c_1$-d_1), rigid setae present. Ventral region, 8 pairs (perhaps 9 pairs) of genital, 2 pairs of aggenital; one pair of anal and 3 pairs of adanal, minute setae present, lyrifissures *iad* situated between ad_2 and ad_3 setae.



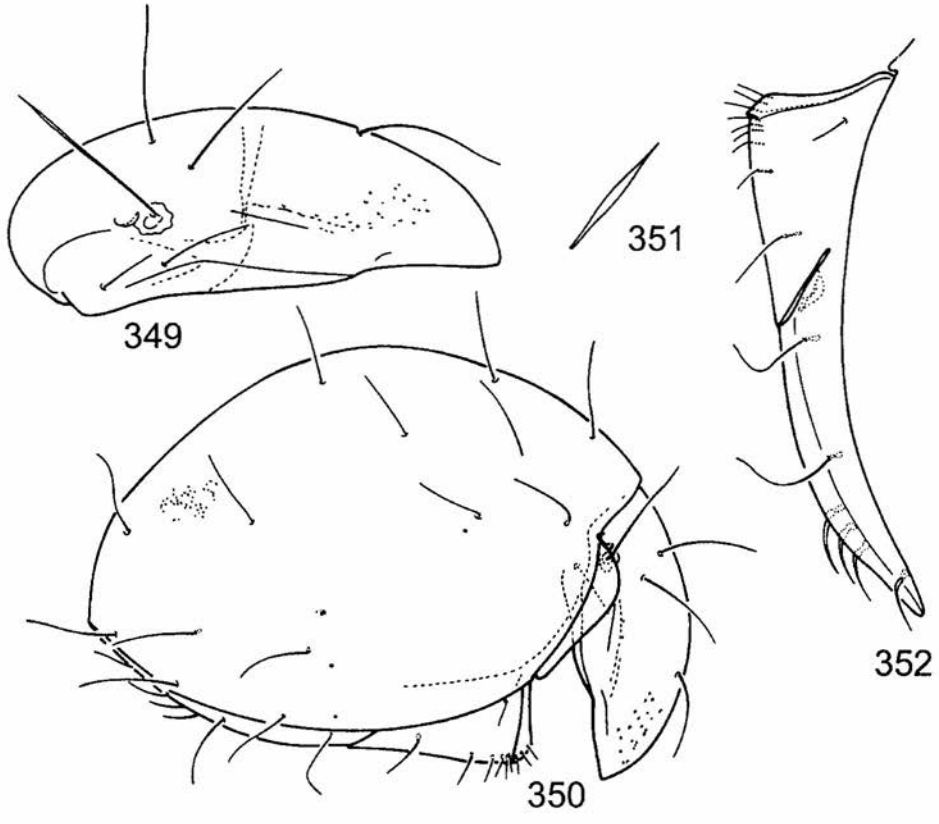
345-348. *Terratritia askewi* RAMSAY et SHEALS, 1969: 345 - prodorsum, lateral view (holotype), 346 - palpus (paratype), 347 - tibia of leg I (paratype), 348 - notogaster, lateral view (holotype)

MATERIAL. Localities in the border zone of the Oriental region: Nepal, Phulchoki, 2600 M, 11-14. 6. 76, leg. W. WITMER and U. BARONI - (3); Bhutan, Chimakothi, 1900/2300 m, 22.5. leg. W. WITMER - (14); India, Kashmir, Gulmarg, 2650/3000 m, 1.3.76,leg. W. WITMER - (2) (BAYOUMI & MAHUNKA 1979).

DISTRIBUTION. Southern part (Kashmir, Nepal, Bhutan) of Palaearctic.

Terratritia RAMSAY et SHEALS, 1969

DIAGNOSIS. Prodorsum flatly arched in lateral view, median carina absent, one pair of lateral carinae present, bothridial squamae situated above the bothridia, posterior median apodeme present, rostral setae originating far from the rostrum medially, the lamellar ones far from each other, laterally; notogaster with a terminal sinus, one pair of lateral opisthosomal glands and five pairs of lyrifissures *ia*, *im*, *ip*, *ih*, *ips* present; genitoaggenital suture completely reduced, anoadanal suture well developed, long and oblique anogenital cleft and an internal transversal apodeme present, some setae arising before the suture kag; palps 3-segmented, with formula: 2-2-9+1; legs heterotridactylous, neotrichy on tarsi I and II, famuli e located very



349-352. *Terratritia seconda* MAHUNKA, 1991 (after MAHUNKA 1991a): 349 - prodorsum, lateral view, 350 - lateral view of body, 351 - distal end ofsensillus, 352 - left side of ventral region

near to solenidia w_1, solenidia on tarsus II without coupled setae, setae d on tibiae IV very long and not coupled with solenidia, genua IV without solenidia, trochanters III and IV with two setae each.

Terratritia askewi RAMSAY et SHEALS, 1969

(Figs 345-348)

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurement of holotype: prodorsum: length 343, height 136, sensillus 114, setae: interlamellar 75.9, lamellar 58.2, rostral 96.1, exobothridial anterior 48.1, exobothridial posterior 32.9, notogaster: length 621, height 394, setae: c_1 88.5, h_1 65.8, ps_1 50.6, length of genitoaggenital plate 182, length of anal and adanal plates 283. Colour light brown, integument densely porose. Prodorsum with simple, weak lateral carinae present; sensilli long, smooth and tapering; setae smooth, interlamellar setae erect, lamellar and rostral setae procumbent, rostral setae the longest, two pairs of minute exobothridial setae present. Notogaster with 14 pairs of fine ($c_1 < c_1$-d_1), smooth setae, setae of row *ps* located near the ventral margin; vestigial setae f_1 slightly anterior to h_1 setae. Ventral region, setae *h* of mentum longer than distance between them; genital plates completely fused with aggenital plates, oblique continuation of anogenital cleft present; 8 pairs of genital and 3 pairs of aggenital setae present, 2 pairs anterior and one pair posterior; 3 pairs of anal and 3 pairs of adanal setae present, lyrifissures *iad* located anterior to oblique cleft trv. Leg chaetotaxy and solenidiotaxy: I:1-3-5(2)-5(1)-21(3), II: 1-4-4(1)-5(1)-13(2), III:2-3-3(1)-3(1)-11, IV: 2-3-2-2(1)-9.

MATERIAL. One microscopic slide with holotype and 3 with paratypes labelled: North Borneo Kinabalu Region Pinosuk Plateau 5400 ft. podsol humus/litter Roy.Soc. 1964 Expd. to N. Borneo coll. G.P. ASKEW *Terratritia askewi* HOLOTYPE male 1968: 729, 733/3 paratype female, chelicerae, infracapitulum palps, 733/4 paratype female, legs, 733/5 paratype female, notogaster (courtesy Dr. A.S. BAKER Department of Entomology, British Museum (Natural History), London). Localities in the Oriental region: Sabah (North Borneo), Pinosuk Plateau, site near R. Mesilau, Kinabalu region, elevation approximately 1 646 m, humus podzol: „old" soil on mixed drift of granodiorite and shale, expedition 1964, leg. G.P. ASKEW - (4); Kundazan, site on mid-slope of easterly facing hillside, primary forest, elevation approximately 1 402 m, soil a deep acid yellow earth with thickmor humus layer, pH of litter - 3,2, expedition 1961, leg. G.P. ASKEW - (1) (RAMSAY & SHEALS 1969).

DISTRIBUTION. Sabah, perhaps an endemic species.

Terratritia seconda MAHUNKA, 1991)

(Figs 349-352)

DIAGNOSIS. Prodorsum with lateral carinae reduced, only short parts observable anterior to bothridia; sensilli long, thin, lanceolate; setae fairly long especially two pairs of exobothridial setae. Notogaster with humeral parts strongly protruding anteriorly, 14 pairs of fine, filiform ($c_1 < c_1$-d_1) setae present. Ventral region,9 pairs of genital, 2 pairs of aggenital; 3 pairs of anal and 3 pairs of adanal setae present,

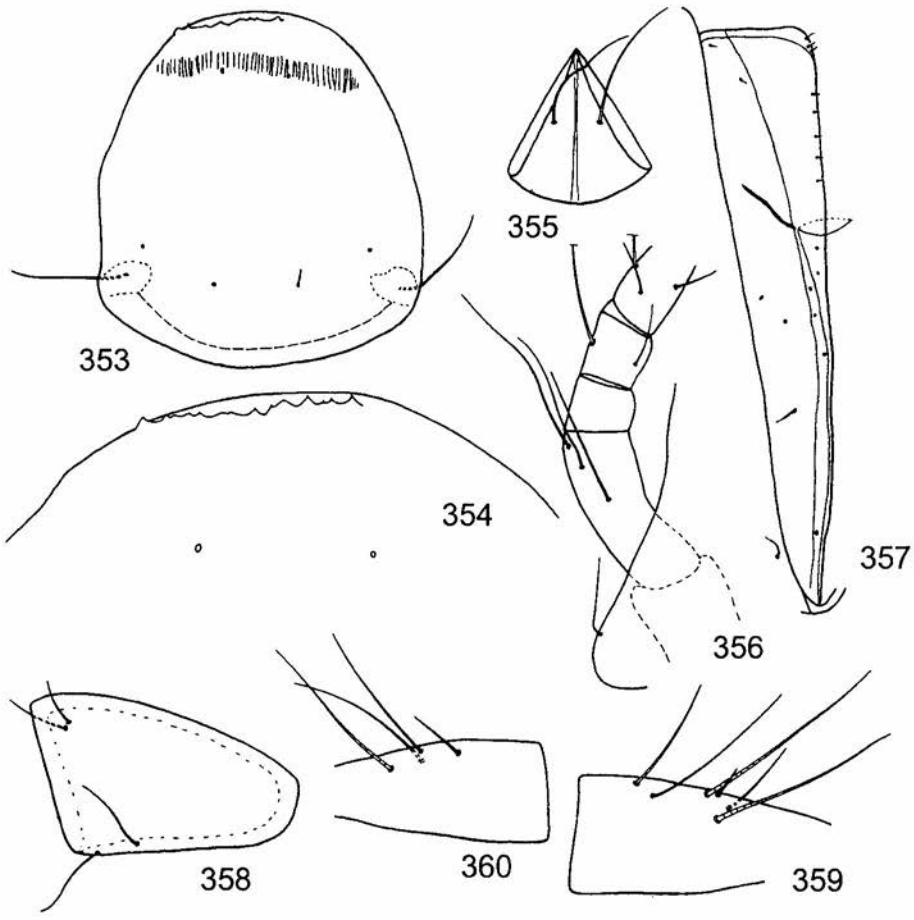
setae g_9 are the longest and situated far posteriorly and remote from paraxial border of genitoaggenital plates, anal and ad_1 setae short and thick, ad_2 and ad_3 setae longer and filiform. Palps and legs as *T. askewi* RAMSAY et SHEALS, 1969.

MATERIAL. Locality in the Oriental region: Sabah (West Coast Residency): Mt Kinabalu: „Bukit Ular Trail" (sentier reliant la „Kambarangan Road" a la „Power Station"), foret de *Lithocarpus-Castanopsis*, prelevement de sol au pied d'un grand arbre, 1850 m, 28 IV 1982 - (2) (MAHUNKA 1991a).

DISTRIBUTION. Sabah, perhaps an endemic species.

Austrotritia SELLNICK, 1959

DIAGNOSIS. Prodorsum low, elongated, median carina absent, 1-2 lateral carinae present, bothridial squamae situated above bothridia, posterior median apodeme absent, rostral and interlamellar setae in normal position, lamellar setae in lateral



353-360. *Austrotritia dentata* AOKI, 1980 (paratype): 353 - prodorsum, dorsal view, 354 - anterior margin of rostrum, 355 - mentum of infracapitulum, 356 - palpus, 357 - right side of ventral region, 358 - femur of leg I, 359 - fragment of tarsus of leg I, 360 - fragment of tarsus of leg II

position; notogaster, 14 pairs of setae, one pair of openings of latero-opisthosomal glands and five pairs of lyrifissures: *ia, im, ip, ips, ih*, 2 pairs of vestigial setae, terminal sinus present; genitoaggenital suture absent, genital and aggenital plates completely fused, very long, oblique anogenital cleft present; palps 5-segmented with formula: 0-(2-3)-0-(2-3)-9+1; Legs heterotridactylous with neotrichy on tarsi I and II, famuli associated with solenidia w_2, solenidia on tarsi II with coupled setae, solenidia on genu IV present, setae d on tibiae IV reduced and coupled with solenidia j, trochanters III and IV with 3 setae each.

Austrotritia dentata AOKI, 1980
(Figs 353-360)

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of paratype: prodorsum: length 379, width 338, sensillus 131, interlamellar seta 22.7; genitoaggenital plates 167x80.8, anal an adanal plates 328x55.5. Prodorsum with dentate rostrum, two pairs of lateral carinae present; sensilli long, tapering distally; setae short, exobothridial setae the longest, interlamellar setae bent posteriorly. Notogaster with very short, simple setae. Ventral region, setae *h* of mentum longer than distance between them, setal formula of palps: 0-3-0-2-9(1); epimeral formula: 3-0-3-3; 8 pairs of genital, 2 pairs of aggenital; 2 pairs of anal and 3 pairs of adanal setae present, in holotype lyrifissures *iad* located at the level of ad_3 setae, in paratype lyrifissures *iad* locatedbetweenad_2 and ad_3 setae. Leg chaetotaxy and solenidiotaxy. I: 1-4-5(2)-5(1)-21, II: 1-4-5(1)-5(1)-18, III:3-2-3(1)-4(1)-14, IV: 3-2-3(1)-3(1)-12, setae u" on tarsi IV swollen.

REMARK. This species differs from *A. gibba* BAYOUMI et MAHUNKA in the dentate rostrum, shorter rostral setae, shorter notogastral setae and presence of 8 pairs of genital setae.

MATERIAL. Two microscopic slides labelled: first: „NSMT-Ac 9129 1/2 Shokakuji Sagamibo-machi Kanagawa-ken 29 VIII 1967 J. AOKI JA 777 *Austrotritia dentata* (paratopotypus) part 1/2A", second: as above „part 2/2A" (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Locality in the border zone of the Oriental region: Japan, Shokakuji, Sagamiko-machi, Kanagawa-ken, from litter, 29 VIII 1967, J. AOKI - (3) (AOKI 1980); Japan, Honsiu Nara Yoshino-Jama, litter of mixed forest, 19.VIII.1981, leg. P.T. LEHTINEN – (2).

DISTRIBUTION. Japan, probably an endemic species.

Austrotritia gibba BAYOUMI & MAHUNKA, 1979
(Figs 361-363)

DIAGNOSIS. Prodorsum with two pairs of lateral carinae; sensilli comparatively long, setiform, smooth; setae simple, short, thin, lamellar setae the longest, interlamellar setae curved posterad. Notogaster humped in outline, with simple setae, comparatively short ($c_1 < c_1$-d_1). Ventral region, 8 pairs (perhaps 9 pairs) of genital, 2 pairs of aggenital; 2 pairs of anal, 3 pairs of adanal minute setae.

MATERIAL. Locality in the border zone of the Oriental region. Kashmir, Gulmarg, 2650/3000 m, 1.3.76, leg. W. WITTMER - (3) (BAYOUMI & MAHUNKA, 1979).

DISTRIBUTION. Kashmir, probably an endemic species.

Austrotritia glabrata sp. nov.

(Figs 364-370)

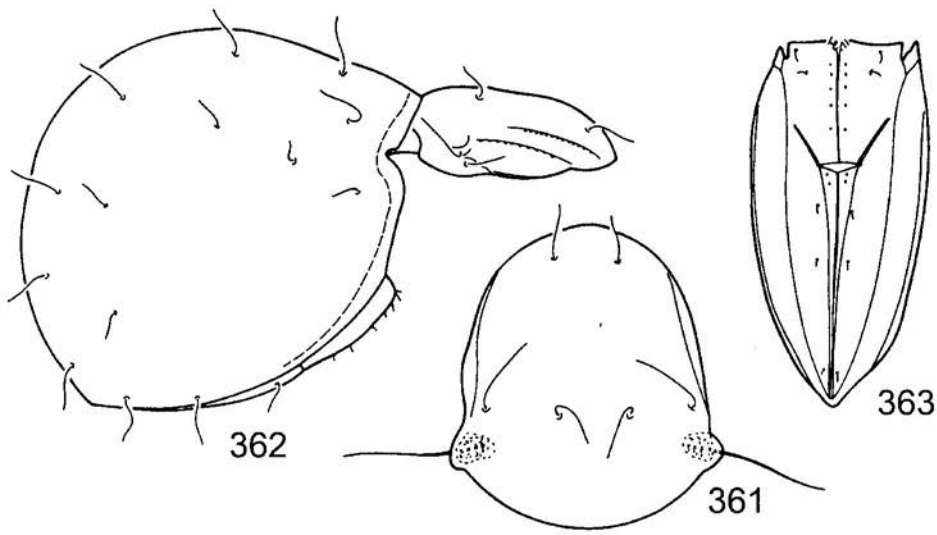
DESCRIPTION. Measurements of holotype: prodorsum: length 482, width 387, height 177, sensillus 139, setae: interlamellar 22.8, lamellar 37.9, rostral 12.6, exobothridial 55.7, notogaster: length 1004, height 753, setae: c_1 15.2, ps_2 35.4; genitoaggenital plates 257x151, anal and adanal plates 454x106. Colour brown, integument finely punctate. Prodorsum with one pair lateral carinae, dorsally to them another pair is present but very weakly developed. Sensilli long, setiform, smooth. Setae, except exobothridial minute, comparative length: *ex* > *le* > *in* > *ro*. Notogaster with minute setae, only setae ps_2 and ps_3 slightly longer, setae $c_{1\text{-}3}$ for removed from anterior margin, setae c_1 and c_2 slightly more so than setae c_3. Only one pair of openings of lateral opisthosomal glands and lyrifissures *im* and *ips* present, remaining lyrifissures and vestigial setae not discernible. Ventral region. Genitoaggenital plates with 8 pairs of genital setae (3 anterior pairs in pregenital position longer than remainder) and with 2 pairs of aggenital setae. Two pairs of minute anal setae located near each other and 3 pairs of minute adanal setae present. Lyrifissures *iad* positioned antiaxially of ad_3 setae. Legs. Formulae of setae and solenidia (tarsi excluded): I:1-4-5(2)-5(1), II: 1-4-4(1)-4(1), III: 3-2-3(1)-3(1), IV:3-2-2(1)-3(1). Anterodorsal spines on femora I large and weak.

DIAGNOSIS. The new species differs from other known species of *Austrotritia* in the minuscule setae of the body.

ETYMOLOGY. The Latin name *glabrata* meaning „to make smooth" or „deprive of hair and bristles" is an allusion to the nearly smooth surface of body.

MATERIAL. Holotype: Nepal, Kathmandu, Dis. Sivapuri Dara, 2450 m, 30IV 1985, leg. A. SMETANA.

DISTRIBUTION. Nepal, perhaps an endemic species.

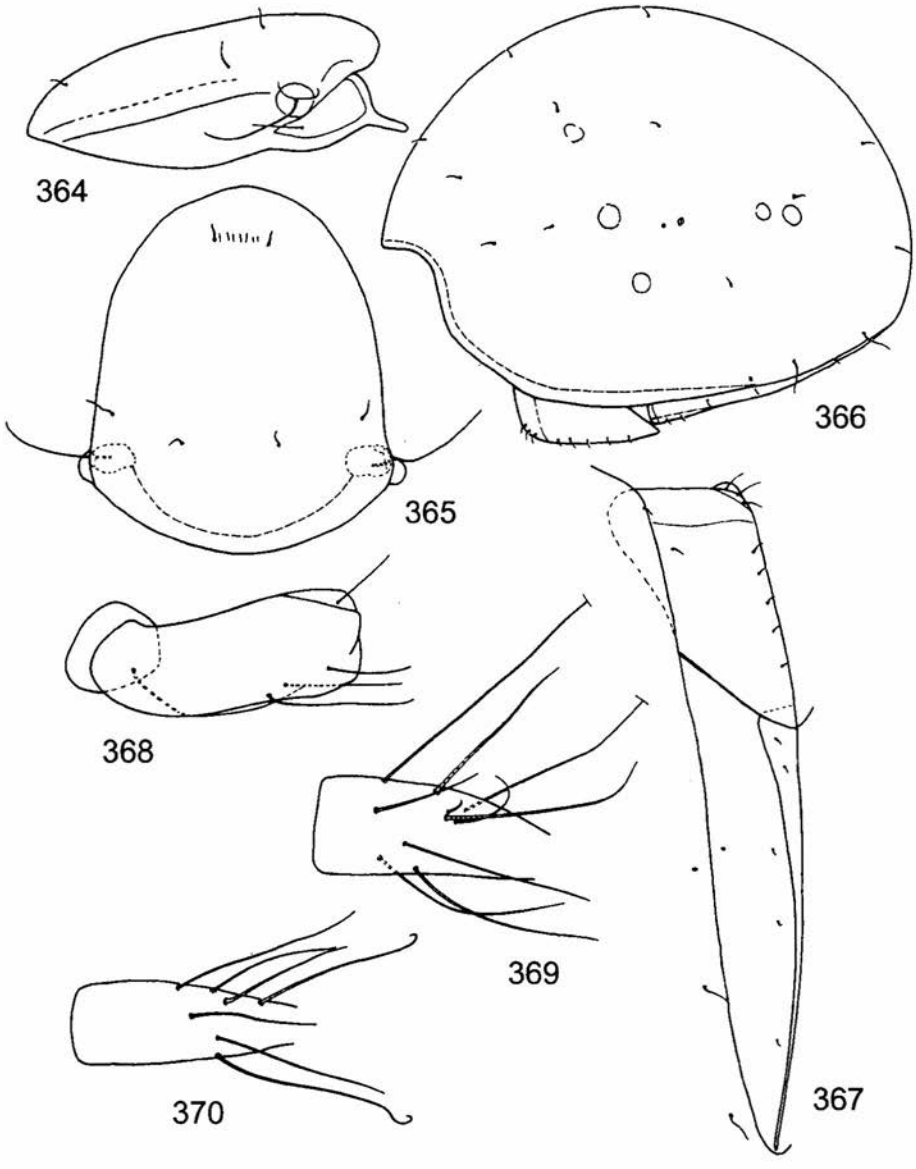


361-363. *Austrotritia gibba* BAYOUMI et MAHUNKA, 1979 (after BAYOUMI and MAHUNKA 1979): 361 - prodorsum, dorsal view, 362 - lateral view of body, 363 - ventral region

Austrotritia kinabaluensis Ramsay et Sheals, 1969

(Figs 371-382)

Diagnosis and additional description. Measurements of this specimen: prodorsum: length 379, height 121, width 283, setae: interlamellar 101, lamellar 65.6, rostral 90.9; notogaster: length 651, width 465, height 474, setae: c_1 90.9, c_3 50.5, h_1 111, ps_1 101. Colour light brown, integument finely porose and with longitudinal striations over body.



364-370. *Austrotritia glabrata* sp. nov. (holotype): 364 - prodorsum, lateral view, 365 - prodorsum, dorsal view, 366 - notogaster, lateral view, 367 - right side of ventral region, 368 - trochanter and femur of leg I, 369 - fragment of tarsus of leg I, 370 - fragment of tarsus of legl II

Prodorsum with two carinae on each side; sensilli long, smooth, flagelliform; interlamellar and rostral setae erect, lamellar setae procumbent, interlamellar setae the longest, exobothridial setae vestigial. Notogaster with setae relatively short (c_1/c_1-d_1 = 0.84), covered with 3-4 small spines at distal end, setae ps_3 flagellate; vestigial setae f_1 anterior to h_1 setae. Ventral region, setae *h* of mentum considerably longer than distance between them, chaetotaxy of palps: 0-2-0-2-9 and one solenidion; epimeral formula: 3-0-2-2; 9 pairs of genital, 3 pairs of aggenital; no anal and 3 pairs of adanal setae present, lyrifissures *iad* located roughly at the level of ad_2 setae. Leg chaetotaxy and solenidiotaxy: I:1-4-5(2)-5(1)-21(3), II: 1-4-4(1)-3(1)-17(2), III:3-2-3(1)-3(1)-14, IV: 3-2-2(1)-3(1)-11.

MATERIAL. Seven microscopic slides labelled: North Borneo, Kinabalu Region Pinosum Plateau, 5300' ex humus podsol/litter Roy. Soc. 1964 Expd. to N. Borneo coll. G.P. ASKEW *Austrotritia kinabaluensis* RAMSAY and SHEALS HOLOTYPE male1968734/ 1notogasterventralshield anogenital plate, 734/2 infracapitulum+palp, 734/3 palp 734/4 legs,734/5legs, 734/6 chelicerae, 734/7 ; one microscopic slide labelled: *Austrotritia kinabaluensis* RAMSAY+SHEALS paratype o+ 1968 735/1 North Borneo Kundazan 4 600Ft ex acid soil litter samples Roy. Soc. 1961 Expd. to N. Borneo coll. G.P. ASKEW (courtessy Dr. A.S. BAKER, Department of Entomology, British Museum (Natural History), London). Localities in the Oriental region: Malaysia, Sabah (North Borneo), Pinosuk Plateau, site near R. Mesilau, Kinabalu region, elevation approximately 1 615 m, humus podzol: „old" soil onmixed drift of granodiorite and shale, expedition 1964, leg.G.P. ASKEW - (1); Kundazan, site on mid-slope of easterly facing hillside, primary forest, elevation approximately 1 402m, soil a deep acid yellow earth with thick mor humus layer, pH of litter - 3,2, expedition 1961, leg. G.P. ASKEW - (1) (RAMSAY & SHEALS 1969); Sabah Mt. Kinabalu N.P. Summit Tr. Pondok Lowii 2300-2400 m, 28.IV.1987, leg. A. SMETANA – (7); Sabah Mt. Kinabalu N.P.Summit Trail 1890 m, leg. A. SMETANA – (2); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv. 1490 m, 18.V.1987, leg. A. SMETANA – (5); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv. 1495 m, 21.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv. 1500 m, 16.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat.P. Laban Rata, 3200-3250 m, 4.V.1987, leg. A. SMETANA – (42); Sabah Mt. Kinabalu Nat.P. Paka Cave, 2997 m, 6.V.1987, leg. A. SMETANA – (12); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv., 1500 m, 30.IV.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat.P. Summit Trail Pandok, Ubah 2050 m, 26.IV.1987, leg. A. SMETANA – (47); Sabah Mt. Kinabalu Nat.P. below Layang Layang, 2590 m, 1.V.1987, leg. A. SMETANA – (6); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv., 1500 m, 18.V.1987, leg. A. SMETANA – (3); Sabah Mt. Kinabalu Nat.P. below Layang Layang, 2595 m, 2.V.1987, leg. A. SMETANA – (13); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv., 1500 m, 25.IV.1987, leg. A. SMETANA – (2).

DISTRIBUTION. Sabah, perhaps an endemic species.

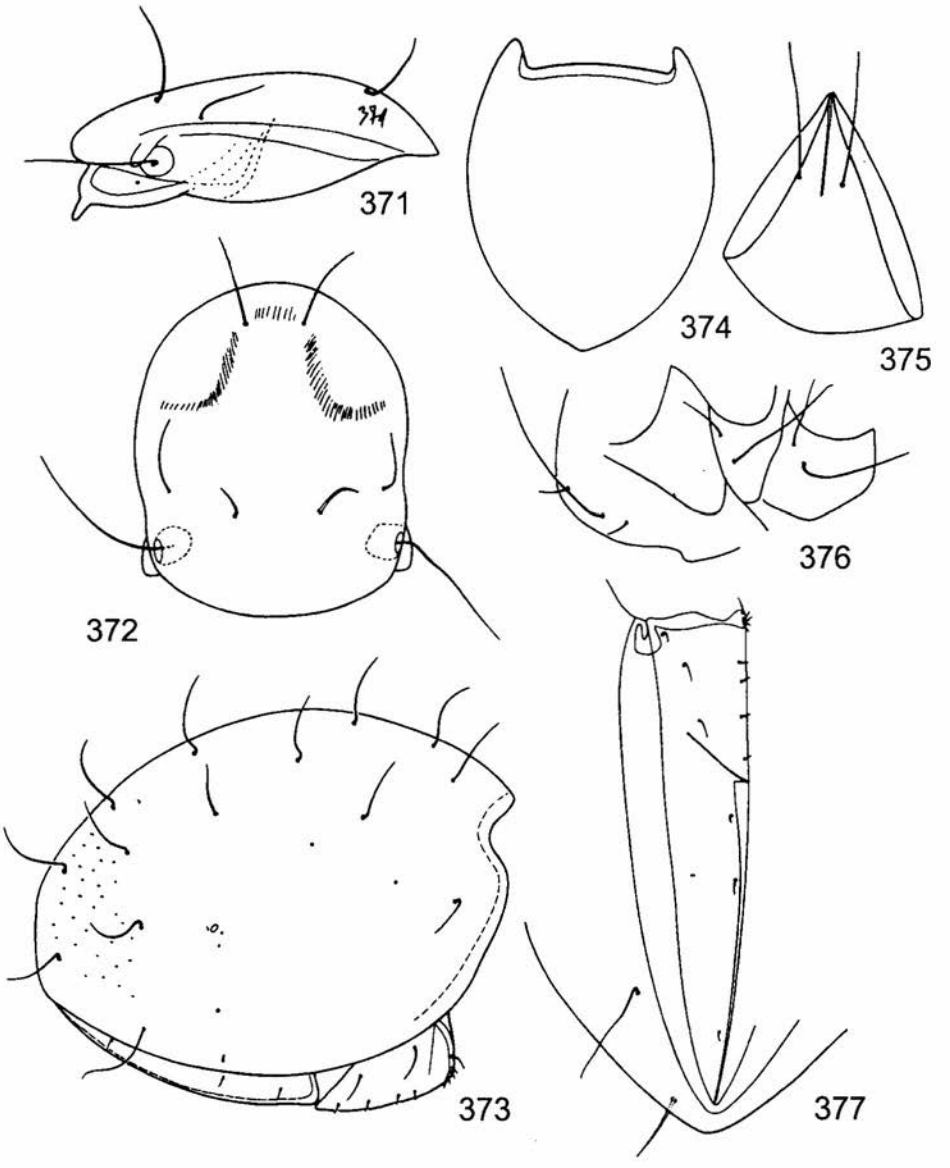
Austrotritia lebronneci (JACOT, 1935)

(Figs 383-387)

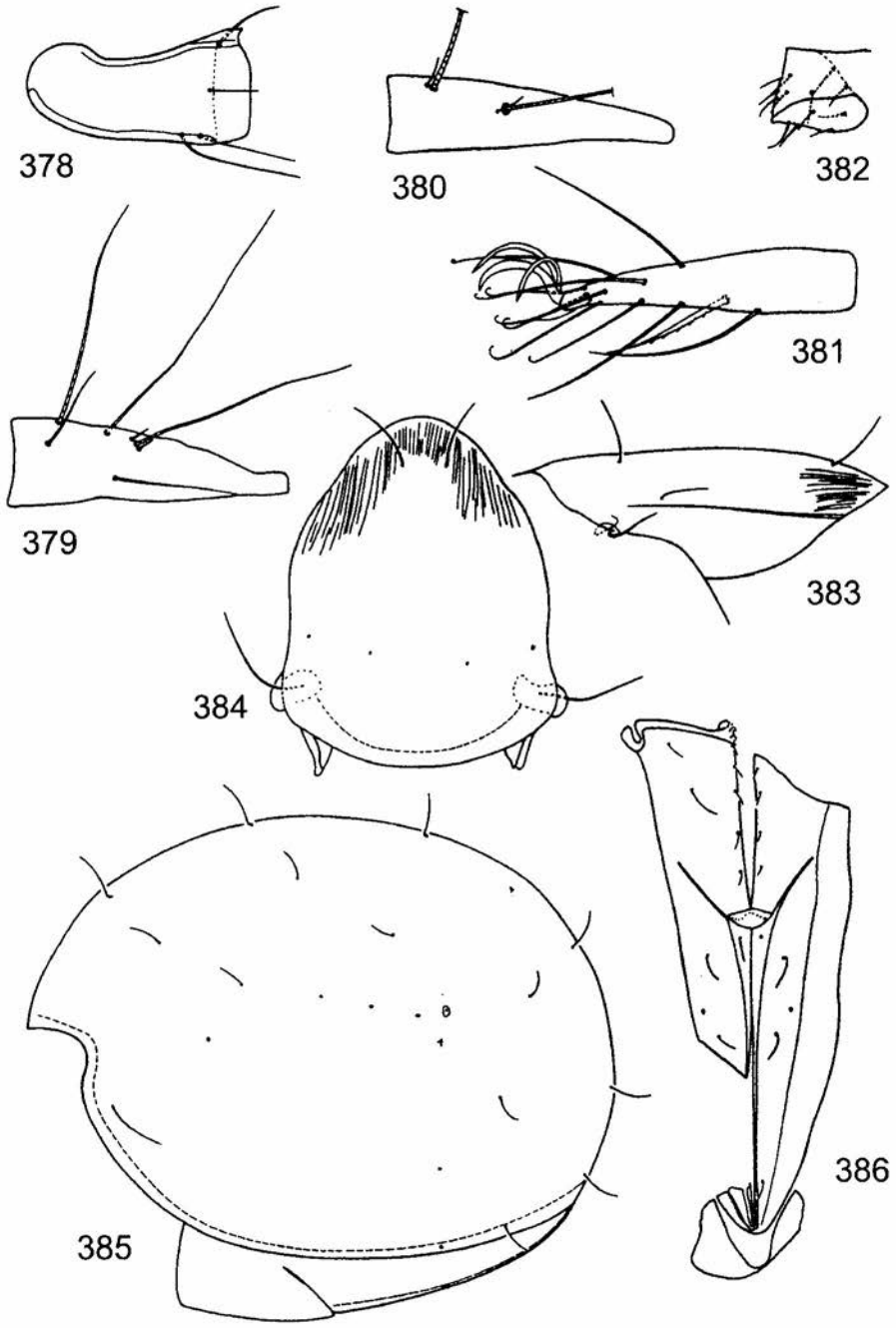
Indotritia lebronneci JACOT, 1935
Austrotritia lebronneci: NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Prodorsum with single, well-developed lateral carinae; sensilli relatively short, stout, narrow; interlamellar and rostral setae thick, robust, situated

perpendicularly to the surface, lamellar setae fine, procumbent, exobothridial setae short, shorter than diameter of bothridium, *ro>in>le>ex*. Notogaster with setae relatively short (c_1/c_1-d_1= 0.4), sparingly spinose, setae c_1 and c_2 remote from anterior margin, setae c_3 very fine, near margin; vestigial setae f_1 ventrad of e_1 setae. Ventral region, ratio of length of *h* setae of mentum to their mutual distance is 2.7;palps with setal formulae 0-2-0-2-9 and one solenidion on tarsi; 9 pairs of genital and 2 pairs of aggenital and one pair of anal and three pairs of adanal setae present, lyrifissures *iad*



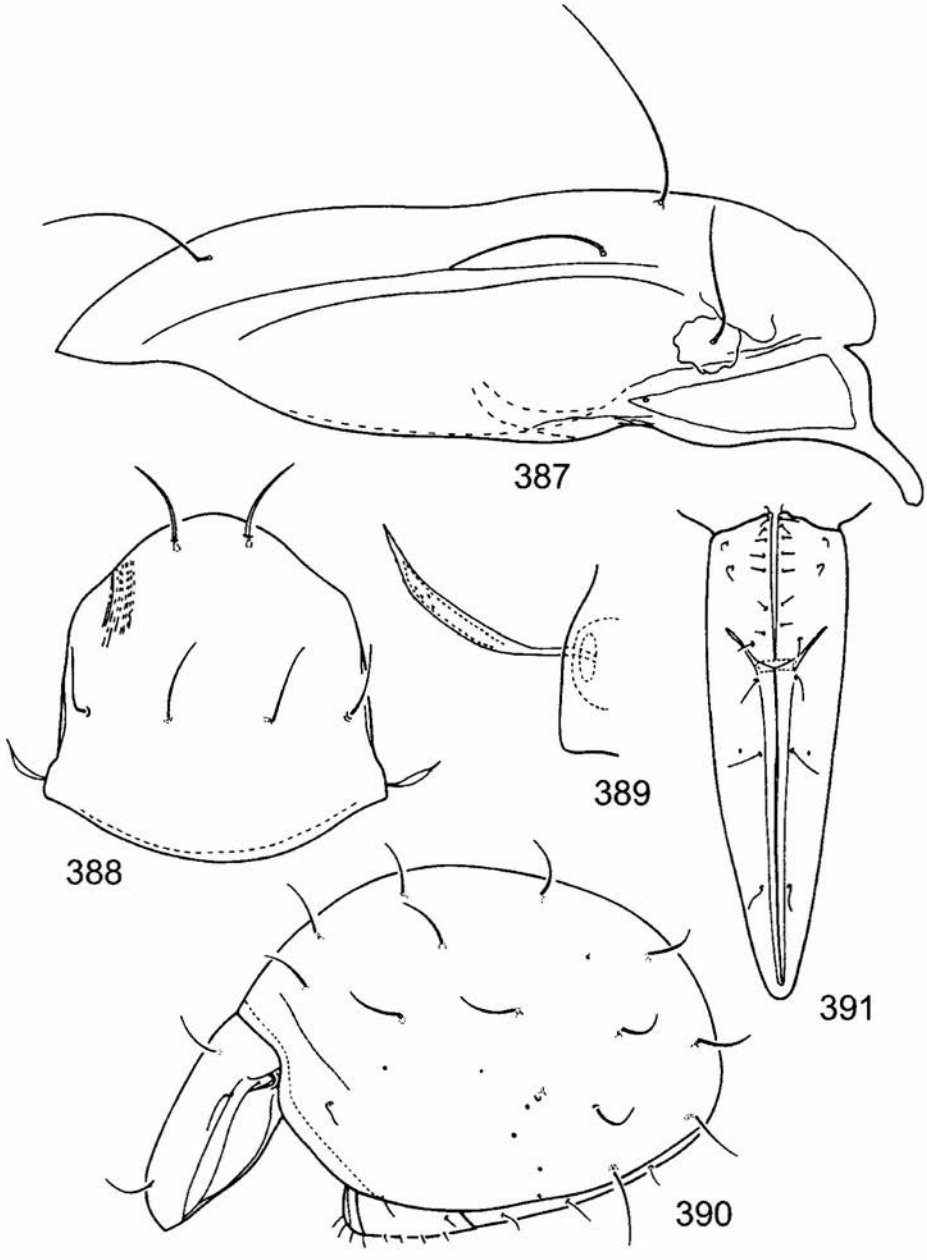
371-377. *Austrotritia kinabaluensis* RAMSAY et SHEALS, 1969 (specimen from Borneo): 371 - prodorsum, lateral view, 372 - prodorsum, dorsal view, 373 - notogaster, lateral view, 374 - notogaster, dorsal view, 375 - mentum of infracapitulum, 376 - epimera, 377 - right side of ventral region



378-382. *Austrotritia kinabaluensis* RAMSAY et SHEALS, 1969 (specimen from Borneo): 378 - femur of leg I, 379 - fragment of tarsus of leg I, 380 - fragment of tarsus of leg II, 381 - tarsus of leg IV; 382. *Austrotritia kinabaluensis* RAMSAY et SHEALS, 1969 (paratype), penis; 383-386. *Austrotritia lebronneci* (JACOT, 1935) (specimen from Marquesas): 383 - prodorsum, lateral view, 384 - prodorsum, dorsal view, 385 - notogaster, lateral view, 386 - ventral region

situated between setae ad_2 and ad_3. Leg, setal and solenidial formulae (without tarsi): I:1-4-4/2/-5/1/, II:1-4-4/1/-3/1/, III:3-2-3/1/-3/1/, IV:3-2-3/1/-3/1/.

MATERIAL. Locality in the Oriental region: Philippines, Luzon Is., Gagabutan, Rizal, Cagayan Prov., primary forest litter, 29.III.1977, leg. R.C. GARCIA - (1);



387. *Austrotritia lebronneci* (JACOT, 1935) (specimen from Philippines): prodorsum, lateral view; 388-391. *Austrotritia ramsayi* MAHUNKA, 1991 (after MAHUNKA 1991a): 388 - prodorsum, dorsal view, 389 - sensillus, dorsal view, 390 - lateral view of body, 391 - ventral region

Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna Prov., undisturbed secondary forest litter, 26.VI.1975, leg. J.M. SOTTO and R.C. GARCIA - (3); Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna, undisturbed secondary forest litter, 13.VIII.1975, leg. J.M. SOTTO and R.C. GARCIA - (3); Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna, undisturbed secondary forest litter, 10.I.1975, leg. J.M. SOTTO and R.C. GARCIA - (2); Mindanao Is., Magor, Tungao, Agusan del Norte Prov., litter from 4-year old plantation of *Eucalyptus deglupta*, 29.IV.1975, leg. R.S. RAROS - (1); Samar Is., Rawis, Basey, Samar Prov., litter outside cave, 31 XII. 1981, leg. M.P.J. CAÑETE – (1) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. A Pantropical species.

Austrotritia ramsayi MAHUNKA, 1991

(Figs 388-391)

DIAGNOSIS. Integument of body, especially of prodorsum ornamented by fine longitudinal striation. Prodorsum with two pairs of lateral carinae; sensilli short, lanceolate finely roughened; interlamellar and rostral setae erect, slightly bacilliform, lamellar setae finer. Notogaster with setae fairly short ($c_1 < c_1$-d_1), setae c_1 more remote from anterior margin than c_2 setae; vestigial setae f_1 anterior to h_1 setae. Ventral region, chaetotaxy of palps: 0-2-0-2-9(1) and one solenidion; 8 (9?) pairs of genital setae, 3 pairs of aggenital; 2 pairs of anterior and 1 pair of posterior, no anal and 3 pairs of adanal setae present. Leg chaetotaxy and solenidiotaxy: I: 1-4-5(2)-5(1)-23(3), II: 1-4-4(1)-3(1)-20(2), III: 3-2-3(1)-3(1)-12, IV: 3-2-2(1)-3(1)-11.

MATERIAL. Locality in the Oriental region: Sabah (West Coast Residency): Sepilok, KSFR, foret pres de „Orang-Utah Rehabilitation Station"(OURS), Lowland Dipterocarp Forest, tamisages de feuilles mortes et de bois pourri dans les angles formes par les contreforts de grands arbres, 30 m, 3 V 1982, leg. B. HAUSER - (10) (MAHUNKA 1991a).

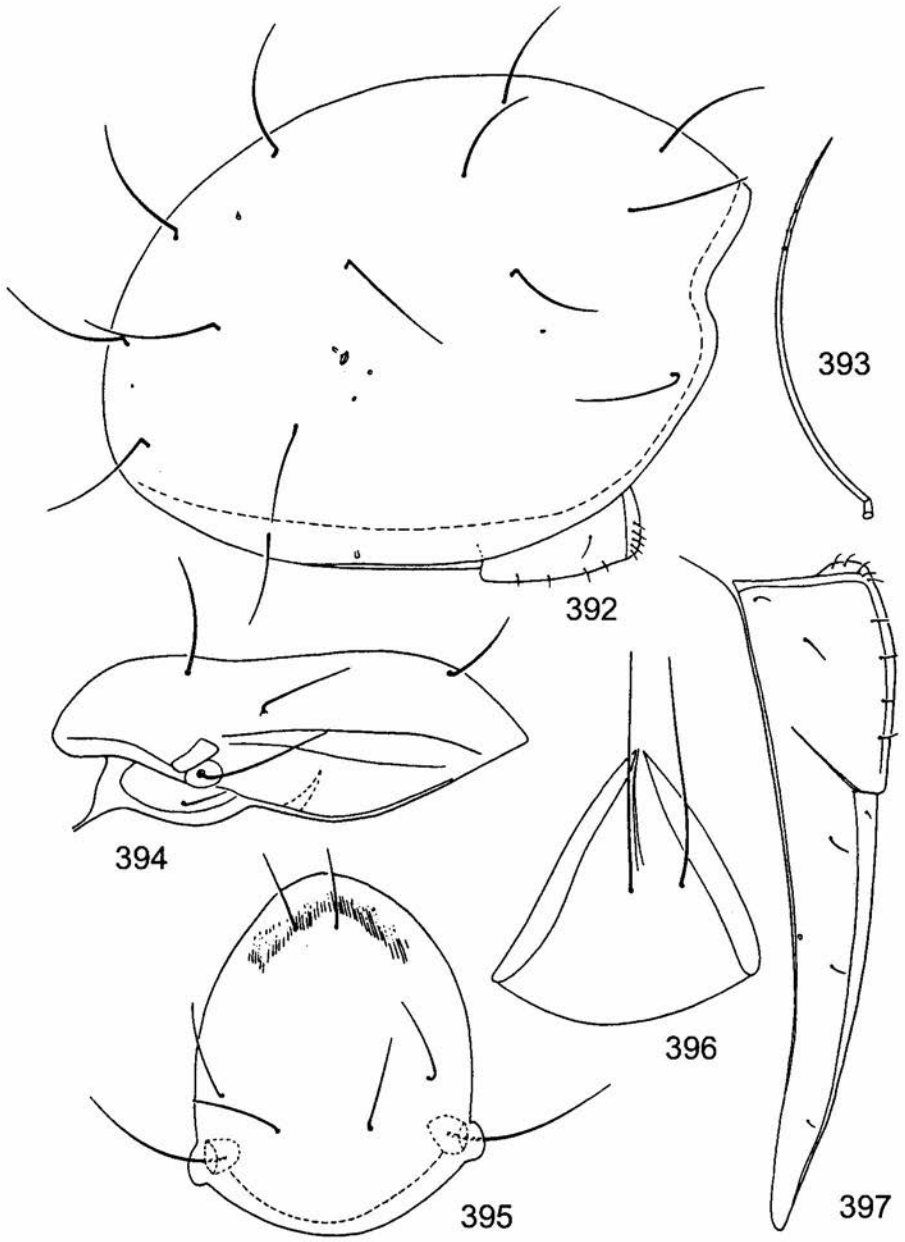
DISTRIBUTION. Sabah, perhaps an endemic species.

Austrotritia robusta NIEDBAŁA et CORPUZ-RAROS, 1998

(Figs 392-403)

DIAGNOSIS. Prodorsum with weak longitudinal striation in anterior part, double lateral carinae on each side; sensilli setiform, tapering towards distal end; interlamellar and rostral setae thick, erect, covered with small spines in distal half, lamellar and exobothridial setae fine, *in* > *le* > *ro*> *ex*. Notogaster with setae robust, fairly long (c_1/c_1-d_1 =0.73) covered with 8-10 pairs of small barbs at distal end, only setae c_3 are fine and smooth. Ventral region, setae *h* of mentum considerably longer than distance between them; chaetotaxy of palps: 0-2-0-2-9(1); formula of epimera: 3-0-2-2;9 pairs of genital setae and 2 pairs of aggenital setae present; one pair of anal and 3 pairs of adanal setae present, lyrifissures *iad* located slightly anterior to ad_2 setae. Leg chaetotaxy and solenidiotaxy: I: 1-4-5(2)-5(1)-22(3), II:1-4-4(1)-3(1)-19(2),III: 3-2-3(1)-3(1)-14(0), IV:3-2-2(1)-3(1)-11(0), anterodorsal spines on femora I very small.

MATERIAL. Localities in the Oriental region: Philippines, Luzon Is., Mt. Makiling, Kapos, San Rafael, Santo Tomas, Batangas Prov., leaf litter, 8 VII 1993, leg. R.C. GARCIA - (2); Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., Upland Hydroecology Program staff, litter from *Imperata cylindrica – Saccharum spontaneum*



392, 397. *Austrotritia robusta* NIEDBAŁA et CORPUZ-RAROS, 1998 (holotype): 392 - notogaster, lateral view, 393 - seta h_1, 394 - prodorsum, lateral view, 395 - prodorsum, dorsal view, 396 - mentum of infracapitulum, 397 - right side of ventral region

grassland, 5.IV.1978, leg. L.A. CORPUZ-RAROS – (2) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. An Oriental species introduced to northern part of the Australian region (Papua New Guinea).

Austrotritia saraburiensis AOKI, 1965

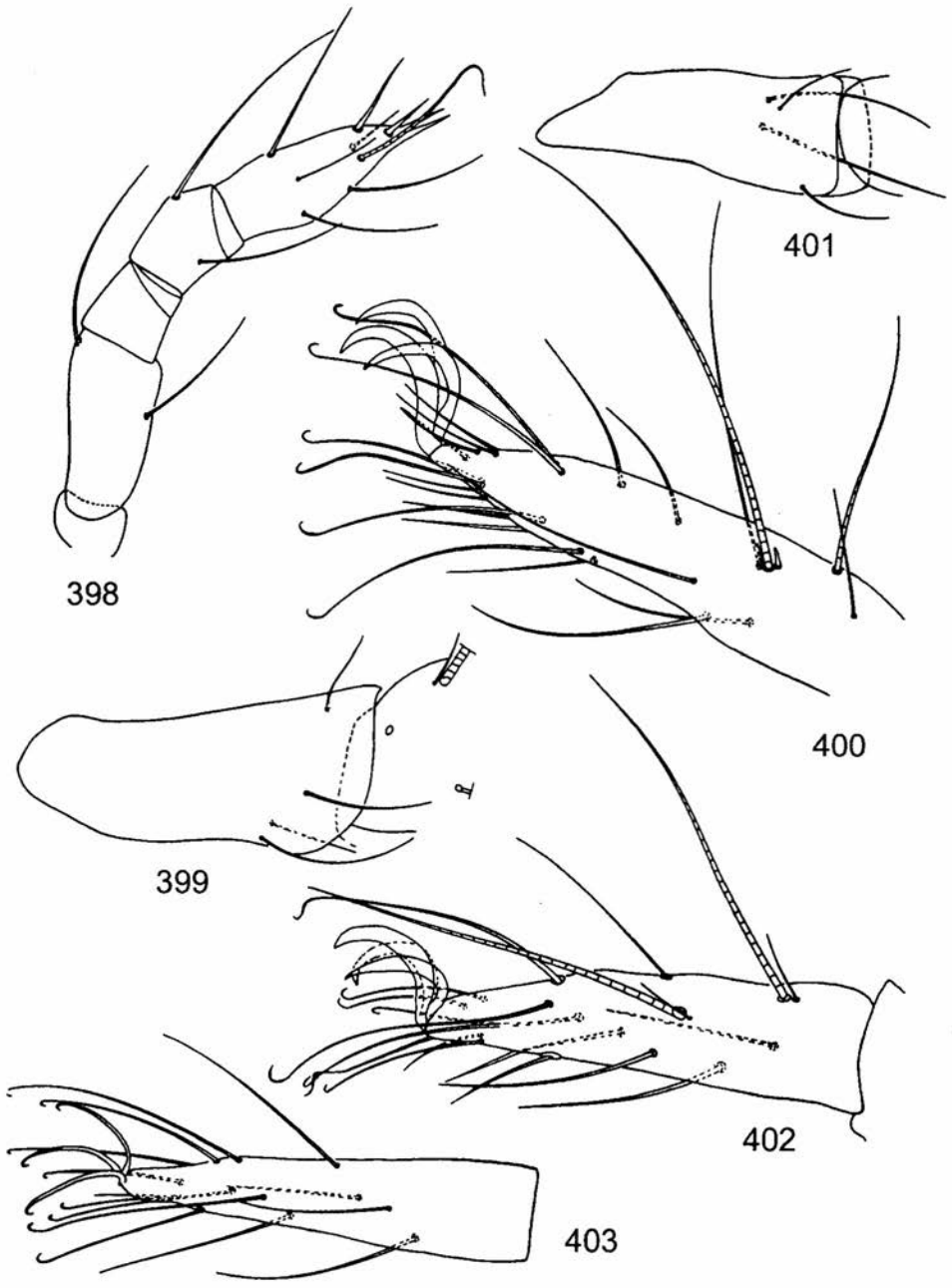
(Figs 404-416)

Austrotritia lebronneci saraburiensis AOKI, 1965
Austrotritia shealsi MAHUNKA, 1987
Austrotritia optabilis NIEDBAŁA, 1991
Austrotritia ishigakiensis AOKI, 1980 **syn. nov.**
Austrotritia saraburiensis: NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Measurements of holotype of *A. ishigakiensis*: prodorsum: length 425, width 406, sensillus 158, setae: interlamellaires 82.4, lamellar 63.4, rostral 76.1; genitoaggenital plates 222x127, anal and adanal plates 475x114. Prodorsum with two pairs of lateral carinae and weak median carina; sensilli long, tapering; interlamellar and rostral setae erect, rough, lamellar setae smooth, exobothridial setae vestigial. Notogastral setae relatively short, slightly barbed, c_3 setae flagellate; vestigial setae f_1 anterior to h_1 setae. Ventral region, setae *h* of mentum longer than distance between them; palps five-segmented (in Japanese specimen palpal femur and genu partly fused) with setation: 0-2-0-2-9(1); epimeral formula: 3-0-2-2, 9 pairs of genital setae (in *A. ishigakiensis* 7 pairs), 2 pairs of aggenital setae; one pair of anal and 3 pairs of adanal setae, lyrifissures *iad* located between ad_2 and ad_3 setae. Leg chaetotaxy and solenidiotaxy: I: 1-4-5(2)-5(1)-24(3), II: 1-4-4(1)-3(1)-22(2), III: 3-2-3(1)-3(1)-14, IV: 3-2-3(1)-3(1)-11, distal part of femora with triangular spines, setae u" on tarsi IV swollen.

MATERIAL. Two microscopic slides labelled: first: NSMT-Ac 9126 1/2 Yoon Ishigaki-jima I 6 XII1972 J. AOKI JA 1551 *Austrotritia ishigakiensis* AOKI (holotypus) part 1/2; second: as above „part 2/2" (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Localities in the border zone of the Oriental region and in the Oriental region: sub *A. lebronneci saraburiensis*: Thailand, Sara Buri, 5 VIII 1961, leg. von K. OGINO, P. SAICHUAE - (1) (AOKI 1965). sub *A. shealsi*: Sabah (Sandakan Residency): Sepilok: KSFR, foret pres de l'OURS, tamisage de feuilles mortes et de bois pourri preleves dans les angles formes par les contreforts ailes de grands arbres, 30 m, 3 V 1982, leg. B. HAUSER - (13) (MAHUNKA 1987b); sub *A. optabilis*: Sri Lanka, Yala, gallery forest, dry litter, 2 VII 1968, leg. BALOGH et LOKSA (code CMB-B 68) - (2) (NIEDBAŁA 1991a). Maldives Islands, Bathala Island within Ari Atoll, near the coast line but terrestrial, pieces of a dead coral block, January 1987 – (9). Indonesia, Sulawesi Utara, Minahassa, Tonsea d., Gunung Klabat 1000 m jungle, litter 1000 m, 21.X.1979 leg. P.T. LEHTINEN – (1); Indonesia, Bali, Nusa Tenggara Barat Bali Murtosari, litter of dry bush, 1.I.1984, leg. P.T. LEHTINEN – (2); Indonesia, Kalimantan, Timur, Samarinda d., Sanga Sanga Muara, jungle litter, 29.X.1979, leg. P.T. LEHTINEN – (11); Indonesia, Sumatra, Barat Padangpanjang, 4 km SE, jungle slope, (TF), 26.IX.1978, leg. P.T. LEHTINEN – (1). Malaysia, Sarawak, Mulu, Lowl rain forest peth, 3.X.1977, leg. B. BOLTON – (9);

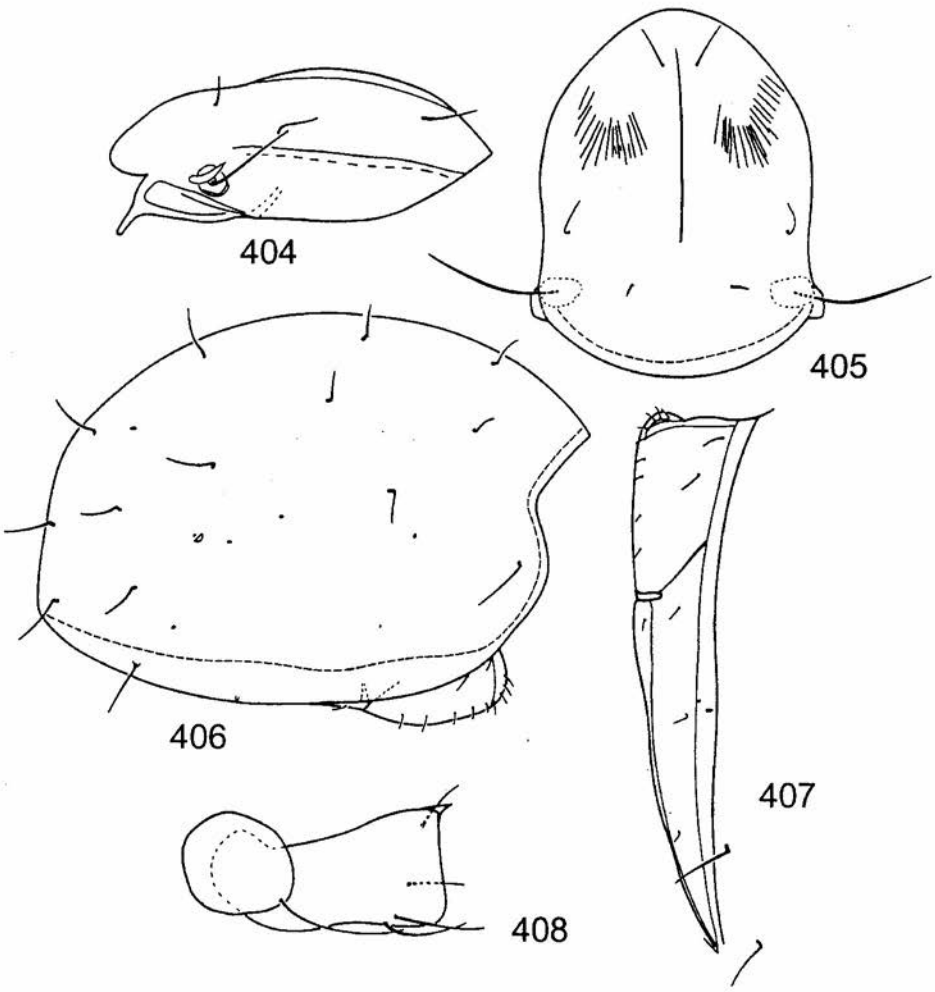
Malaysia, Jahor Kota Tinggi Jolan, Lombong B.F. Station, rain forest 31.X.-4.XI.1976, leg. P.T. LEHTINEN – (1); Malaysia, Pahang Jerantut 14 km S, litter od jungle, 17.XI.1984, leg. P.T. LEHTINEN – (14). sub *A.ishigakiensis*: Japan, S. Japan,



398-403. *Austrotritia robusta* NIEDBAŁA et CORPUZ-RAROS, 1998 (holotype): 398 - palpus, 399 - femur of leg I, 400 - tarsus of leg I,401 - femur of leg II, 402 - tarsus of leg II, 403 - tarsus of leg III

Yoon, Ishigaki-jima Island, from litter, 6 XII 1972, leg. J. AOKI - 1) (AOKI 1980). India, Kashmir, road beetwen Srinagar and Kargil, in mixed forest, 6.IX.1976, leg.CZ. BŁASZAK and J. BŁOSZYK – (2). Philippines, Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna Prov., undisturbed secondary forest litter, 26.VI.1975, leg. J.M. SOTTO and R.C. GARCIA - (7); Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna Prov., top soil from *Albizia falcataria* plantation, leg. R.C. GARCIA - (1); Luzon Is., Mt. Makiling, Upland Hydroecology Program site, Puting Lupa, Calamba, Laguna, secondary forest litter, 22.IX.1977 - (2) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. An Oriental species introduced to the border zone of Palaearctic and to the Pacific islands.



404-408. *Austrotritia saraburiensis* AOKI, 1965 (specimen from Samoa): 404 - prodorsum, lateral view, 405 - prodorsum, dorsal view, 406 - notogaster, lateral view, 407 - left side of ventral region, 408 - trochanter and femur of leg I

Austrotritia unicarinata AOKI, 1980

(Figs 417-425)

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of paratype: prodorsum: length 429, width 379, sensillus 111, setae: interlamellar and lamellar 35.3, rostral 45.4; length of notogastral setae 37.9 – 48.1; genitoaggenital plates 212x119, anal and adanal plates 422x101. Prodorsum with simple, lateral carinae; sensilli bacilliform, smooth; setae simple, short, *ro* > *in* = *le*, exobothridial setae vestigial. Notogaster with setae very short but fairly robust, smooth setae; vestigial setae f_1 located anterior to h_1 setae. Ventral region, setae *h* of mentum considerably longer than distance between them; palps five-segmented but palpal femur and genu partly fused, setal formula 0-2-0-2-9(1); epimeral formula: 2(?)-0-2-2;9 pairs of genital setae, 5 longer in pregenital position and 4 minute on genitoaggenital plate, 2 pairs of aggenital; one pair of anal and 3 pairs of adanal setae present, lyrifissures *iad* between setae ad_2 and ad_3. Leg chaetotaxy and solenidiotaxy: I: 1-4-5(2)-5(1)-23(3), II: 1-4-4(1)-3(1)-18(2), III: 3-2-3(1)-3(1)-14, IV: 3-2-2(1)-3(1)-11, three thick setae with flagellate tips on tarsi IV, distal end of femora with narrow spines ending with two small teeth.

MATERIAL. Two microscopic slides labelled: first: „NSMT-Ac 91252/2 Nakanodaira Hahajima Is. Bonin Islands 4VII 1970 T. HABE (J. AOKI) JA 1305 *Austrotritia unicarinata* (paratopotypus)(Part2/2)", second: as above „(part 1/2)" (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). Locality in the border zone of the Oriental region: Japan, Nakanodaira, Hahajima Island of Bonin Islands, from litter, 4VII 1970, leg. T. HABE - (2) (AOKI 1980).

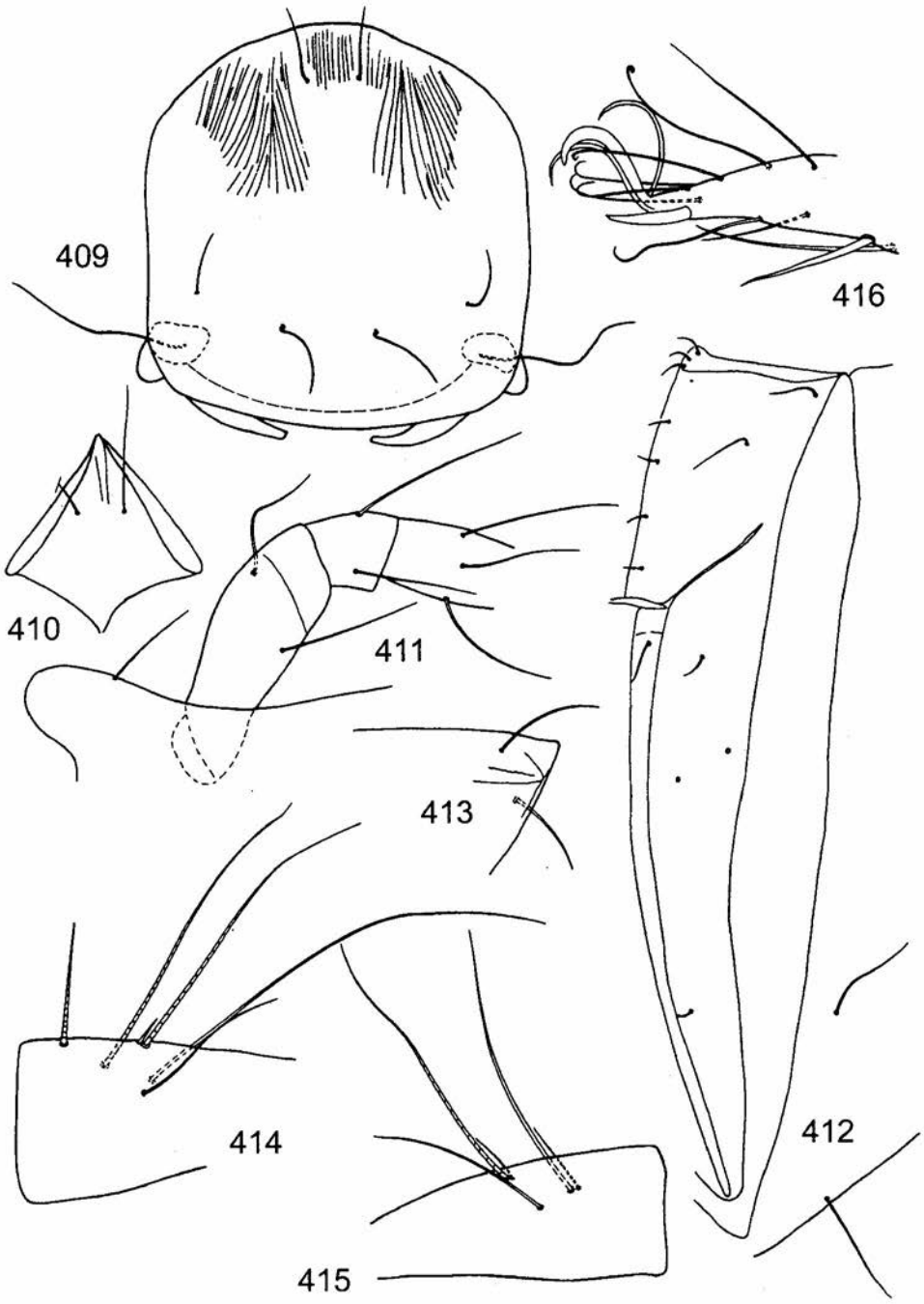
DISTRIBUTION. Japan, perhaps an endemic species.

Euphthiracaridae JACOT, 1930

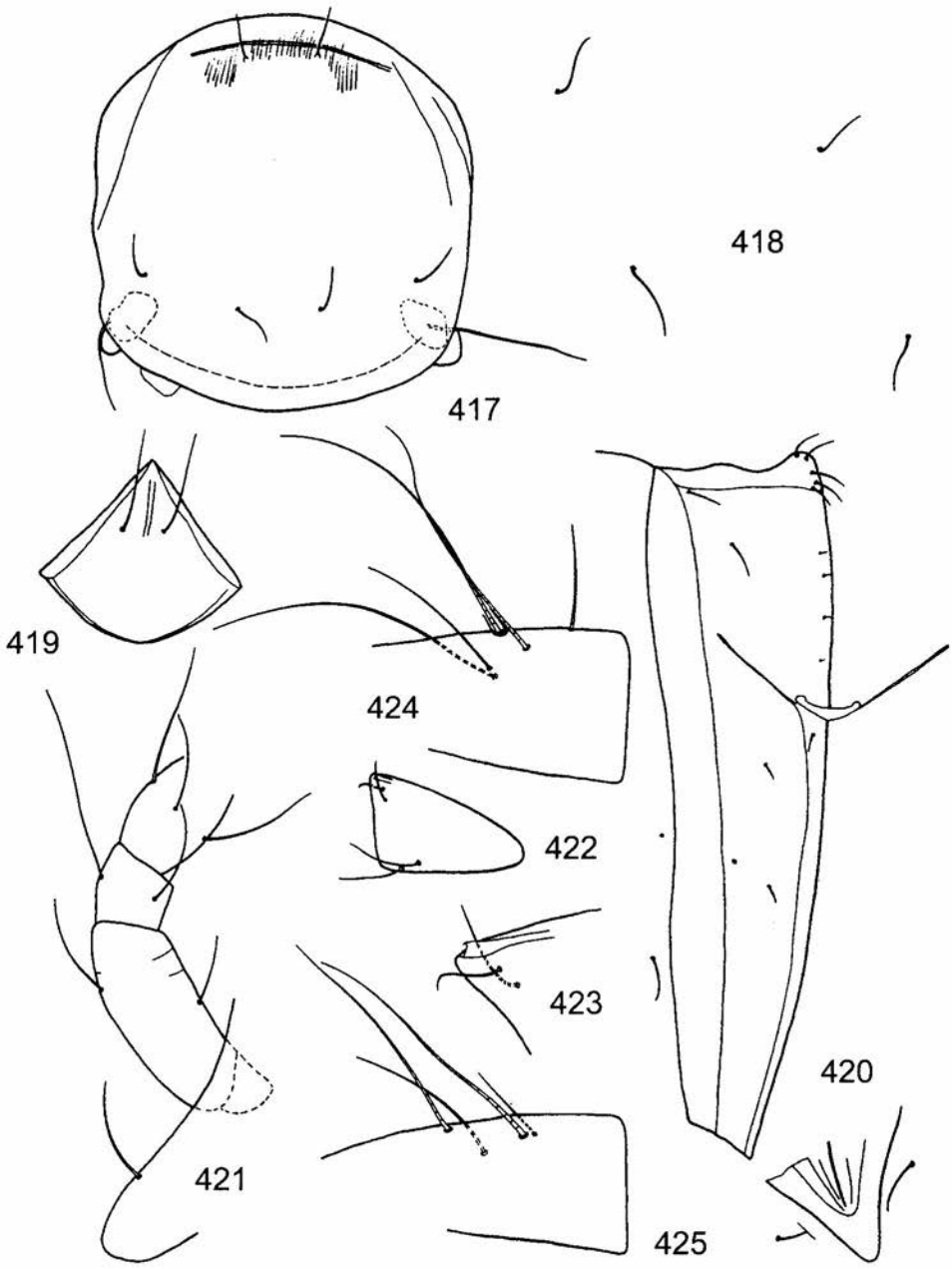
DIAGNOSIS. Bothridia with brachytracheae or tracheoles; anogenital region with fused plates, anogenital cleft only exceptionally present, interlocking triangle present, palps 3 segmented.

Euphthiracarus EWING, 1917

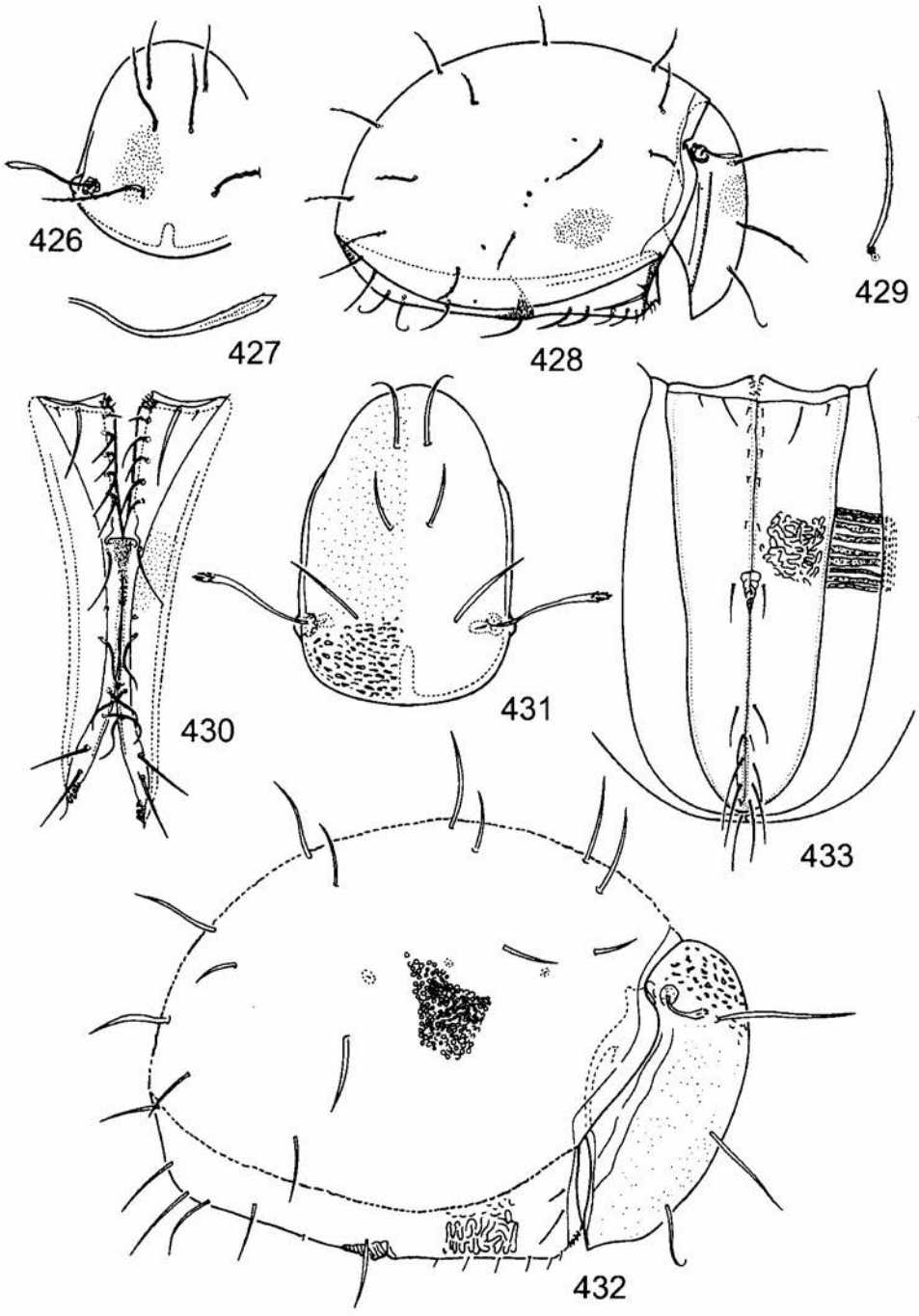
DIAGNOSIS. Prodorsum without median carina, one or two pairs of lateral carinae present, bothridial squamae situated below the bothridia, posterior median apodeme present, prodorsal setae in median position; notogaster (with 14 pairs of setae), covered with strong sculpture and with a terminal fissure, one pair of openings of lateral opisthosomal glands and 5 pairs of lyrifissures: *ia*, *im*, *ip*, *ips*, *ih* present; ventral region with two: median and posterior interlocking triangles, anogenital cleft absent, palps with formula: 2-2-8(1); legs, trochanters III and IV with 2 setae, genua IV with solenidia, famuli situated far from solenidia, solenidia w_1 and w_2 on tarsi II without coupled setae, setae d on tarsi IV comparatively long and not coupled with the solenidia, tarsi mono- or tridactylous.



409-416. *Austrotritia ishigakiensis* Aoki, 1980 - synonym of *Austrotritia saraburiensis:* 409 - prodorsum, dorsal view, 410 - mentum of infracapitulum, 411 - palpus, 412 - left side of ventral region, 413 - anterior part of femur 1, 414 - fragment of tarsus of leg I, 415 - fragment of tarsus of leg II, 416 - fragment of tarsus of leg IV



417-425. *Austrotritia unicarinata* Aoki, 1980 (paratype): 417 - prodorsum, dorsal view, 418 - length and arrangement of notogastral setae, 419 - mentum of infracapitulum, 420 - right side of ventral region, 421 - fragment of palpus, 422 - femur of leg I, 423 - distal part of femur of leg I, 424 - fragment of tarsus of leg I, 425 - fragment of tarsus of leg II



426-430. *Euphthiracarus* (*E.*) *aggenitalis* AOKI, 1984 (after AOKI 1984): 426 - prodorsum, dorsal view, 427 - sensillus, lateral view, 428 - lateral view of body, 429 - notogastral seta, 430 - ventral region; 431-433. *Euphthiracarus* (*E.*) *labyrinthicus* STARY, 1993 (after STARY 1993): 431 - prodorsum, lateral view, 432 - lateral view of body, 433 - ventral region

Euphthiracarus (*Euphthiracarus*) EWING, 1917

DIAGNOSIS. Rostral setae situated far anteriorly to lamellar setae.

Euphthiracarus (*E.*) *aggenitalis* AOKI, 1984

(Figs 426-430)

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of holotype: prodorsum: length 273, height 85.8, sensillus 86; setae: intrelamellar 119, lamellar 101, rostral 86.0, exobothridial 15.2; notogaster: length 505, height 404, setae c_1, h_1 and ps_1 70.8; length of genitoaggenital plate 156, length of anoadanal plate 252. Colour dark yellow, surface of body punctate. Prodorsum with two pairs of lateral carinae, upper carinae robust, lower indistinct; sensilli weakly fusiform distally and slightly barbed; interlamellar and lamellar setae sparsely barbed, rostral setae smooth. Notogastral setae thin, weakly barbed, relatively short. Ventral region, one pair of openings of lateral opisthosomal glands and 5 pairs of lyrifissures present; 9 pairs of genital setae, g_{1-2} thick and long, g_{3-4} of medium size, g_{5-9} minute; 2 pairs of aggenital setae, ag_1 minute, ag_2 thick and long; 2 pairs of anal setae, curled distally and 4 pairs of adanal setae present, lyrifissures *iad* anterior to ad_2 setae. Legs monodactylous.

MATERIAL. 3 microscopic slides with holotype and paratypes labelled: "*Euphthiracarus aggenitalis* AOKI, 1984 (Holotypus) NSMT -Ac 9552" , "*Euphthiracarus aggenitalis* AOKI, 1984 (Paratopotypus) NSMT-Ac 9553", "...9554" (courtesy Prof. J. AOKI, Department of Soil Zoology, Yokohama National University). MATERIAL. Locality in the border zone of the Oriental region: Southwest Japan, Amami-Ohshima Island, Tonzaki in Tatsugo-mura, 8 II 1980 - (3) (AOKI 1984).

DISTRIBUTION. Japan, probably an endemic species.

Euphthiracarus (*E.*) *bhutanicus* REDDY, 1988

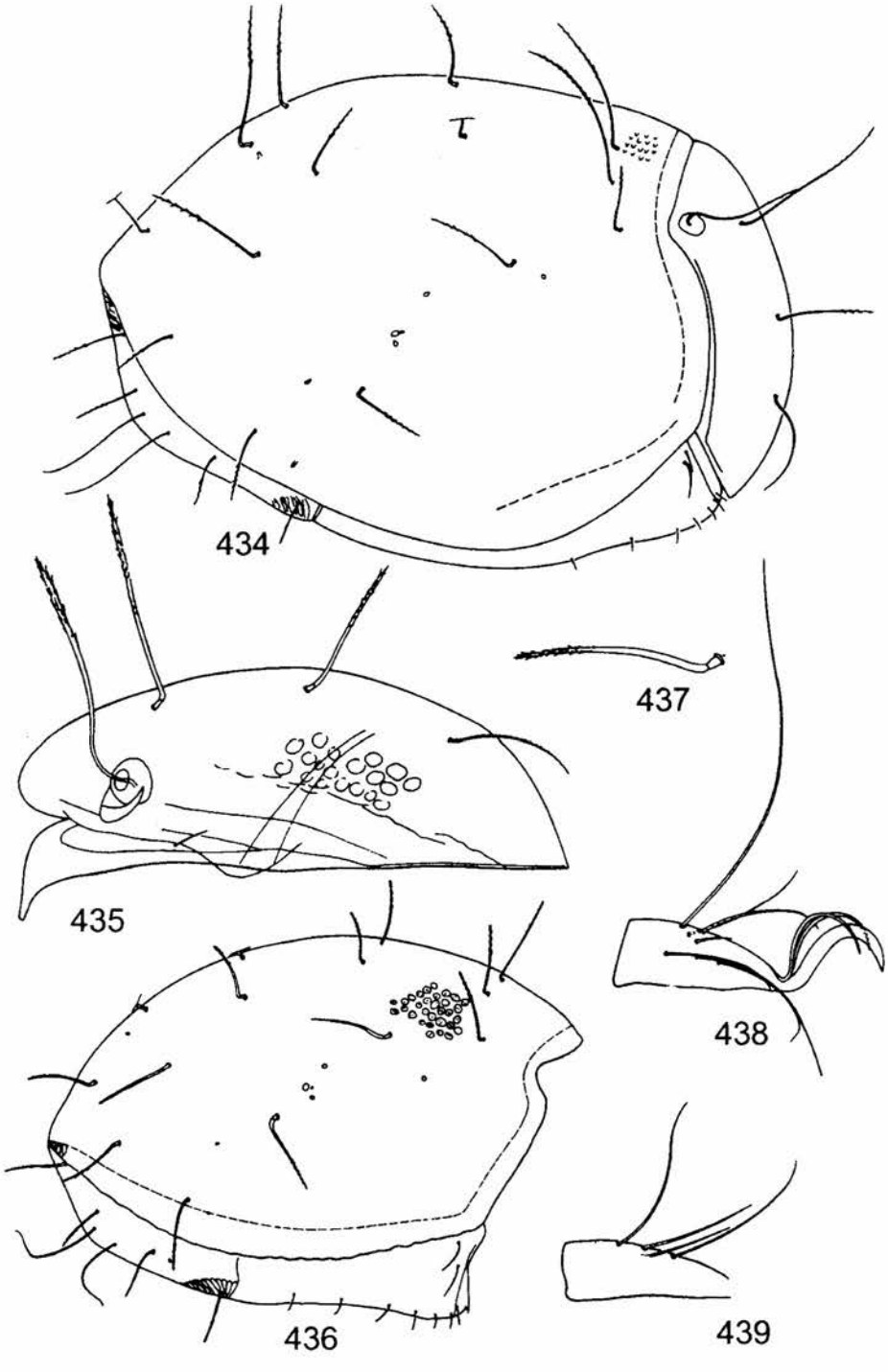
DESCRIPTION of this species is highly insufficient, some characters are omitted, e. g. genital and aggenital setae, hence the species should be considered as incertae sedis.

Euphthiracarus (*E.*) *cribarius* (BERLESE, 1904)

(Fig. 434)

Phthiracarus cribarius BERLESE, 1904

DIAGNOSIS. Surface of body strongly punctate. Prodorsum with two lateral carinae; sensilli setiform with tiny spines in distal half; setae (except exobothridial) almost perpendicular to the surface, rostral setae curved, long, almost parallel to rostrum distally. Notogastral setae robust, not very long ($c_1 < c_1 - d_1$); vestigial setae f_1 at the same level as h_1 setae. Ventral region, 9 pairs of genital setae, 2 pairs of aggenital setae present, ag_1 half of the length and thicker than ag_2 setae; 3 pairs of anal and 3 pairs of adanal setae present; an_1 and an_2 long, smooth and flagellate, others shorter, robust, covered with tiny barbs. Tarsi heterotridactulous.



434. *Euphthiracarus* (*E.*) *cribarius* (Berlese, 1904), lateral view of body; 435-439. *Euphthiracarus* (*E.*) *foveolatus* Aoki, 1980 (holotype): 435 - prodorsum, lateral view, 436 - notogaster, lateral view, 437 - seta *cp*, 438 - fragment of tarsus of leg I, 439 - fragment of tarsus of leg II

MATERIAL. Locality in the border zone of the Oriental region: North Korea, Kaesong-si, Pakchon, in forest, 7.VI.1974, leg. A. SZEPTYCKI – (1).

DISTRIBUTION. A Palaearctic species. Korea is the easternmost locality of all the recorded specimens.

Euphthiracarus (E.) foveolatus AOKI, 1980

(Figs 435-439)

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of holotype: prodorsum: length 283, height 111, sensillus 126, setae: interlamellar 111, lamellar 80.8, rostral 70.7, exobothridial 20.2; notogaster: length 530, height 328, c_1 85.8, e_2 75.7, ps_1 70.7; length of genitoaggenital plate 227. Body covered with distinct foveolae. Prodorsum with two pairs of lateral carinae, upper robust and irregular, lower weak; sensilli long, narrow, with distal half covered with small spines; exobothridial setae minute, interlamellar and lamellar setae erect, covered with small spines in distal half, thicker than rostral setae, rostral setae rough on whole length. Notogastral setae robust, short (c_1/c_1-d_1 = 0.71) covered with small spines at distal end; vestigial setae f_1 located posterior to h_1 setae. Ventral region; 7 pairs of minute genital and 2 pairs of robust aggenital setae present; anoadanal plate with 3 pairs of anal and 3 pairs of adanal setae present, setae an_1 and an_2 long, smooth and flagellate at distal end, setae an_3 and adanal setae shorter, robust and covered with small spines in distal half. Tarsi of legs heterotridactylous.

REMARK. Probably the species under the name *Euphthiracarus cribarius* (BERLESE, 1904) presented by MAHUNKA (1982) from North Korea is actually *E. foveolatus* (*E. cribarius* has different shape of sensillus and length of aggenital setae).

MATERIAL. A microscopic slide labelled: „NSMT-Ac9138J. AOKI and H. HARADA (QM-7c) *Euphthiracarus foveolatus* AOKI,1980 (holotypus) (courtesy Dr. H. ONO, Department of Zoology, National Science Museum, Tokyo). MATERIAL. Locality in the border zone of the Oriental region: Japan, Saigo-cho in Oki Island, from litter of *Cryptomeria japonica*, 28X 1976, J. AOKI and H. HARADA - (1) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.

Euphthiracarus (E.) inglisi SHEALS, 1965

(Figs 440, 441)

DIAGNOSIS. Measurements of holotype: prodorsum: length 364, height 172, sensillus 151, setae: interlamellar 182, lamellar 116, rostral 141, exobothridial 40.4; notogaster: length 736, height 524, setae: c_1 111, h_1 151, ps_1 141, length of genitoaggenital plate 322, length of anoadanal plate 322. Colour light yellow, surface of body covered with small concavities. Prodorsum with robust lateral carinae; sensilli long, setiform, covered with small spines on distal end; setae robust except simple exobothridial setae), interlamellar and lamellar covered with small spines in distal half, rostral setae rough. Notogastral setae erect, fairly short ($c_1 < c_1$-d_1), covered with small spines in distal half; vestigial setae f_1 located at the level of h_1 setae. Ventral region, setae h of infracapitulum considerably longer than distance between them; 9 pairs of genital setae present, the first 3 pairs shorter than 6

posterior pairs; 2 pairs of aggenital setae thick and spiniform. Leg chaetotaxy and solenidiotaxy: I: 1-3-4(2)-5(1)-16(3), II: 1-3-3(1)-5(1)-14(2), III: 2-2-2(1)-2(1)-11, IV: 2-1-1-(1)-2(1)-10, all tarsi heterotridactylous.

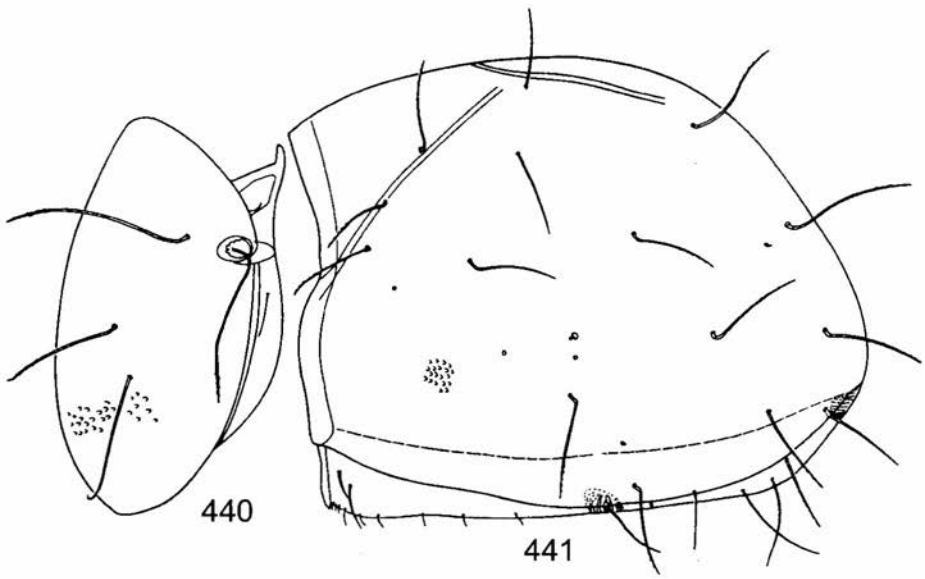
MATERIAL. A microscopic slide labelled: "*Euphthiracarus inglisi* SHEALS Holotype o+ 1964,7.2.1 12,000 ft Coll. No 371 Brit. Mus. Nepal Exp. 1961-1962 SANDAKPHU snow covered forest *Rhododendron* 27° 06 N 88° 01 E J.G. SHEALS" (courtesy Dr. A.S. BAKER, Department of Entomology, British Museum (Natural History), London). MATERIAL. Locality in the border zone of the Oriental region: Nepal, Sandakphu, forest - *Rhododendron*, 12 XI 1961, leg. Brit. East Nepal Exp. - (6) (SHEALS 1965).

DISTRIBUTION. Nepal, perhaps an endemic species.

Euphthiracarus (E.) klabati sp. nov.

(Figs 442-450)

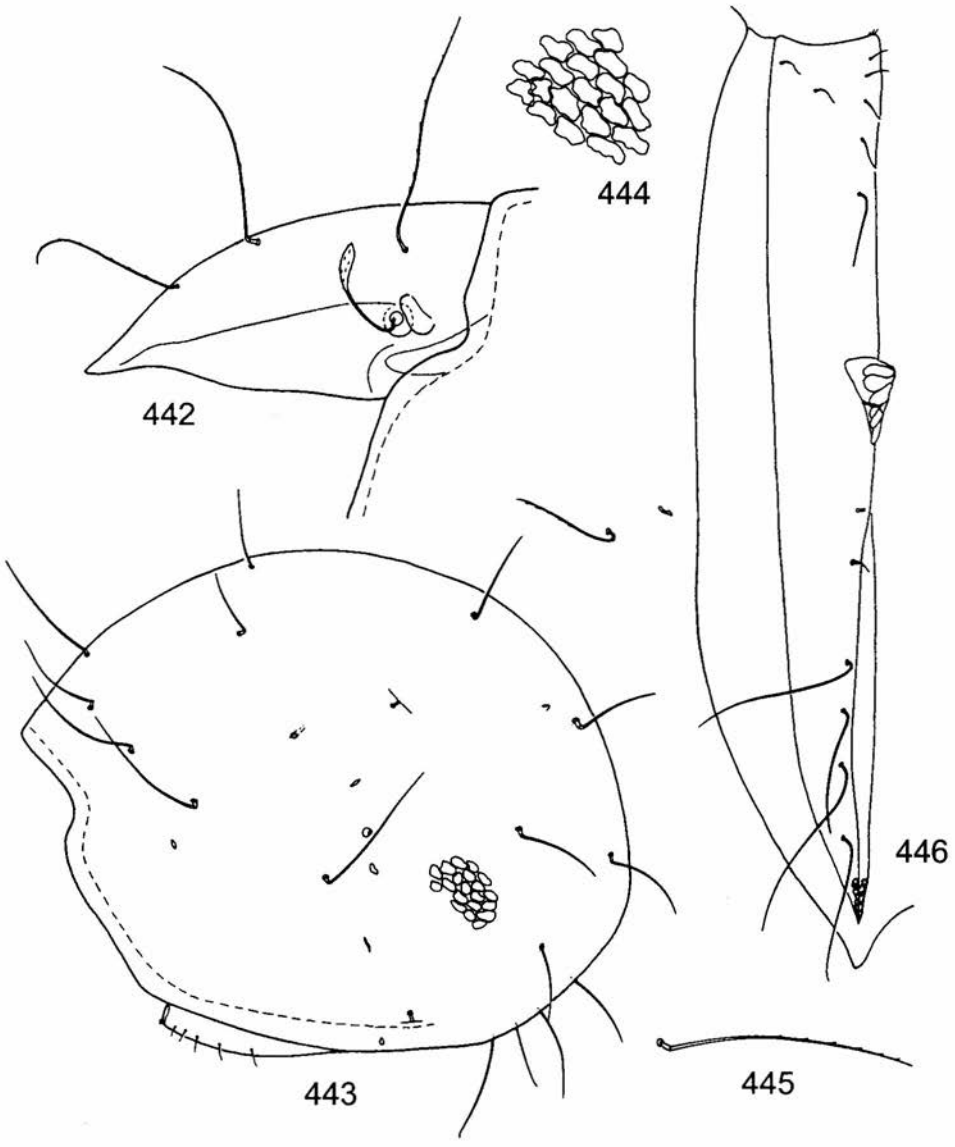
DESCRIPTION. Measurements: prodorsum: length 328, width 252, height 126, sensillus 75.9, setae: interlamellar 172, lamellar 126, rostral 106; notogaster: length 621, width 463, width 507, setae: c_1 139, h_1 and ps_1 86.0; genitoaggenital plates 162x58.1, anoadanal plates 283x53.0. Colour yellow. Surface of prodorsum covered with punctate belts, surface of notogaster reticulated. Prodorsum with one pair of lateral carinae. Sensilli with long, narrow stalk and fusiform head, covered with small spines. Setae fine, flagelliform with sparsely distributed spines, exobothridial setae vestigial. Notogastral setae fairly short (c_1/c_1-d_1 = 0.75), setae of row c remote from anterior margin, setae *cp* unusually displaced towards anterior margin. Vestigial setae f_1 anterior to h_1 setae. Ventral region. Setae *h* of mentum considerably longer than distance between them. 8 pairs of genital setae, setae g_1 longer than other



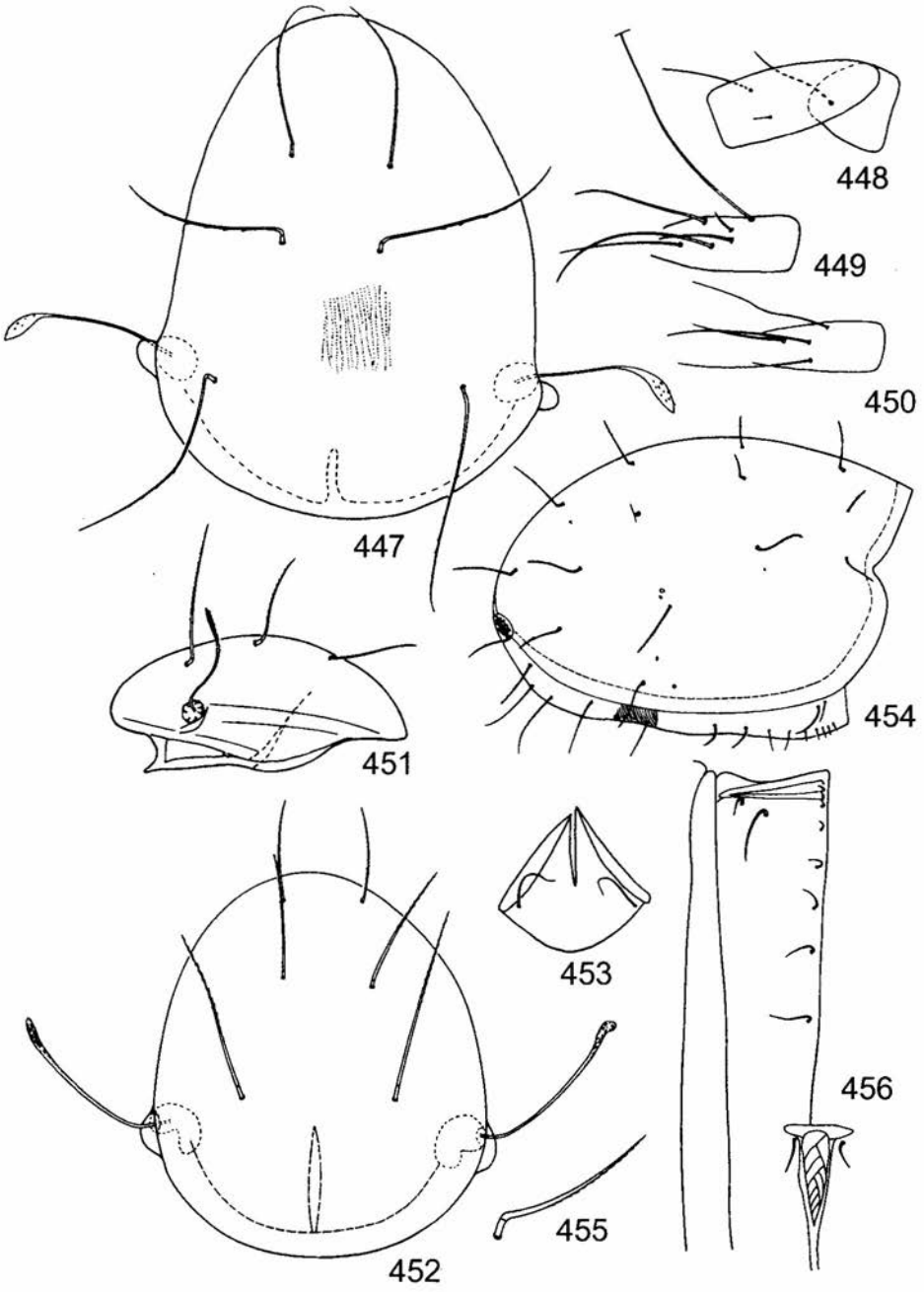
440, 441. *Euphthiracarus (E.) inglisi* SHEALS, 1965 (holotype): 440 - prodorsum, lateral view, 441 - notogaster, lateral view

setae, 2 pairs of aggenital setae, 3 pairs of anal and 3 pairs of adanal setae present, setae ad_3 minute as an_3 setae, other setae long, smooth, flagelliform. Leg chaetotaxy and solenidiotaxy (without tarsi): I: 1-2-3(2)-5(1),I I: 1-2-3(1)-2(1), III: 2-2-2(1)-2(1), IV: 2-1-1(1)-2(1), all tarsi monodactylous.

DIAGNOSIS. The new species is similar to *E.* (*E.*) *monodactylus* (WILLMANN, 1919) and to *E.*(*E.*) *punctulatus* JACOT, 1930 but differs from these species in the presence of single lateral carinae of prodorsum, reticulated surface of notogaster, short setae ad_3 and monodactylous tarsi of legs.



442-446. *Euphthiracarus* (*E.*) *klabati* sp. nov. (holotype): 442 - prodorsum, lateral view, 443 - notogaster, lateral view, 444 - sculpture of notogaster, 445 - seta ps_1, 446 - right side of ventral region



447-450. *Euphthiracarus* (*E.*) *klabati* sp. nov. (holotype): 447 - prodorsum, dorsal view, 448 - trochanter and femur of leg I, 449 - fragment of tarsus of leg I, 450 - fragment of tarsus of leg II; 451-456. *Euphthiracarus* (*E.*) *pakistanensis* HAMMER, 1977 (type): 451- prodorsum, lateral view, 452 - prodorsum, dorsal view, 453 - mentum ofinfracapitulum, 454 - notogaster, lateral view, 455 - seta ps_1, 456 - right side of genitoaggenital plate

MATERIAL. Holotype and one paratype: Indonesia, Celebes, Klabat, 1954, A.H.G. ALSKON. Another locality in the Oriental region: Malaysia, Sarawak, Mulu, Lowl rain forest peth, 3.X.1977, leg. B. BOLTON – (2).

DISTRIBUTION. An Oriental species.

Euphthiracarus (E.) labyrinthicus STARY, 1993

(Figs 431-433)

DIAGNOSIS. Posterior part of prodorsum with irregular foveolae, surface of notogaster with small, oval and dense foveolae, surface of genitoanal region covered with labyrinthical sculpture. Prodorsum with two pairs of lateral carinae; sensilli fairly long with slender, clavate head, covered distally with small spines, setae smooth, erect, *in* > *le* > *ro* > *ex*, *in-in* > *le-le* > *ro-ro*. Notogastral setae robust, short and smooth. Ventral region,9 pairs of fine genital setae, 2 pairs of aggenital setae unequal in length; 3 pairs of anal and 3 pairs of adanal setae present. Leg chaetotaxy and solenidiotaxy: I: 0-3-4(2)-5(1)-14(3), II: 1-3-3(1)-4(1)-12(2), III: 2-2-2(1)-2(1)-10, IV: 2-1-1(1)-2(1)-8, all tarsi heterotridactylous.

REMARK. An important diagnostic feature of this species is the sculpture in posterior part of prodorsum and labyrinth-like pattern in ventral region.

MATERIAL. Locality in the border zone of the Oriental region: Vietnam, Tam Dao, primary cloud forest, litter, 1300 m, 18 X 1988, leg. J. STARY - (1) (STARY 1993).

DISTRIBUTION. Vietnam, perhaps an endemic species.

Euphthiracarus (E.) pakistanensis HAMMER, 1977

(Figs 451-456)

REDESCRIPTION. Measurements of „type": prodorsum: length 252, width 194, height 111, sensillus 106, setae: interlamellar 126, lamellar 75.7, rostral 65.6, exobothridial 5.0; notogaster: length 454, height 293, setae: c_1 50.5, h_1 75.7, ps_1 80.8; genitoaggenital plate 192x50.5, anoadanal plate 192x40.4. Colour yellow, integument finely punctate with weak foveoles on the borders. Prodorsum with two pairs of lateral carinae, median carinae robust, long, ventral pair weak and shorter. Sensilli long with swollen distal end, covered with small spines, interlamellar and lamellar setae long, erect covered with small spines, rostral setae shorter, rough, exobothridial setae minute, *in* > *le* > *ro* > *ex*. Notogastral setae erect, short (c_1/c_1-d_1 = 0.48) covered with small spines, setae c remote, c_1 more, c_3 less from anterior margin. Vestigial setae f_1 slightly posterior to h_1 setae. Ventral region. Setae *h* of mentum located far each from other and slightly longer than distance between them. Epimeral formulae: 3-0-2-2. 9 pairs of genital setae, anterior five pairs smaller than posterior four pairs, 2 pairs of spiniform aggenital setae, ag_1 longer than ag_2. 3 pairs of anal and 3 pairs of adanal setae present, an_3 and adanal setae similar to notogastral setae, setae ad_1 and ad_2 long, slender, flexible. Leg chaetotaxy and solenidiotaxy (without tarsi I and II): I: 1-3-5(2)-5(1), II: 1-3-3(1)-5(1), III: 2-2-2(1)-2(1)-11, IV: 2-1-1(1)-2(1)-10, all tarsi heterotridactylous.

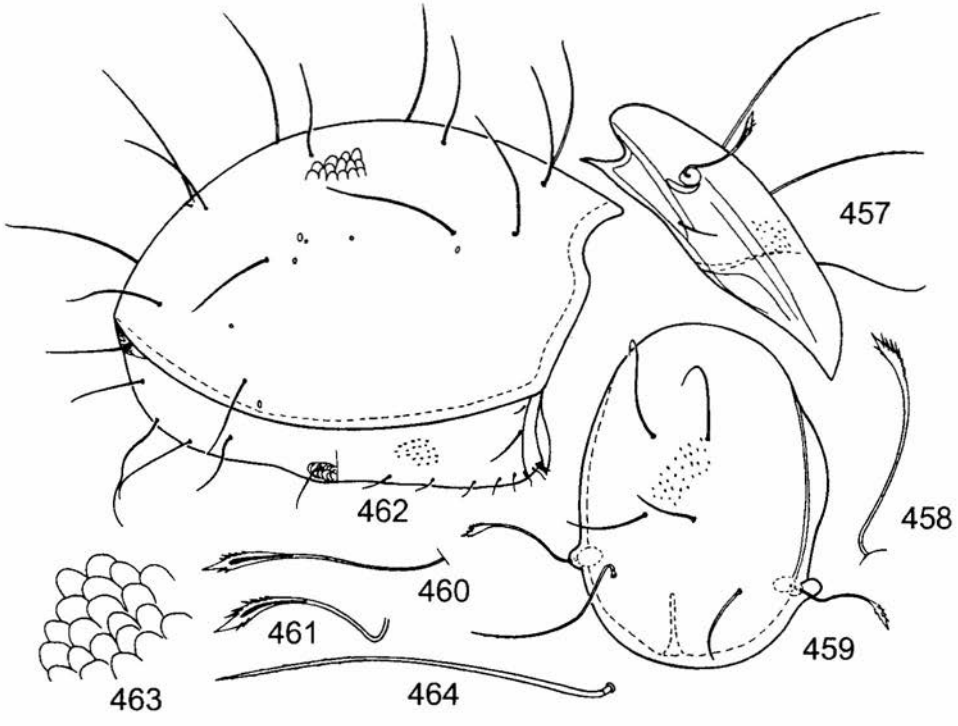
MATERIAL. A „type" in alcohol with the label: "*Euphthiracarus pakistanensis* n. sp. W. Pakistan 110 1969 Type" (courtesy Dr. H. ENGHOFF, Zoologisk Museum, Copenhagen). MATERIAL. Locality in the border zone of the Oriental region: West Pakistan, Naran valley with Kunhar river, Shogran Forest Research Station, about 2600 m a.s.l., moist. mouldering Pinustrunk, 1969, leg. M. HAMMER - (2) (HAMMER 1977).

DISTRIBUTION. Pakistan, perhaps an endemic species.

Euphthiracarus (*E.*) *parareticulatus* sp. nov.

(Figs 457-464)

DESCRIPTION. Measurements of holotype: prodorsum: length 293, width 202, height 101, sensillus 106, setae: interlamellar 182, lamellar 136, rostral 106, exobothridial 30.3; notogaster: length 540, width 384, height 343, setae: c_1 and ps_1 146, $h_1$172; genitoaggenital plates 177x75.7, anoadanal plates 202x40.4. Colour yellow. Ventral region covered with small concavities, notogaster covered with reticulate ornamentation. Prodorsum with one pair of lateral carinae, lower weaker than upper. Sensilli with long stalk and fusiform head, covered with robust spines. Interlamellar and lamellar setae long, robust, erect, covered with small spines in



457-464. *Euphthiracarus* (*E.*) *parareticulatus* sp. nov.(holotype): 457 - prodorsum, lateral view, 458 - sensillus, lateral view, 459 - prodorsum, dorsal view, 460 - sensillus, ventral view, 461 - sensillus, dorsal view, 462 - notogaster, lateral view, 463 - sculpture of notogaster, 464 - seta h_1

distal half, rostral setae long, smooth, flagelliform. Notogastral setae robust and long (c_1/c_1-d_1 = 0.9), covered with small spines in distal half, setae of row c remote from anterior margin. Vestigial setae f_1 somewhat posterior to h_1 setae. Ventral region. 9 pairs of genital and 2 pairs of aggenital setae present, setae ag_2 longer and thicker than ag_1 setae. 2 pairs of anal, flagellate setae and 3 pairs of rigid, rough adanal setae present.

DIAGNOSIS. The new species is very similar to *E. reticulatus* (BERLESE, 1913) in the ornamentation of notogaster but the shape of sensilli is easily distinguishable.

MATERIAL. Holotype: Vietnam, Tam Dao Mts., 90 km N Hanoi, old tropical forest, 1400 m, 15 X 1985, leg. M. ZACHARDA. Other localities in Vietnam: Tam Dao Mts. 90 km N of Hanoi, Ex. forest litter at 1200 m alt. Tullgrened, 22.X.1985, leg. M. ZACHARDA – (2); Tam Dao Nat. Park, forest, alt. 900 m, 11 X 1996. leg. W. JĘDRYCZKOWSKI – (1); Vinh Phu, Tan Dao, 1450 m, bamboo forest, (TF), 20.X.1978, leg. P.T. LEHTINEN – (1).

DISTRIBUTION. Vietnam, perhaps an endemic species.

Euphthiracarus (E.) shogranensis HAMMER, 1977

(Figs 465-469)

REDESCRIPTION. Measurements of „type": prodorsum: length 245, width 172, height 104, sensillus 101, setae: interlamellar 119, lamellar 78.4, rostral 53.1, exobothridial 7.6; notogaster: length 444, width and height 293, setae: c_1 43, h_1 70.8, ps_1 60.7; genitoaggenital plate 187x90.9, anoadanal plate 207x80.8. Colour light yellow. Surface of body foveolate, only ventral surface of lateral carinae of prodorsum smooth, and ventral plate covered with transverse furrows. Prodorsum with one pair of long, lateral carinae, ventrally of them very weak, short traces probably of second pair. Sensilli long, setiform, covered with distinct spines in distal half. Interlamellar and lamellar setae erect, covered with spines in distal half, interlamellar setae thicker than lamellar, rostral setae rough, exobothridial setae minute. Notogastral setae robust, short (c_1/c_1-d_1 = 0.41), covered with small spines, setae c remote, c_1 more, c_3 less from anterior margin. Vestigial setae slightly anterior to h_1 setae. Ventral region. 9 pairs of genital setae, five pairs anterior minute, four pairs posterior considerably longer and flexible. 3 pairs of anal and 3 pairs of adanal setae present, adanal and ad_3 setae short, thick, stiff, covered with small spines like notogastral setae, setae an_1 and an_2 very long, slender, flexible and smooth. All tarsi heterotridactylous.

MATERIAL. A „type" in alcohol with the label: „*Euphthiracarus shogranensis* n. sp. W. Pakistan 89 M.H. 1969 Type" (courtesy Dr. H. ENGHOFF, Zoologisk Museum, Copenhagen). MATERIAL. Locality in the border zone of the Oriental region: West Pakistan, Naran valley with Kunhar river, Shogran Forest Research Station, about 2600 m a.s.l., rich moss, *Brunella*, on a slope with running water, 1969, leg. M. HAMMER - (2) (HAMMER 1977).

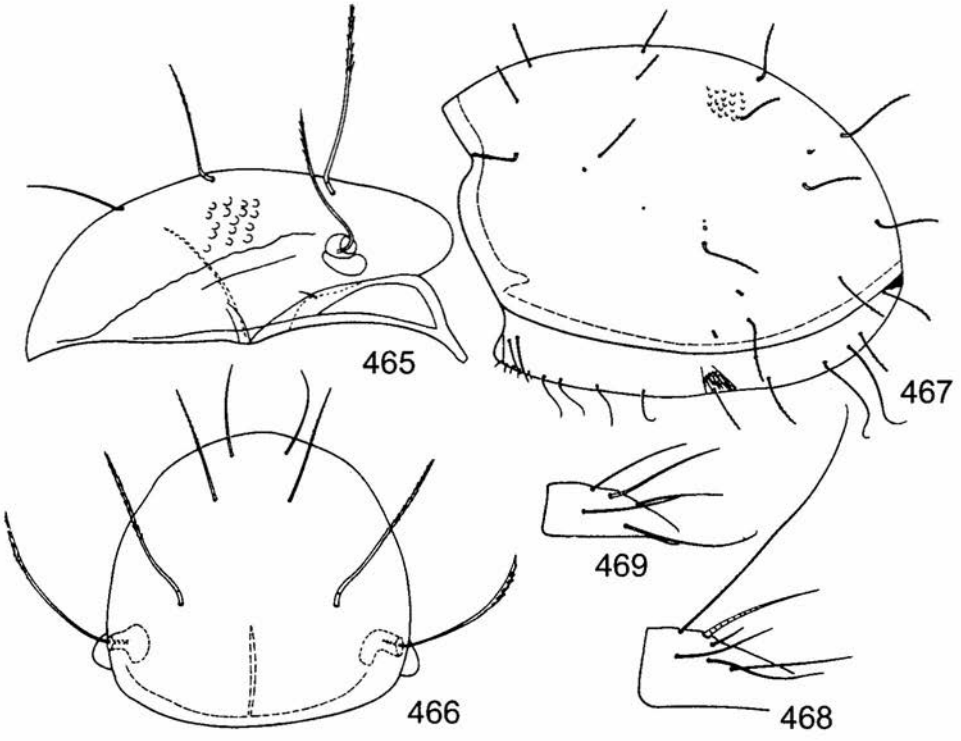
DISTRIBUTION. West Pakistan, perhaps an endemic species.

Euphthiracarus (E.) takahashii AOKI, 1980

(Figs 470-473)

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Body covered with small foveolae. Measurements of paratype: prodorsum: length 247, width 212, sensillus 95.9, rostral seta 80.8; seta ps_1 of notogaster 85.8; genitoaggenital plate 217x60.6, anoadanal plate 278x40.4. Prodorsum with 2 pairs of lateral carinae, upper stronger than lower; sensilli with dilated head, their distal end bearing robust spines; interlamellar and lamellar setae robust, erect, covered with small spines in distal half, rostral setae smooth with curled distal end, exobothridial setae minute, *in* > *le* > *ro* > *ex*. Notogastral setae robust, fairly short ($c_1 < c_1$-d_1), setae c_1 distinctly longer than d_1 setae. Ventral region, setae *h* of mentum longer than distance between them; epimeral formula: 3-0-2-2; 6-10 pairs of genital setae, most frequently 8 pairs, posterior 4 longer than anterior, 2 pairs of aggenital setae, ag_2 about twice as long as ag_1; 3 pairs of anal setae, an_1 and an_2 long, smooth and flagellate distally, setae an_3 and adanal shorter and similar to notogastral setae, covered with small spines distally, lyrifissures *iad* situated between ad_3 and an_3 setae. Leg chaetotaxy and solenidiotaxy (without tarsi): I: 1-3-5(2)-5(1), II: 1-4-3(1)-5(1), III: 2-2-2(1)-2(1), IV: 2-1-1(1)-1(1), all tarsi heterotridactylous.

MATERIAL. A microscopic slide labelled: „NSMT-Ac 9140 28 V 1977 *Euphthiracarus takahashii* AOKI, 1980 (paratypus)" (courtesy Dr. H. ONO, Department of Zoology, Natural Science Museum, Tokyo). MATERIAL. Localities in the border zone



465-469. *Euphthiracarus* (*E.*) *shogranensis* HAMMER, 1977 (type): 465 - prodorsum, lateral view, 466 - prodorsum, dorsal view, 467 - notogaster, lateral view, 468 - fragment of tarsus of leg I, 469 - fragment of tarsus of leg II

of the Oriental region: Japan, Tairoh-ike, Miyake-jima Island, from litter of *Castanopsis cuspidata* var. *sieboldi* forest, 27 IX 1977, T. TAKAHASHI - (1); Mt. Oyama in Miyake-jima Island, from litter of Castanopsis, 28 V 1977, T. TAKAHASHI - (3) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.

Euphthiracarus (E.) vietnamicus STARY, 1993

(Figs 474-476)

DIAGNOSIS. Body surface covered with small, tenuous foveolae. Prodorsum with two pairs of lateral carinae; sensilli short, clavate with many fine teeth on distal blunt part; interlamellar and lamellar setae robust and covered with small setae in distal half, rostral setae smooth, and bent distally, exobothridial setae minute, *in-in* > *ro-ro* > *le-le*. Notogastral setae unequal in length, setae c_1, c_2, *cp* the longest, setae d_1 and d_2 the shortest. Ventral region; 9-10 pairs of small genital setae, 2 pairs of aggenital setae unequal in length; 3 pairs of anal and 3 pairs of adanal setae present. Leg chaetotaxy and solenidiotaxy: I: 0-2-4(2)-4(2)-12(3), II:1-3-3(1)-5(1)-12(2), III: 2-2-2(1)-3-10, IV: 2-1-1(1)-2(1)-9, all tarsi heterotridactylous.

REMARK. *E.* (*E.*) *vietnamicus* differs from *E.* (*E.*) *takahashi* from Japan only in shorter genital setae.

MATERIAL. Locality in Vietnam: Tam Dao, primary cloud forest, decaying wood sample, 1200 m, 12. X 1988, leg. J. STARY - (1) (STARY 1993).

DISTRIBUTION. Vietnam, perhaps an endemic species.

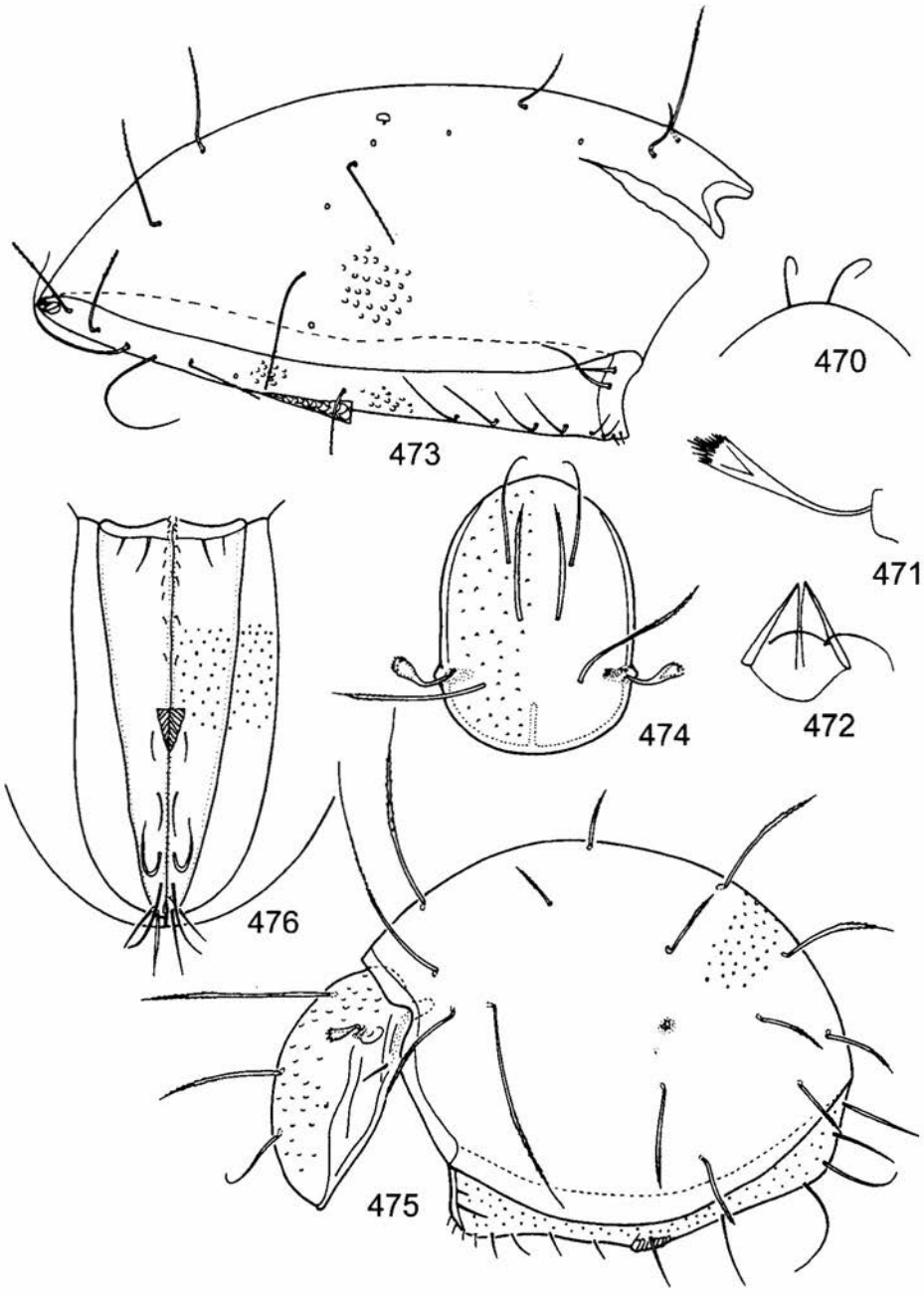
Euphthiracarus (Pocsia) MAHUNKA, 1983

DIAGNOSIS. Prodorsum with rostral setae arising far posteriorly between the lamellar ones.

Euphthiracarus (P.) sarawaki sp. nov.

(Figs 47-482)

DESCRIPTION. Measurements of holotype: prodorsum: length 369, width 268, height 146, sensillus 177, setae: interlamellar 266, lamellar 197, rostral 172, exobothridial 50.6; notogaster: length 736, width 515, height 506, setae: c_1 152, h_1 139, $ps_1$124; genitoaggenital plates 283x80.8, anoadanal plates 318x60.6. Colour yellow, surface of body punctate. Prodorsum with two pairs of lateral carinae. Sensilli long, tapering, roughened. Interlamellar, lamellar and rostral setae long, with sparsely displaced small spines, rostral setae situated at the same transverse line with lamellar setae, exobothridial setae smooth, short. Notogaster with setae fairly short (c_1/c_1-d_1 = 0.71) covered with sparsely displaced small spines, setae c_2 and *cp* the longest, setae of row c remote from anterior margin. Vestigial setae f_1 situated anterior to h_1 setae. Ventral region. Setae *h* of mentum longer than distance between them. Anterior margin of genitoaggenital plates with small spines, 8 pairs of genital and 2 pairs of aggenital setae present. 3 pairs of shorter anal and 3 pairs of longer



470-473. *Euphthiracarus* (*E.*) *takahashii* AOKI, 1980 (paratype): 470 - rostrum, ventral view, 471 - sensillus, ventral view, 472 - mentum ofinfracapitulum, 473 - notogaster, lateral view; 474-476. *Euphthiracarus* (*E.*) *vietnamicus* STARY, 1993 (after STARY 1993): 474 - prodorsum, dorsal view, 475 - lateral view of body, 476 - ventral region

adanal setae covered with small spines present. Leg chaetotaxy and solenidiotaxy: I: 1-3-5(2)-5(1)-17(3), II: 1-4-3(1)-5(1)-13(2), III: 2-2-3(1)-2(1)-12, IV: 2-1-2(1)-2(1)-10, all tarsi heterotridactylous.

DIAGNOSIS. The new species differs from other species of *Pocsia* in the shape of sensillus tapering, roughened and location of rostral and lamellar setae in one line

MATERIAL. Holotype: Malaysia, Sarwak, Mulu, lowl rain forest path, 03. 10.1977, coll. B. BOLTON.

DISTRIBUTION. Malaysia, Sarawak, perhaps an endemic species.

Rhysotritia MARKEL et MEYER, 1959

DIAGNOSIS. Prodorsum without median carina, but with one or two pairs of lateral carinae, bothridial squamae situated above the bothridia, posterior median apodeme present, setae in median (paraxial) position; notogaster with 14 pairs of setae, setae ps_1 situated above ps_{2-3} setae, terminal sinus at the posterior end; genitoaggenital and anoadanal plates completely fused, anogenital cleft absent, one interlocking triangle present; palps 3-segmented, with formula: 2-2-8(1); legs, trochanters I and II bearing one setae and III and IV with 2 setae, genua IV without solenidia, setae *d* on tibia IV comparatively long and not coupled with solenidia, solenidia of tarsi II without coupled setae, tarsi mono-, bi- or heterotridactylous.

Rhysotritia aokii sp. nov.

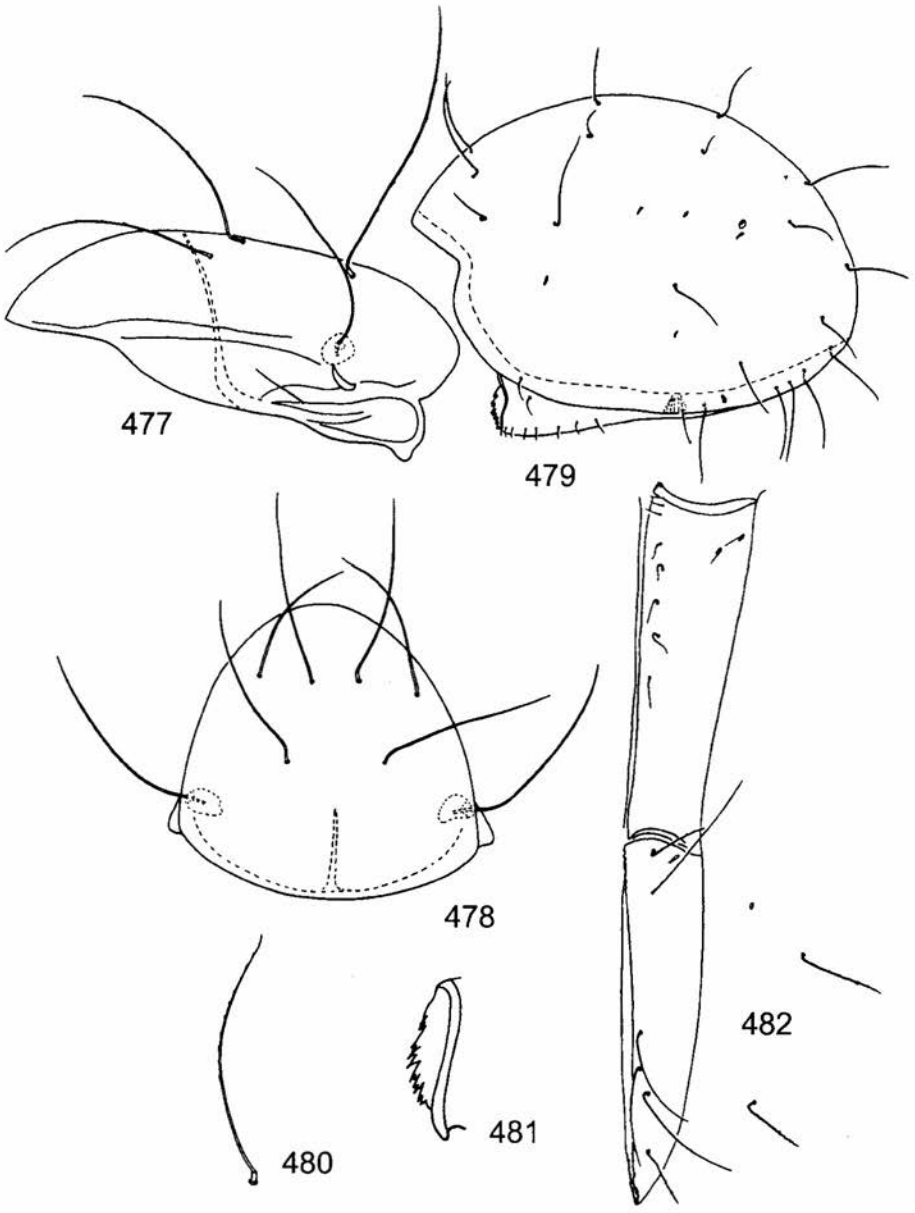
(Figs 483-487)

DESCRIPTION. Measurements of holotype: prodorsum: length 202, width 134, height 55.2, sensillus 60.0, setae: interlamellar 86.4, lamellar 60.0, rostral 43.2, exobothridial 7.2; notogaster: length 462, width 273, height 277, c_1 40.8, h_1 48.0, ps_1 43.2; genitoaggenital plate 138x45.0, anoadanal plate 159x36. Colour yellow, light brown, surface of body punctate. Prodorsum with one pair of lateral carinae. Sensilli with swollen, fusiform head, covered with small spines, or head not swollen. Interlamellar, lamellar and rostral setae rigid, erect, covered with small spines in distal half, exobothridial setae minute, *in* > *le* > *ro* > *ex*. Notogastral setae fairly robust, short (c_1/c_1-d_1=0.42), setae c_1 and c_2 more remote from anterior border than c_3 setae. Vestigial setae f_1 located anterior to h_1 setae. Four pairs of lyrifissures: *ia, im, ip, ips* present. Ventral region. Setae *h* of mentum considerably longer than distance between them. 9 or 10 pairs of small genital and 2 pairs of aggenital setae present, aggenital setae located in transverse line. 3 pairs of anal and 3 pairs of adanal setae present, all rough, except minute an_3 setae, lyrifissures *iad* situated between ad_3 and an_3 setae. Leg chaetotaxy and solenidiotaxy as *R. ardua* except all tarsi monodactylous.

DIAGNOSIS. This species is similar to *R. simile* MAHUNKA,1982 and distinguished by 2 pairs of aggenital setae arranged laterally to each other and vestigial setae f_1 situated anterior to h_1 setae. Another similar species – *R. ardua* (C. L. KOCH) - has two and three claws on the tarsi of legs.

MATERIAL. Holotype: North Korea, Sokam-ho, Sunan region, prov. Pyongyang-namdo, in pine forest, 7 VII 1981, leg. W. WEINER and A. SZEPTYCKI. Localities in the

border zone of the Oriental region and in the Oriental region: India, Himalach Pradesh, 11 km from Simla, litter under old larches, 19.IX.1976, leg. Cz. Błaszak i J. Błoszyk – (3). Nepal, Kathmandu, at 1500 m, SW of city, in mixed forest, 28.VIII.1981, leg. J. Błoszyk – (1); Nepal, Bagmati, Phulchoki, 2000 m, dry litter of sparse bush (TF), 12.V.1979, leg. P.T. Lehtinen – (1). North Korea, Kaesong, near 6



477-482. *Euphthiracarus* (*Pocsia*) *? sarawaki* sp. nov. (holotype): 477 - prodorsum, lateral view, 478 - prodorsum, dorsal view, 479 - notogaster, lateral view, 480 - seta c_1, 481 - pregenital region, 482 - left side of ventral region

km of city, in acacia forest, 13.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (2); Mychyang-san, pine litter under rock, 30 m from water, 22.VI.1981, leg. W. WEINER and A. SZEPTYCKI 25 – (1); Kaesong, Kaesong prov. near waterfall Pakjon, dry pastures with bushes, 7.VI.1974, leg. A. SZEPTYCKI – (1); Vicinity of Kesong, Chonma-san Mts., in leafy forest, 15.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (1); Kumgang san, Marimun sang, in mixed forest, 18.VI.1974, leg. A. SZEPTYCKI – (1); Hawjong pukto, waterside Suson èkon k. Chongasin, 22.V.1974, leg. A. SZEPTYCKI 16 – (2). Japan, Honsiu Nara Yoshino-Jama, litter of mixed forest, 19.VIII.1981, leg. P.T. LEHTINEN – (1). Vietnam, Tam Dao Mts. 90 km N. Hanoi Ex. old tropical forest at 1200 m alt. 25.X.1985, leg. M. ZACHARDA – (4). Vietnam N, Cha-Pa, moulder under beam, 3.V.1961, leg. A. BARTKE – (66); Cha-Pa, litter close to house, XI,XII 1960 leg. A. BARTKE – (7); Cha-Pa, moulder under mosses, 22.I.1961, leg. A. BARTKE – (4); Cha-Pa, moulder under mosses, 27.I.1961, leg. A. BARTKE – (2); Cha-Pa, moulder under beam, 7.XII.1960, leg. A. BARTKE – (1); Cha-Pa, moulder under mosses, 12.XII.1960, leg. A. BARTKE – (6); Cha-Pa, moulder under mosses and ferns, 5.II.1961, leg. A. BARTKE – (4); 8 km S. from Cha-Pa, litter under dry bamboos leaves, 29.I.1961, leg. A. BARTKE – (1). Indonesia, Sulawesi Selaton, Maras d., Pattunuang bass of rock wall on riverside (TF), 19.X.1979, leg. P.T. LEHTINEN – (1); Sulawesi Tengah, Marawula d., Lambara riverside jungle, 25.X.1979, leg. P.T. LEHTINEN – (1); Indonesia, Sumatra, Utara Distr. Simalungun Simarpalatuk Bangun Dolog, 1600 m, jungle slope with moss, 23.IX.1978, leg. P.T. LEHTINEN – (1).

DISTRIBUTION. An Oriental species introduced in Palaearctic region.

Rhysotritia ardua (C. L. KOCH, 1841)

(Figs 489-491)

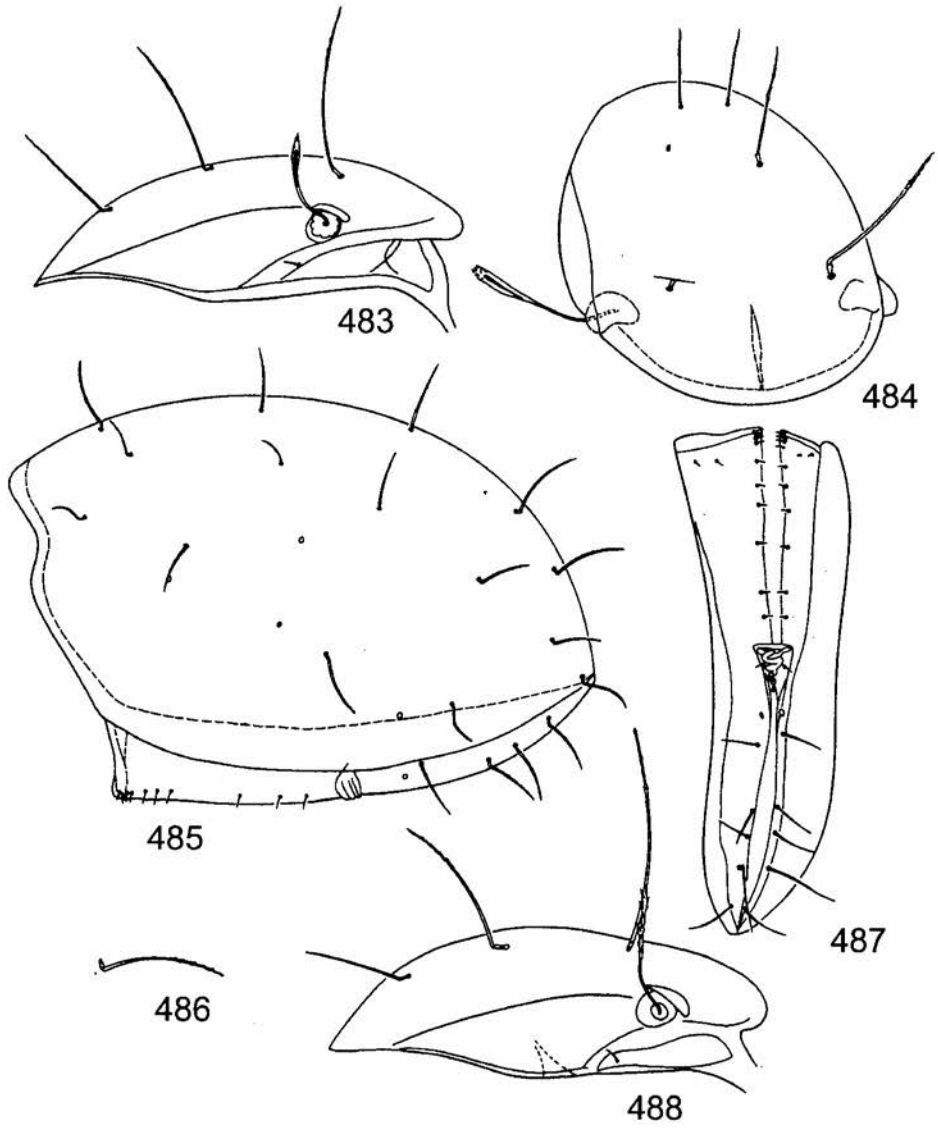
Hoplophora ardua C. L. KOCH, 1841
Rhysotritia ardua: NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Prodorsum with one pair of lateral carinae. Sensilli with distinctly dilated head with spines, setae robust, erect, covered with small spines in distal half (except minute exobothridial setae). Notogastral setae fairly short ($c_1 < c_1$-d_1) covered with small spines in distal half; vestigial setae f_1 located slightly anterior to h_1 setae; one pair of openings of lateral opisthosomal glands and five pairs of lyrifissures *ia, im, ip, ih, ips* present. Ventral region; setae *h* of mentum longer than distance between them; 9 pairs of minute genital and 2 pairs of aggenital setae present, located longitudinally; 3 pairs of anal setae, an_1 and an_2 robust, smooth, an_3 minute, 3 pairs of robust adanal setae covered with small spines in distal half, lyrifissures *iad* located between ad_3 and an_3 setae. Leg chaetotaxy and solenidiotaxy: I: 1-3-3(2)-4(1)-17(3), II: 1-3-3(1)-4(1)-13(2), III: 2-2-2(1-3(1)-11, IV: 2-1-2-2(1)-10, tarsi I heterobidactylous, tarsi II-IV heterotridactylous.

REMARK. In my opinion specimens of *Rhysotritia ardua*, "slender type" from northern part of Japan with aggenital setae located transversely and with mono-dactylous tarsi of legs (AOKI 1980, figs 5A, E) represent another species, perhaps *Rhysotritia aokii* n. sp. I suspect that *R. hauseri* MAHUNKA, 1991 is a synonym of *R. ardua*.

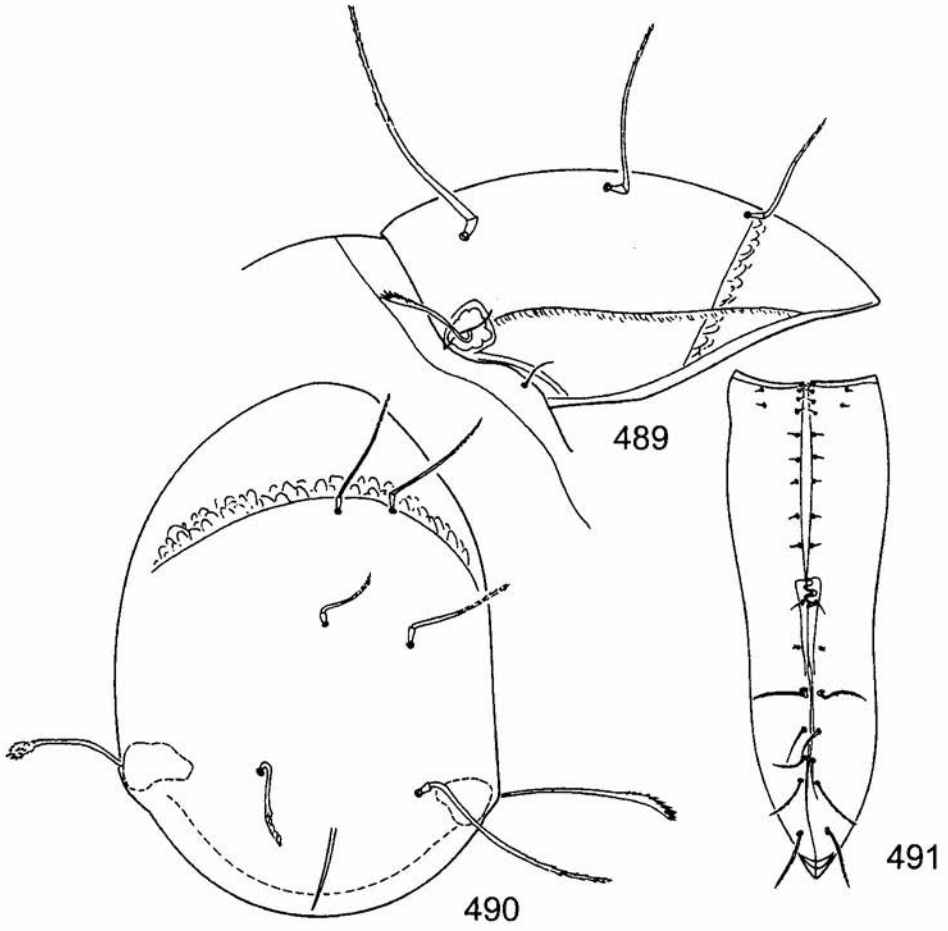
MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: North Korea, Mychyang-san, ścioła spod skały 30 m od wody, głównie igły

sosnowe (litter from under rock from water, mainly pine needles), 22.VI.1981, leg. W. WEINER and A. SZEPTYCKI 25 – (1); Sokam-ho, Sunan region, prov. Pyongyang-namdo, in pine forest, 7.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (1) Kaesong, Kaesong prov. near waterfall Pakjon, dry pastures with bushes, 7.VI.1974, leg. A. SZEPTYCKI – (1); vicinity of Kaesong ca 20 km W of Kaesong, in acacia forest, 14.VIII.1981, leg. W. WEINER and A. SZEPTYCKI – (3); vicinity of Kaesong, Chonma-san Mts., in leafy forest near waterfall Pakjon, 15.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (6); Kymgang-san, near waterfall Kurjông-pho, in leafy forest, 29.VI.1981,



483-487. *Rhysotritia aokii* sp. nov. (holotype): 483 - prodorsum, lateral view, 484 - prodorsum, dorsal view, 485 - notogaster, lateral view, 486 - seta h_1, 487 - ventral region; 488. *Rhysotritia aokii* sp. nov. (one of specimens from Korea), prodorsum, lateral view

leg.W. WEINER and A. SZEPTYCKI – (3); Hamhung pukto, Oupho-ri, Dzhig, in forest, 24.V.1974, leg. A. SZEPTYCKI – (3); Hamhung pukto, Oupho-ri, Dzhig, in forest 24.V.1974, leg. A. SZEPTYCKI – (1); Kaesong-si, Pakchon, in forest, 7.VI.1974, leg. A. SZEPTYCKI – (1); Phjong janosi, Yongak san, 29.V.1974, leg. A. SZEPTYCKI – (1); Kumgang san, Marimun sang, in mixed forest, 18.VI.1974, leg. A. SZEPTYCKI – (3). Japan, many localities (AOKI 1980); Japan, Honsiu Nara Yoshino-Jama, litter of mixed forest, 19.VIII.1981, leg. P.T. LEHTINEN – (9); Japan, Hokkaido, S of Kushiro, in leafy forest, 2.VI.1974, leg. T. WOJTERSKI – (29). India, Jim Corbett Nat. Perh N. Uttar Pradesh, dry slope, litter and leaves under bushes, 9.II.1985, leg. A. KAŹMIERSKI – (1); India, Himachal Pradesh, 120 km from Kulu, alt. 1200 m, litter under *Euphorbia*, 17.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (3); Himalach Pradash, 11 from Simla, litter under pines and larches, 13.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (18); India, Kashmir, between Jamnu and Ramban, litter under bushes, 15.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (2); Kashmir, Pass Fotila (alt. 4493 m), dry litter, 11.IX.1976, leg. CZ.



489-491. *Rhysotritia ardua* (C.L. KOCH, 1841) (specimen from Finland): 489 - prodorsum, lateral view, 490 - prodorsum, dorsal view, 491 - ventral region

BŁASZAK and J. BŁOSZYK – (1); Kashmir, near Khalse, litter and dertitus in brushwood of Salix sp. near stream, wet, 9.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (11); Kashmir, Pass Fotila (alt. 4493 m), vegetation on the slope, dry leaves and litter, 11.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (12); Kashmir, between Svinagar and Kargil, slope above road (50 m), 20 km from Sonamarg, litter from pine-spruce-fir forest, 6.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (6); India, Tamil Nadu, Nilgiri Mudumalai, N.P. Kargudi (1050 m), in litter of bamboo forest, 22.IV.1979, leg. P.T. LEHTINEN – (11). Nepal, Daikuta 64, 630 m, grass, 10.IV.1959, leg. BECKER-LARSEN, Zool. Mus. Kob. – (2). Sri Lanka, Centr. Pr. Yataware, base of decaying tree, 15.X.1984, leg. P.T. LEHTINEN – (14).Vietnam, Hanoi N.R.C. of Vietnam garden Ex Grass litter Rhizosphere tullgrened, 30.IX.1985, leg. M. ZACHARDA – (3); Hanoi. N.R.C. od Vietnam garden, Ex. grass litter Rhizosphere tullgrened, 30.IX.1985, leg. M. ZACHARDA – (2); Tam Dao Mts. 90 km N of Hanoi, Ex. forest litter at 1200 m alt. Tullgrened, 22.X.1985, leg. M. ZACHARDA – (1). Taiwan, Troko Gorge in litter of bush at the base of rock wall, 21.VIII.1981, leg. P.T. LEHTINEN – (1). Indonesia, Sumatra, Utara Distr. Simalungun Simarpalatuk Bangun Dolog, 1400 m, pine forest, 23.IX.1978, leg. P.T. LEHTINEN – (2). Philippines, Luzon Is., Maddela, Quirino Prov., bamboo leaf litter, 11.XI.1975, leg. R.S. RAROS - (1).

DISTRIBUTION. A Semicosmopolitan species.

Rhysotritia comteae MAHUNKA, 1983

(Figs 492-495)

Rhysotritia anchistea NIEDBAŁA, 1998 **syn. nov.**, NIEDBAŁA & CORPUZ-RAROS 1998
Rhysotritia bifurcata NIEDBAŁA, 1993 **syn. nov.**

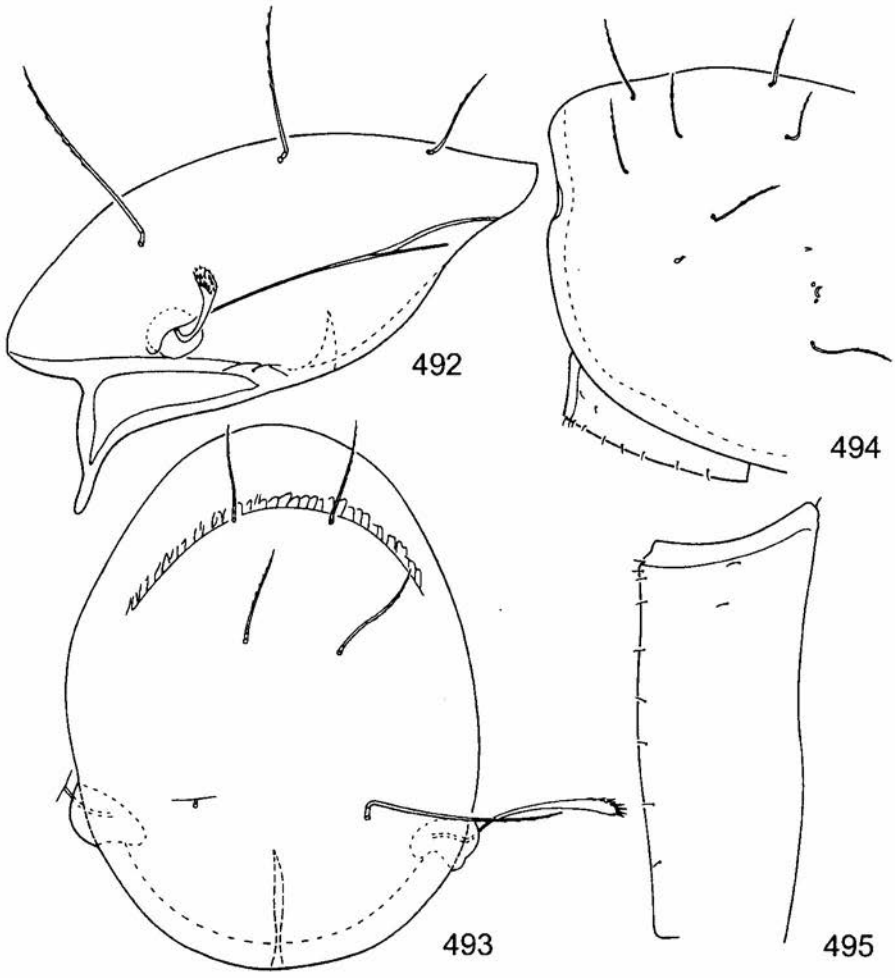
DIAGNOSIS. Measurements of specimen from Barat Bogor, Java: prodorsum: length 265, width 190, height 101, sensillus 48.1, setae: interlamellar 121, lamellar 70.8, rostral 3.2, exobothridial 10.1. Prodorsum with one pair of lateral carinae bifurcated at distal end; sensilli with distinct head, covered with numerous small spines; interlamellar, lamellar and rostral setae robust, erect, covered with small spines in distal half. Notogaster with setae covered with small spines in distal half. Ventral region, 9 pairs of genital and 2 pairs of aggenital setae present. Tarsi of legs I bidactylous, tarsi II-IV heterotridactylous.

REMARK. After a thorough analysis, considering also the geographical distribution, I decided to synonymize the two species described by me, with *R. comteae*, although I have not examined the type. The only detectable differences between these species were the shape of sensilli and the shorter interlamellar setae. In my opinion these features are not enough to distinguish separate species. I suspect that this species is a synonym of *R. vestita* (BERLESE, 1913).

MATERIAL. MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: India, Uttar Pradesh Kumaon Bhimtal (1380 m), in litter of bush (TF), 17.IV.1979, leg. P.T. LEHTINEN – (3); Uttar Pradesh, Kumaon, Mainital, Mallital (1940 m), jungle litter, (TF), 15.IV.1979, leg. P.T. LEHTINEN – (10); Uttar Pradesh, Kumaon, Mainital, Pains (1920 m), mountain forest, (TF), 16.IV.1979, leg. P.T. LEHTINEN – (5); Himachal Pradesh, 35 km from Simla, young pines near road, dry litter of bush, 19.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (1); India, Himalach Pradash, 11 from Simla, litter under pines and larches, 13.IX.1976, leg. CZ. BŁASZAK

and J. BŁOSZYK – (3); Himalach Pradesh, 11 km from Simla, litter under old larches, 19.IX.1976, leg. CZ. BŁASZAK i J. BŁOSZYK – (4); India, Meghalaya, Kast-Khasi, Hills, Mawphlong Law-Lyngdoh, in jungle litter (TF), 5.V.1979, leg. P.T. LEHTINEN – (4); Meghalaya, East Khasi Hills Shillong, Mawlai, 1500 m, pine litter, (TF), 4.V.1979, leg. P.T. LEHTINEN – (8); India, West Bengal, Darjeeling, Bhanjan Road, 4 km W of Ghoom (2300 m), in litter of cloud forest (TF), 1.V.1979, leg. P.T. LEHTINEN – (1); India, Western Ghats, Goa prov., Bendla reserve, jungle, 3.VI.1981, leg. I. CHOJNACKI – (7); Western Ghats, Goa prov., Bandla reserve, in bamboo forest, 8.VI.1981, leg. I.CHOJNACKI – (3); India, Province Goa – Baga Blach, from leaves and litter in dry forest on the slope, exp. S, 3.VI.1981, leg. I.CHOJNACKI – (1). Nepal, Bagmati, Balaju Park, bamboo forest (TF) 14.V.1979, leg. P.T. LEHTINEN – (12); Nepal, Bagmati, Shivapuri Mohanpokhari 2000 m, mountain bush (TF) 14.V.1979, leg. P.T. LEHTINEN – (21); Bagmati, Godawari (1540 m) in small leaved jungle litter (TF), 12.IV.1979, leg. P.T. LEHTINEN – (2); Bagmati, Phulchoki, 2000 m, dry litter of sparse bush (TF), 12.V.1979, leg. P.T. LEHTINEN – (20); Bagmati, Phulchoki, 2000 m, dry litter of sparse bush (TF), 12.V.1979, leg. P.T. LEHTINEN – (15); Nepal , Ambrany 1400-1800, moss, 20.III.1959, leg. BECKER-LARSEN, Zool. Mus. Køb. – (2); Nepal, Moyam 2430 m, moss 7, 6.II.1959, leg. K. BECKER-LARSEN – (1); Nepal, Kaudbari 45, 750 m, moss, 26-29.III.1959, leg. BECKER-LARSEN, Zool. Mus. Køb. – (1). North Korea, Hawjong pukto, waterside Suson èkon k. Chongasin, 22.V.1974, leg. A. SZEPTYCKI 16 – (4); North Korea, Vando distr. Nampho, prov. Phjongun-namdo, mixed forest on the hill, 10.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (3). Vietnam, Vinh Phu Tam Dao, 1450 m, stony jungle slope (TF), 19.X.1978, leg. P.T. LEHTINEN – (1); Vietnam N, Cha-Pa, litter close to house, XI,XII 1960 leg. A. BARTKE – (1); Cha-Pa, moss on the tree, 2.III.1961 leg. A. BARTKE – (1); Cha-Pa, moss on the *Araukaria*, 3.III.1961 leg. A. BARTKE – (5); Cha-Pa, moulder under mosses, 12.XII.1960, leg. A. BARTKE – (1); Cha-Pa, plough-land, 12.XII.1960, leg. A. BARTKE – (1); Cha-Pa, moulder under mosses and ferns, 5.II.1961, leg. A. BARTKE – (2); Cha-Pa, moss on the wall, 11.XI.1960, leg. A. BARTKE – (4); Cha-Pa, moulder, 20.III.1961, leg. A. BARTKE – (10); 8 km S. from Cha-Pa, litter under dry bamboos leaves, 29.I.1961, leg. A. BARTKE – (1). Indonesia, Celebes, Klabat, 1954, leg. A.H.G. ALSKON – (1); Indonesia, Sulawesi Utara, Minahassa, Tansea d., Airmadidi, in garden, 22.X.1979, leg. P.T. LEHTINEN – (2); Sulawesi Utara, Gorontalo d., Datahu, river valley with grass and litter (TF), 24.X.1979, leg. P.T. LEHTINEN – (1); Indonesia, Bali, Bulcleng d., Bedugul, jungle slope with large dry leaves, 10.X.1979, leg. P.T. LEHTINEN – (1); Bali, Nusa Tenggara Barat Bali Murtosari, litter of dry bush, 1.I.1984, leg. P.T. LEHTINEN – (16); Indonesia, Kalimantan Selatan Tapin Miawa, forested rock slope, 8.XI.1984, leg. P.T. LEHTINEN – (13); Indonesia, Java, Barat Bogor district, Ciampea Gunung Cibodas dry grassy mountain slope, (TF), 7.X.1979, leg. P.T. LEHTINEN – (1); Java, Timur, Gubuh Klakah, litter of mountain forest, 29.X.1984, leg. P.T. LEHTINEN – (1); Java, Timur, Fudjon Cuban Rondo, 28.X.1984, leg. P.T. LEHTINEN – (1). Malaysia, Sabah Mt. Kinabalu N.P. Por. H.S. area biw Langanan Fall 850 m, 12.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu N.P. Por. H.S. area biw Langanan Fall 800 m, 12.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat.P. Poring Hot Springs 495 m., sifting leaf litter and old dry fruits, 25.VIII.1988, leg. A. SMETANA (B 148) – (4); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv. 1500 m, 21.V.1987, leg. A. SMETANA – (10); Sabah Mt. Kinabalu Nat.P.

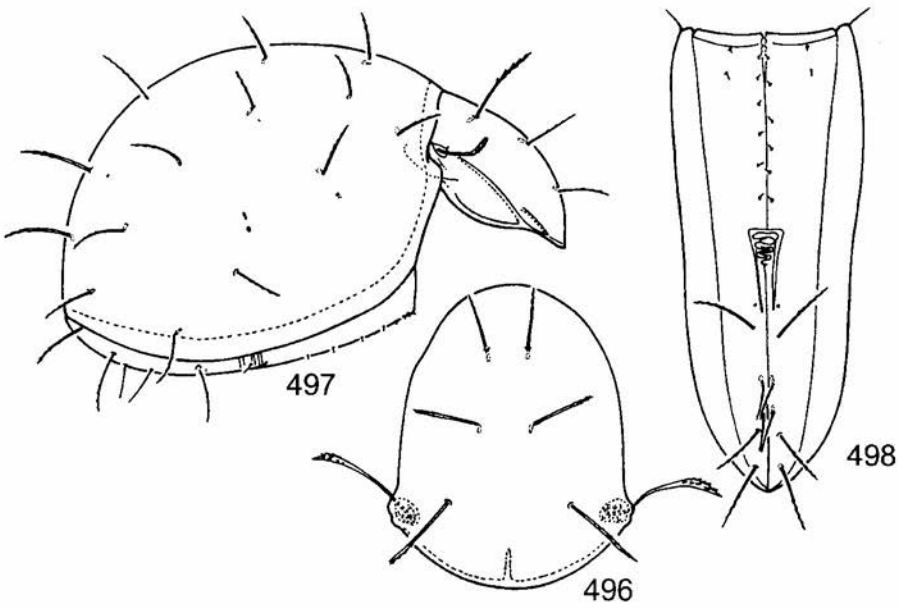
HQ at Liwagu Rv. 1500 m, 16.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv., 1500 m, 30.IV.1987, leg. A. SMETANA – (3); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv., 1500 m, 18.V.1987, leg. A. SMETANA – (1); Sabah Mt. Kinabalu Nat.P. HQ at Liwagu Rv., 1500 m, 25.IV.1987, leg. A. SMETANA – (1); Sabah Tawan d., Bal Estate, Tiger Hill, jungle litter, 2.XI.1979 leg. P.T. LEHTINEN – (1); Sabah Tawan d., Bal Estate, Tiger Hill (TF), 2.XI.1979 leg. P.T. LEHTINEN – (8); Sabah Sandakan, Till Hill "tanao" forest, 5.XI.1979, leg. P.T. LEHTINEN – (4); Malaysia, Pahang Jerantut 14 km S, litter od jungle, 17.XI.1984, leg. P.T. LEHTINEN – (10). Philippines, Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., Upland Hydroecology Program staff, litter from *Imperata cylindrica* – *Saccharum spontaneum* grassland, 5.IV.1978, leg. L.A. CORPUZ-RAROS – (1); Luzon Is., Mt. Makiling, Upland Hydroecology Program site, Puting Lupa, Calamba,



492-495. *Rhysotritia comteae* MAHUNKA, 1983 (specimen from Cook islands): 492 - prodorsum, lateral view, 493 - prodorsum, dorsal view, 494 - anterior part of notogaster, lateral view, 495 - left genitoaggenital plate

Laguna, litter of *Leucaena leucocephala* - *Gliricidia sepium*, 20.IV.1977 - (2); Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., leaf litter, 21.IV.1994, leg. W.SM. GRUEZO – (1); Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna, undisturbed secondary forest litter, 10.I.1976, leg. R.C. GARCIA and C.C. CALIBO - (1); Luzon Is., Mt. Makiling, Los Banos, Laguna, forest litter, 14.I.1977 - (5); Luzon Is. Siniloan, Laguna, undecomposed leaf litter from logged-over area, 28.X.1974, leg. R. Aspiras - (1); Luzon Is., National Botanic Gardens, Real, Quezon Prov., Asplenium fern near stream, 1.III.1981, leg. I.J. Lit, Jr. - (1); Luzon Is., Villarica, Pantabangan, Nueva Ecija Prov., soil from agroforestry demonstration farm, 3.V.1982, leg. L.A.C Raros - (2); Luzon Is., Biyaan, Mariveles, Bataan Prov., bat guano inside cave, 28.VII.1978, leg. L.S.Cuy - (1); Luzon Is., Tagga, Tuguegarao, Cagayan Prov., forest litter, 14.XI.1975, leg. P.S. RAROS - (7); Leyte Is., Francisco, Alang-alang, Leyte Prov., leaf litter, 30.VI.1983, leg. A.M. ALMERODA – (1); Palawan, Irawan, litter of jungle, 23.VIII.1981, leg. P.T. LEHTINEN – (1); Mindanao Is., Antipolo, Tungao, Angusan del Norte Prov., litter under kiri plant, 28.IV.1975, leg. R.S. RAROS - (1); Mindanao Is., Magor, Agusan del Norte, litter from young plantation of *Gmelina arborea*, 29.IV.1975, leg. R.S. RAROS - (1); Mindanao Is., Muya Camp, alt. 900 m, Tungao, Angusan del Norte, litter from *Eucalyptus*-Imperata stand, 28.IV.19575, leg. R.S. RAROS - (1); Mindanao Is., Magor, Tungao, Angusan del Norte, litter from 4-year old plantation of *Eucalyptus deglupta*, 29.IV.1975, leg. R.S.Raros - (3) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. A Pantropical species.

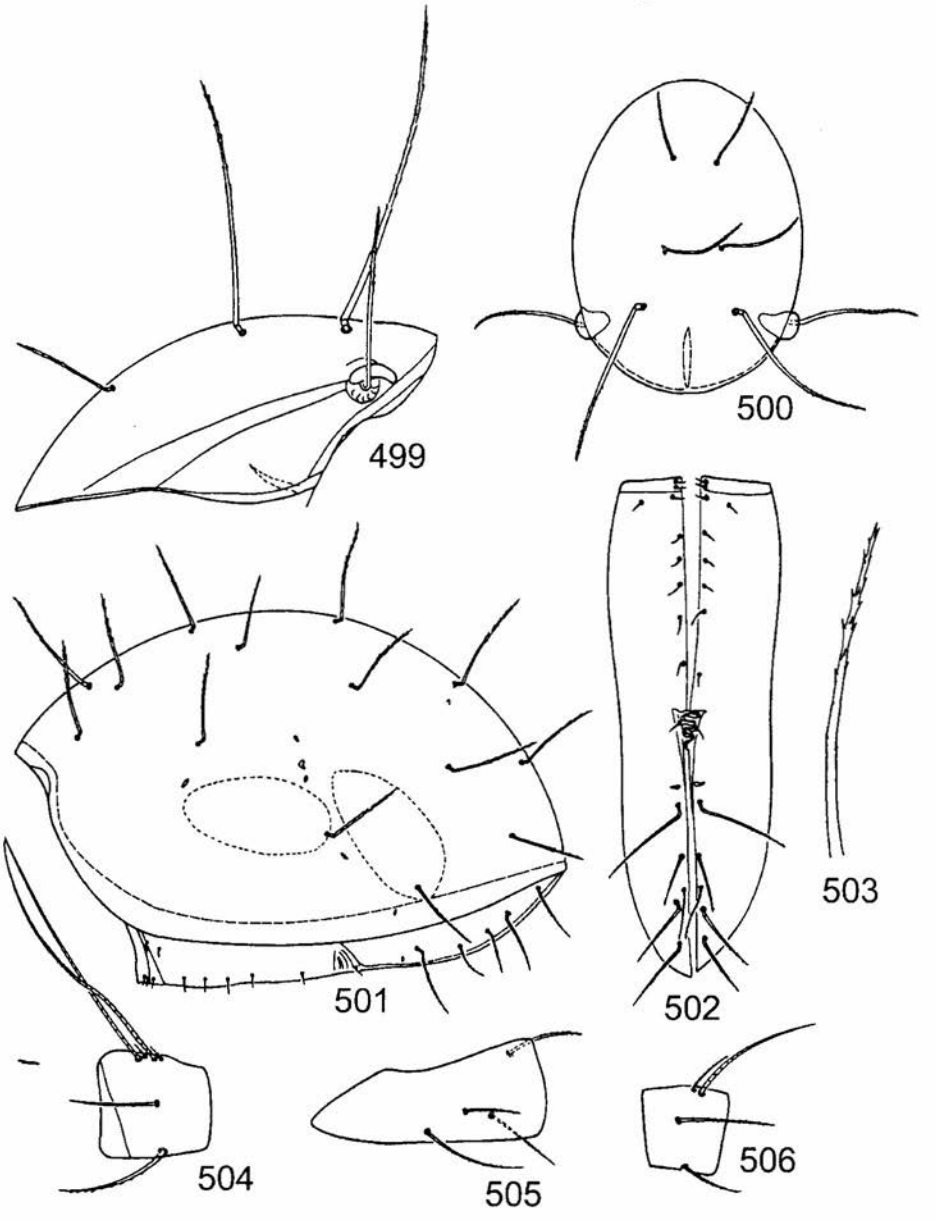


496-498. *Rhysotritia divida* MAHUNKA, 1991 (after MAHUNKA 1991b): 496 - prodorsum, dorsal view, 497 - lateral view of body, 498 - ventral region

Rhysotritia divida MAHUNKA, 1991

(Figs 496-498)

DIAGNOSIS. Measurements of specimen from Sulawesi: prodorsum: length 245, height 116, sensillus 45.5; setae: interlamellar 96.1, lamellar and rostral 65.8, exobothridial 12.6. Prodorsum with lateral carinae furcated posterior to rostral setae;



499-506. *Rhysotritia duplicata* (GRANDJEAN, 1953): 499 - prodorsum, lateral view, 500 - prodorsum, dorsal view, 501 - notogaster, lateral view, 502 - ventral region, 503 - seta c_1, 504 - genu of leg I, 505 - femur of leg II, 506 - genu of leg III

sensilli without conspicuously dilated head, their distal part densely spinose; 9 pairs of genital and 2 pairs of aggenital setae present; legs monodactylous.

REMARK. It cannot be excluded that *R. refracta* NIEDBAŁA,1998 described from Pacific islands is a synonym of this species.

MATERIAL. Locality in the Oriental region: Malaysia (Perak): Cascade de Sungei Simei (Cameron Highlands) 25 III 1977, leg. T. JACCOUD et P. MARCUARD - (2) (MAHUNKA 1991b). Indonesia, Java, Bogor, decaying bamboo leaves, 2.II.54, leg. A.H.G. ALSTON – (2); Sulawesi, Utara, Minahassa, Tansea d., Gunung Klabat, 1500 m, in litter of palm jungle, 21.X.1979, leg. P.T. LEHTINEN – (1); Bali, Bulcleng d., Bedugul, jungle slope with large dry leaves, 10.X.1979, leg. P.T. LEHTINEN – (1); Bali, Nusa Tenggara Barat Bali Murtosari, litter of dry bush, 1.I.1984, leg. P.T. LEHTINEN – (7).

DISTRIBUTION. An Oriental species.

Rhysotritia duplicata (GRANDJEAN , 1953)

(Figs 499-506)

DIAGNOSIS. Measurements of specimen from Poland: prodorsum: length 298, width 211, height 112, sensillus 118, setae: interlamellar 218, lamellar 175, rostral 77, exobothridial 4.8; notogaster: length 645, width 372, height 409, c_1 132, h_1 144, ps_1 149; genitoaggenital plate 223x62, anoadanal plate 298x55.8. Prodorsum with double lateral carinae; sensilli setiform, stout, without conspicuously dilated head, their distal part spinose; exobothridial setae minute; 8 pairs of genital setae and 2 pairs of minute aggenital setae present; legs I bidactylous, legs II-IV heterotridactylous.

MATERIAL. Locality in the border zone of the Oriental region: North Korea, Vicinity of Kaesong, Chonma-san Mts., in leafy forest near waterfall Pakjon, 15.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (1).

DISTRIBUTION. A Palaearctic species.

Rhysotritia furcata BAYOUMI et MAHUNKA, 1979

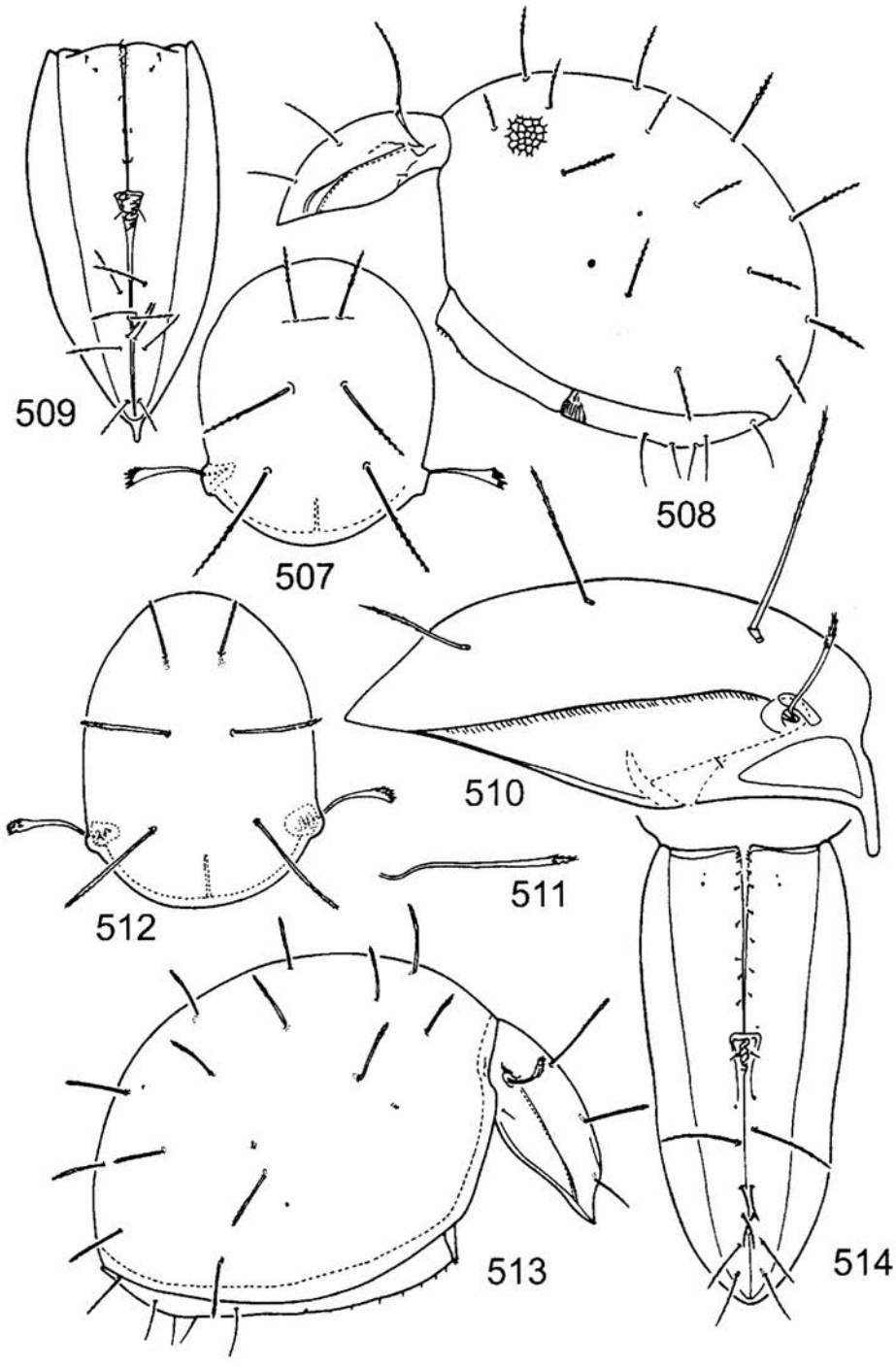
(Figs 507-509)

DIAGNOSIS. Integument of prodorsum foveolate, surface of notogaster covered with distinct network of polygonal sculpture. Prodorsum with lateral carinae bifurcated anterior to lamellar setae; sensilli with flat head, covered with barbs; 9 pairs of genital and 2 pairs of aggenital setae present.

MATERIAL. Localities in the border zone of the Oriental region: India, Darjeeling Distr., Chim-Khona (Ghum), 2200 m, 4.6.75, leg. W. WITMER - (3); Nepal, Godavari, 1450 m, 25.5.76,leg. W. WITMER and U. BARONI - (1); Nepal, Phulchoki, 2600 m, 11-14.6.76, leg. W. WITMER and U. BARONI - (1) (BAYOUMI & MAHUNKA 1979). Bhutan, Phuntshiling, 2/400 m, 15.7.72, leg. W. WITMER - (2); Bhutan, 3100 m, 1.6.76, leg. DORJEE Khandu - (2).

DISTRIBUTION. Southern border of Palaearctic .

REMARK. I suspect that *R. penicillata* MAHUNKA, 1982 ia a synonym of this species.



507-509. *Rhysotritia furcata* Bayoumi et Mahunka, 1979 (after Bayoumi and Mahunka, 1979): 507 - prodorsum, dorsal view, 508 - lateral view of body, 509 - ventral region; 510, 511. *Rhysotritia gracile* sp. nov. (holotype): 510 - prodorsum, lateral view, 511 - sensillus, dorsal view; 512-514. *Rhysotritia hauseri* Mahunka, 1991 (after Mahunka 1991b): 512 - prodorsum, lateral view, 513 - lateral view of body, 514 - ventral region

Rhysotritia gracile sp. nov.
(Figs 510, 511)

DESCRIPTION. Measurements of holotype: prodorsum: length 233,width 177, height 104, sensillus 60.7, setae: interlamellar 114, lamellar 73.4, rostral 48.1, exobothridial 5.1. Colour yellow. Prodorsum with one pair of lateral carinae. Sensilli robust, without head, distal end covered with small spines. Interlamellar, lamellar and rostral setae erect, robust, covered with small spines in distal half, *in* > *le* > *ro*, exobothridial setae minute. Notogaster with robust setae, covered with small spines in distal half. Ventral region. 9 pairs of genital, 2 pairs of aggenital, 3 pairs of anal and 3 pairs of adanal setae present. Tarsi of legs I bidactylous, tarsi II-IV hetero-tridactylous.

MATERIAL. Holotype: India, Uttar Pradesh, Kumaon Nainital, Takula, 1870 m, in moss, 15 IV 1979, leg. P.T. LEHTINEN.

ETYMOLOGY. The specific epithet *gracilis* is Latin for „simple", „slender" and alludes to the shape of sensilli without head.

DISTRIBUTION. North India, perhaps an endemic species.

Rhysotritia hauseri MAHUNKA, 1991
(Figs 512-514)

DIAGNOSIS. Simple, robust lateral carinae of prodorsum present; sensilli with well dilated head, spinose, like a „brush"; 9 pairs of genital and 2 pairs of aggenital setae present, aggenital setae remote from anterior margins of genitoaggenital plates; tarsi of legs I bidactylous, tarsi of legs II-IV heterotridactylous.

MATERIAL. Localities in the Oriental region: Malaysia (Pahang): Panching, 11 III 1977, leg. T. JACCOUD et P. MARCUARD - (6);Malaysia (Perak): Cascade de Sungei Simei (Cameron Highlands) 28 III 1987, leg. T. JACCOUD et P. MARCUARD - (6); Malaysia (Pahang): Berinchang (Cameron Highland) 26 III 1977, leg. T. Jaccoud et P. MARCUARD - (3) (MAHUNKA 1991b). Sri Lanka, Uva Pr. Ketandole/Rahu, litter of secondary forest, 19.10.1984, leg. P.T. LEHTINEN – (1)

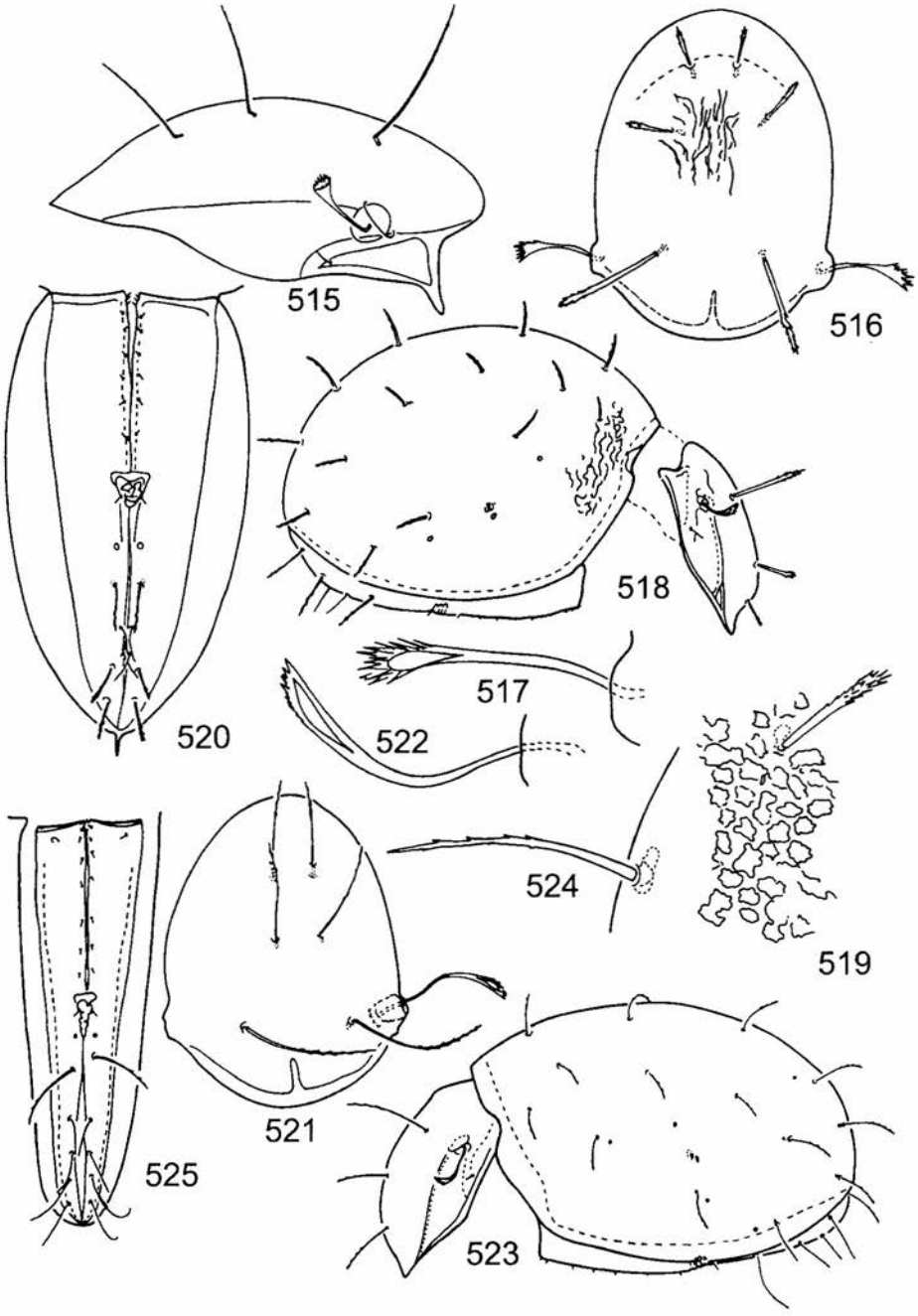
DISTRIBUTION. An Oriental species.

REMARK. I suspect that this species is a synonym of *R. ardua* (C. L. KOCH, 1841).

Rhysotritia lucida NIEDBAŁA, 1998
(Fig. 515)

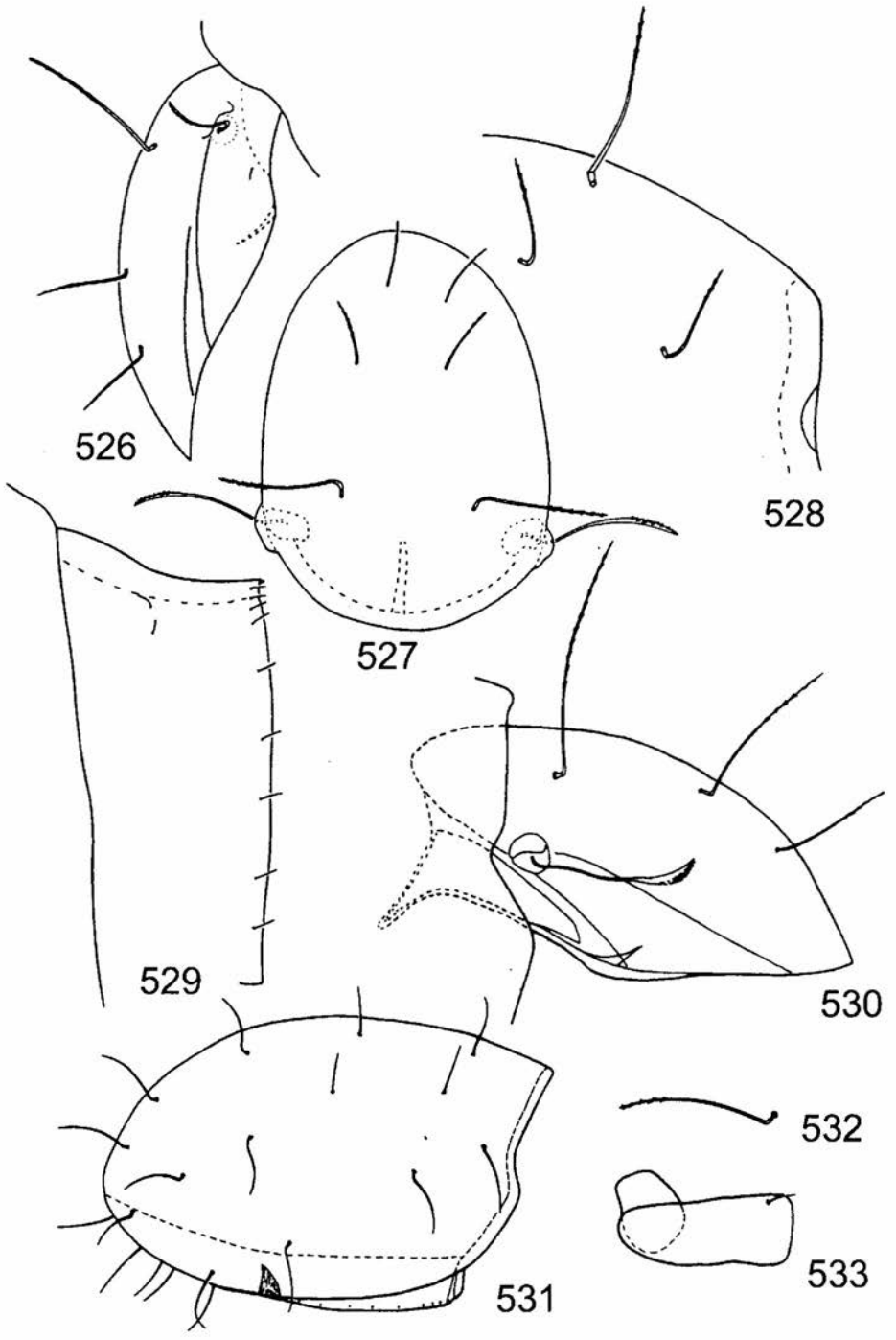
Rhysotritia lucida: NIEDBALA & CORPUZ-RAROS 1998

DIAGNOSIS. Measurements of specimen from sample from Pehang Jerantun, Malaysia: prodorsum: length 223, height 93.6, sensillus 48.1, setae: interlamellar 104, lamellar 65.8, rostral 55.7, exobothridial 7.6. Prodorsum with one pair of simple lateral carinae; sensilli with almost globular head, covered with small spines; interlamellar, lamellar and rostral setae erect, slender, covered with small spines in distal half, exobothridial setae minute, *in* > *le* > *ro* > *ex*. Notogastral setae simple, slender, covered with small spines in distal half. Ventral region, 9 pairs of genital and 2 pairs of aggenital setae present. Tarsi of legs monodactylous.



515. *Rhysotritia lucida* NIEDBAŁA, 1998 (specimen from Pahang), prodorsum, lateral view; 516-520. *Rhysotritia penicillata* MAHUNKA, 1982 (after MAHUNKA 1982): 516 - prodorsum, dorsal view, 517 - sensillus, dorsal view, 518 - lateral view of body, 519 - sculpture of notogaster, 520 - ventral region; 521-525. *Rhysotritia rasile* MAHUNKA, 1982 (after MAHUNKA 1982): 521 - prodorsum, dorsal view, 522 - sensillus, dorsal view, 523 - lateral view of body, 524 - seta h_1, 525 - ventral region

MATERIAL. Localities in the Oriental region: Sri Lanka, Centr. Pr. Nuwara Ellya, 1800 m, litter of mixed forest, 16.X.1984, leg. P.T. LEHTINEN – (5); Sri Lanka, Central Pr. Pidurktalagalla, 1900 m, litter of mountain slope near road side, 17.X.1984, leg. P.T. LEHTINEN – (3); Sri Lanka, Central Pr. Pidurktalagalla, 1600 m, broad-leaved jungle litter, 17.X.1984, leg. P.T. LEHTINEN – (2); Sri Lanka, Kalutara–Bentota, (S from Colombo), *Hevea* plantation, litter, 19.VI.1968, leg. J. BALOGH – (1); Sri Lanka, Yala Park National, galery forest, dry litter, 2.VII.1968, leg. J. BALOGH – (1); Sri Lanka, Galkulama, Anuradhapura Dist., dry forest, litter, 27.VI.1968, leg. J. BALOGH – (1). Northern Thailand, Chieng Dao, 1800 m. 16.VII.1958, leg. Birgid DEGERBØL – (1). Indonesia, Java, Bogor, decaying bamboo leaves, 2.II.54, leg. A.H.G. ALSTON – (1); Indonesia, Sulawesi Utara, Minahassa, Tansea d., Airmadidi, in garden, 22.X.1979, leg. P.T. LEHTINEN – (1); Sulawesi Utara, Gorontalo d., Datahu, river valley with grass and litter (TF), 24.X.1979, leg. P.T. LEHTINEN – (1); Indonesia, Bali, Tabanan d., Baturiti, in litter of bamboo, 9.X.1979, leg. P.T. LEHTINEN – (1). Malaysia, Sabah Mt. Kinabalu Nat. Park Poring Hot Springs 480 m, 8.V.1987, leg. A. SMETANA – (1); Malaysia, Sarawak, Mulu, Lowl. rain forest peth, 3.X.1977, leg. B. BOLTON – (3); Malaysia, Pahang Jerantut 14 km S, litter od jungle, 17.XI.1984, leg. P.T. LEHTINEN – (1). Philippines, Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., Upland Hydroecology Program staff, litter from *Imperata cylindrica – Saccharum spontaneum* grassland, 17.I.1978, leg. L.A. CORPUZ-RAROS – (4); Luzon Is., Mt. Makiling, UHP site, Puting Lupa, Calamba, Laguna, litter from *Imperata cylindrica - Saccharum spontaneum* grassland, 27.II.1978, leg. UHP staff - (1); Luzon Is., Mt. Makiling, UHP site, Puting Lupa, Calamba, Laguna, *Leucaena leucocephala-Gliricidia sepium* plantation, 17.I.1978, leg. UHP staff - (1); Luzon Is., U.P. Los Baños Forestry Campus College, Laguna Prov., leaf litter, 27.IV.1993, leg. R.C. GARCIA – (1); Luzon Is., Mt. Makiling, alt. 700 m, Los Banos, Laguna, moss, 4.V.1993, leg. R.C. GARCIA - (2); Luzon Is., Mt. Makiling, trail to peak, alt. 800 m, Los banos, Laguna, litter from grassy patch, 4.III.1975, leg. L.A.C. RAROS - (2); Luzon Is., National Botanic Gardens, Siniloan, Laguna, J.M. SOTTO - (1); Luzon Is., Pagbilao, Quezon Prov., alt. 900 ft., forest litter, X.1976, leg. L.S. CUY - (1); Luzon Is., Mt. Banahaw, Kinabuhayan, Dolores, Quezion, leaf litter, 9.III.1978, leg. C. CALIBO and A.CAUYAN - (1); Luzon Is., Mt. Banahaw, Sta. Lucia, Dolores, Quezon, forest litter, 9.VIII.1978, leg. C. CALIBO and R. CASINAS - (1); Luzon Is., Biyaan, Mariveles, Bataan Prov., bat guano inside cave, 28.VII.1978, leg. L.S. CUY - (1), Luzon Is., Gagabutan, Rizal, Cagayan Prov., primary forest litter, 29.III.1977, leg. R.C. GARCIA; Luzon Is., Mt. Viray, 800 m, San Felipe, San Lorenzo Ruiz, Camarines del Norte Prov., leaf litter, 9 IV.1994, leg. W.SM. GRUEZO – (1); Luzon Is., Mt. Isarog, Del Rosario, Curry, Camarines Sur Prov., moss, XIII.1994, leg. G. VELUS - (3); Leyte Is., Mt. Pangasugan, along Calbigaa Creek, Baybay, Leyte Prov., forest litter, 30.X.1980, leg. I.J. DOGMA, Jr. - (1); Leyte Is., Mt. Pangasugan, Baybay, Leyte Prov., forest litter, 2.IX.1983, leg. A.M. ALMERODA – (2); Panaon Is., (off Leyte Is.): Tinaan, San Francisko, Southern Leyte Prov., decomposing rice hull at base of banana plants, 22.IX.1991, leg. L.A.C. RAROS – (17); Leyte Is., Mt. Pangasugan, 900 m, along trail to first peak, forest litter, 24.V.1984, leg. R.S. RAROS – (7); Mindanao Is., Pandapan, Tagum, Davao del Norte Prov., bamboo leaf litter, 12.IV.1992, leg. I.J. LIT jr. – (2); Samar Is., Rawis, Basey, Western Samar Prov., litter outside cave, 30.XII.1981, leg.M.J.P. CANETE - (2).; Negros Is., Talinis, Negros Oriental Prov., alt.



526-529. *Rhysotritia refracta* NIEDBAŁA, 1998 (holotype): 526 - prodorsum, lateral view, 527 - prodorsum, dorsal view, 528 - anterior part of notogaster, lateral view, 529 - right genitoaggenital plate; 530-533. *Rhysotritia sinensis* JACOT, 1923 (specimen from JACOT collection): 530 - prodorsum, lateral view, 531 - notogaster, lateral view, 532 - seta h_1, 533 - position of seta *d* on femur of leg I

4800-5000 ft, litter, 31.III.1981, leg. S.G. REYES - (7); Panay Is., Mambusao, Capiz Prov., grassy litter, 12.X.1990, leg. A.M. ALMERODA - (2); Mindanao Is., Evergreen Farm, Lot 12D, Davao City, banana leaves, 23.XI.1978, leg. L.A.C. RAROS - (4) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. A Pantropical species.

Rhysotritia penicillata MAHUNKA, 1982

(Figs 516-520)

DIAGNOSIS. Body covered with polygonal sculpture. Prodorsum with one pair of bifurcate lateral carinae; sensilli with distinct head, covered with small spines, lamellar setae situated closer to rostral setae than interlamellar setae; 9 pairs of genital setae; tarsi of legs heterotridactylous.

REMARK. This species is similar to *R. furcata* from India but lamellar setae are situated nearer rostral setae. Another similar species, *R. divida*, has not so distinct head of the sensilli and monodactylous tarsi of legs. I suspect that *R. penicillata* is a synonym of *R. furcata* BAYOUMI et MAHUNKA, 1979.

MATERIAL. Localities in the border zone of the Oriental region: North Korea, prov. Kengi, Bagyon san, San-chon tong, about 10 km from Kaesong, detritus, litter and soil from base of sweet chestnuttree, 8 VI 1970, leg. S. MAHUNKA and H. STEINMANN - (19); Prov. Kanwon, Kum-gang san, Man-mul san, from ant nest, 30 V 1970, leg. S. MAHUNKA and H. STEINMANN - (1) (MAHUNKA 1982).

DISTRIBUTION. Korea, probably an endemic species.

Rhysotritia rasile MAHUNKA, 1982

(Figs 521-525)

DIAGNOSIS. Prodorsum with one pair of lateral carinae; sensilli with widened head, covered with small spines; notogastral setae fine, covered with small spines; 9 pairs of genital setae, adanal setae ad_3 longer than other setae on anoadanal plates; tarsi of legs monodactylous.

MATERIAL. Localities on border zone of the Oriental region: North Korea, prov. Kengi, Bagyon san, San-chon tong, about 10 km from Kaesong, detritus, litter and soil from base of sweet chestnut tree, 8 VI 1970, leg. S. MAHUNKA and H. STEINMANN - (3); Prov. Kanwon, Si-sung-ho, 50 km S of Wonsan, seashore, from coniferous litter on sand dunes, 29 V 1970, leg. S. MAHUNKA and H. STEINMANN - (1); Prov. Knawon, Kum-gang san, Man-mulsan, from ant nest, 30 V 1970, leg. S. MAHUNKA and H. STEINMANN - (1); Prov. Kengi, Bagyon san, Sanchon tong, about 10 km from Kaesong, dry moss on ground of steep declivity, 8 VI 1970, leg. S. MAHUNKA and H. STEINMANN - (5); Prov. South Pyongang, Pyongang, De-sang san, 12 km NE from Pyongyan, litter from a coniferous wood, 18 VI 1975, leg. J. PAPP and A. VOJNITIS - (1); Kangwon, Prov. Mt. Kumgang-san, near Hotel Kumgang, soil mosses, 30 IX 1979, leg. H. STEINMANN and T. VASARHELYI - (5); South Pyongang Prov. Mt. Lyong-ak san,15 km W of Pyongyang, litter, 9 IX 1980, leg. G. TOPAL and L. FORRO - (6); Pyongyang City, Mt. Daesong-san, moss, 10IX 1980, leg. TOPAL and L. FORRO - (2) (MAHUNKA 1982)

DISTRIBUTION. Korea, probably an endemic species.

REMARK. I suspect that this species, together with *R. spiculifera* MAHUNKA, 1991, is a synonym of *R. sinensis* (JACOT, 1923).

Rhysotritia refracta NIEDBAŁA, 1998

(Figs 526-529)

Rhysotritia refracta NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Measurements of specimen from Timur: prodorsum: length 248, height 83.5, sensillus 70.8, setae: interlamellar 109, lamellar 60.7, rostral 50.6, exobothridial 17.7. Prodorsum with one pair of lateral carinae bifurcated posterior to lamellar setae; sensilli without head, covered with small spines at distal end; interlamellar, lamellar and rostral setae robust, erect, covered with small spines at distal end, interlamellar setae considerably longer than lamellar and rostral setae, *in* > *le* > *ro*, exobothridial setae small. Notogastral setae robust, covered with small spines at distal end. Ventral region, 9 pairs of genital and 2 pairs of aggenital setae present. All tarsi of legs monodactylous.

MATERIAL. Locality in the Oriental region: Indonesia, Kalimantan, Timur, Samarinda d., Samarinda Ulu, Lac Bahu, rain forest, 27.X.1979, leg. P.T. LEHTINEN – (2). Philippines, Luzon Is., Villarica, Pantabangan, Nueva Ecija Prov., soil from agroforestry demonstration farm, 3.V.1982, leg. L.A.C. RAROS - (1); Luzon Is., Makiling Botanic Gardens, Los Banos, Laguna Prov., forest litter, 29.III.1975, leg. L.A.C. RAROS - (1); Luzon Is., Banahaw, Dolores, Quezon Prov., forest litter, XII.1980, leg. S.G. REYES - (2); Mindanao Is., Muya Camp, alt. 900 m, Tungao, Agusan del Norte prov., litter from *Eucalyptus-Imperata* stand, 28.IV.1975, leg. R.S. RAROS - (2); Mindanao Is., Muya Camp, Tungao, Agusan, *Eucalyptus* tree fern litter, 28.IV.1975, leg. R.S. RAROS - (2) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. An Oriental species introduced to Pacific islands.

Rhysotritia simile MAHUNKA, 1982

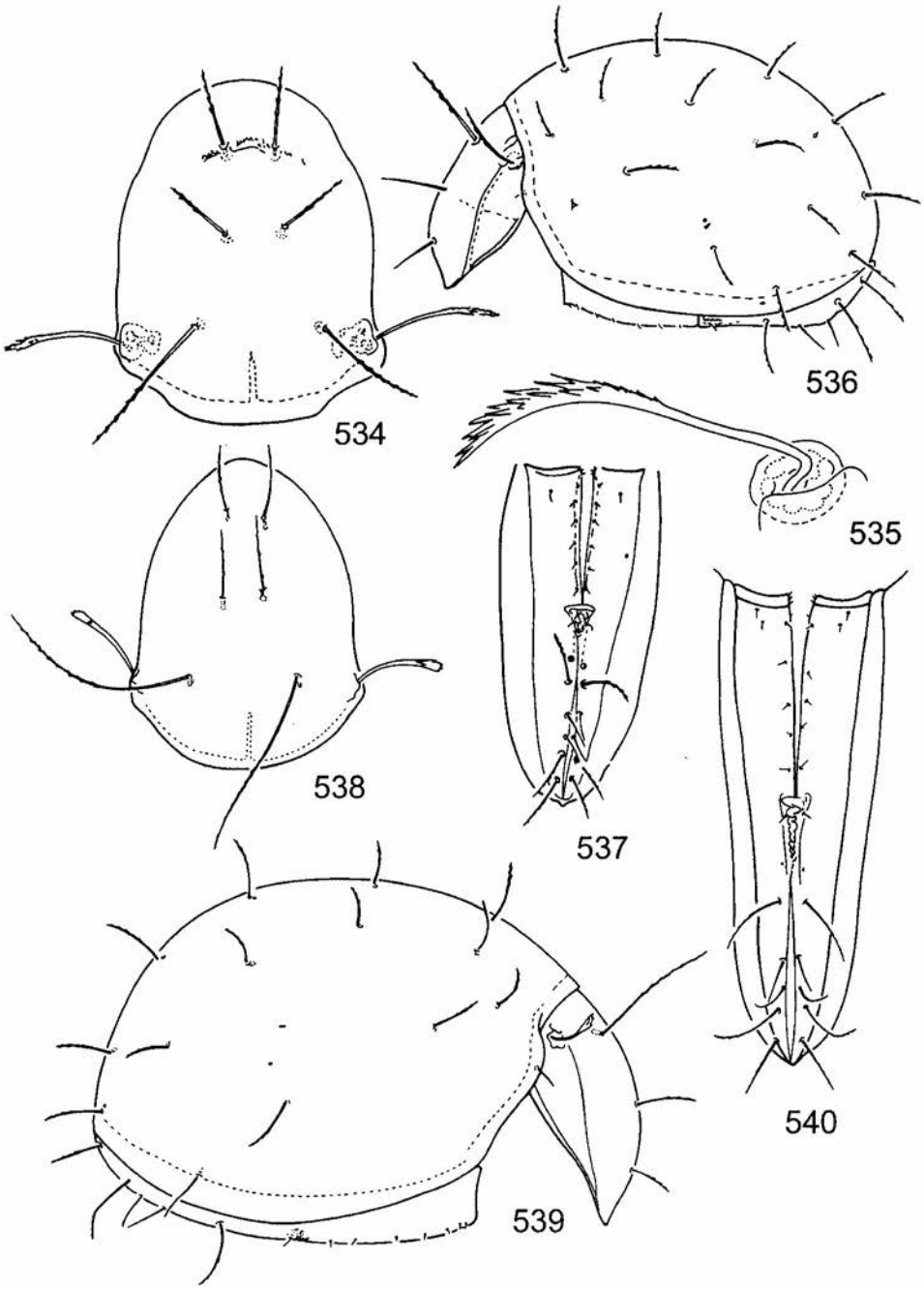
(Figs 534-537)

DIAGNOSIS. Prodorsum with one pair of lateral carinae; sensilli setiform, only slightly swollen at distal end, covered with small spines. Notogaster with setae covered with small spines, setae c_1 longer than c_2 and d_2; 9 pairs of genital, 1 (?) pair of aggenital; 3 pairs of smooth anal setae and 3 pairs of adanal setae covered with small spines as notogastral setae. All tarsi of legs monodactylous.

REMARK. This species is similar to *R. aoki* but unfortunately the arrangement of aggenital setae is not known.

MATERIAL. Localities in the border zone of the Oriental region: North Korea, Prov. Kanwon, Kum-gang san, Man-mul san, from ant nest, 30 V 1970, leg. S. MAHUNKA and H. STEINMANN - (4); Kangwon Prov., Mt. Kumgang-san, moss sample collected along foot-path to Kuryong Falls, 18 IX 1980, leg. G. TOPAL and L. FORRO - (1) (MAHUNKA 1982).

DISTRIBUTION. Korea, probably an endemic species.



534-537. *Rhysotritia simile* MAHUNKA, 1982 (after MAHUNKA 1982): 534 - prodorsum, dorsal view, 535 - sensillus, lateral view, 536 - lateral view of body, 537 - ventral region; 538-540. *Rhysotritia spiculifera* MAHUNKA, 1991 (after MAHUNKA 1991b): 538 - prodorsum, dorsal view, 539 - lateral view of body, 540 - ventral region

Rhysotritia sinensis (JACOT, 1923)

(Figs 530-533)

Acrotritia sinensis JACOT, 1923
Rhysotritia sinensis: NIEDBALA & CORPUZ-RAROS 1998

DIAGNOSIS AND ADDITIONAL DESCRIPTION. Measurements of specimen: prodorsum: length 212, height 98.7, sensillus 78.4, setae: interlamellar 106, lamellar 78.4, rostral 53.1; notogaster: length 409, height 252, c_1 50.6, h_1 and $ps_1$121; length of genitoaggenital plate 156, length of anoadanal plate 172. Colour light yellow. Prodorsum with simple pair of lateral carinae. Sensilli with widened head covered with short spines. Notogastral setae, fairly long (c_1/c_1-d_1 = 0.5), rough. 9 pairs of genital setae; 3 pairs of anal and 3 pairs of adanal setae present; tarsi of legs monodactylous.

MATERIAL. A microscopic slide labelled: *Pseudotritia ardua sinensis* A.P. JACOT Coll. 21165*h1* Chow Yong An, Peking Burrial ground rotten tree Oct. 3/21 Coll. by JACOT Remtd VII-1947 (courtesy Dr. G.F. Hevel, National Museum of Natural History, Washington). Localities in the border zone of the Oriental region and in the Oriental region: China, hills southwest of Peking, from rotten log in burial ground south of Ch'ao Yang An, 22 IX 1922 - (4); as above, bases of rotten tree, 3 X 1922 - (1); Hills or Tsingtao, from chip of wood, 24 VII 1923 - (1); as above, from leaf mould under pines, in woods, 24 VII 1923 - 5) (JACOT 1923). Philippines, Luzon Is., Mt. Makiling, peak no. 1, alt. 1100 m, Los Banos, Laguna Prov., forest litter, 29.III.1975, leg. R.S. RAROS - (2); Luzon Is., Quezon National Park, Atimonan, Quezon Prov., forest litter, 17.I.1976, leg. R.C. GARCIA - (1); Mindanao Is., Muya Camp, alt. 900 m, Tungao, Agusan del Norte Prov., litter from *Eucalyptus-Imperata* stand, 28.IV.1975, leg. R.S. RAROS - (2); Mindanao Is., Muya Camp, alt. 900 m, Tungao, Agusan, *Eucalyptus* tree fern litter, 28.IV.1975, leg. R.S. RAROS - (2); Mindanao Is., Naspit«s high elevation arboretum, alt. 900 m, Minsaliwaga, Misamis Oriental Prov., litter of newly clear-cut forest, 28.IV.1975, leg. R.S. RAROS - (1); Mindanao Is., Bislig, Surigao del Sur Prov., fern litter, 26.V.1977, leg. J.M. SOTTO and R.C. GARCIA - (2) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. An Oriental species reaching the southern border of Palaearctic (China).

REMARK. I suspect that *R. rasile* MAHUNKA, 1982 and *R. spiculifera* MAHUNKA, 1991 are synonyms of this species.

Rhysotritia sinensis triheterodactylis (JACOT, 1923)

Acrotritia sinensis triheterodactylis JACOT, 1923

The original work provides neither a figure nor a description, the author gave only a one-sentence comment. This subspecies should be treated as incerte sedis.

Rhysotritia spiculifera MAHUNKA, 1991

(Figs 538-540)

Rhysotritia clavata spiculifera MAHUNKA, 1991
Rhysotritia spiculifera: NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Prodorsum with one pair of lateral carinae; sensilli with plum-stone shaped head and spinose distal end; setae (except smooth exobothridial) rough; notogastral setae fairly long, rough; 9 pairs of genital; 2 pairs of aggenital setae present, tarsi of legs monodactylous.

MATERIAL. Localities in the Oriental region: Sri Lanka, Uva Pr. Ketandole/Rahu, litter of secondary forest, 19.10.1984, leg. P.T. LEHTINEN – (5); Sri Lanka, Centr. Pr. Yataware, base of decaying tree, 15.X.1984, leg. P.T. LEHTINEN – (3). Malaysie (Perak): Cascade de Sungei Simei (Cameron Highlands), 28 III 1987, leg. T. JACCOUD et P. MARCUARD - (7); Malaisie (Perak): Cascade de Sungei Simei (Cameron Highlands), 25 III 1977, leg. T. JACCOUD et P. MARCUARD - (3); Malaisie (Pehang): Panching, 11 III 1977, leg. T. JACCOUD et P. MARCUARD - (3) (MAHUNKA 1991b). Philippines, Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., Upland Hydroecology Program staff, litter from *Imperata cylindrica – Saccharum spontaneum* grassland, 27.II.1978, leg. L.A. CORPUZ-RAROS – (1); Luzon Is., Mt. Makiling, 700 m, Los Baños, Laguna Prov., moss, 4.V.1993, leg. R.C. GARCIA – (2); Luzon Is., Mt. Isarog, Del Rosario, Curry, Camarines del Sur Prov., moss, XII.1994, leg. G. Veus – (3); Negros Is., Talinis, Negros Oriental Prov., 4800-5000 ft., litter, 31.III.1981, leg. S.G. REYES – (7); Panay Is., Mambusao, Capiz Prov., grass litter, 12.X.1990, leg. A.M. ALMERODA – (2); Leyte Is., Mt. Pangasugan, 900 m, along trail to first peak, forest litter, 24.V.1984, leg. R.S. RAROS – (6); Samar Is., Rawis, Basey, Samar Prov., litter outside cave, 30.XII.1981, leg. M.P.J. CAÑETE – (2) (NIEDBAŁA & CORPUZ-RAROS, 1998). Indonesia, Sumatra 655, leg. SCHUSTER – (1).

DISTRIBUTION. A Pantropical species.

REMARK. I suspect that this species, together with *R. rasile* MAHUNKA, 1982 is a synonym of *R. sinensis* (JACOT, 1923).

Rhysotritia vestita (BERLESE, 1913)

Hoploderma vestitum BERLESE, 1913
Rhysotritia vestita: NIEDBAŁA 1993

DIAGNOSIS. Features similar to *R. ardua*. Prodorsum with one pair of lateral carinae bifurcated at distal end; 9 pairs of genital and 2 pairs of aggenital setae present; chaetotaxy and solenidiotaxy of femur, genu and tibia: I:3-4(2)-5(1), II: 4-3(1)-4(1), III: 2-2(1)-3(1), IV: 1-2-2(1), tarsi I with 2 claws, tarsi II-IV with 3 claws.

REMARK. I suspect that *R. comteae* MAHUNKA, 1983 is a synonym of this species.

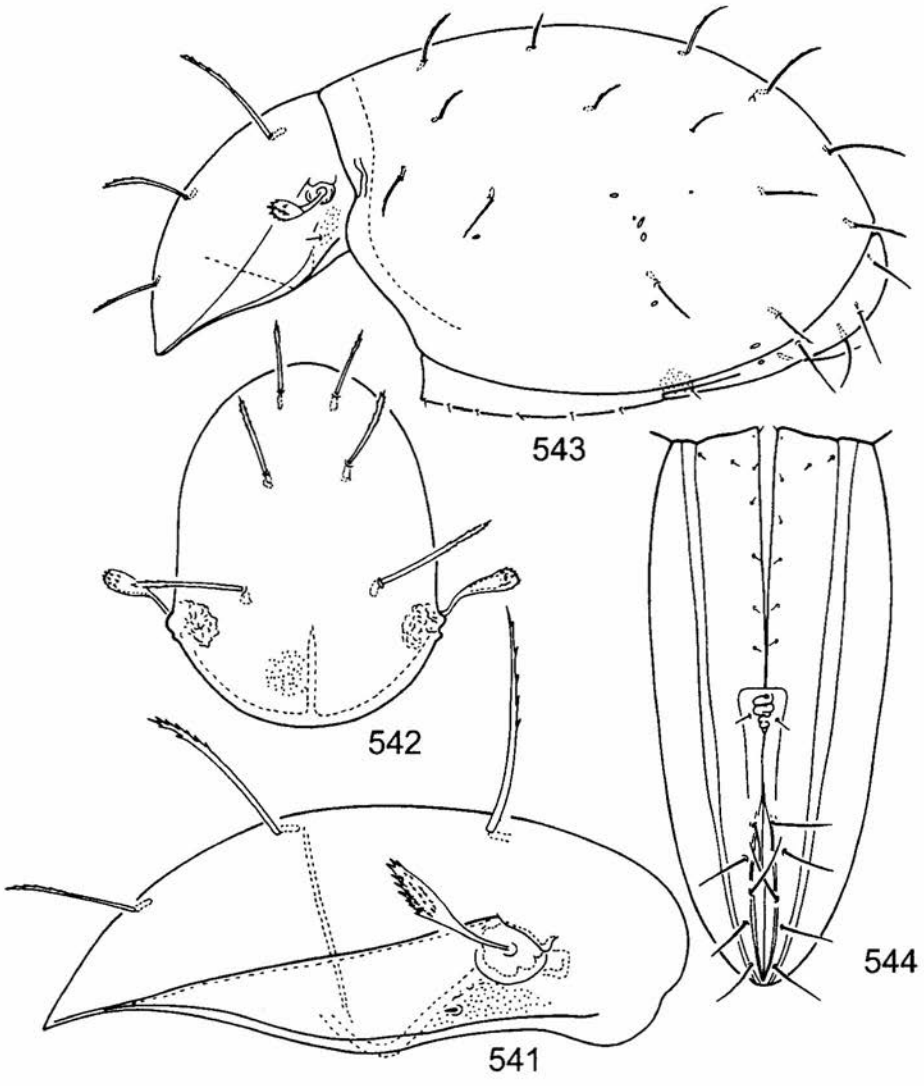
MATERIAL. Locality. Java, Samarang (BERLESE 1913)

DISTRIBUTION. Java, probably an endemic species.

Bukitritia MAHUNKA, 1990

DIAGNOSIS. Prodorsum without median carina, one pair of lateral carinae, posterior median apodeme absent, bothridial squamae above the bothridia, setae in parax-

ial position; notogaster with 14 pairs of setae, setae ps_1 anterior to ps_{2-3} setae, terminal fissure present; anterior traces of anoadanal suture observable, one interlocking, median triangle present; no genital setae anterior to suture kag; palps 3-segmented with formula: 1-2-7(1); legs with strongly reduced chaetotaxy, trochanters III and IV with 2 setae each, genua IV without solenidia and setae, setae *d* on tibia IV short, coupled with solenidia, solenidia of tarsi II without coupled setae, all tarsi monodactylous. Differences from *Rhysotritia*: the most important is the trace of the anterior suture in ano and adanal regions, the lack of genital setae anterior to suture kag, reduced chaetotaxy of leg setae and the lack of setae on genua IV.



541-544. *Bukitritia timah* (MAHUNKA, 1990) (after MAHUNKA 1990): 541 - prodorsum, lateral view, 542 - prodorsum, dorsal view, 543 - lateral view of body, 544 - ventral region

Bukitritia timah MAHUNKA, 1990

(Figs 541-544)

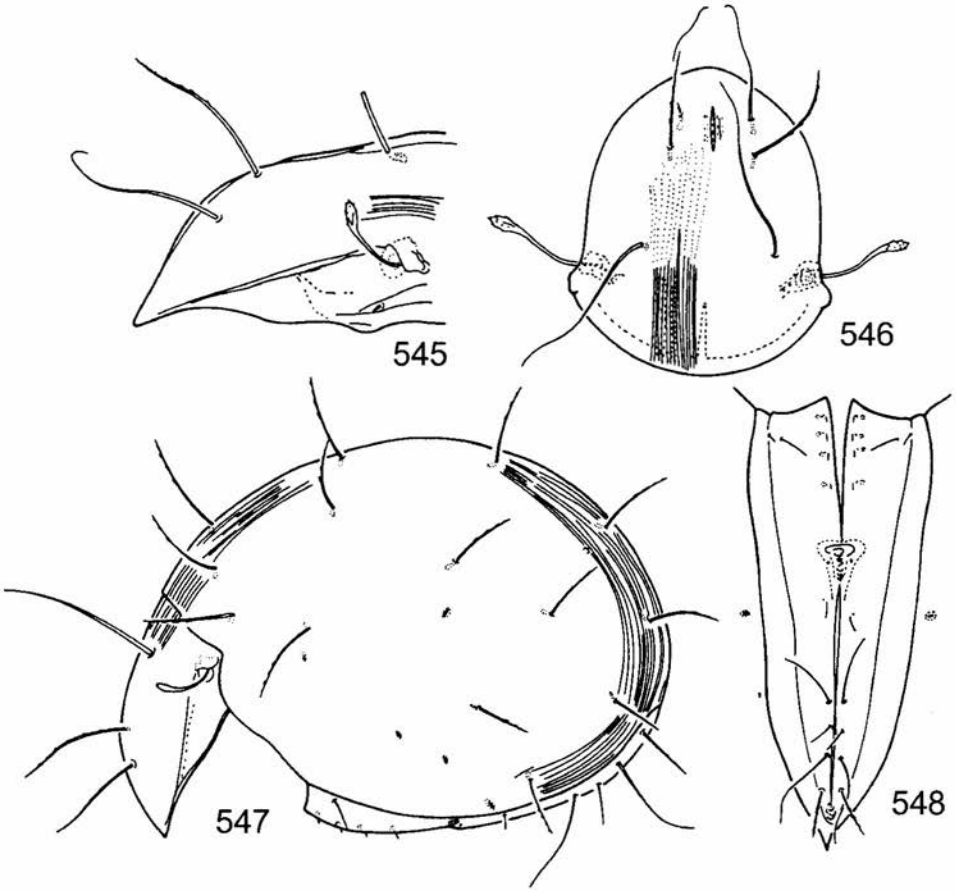
DIAGNOSIS. Prodorsum with sensilli robust with dilated head, *in* > *le* > *ro* > *ex*. Notogastral setae relatively short ($c_1 < c_1$-d_1), spiculate; 7 pairs of genital and 2 pairs of aggenital setae; only 12 setae on tarsi I.

MATERIAL. Locality in the Oriental region: Singapore, Bukit Timah Reserve, D 11-2 and D-11-9 - (3) (MAHUNKA 1990).

DISTRIBUTION. Singapore, perhaps an endemic species.

Sumatrotritia MAHUNKA, 1989

DIAGNOSIS. Prodorsum with median carina and one pair of lateral carinae, but without sinus line, posterior median apodeme present, bothridial squamae situated above the bothridia, prodorsal setae in paraxial position; notogaster with 14 pairs of setae, terminal fissure present; palps 3-segmented with formula: 2-1-8(1);



545-548. *Sumatrotritia elegans* MAHUNKA, 1991 (after MAHUNKA 1991b): 545 - anterior part of prodorsum, lateral view, 546 - prodorsum, dorsal view, 547 - lateral view of body, 548 - ventral region

genitoaggenital and anoadanal plates completely fused, two interlocking triangles, median and posterior present, no setae anterior to suture kag; legs, genua IV without solenidia, tibiae IV with coupled setae of solenidia, solenidia of tarsi II without coupled setae, all tarsi monodactylous.

Sumatrotritia elegans MAHUNKA, 1991

(Figs 545-548)

DIAGNOSIS. Body with strong longitudinal striation. Prodorsum with low median carina and simple lateral carinae; sensilli clavate with spiculate head; rostral and interlamellar setae long, flagellate and smooth, lamellar setae shorter, blunt at distal tip and rough, distance between rostral and lamellar setae shorter than between lamellar and interlamellar setae. Notogastral setae fairly short, covered with small spines and blunt at distal tip. Ventral region, epimeral setal formula: 2-0-1-1; 4 pairs of genital, 2 pairs of aggenital setae present, inner pair of aggenital setae the longest; anoadanal plates with 6 pairs of setae, anal setae shorter than adanal setae.

MATERIAL. Locality in the Oriental region: Malaysia (Pehang): Berinchang (Cameron Highlands), 26 III 1977, leg. T. JACCOUD et P. MARCUARD- (5) (MAHUNKA 1991b).

DISTRIBUTION. Malaysia, probably an endemic species.

Sumatrotritia inusitata MAHUNKA, 1989

(Figs 549-551)

DIAGNOSIS. Body with strong longitudinal striation. Prodorsum with short, median, anterior carina and simple lateral carinae; sensilli long, with slightly dilated end, setae long, filiform, covered with small spines (except minute exobothridial setae). Notogastral setae barbed, setae *c*, h_3 and ps_3 long, filiform, other setae shorter and blunt at distal tip. Ventral region, epimeral setal formula: 3-0-1-1,4 pairs of genital (three pairs of them very long), 2 pairs of aggenital setae present; anoadanal plates each with 6 setae, three anterior minute, lyrifissures *iad* absent. Palps 4-segmented, each trochanter with one seta.

MATERIAL. Locality in the Oriental region. Sumatra (Sumatera Utara: Simalungun): sur la route en provenance de Pematangsiantar, 18 km avant Prapat, lieu-dit „Ainuli", foret dans la chaine montagneuse Bukit Parasat, derriere la station „Holzweg Nr. 2 du Dr. Diehl", foret primaire autour de l'ecole forestiere, 1000 m, prelevement de sol dans les angles formes par les contreforts de grands arbres, 14 XI 1985, leg. B. HAUSER - (1) (MAHUNKA 1989).

DISTRIBUTION. Sumatra, perhaps an endemic species.

Sumatrotritia xena MAHUNKA, 1989

Perhaps lapsus lingue in MAHUNKA 1991b: 350.

Microtritia MARKEL, 1964

DIAGNOSIS. Prodorsum without median carina, with one pair of lateral carinae, bothridial squamae situated above the bothridia, posterior median apodeme present, lamellar and rostral setae in median (paraxial) position, interlamellar setae situated near the bothridia; notogaster with 14 pairs of setae, setae of row *ps* situated almost in one line, terminal sinus or terminal fissure at posterior end present, one pair of openings of lateral opisthosomal glands and five pairs of lyrifissures: *ia, im, ip, ips, ih* present; genitoaggenital and anoadanal plates completely fused, anogenital cleft present, one, median interlocking triangle present; palps 3-segmented; legs, each trochanter with one seta, genua IV without solenidia, setae d on tibia IV coupled with solenidia, solenidia w_1 and w_2 without coupled setae, famuli stand far from solenidia, all tarsi monodactylous.

Microtritia minima (BERLESE, 1904)

(Figs 561-564)

Phthiracarus minimus BERLESE, 1904

DIAGNOSIS. Prodorsum with distinct lateral carinae; sensilli clavate, bearing distally a cap-like appendage; setae minute, rostral setae inserted close to each other, *in-in* > *le-le* > *ro-ro*. Notogastral setae very short; vestigial setae f_1 anterior to h_1 setae. Ventral region, chaetotaxy of palps: 1-1-8(1), 4 pairs of genital and 2 pairs of aggenital; 2 pairs of anal and 3 pairs of adanal minute setae present, lyrifissures *iad* located anterior to ad_3 setae. Leg chaetotaxy and solenidiotaxy (without tarsi): I: 1-2-4(2)-4(1), II: 1-2-3(1)-2(1), III: 1-2-2(1)-2(1), IV: 1-1-1-2(1).

REMARK. Japanese specimens have only one pair of aggenital setae, vestigial anal setae located closer to ad_2 than ad_3 setae.

MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: Japan, Imperial Palace in Tokyo, 21 IV 1963, J. AOKI - (3); Torami in Ichinomiya-cho, Chiba-ken, 10 VII 1968, K. Kurosa (J. AOKI) - (2); Fuji-fuketsu of Mt. Fuji, Yamanashi-ken, 22 IX 1969, S. UENO (J. AOKI) - (1); Ogawa-dani in Nippara, Tokyo, 2 XI 1975, J. AOKI - (1); Oki Island, near Nakayama-Tunnel in Saigo-cho, 28 X 1976, J. AOKI and H. HARADA - (3) (AOKI 1980). North Korea, Kumgang san, Marimun sang, in mixed forest, 18.VI.1974, leg. A. SZEPTYCKI – (1). Vietnam, Vinh Phu Tam Dao, 1450 m, stony jungle slope (TF), 19.X.1978, leg. P.T. LEHTINEN – (1).

DISTRIBUTION. A Palaearctic species introduced to Japan, North Korea and Vietnam.

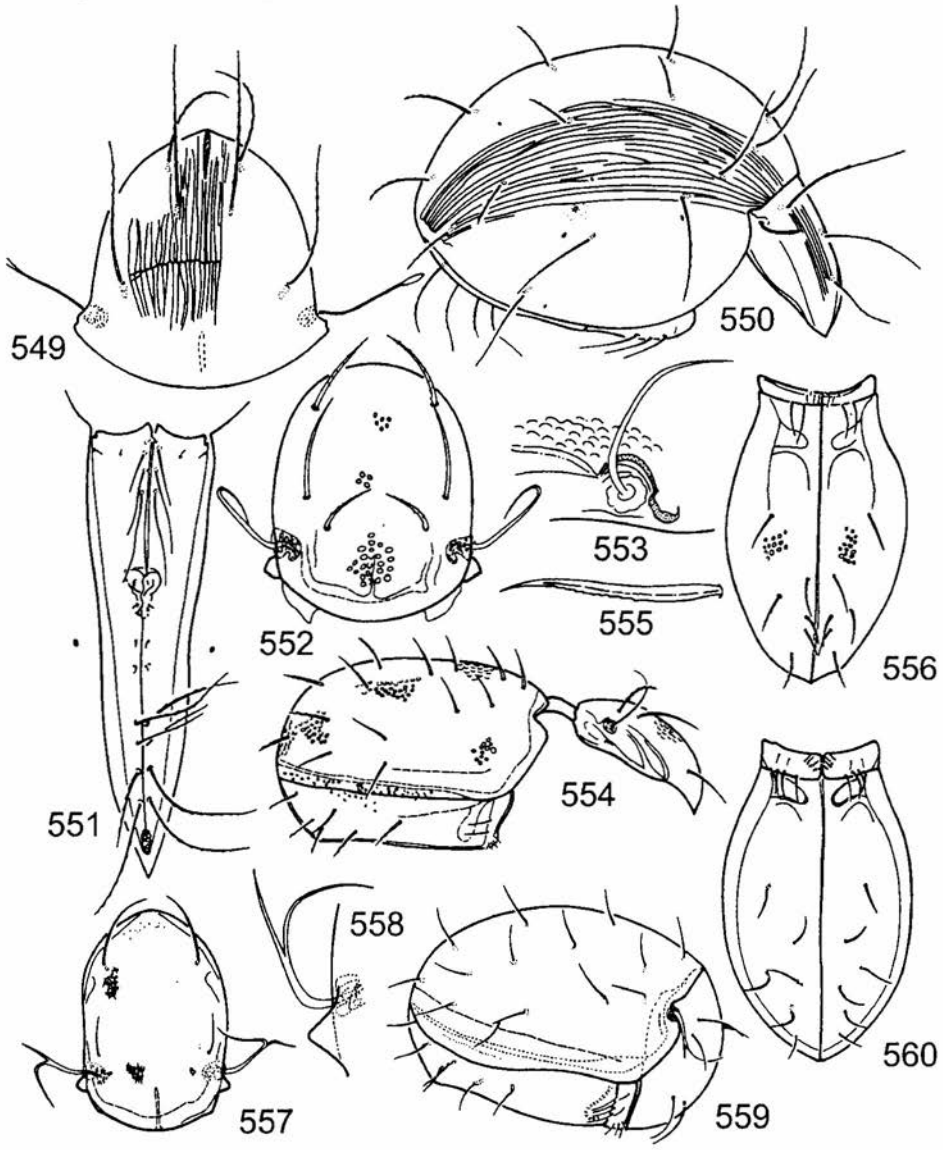
Microtritia tropica MARKEL, 1964

(Figs 565-568)

Microtritia tropica dusan RAMSAY & SHEALS, 1969
Microtritia tropica: NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Measurements of ventral region of paratype: genitoaggenital plates 101x50,6, anoadanal plates 149x40,5. Prodorsum with sensilli long, narrow, pointed

at distal tip and covered with very small spines; interlamellar setae very small, distance between rostral setae greater than between lamellar setae. Notogastral setae minute; vestigial setae f_1 at the level of h_1 setae. Ventral region, setae *h* of mentum longer than distance between them; chaetotaxy of palps: 2-1-7 and one solenidion; 5 pairs of genital setae present, aggenital setae absent; 2 pairs of short anal and 3 pairs of longer adanal setae present.



549-551. *Sumatrotritia inusitata* MAHUNKA, 1989 (after MAHUNKA 1989): 549 - prodorsum, dorsal view, 550 - lateral view of body, 551 - ventral region; 552-556. *Synichotritia foveolata* HU, WANG and AOKI, 1991 (after HU, WANG and AOKI 1991): 552 - prodorsum, dorsal view, 553 - sensillus, lataral view, 554 - lateral view of body, 555 - notogastral seta, 556 - ventral region; 557-560. *Synichotritia tianmuensis* HU, WANG and AOKI, 1991 (after HU, WANG and AOKI 1991): 557 - prodorsum, dorsal view, 558 - sensillus, dorsal view, 559 - lateral view of body, 560 - ventral region

REMARK. I think that the characters listed by RAMSAY and SHEALS (1969) are not sufficient to introduce a new subspecies *M. tropica dusan*. Two main characters: distance between rostral setae greater than that between lamellar setae and 5 pairs of genital setae indicate that it is *M. tropica*.

MATERIAL. Four microscopic slides labelled: North Borneo, Kinabalu Plateau 5300 ft ex humus podsol/litter Roy. Soc. 1964 Expd. to N Borneo coll. G.P. ASKEW *Microtritia tropica dusan* RAMSAY & SHEALS damaged notogaster ventral shield anogenital plate PARATYPE o+ 1968.740/1, 740/2 chelicerae, 740/3 infracapitulum palpe,740/4 legs (courtesy A.S. BAKER, Department of Entomology, British Museum (Natural History), London). Locality in the border zone of the Oriental region and in the Oriental region: Sabah (North Borneo), Pinosuk Plateau, site near R. Mesilau, Kinabalu region, elevation approximately 1 615 m, humus podzol, „old" soil on mixed drift of granodiorite and shale, expedition 1964, leg. G.P. ASKEW - (3) (RAMSAY & SHEALS 1969). Japan, Mt.Yumishi-dake, Kakeroma Island, Kagoshima-ken, 25 II 1972, H. SUZUKI - 1) (AOKI 1977, 1980). Indonesia, Java, Timur, Gubuh Klakah, litter of mountain forest, 29.X.1984, leg. P.T. LEHTINEN – (2); Java, Timur, Katu Kituk, litter of mountain forest, 29.X.1984, leg. P.T. LEHTINEN – (1). Philippines, Negros Is., Talinis, Negros Oriental Prov., 4800-5000 ft., litter, 31.III.1981, leg. S.G. REYES – (3) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. A Pantropical species.

Synichotritiidae WALKER, 1965

Synichotritiidae: GRANDJEAN 1967

DIAGNOSIS. Distance between lamellar setae comparatively large; ventral plates completely fused, deep hollow on the internal surface of the anogenital plate, anogenital cleft, interlocking triangle, internal transverse apodeme absent, 10 pairs of genital (and aggenital) setae grouped on anterior border of genitoaggenital plates in two transverse groups - at tectum kag and posterior to tectum.

Synichotritia WALKER, 1965

DIAGNOSIS. Prodorsum without median carina, one or two pairs of lateral carinae, bothridial squamae situated above the bothridia, posterior median apodeme, prodorsal setae situated antiaxially; notogaster with 14 pairs of setae, and with terminal sinus; palps 4-5 segmented, with formula: 0-2-0-(7-9)(1); legs, trochanters II and IV with 2 setae each, genua IV without solenidia, solenidia on tarsi II without coupled setae, setae d on tarsi IV very long, not coupled with solenidia, tarsal neotrichy present, tarsi mono or tridactylous.

Synichotritia foveolata HU, WANG et AOKI, 1991

(Figs 552-556)

DIAGNOSIS. Body covered with dense foveae except lateral parts. Prodorsum with two pairs of lateral carinae; sensilli setiform, long, smooth; rostral and lamellar setae thick and long, slightly roughened, interlamellar setae thinner and shorter than the preceding ones, *le-le* > *ro-ro* > *in-in*, exobothridial setae minute. Notogastral setae robust, weakly roughened unilaterally. Ventral region with a pair of kidney-shaped structures situated internally in anterior part of genital region and a pair of cristate extending backward almost reaching insertions of ad_3 setae; genitoaggenital region with 4 pairs of minute setae situated on anterior bar and arranged transversely, antiaxially of them 2 pairs of long setae situated on posterior margin of anterior bar; anoadanal region with 3 pairs of anal and 3 pairs of adanal setae present, setae an_1 and an_2 close together, setae ad_1 and ad_2 slightly roughened, the remaining setae smooth. All tarsi heterotridactylous.

MATERIAL. Locality in the Oriental region. China, Hunan Prov., Yongshun, 1 IX 1988, leg. S. HU - (1) (HU, WANG and AOKI 1991).

DISTRIBUTION. China, perhaps an endemic species.

Synichotritia furcata HU et WANG, 1992

DIAGNOSIS. Surface of body smooth. Prodorsum with two pairs of lateral carinae; sensilli bifurcate; rostral setae situated half way between end of rostrum and lamellar setae, distance between them longer than length of rostral setae, interlamellar setae about half as long as distance between their insertions, *ro* > *in* > *le* >*ex*. Notogastral setae relatively short ($c_1 < c_1$-d_1); genital setae absent, anterior bar with 10 pairs of setae, 4 pairs of anal setae and 2 pairs of adanal setae.

MATERIAL. Locality in the Oriental region: China Yongshun, Hunan Province, 11 IX 1988 - (8) (WANG et al. 1992).

DISTRIBUTION. China, perhaps an endemic species.

Synichotritia tiamuensis HU, WANG et AOKI, 1991

(Figs 557-560)

DIAGNOSIS. Prodorsum without lateral carinae; sensilli with distal part thick, bifurcate in the middle and forked parts of different length; setae robust, smooth, lamellar shorter than rostral and interlamellar, *le-le* > *ro-ro* > *in-in*, exobothridial setae fine. Notogastral setae smooth, fairly short. Ventral region, setae *h* of mentum longer than distance between them; palps with formula: 0-2-0-2-9; a pair of kidney-shaped structures situated internally in anterior part of genitoaggenital region; anterior bar with 10 pairs of setae, 4 minute in paraxial corner, 2 pairs of small setae in the middle part and 4 long, barbed setae on posterior margin; anoadanal region with 3 pairs of anal and 3 pairs of adanal setae present, all setae covered with small spines. Tarsi tridactylous.

MATERIAL. Localities in the Oriental region: China, Zhejiang Prov.,Tianmu Mountain, 2 IX 1989, leg. S. HU, X. WANG and J. AOKI - (9); the same locality, 17 II 1987, leg. S. Hu - (1) (HU, WANG and AOKI 1991).

DISTRIBUTION. China, perhaps an endemic species.

Sabahtritiidae MAHUNKA, 1987

DIAGNOSIS. A pair of deep circular hollows in genital region, 7 pairs of genitoaggenital setae; legs monodactylous.

Sabahtritia MAHUNKA, 1987

DIAGNOSIS: Prodorsum wide, low, median carina absent, lateral carinae present, bothridial squamae situated posterior to bothridia, posterior median apodeme present; notogaster wide, with 14 pairs of setae and with a terminal sinus; genitoaggenital and anoadanal plates completely fused, genital (and aggenital) setae originating in antiaxial position, along transverse lines; solenidia on tarsi II without coupled setae, genua IV without solenidia, setae d on tarsi IV very long, not coupled with solenidia, trochanters III and IV with 2 setae each.

Sabahtritia hauseri MAHUNKA, 1987

(Figs 569-571

DIAGNOSIS. Prodorsum with simple lateral carinae; sensilli long, setiform, tapering gradually; setae (except two pairs of minute exobothridial) very thick and finely barbed. Notogaster with spatulate setae; three pairs of lyrifissures *ia, im, ip* present; palps 4- segmented with formula 0-2-2-9(1); pregenital plates well separated, with 3-4 pairs of setae, one pair of long and thick setae in genital, one shorter pair in aggenital position; three pairs of thin setae in anal and three pairs of spatulate setae in adanal position.

MATERIAL. Locality in the Oriental region: Sabah (Sandakan Residency): Sepilok: KSFR, foret pres de l'OURS, prelevement de sol dans lepre autour de la cabane („Cottage") dans une ancienne plantation d'heveas, 2 m, 7 V 1982, leg. B. HAUSER - (6) (Mahunka1987).

DISTRIBUTION. Sabah, probably an endemic species.

Sabahtritia lienhardi MAHUNKA, 1996

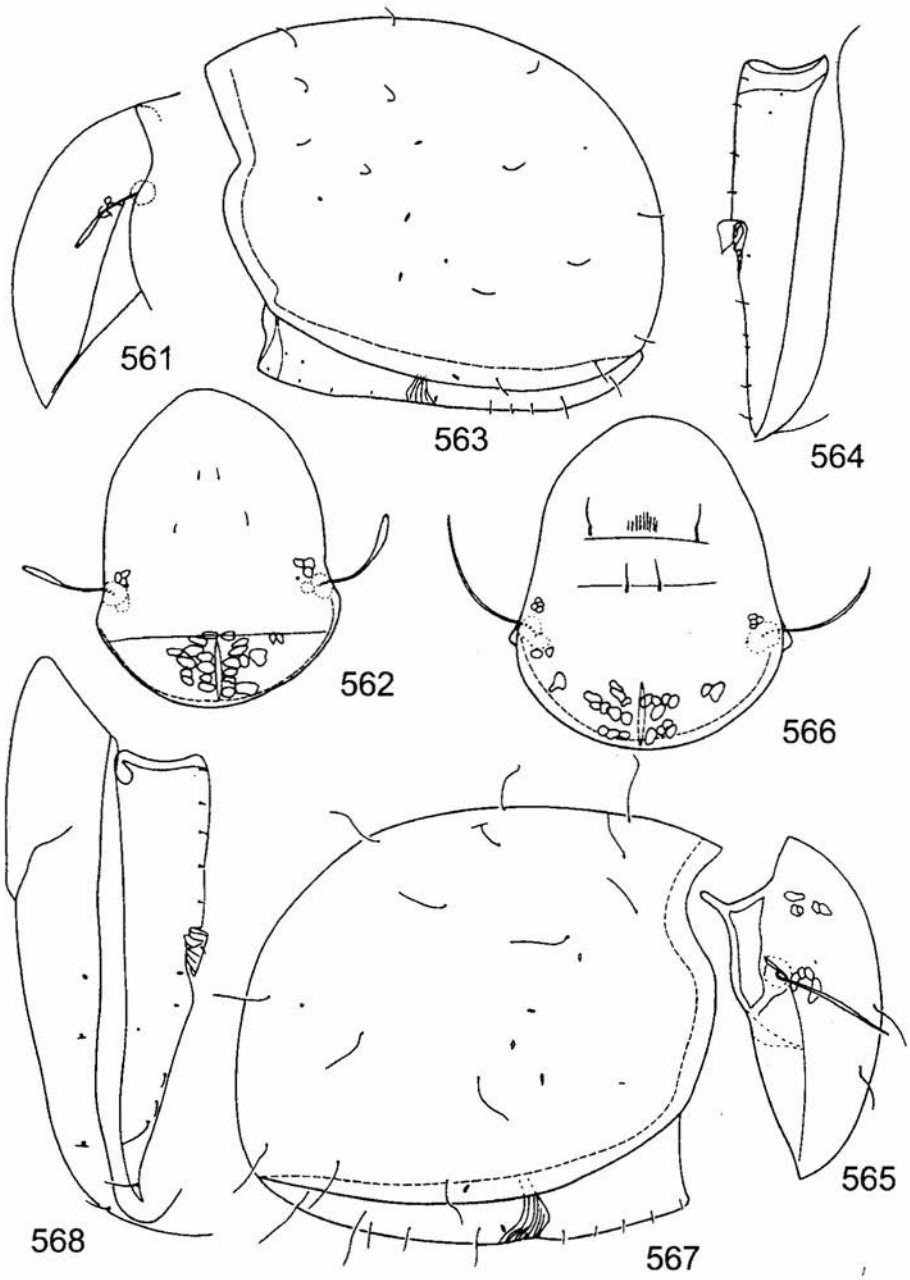
(Figs 572-575)

DIAGNOSIS. Surface of prodorsum ornamented by conspicuous network dorsally and by irregular wrinkles basally, narrow lateral part smooth, surface of notogaster foveolate and covered with small tubercles arranged in almost reticulate pattern around the foveolae, anogenital region ornamented by polygonal reticulation. Prodorsum with short lateral carinae; sensilli setiform, long; setae slightly dilated, rostral setae situated far posterior to the end of rostrum, *le* > *ro* > *in* >*ex*. Notogaster with setae short ($c_1 < c_1$-d_1), phylliform, four pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, palps 4-segmented with formula: 0-2-2-7(1); 7 pairs of genitoaggenital; 3 pairs of anal and 3 pairs of adanal setae present. Legs monodactylous.

MATERIAL. Locality in the Oriental region: Brunei (Belait District):Sungai Liang, „Arboretum Forest Reserve", foret primaire („Mixed dipterocarp forest"), prelevement

de sol dans les angles formes par les contreforts de deux arbres appeles „Nyatho", 90 m, 21 XI 1988, leg. B.H. - (24) (MAHUNKA 1996).

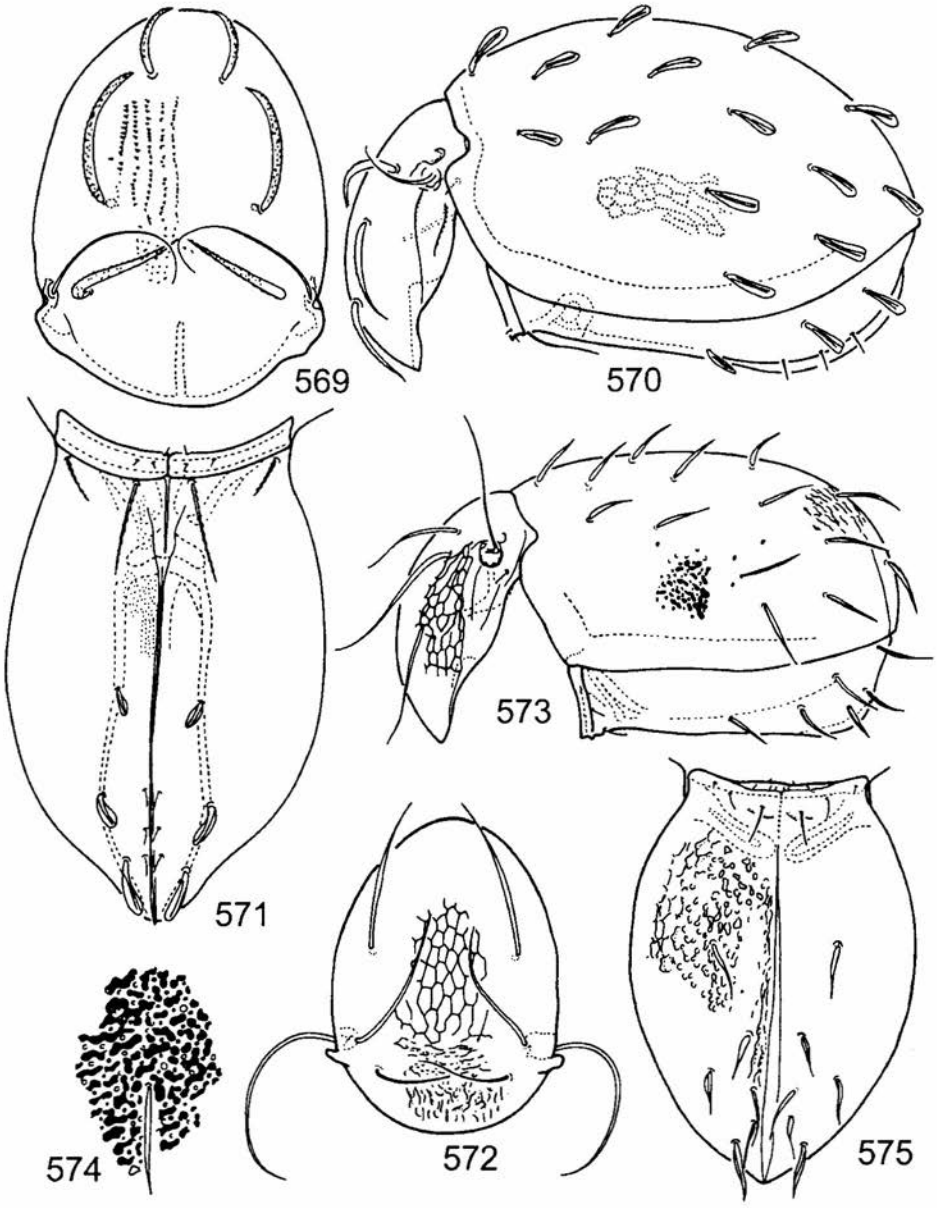
DISTRIBUTION. Brunei, perhaps an endemic species.



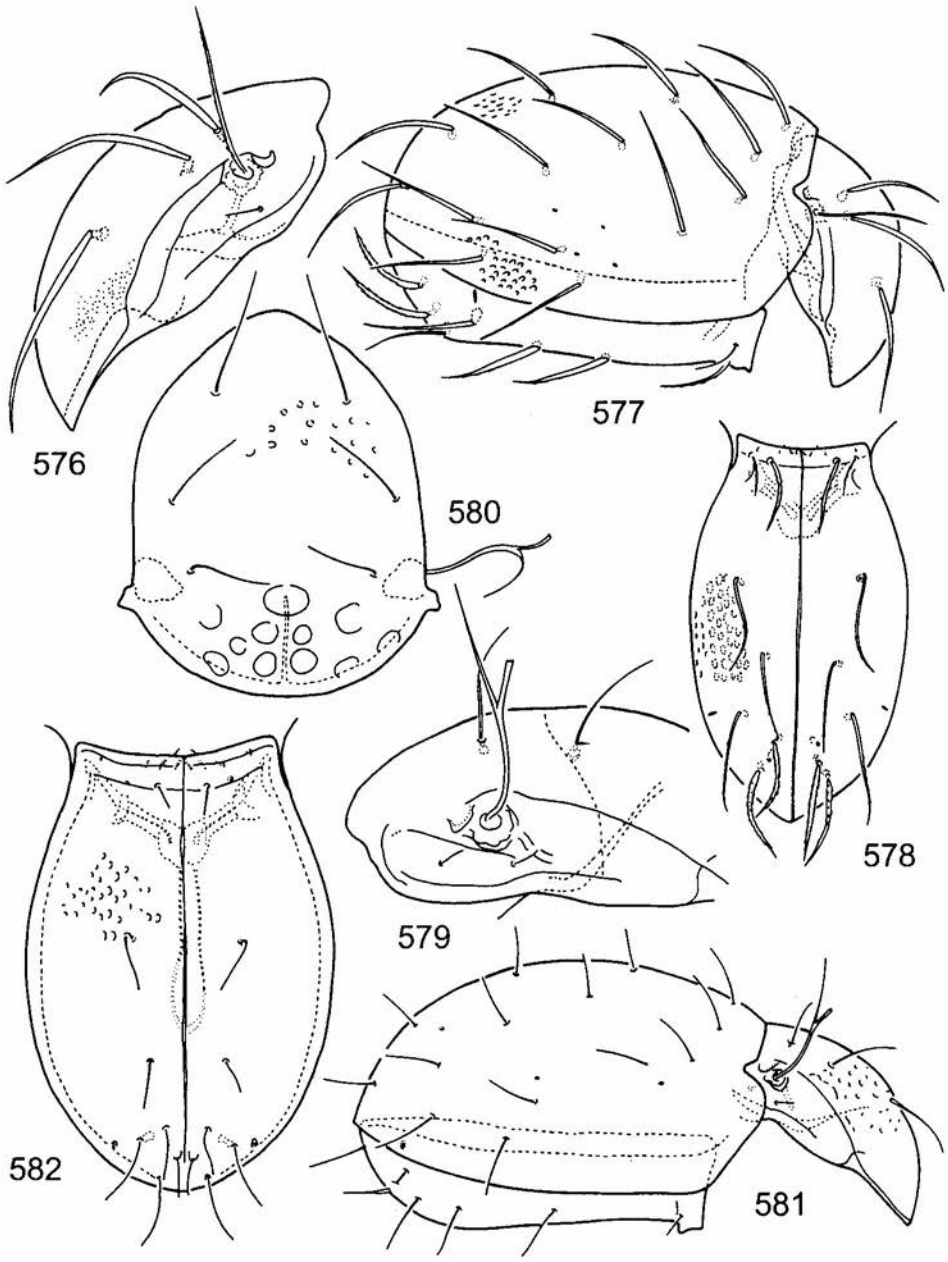
561-564. *Microtritia minima* (BERLESE, 1904) (specimen from Poland): 561- prodorsum, lateral view, 562 - prodorsum, dorsal view, 563 - notogaster, lateral view, 564 - left part of ventral region; 565-568. *Microtritia tropica* MARKEL, 1964: 565 - prodorsum, lateral view, 566 - prodorsum, dorsal view, 567 - notogaster, lateral view, 568 - right side of ventral region

Sabahtritia mirabilis MAHUNKA, 1991
(Figs 576-578)

DIAGNOSIS. Surface of body sharply punctate, lateral margin smooth. Prodorsum with two pairs of lateral carinae; sensilli setiform, finely serrate; setae long and thick, with exception of minute exobothridial setae. Notogaster with setae robust,



569-571. *Sabahtritia hauseri* MAHUNKA, 1987 (after MAHUNKA 1987): 569 - prodorsum, lateral view, 570 - lateral view of body, 571 - ventral region; 572-575. *Sabahtritia lienhardi* MAHUNKA, 1995 (after MAHUNKA 1995): 572 - prodorsum, dorsal view, 573 - lateral view of body, 574 - sculpture of notogaster, 575 - ventral region



576-578. *Sabahtritia mirabilis* MAHUNKA, 1991 (after MAHUNKA 1991b): 576 - prodorsum, lateral view, 577 - lateral view of body, 578 - ventral region; 579-582. *Sabahtritria sarawak* MAHUNKA, 1996 (after MAHUNKA 1996): 579 - posterior part of prodorsum, lateral view, 580 - prodorsum, dorsal view, 581 - lateral view of body, 582 - ventral region

long and thick. Ventral region, epimeral setal formula: 3-0-1-2; 5 pairs of minute setae in progenital position, 2 pairs of robust aggenital setae present; 6 pairs of long and robust setae on anoadanal plates, lyrifissures *iad* located far laterally in anoadanal position.

MATERIAL. Locality in the Oriental region. Malaisie (Pehang): Temerloh, 9 III 1977, leg. T. JACCOUD et P. MARCUARD - (3) (MAHUNKA 1991b).

DISTRIBUTION. Malaysia, Temerloh, probably an endemic species

Sabahtritia sarawak MAHUNKA, 1996

(Figs 579-582)

DIAGNOSIS. Surface of median part of prodorsum and whole notogaster foveolate. Prodorsum with single lateral carinae fused with lateral rims; sensilli bifurcate, *ro* > *le* >*in* > *ex*. Notogaster with setae fairly short ($c_1 < c_1$-d_1); two pairs of lyrifissures *ia* and *im* present. Ventral region, palps 4-segmented with formula: 0-2-1-7(1); 7 pairs of genitoaggenital setae arising anterior to suture kag; 6 pairs (3+3) of setae in anoadanal position, lyrifissures *iad* originating at posterior part of anoadanal plates.

MATERIAL. Locality in the Oriental region: Malaysia, Sarawak, route Kuching-Matang, mont Gunung Serapi, prelevement du sol dans la foret le long de la route vers la station TV, 670 m, 9 XII 1987, leg. B.H. - (2) (MAHUNKA 1996).

DISTRIBUTION. Malaysia, Sarawak, perhaps an endemic species.

Temburongiidae MAHUNKA, 1990

DIAGNOSIS. Notogaster with two medially touching latero-ventral lobes, contacting between genitoaggenital and anoadanal plates which are completely fused, genital setae arising in transverse rows.

Temburongia MAHUNKA, 1990

DIAGNOSIS. Prodorsum with two pairs of median and one pair of divided lateral cristae, one pair of lateral carinae, posterior median apodeme robust, bothridial squamae above bothridia, setae situated antiaxially; notogaster with 14 pairs of setae, setae ps_1 anterior to setae ps_{2-3}; aggenital setae situated transversely, anoadanal setae in paraxial, longitudinal position; palps 4-segmented, with formula: 0-1-2-9(1), setae *sul* minute; legs monodactylous.

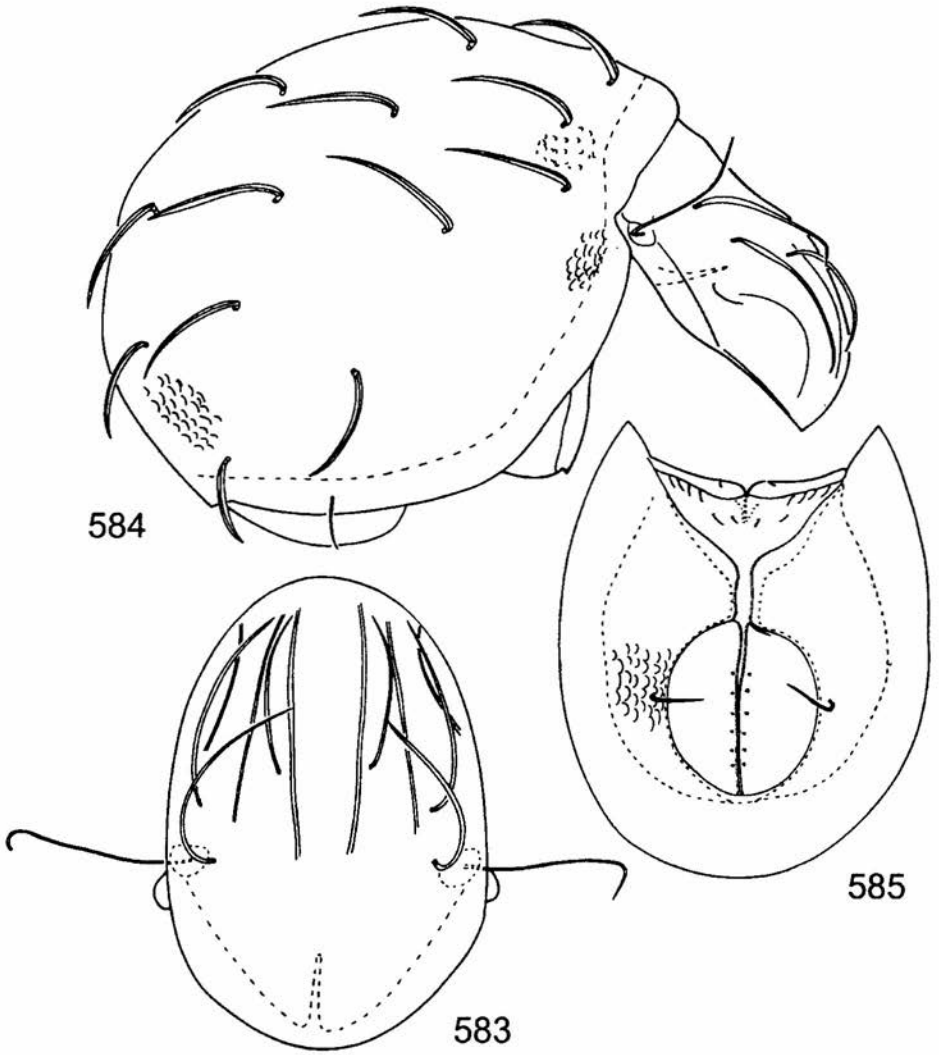
Temburongia patoi MAHUNKA, 1990

(Figs 583-585)

DIAGNOSIS. Surface of body finely granulate. Prodorsum with single, long pair of lateral carinae; sensilli long, stick-shaped; setae robust, sabre-shaped, distinctly spiculate (except simple exobothridial setae), rostral setae originating far from the

end of rostrum. Notogastral setae phylliform, relatively long; two pairs of lyrifissures *ia* and *im* present; vestigial setae f_1 posterior to h_1 setae. Epimeral formula: 3-0-1-2;genitoaggenital and anoadanal plates separated, suture between two genitoaggenital plates absent, 7 pairs of genital setae; 6 pairs of anoadanal setae originating longitudinally, no setae in adanal position. Legs, femora I with only 2 setae.

MATERIAL. Localities in the Oriental region: Brunei, (Belait District):"Andulau Forest Reserve", a 3,5 km au sud de Sungai Liang (= a 39,5 km de Labi), foret primaire („Mixed dipterocarp forest") („Compartment 7"), prelevement de sol dans les angles formes parles contreforts de grands arbres, 50 m, 19 XI 1988, leg. B.H. -



583-585. *Temburongia patoi* MAHUNKA, 1990 (paratypc): 583 - prodorsum, dorsal view, 584 - lateral view of body, 585 - ventral region

(20); Brunei (Temburong District): „Peradayan Forest Reserve" (="Bukit Patoi"), a 14,5 km de Bangar (=2,5 km de Labu) foret primaire („Mixed dipterocarp forest"), prelevement de sol dans les angles formes par les contreforts de grands arbres morts, 80 m, 24 XI 1988, leg. B.H. - (16) (MAHUNKA 1990,1995).

DISTRIBUTION. Brunei, perhaps an endemic species.

Phthiracaroidea PERTY, 1841

DIAGNOSIS. Body only slightly compressed laterally, anogenital region relatively wide, almost U-shaped.

Phthiracaridae PERTY, 1841

DIAGNOSIS. Monotypic family with the diagnosis as that of the genus.

Phthiracarus PERTY, 1839

DIAGNOSIS. Body surface smooth or punctate (with some exceptions); dorsal and lateral fields of prodorsum not fused, lateral carinae of prodorsum either long, extending beyond or reaching the sinus, or shorter, no furrows on the back of prodorsum (with some exceptions), sensilli most often smooth, short, fusiform or rounded distally, or else long and filiform, without a distinct head, interlamellar setae always parallel to surface of prodorsum, setae of prodorsum and notogaster smooth, fine and long, acuminate; median carina of notogaster absent, 15 pairs of gastronotal setae, rarely more present; genital setae arranged in two rows, setae g_6-g_9 remote from paraxial margin, seta g_6 usually near or above g_5, adanal setae always remote from the paraxial margin of plate, setae ad_1 and ad_2 normal, minute or vestigial, neotrichy involving adanal setae may occur; setae *d* of tibia IV short, coupled with solenidia, when present, setae *v'* on femora I long, setae *ft"* of tarsi I normal.

Phthiracarus abstemius NIEDBAŁA, 1989

(Figs 586-591)

DIAGNOSIS. Region of prodorsum posterior to rostral setae striated; median field narrow and longer than lateral fields; lateral carinae reach sinus; sensilli long, fusiform, smooth; setae thin, *in* > *le* > *ex* > *ro*. Notogaster with 15 pairs of attenuate setae ($c_1 < c_1$-d_1); vestigial setae f_1 anterior to h_1 setae; 3 pairs of lyrifissures *ia, im, ip* present. Ventral region, setae *h* of mentum as long as distance between them; formula of genital setae: 6(4+2): 3; anoadanal plates with 5 pairs of setae, setae ad_1 and ad_2 vestigial, anal setae longer than setae ad_3. Chaetotaxy of legs complete.

MATERIAL. Localities in the Oriental region: Vietnam, Tam Dao Mts, 90 km N Hanoi, forest litter at 1200 m, 22 X 1985, leg. M. ZACHARDA - 3); as above, at 1300 m - (2); as above, at 1400 m, 15 X 1985 - (1) (NIEDBAŁA 1989).

DISTRIBUTION. Vietnam, probably an endemic species.

Phthiracarus anonymus GRANDJEAN, 1933

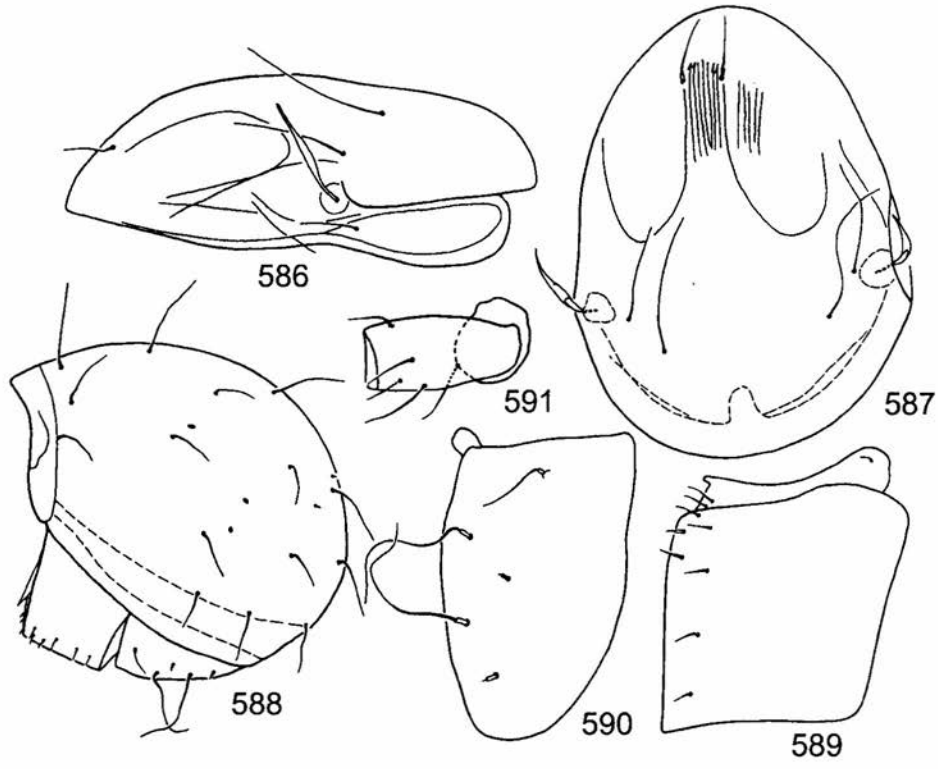
(Figs 592-596)

Phthiracarus anonymum GRANDJEAN, 1933
Phthiracarus anonymus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields fairly short; lateral carinae long, extending beyond sinus; sensilli short, broadly fusiform, curved, terminated ovally; setae simple, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of medium length setae ($c_1 < c_1$-d_1); vestigial setae f_1 located anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates with 5 pairs of well developed setae, setae ad_1 and ad_3 located in nearly the same row with anal setae. Chaetotaxy of legs reduced, setae *v'* on femora I, *a'* on tarsi I and tarsi II, *l'* on genua IV, *s* and *pv'* on tarsi IV absent.

MATERIAL. Locality in the Oriental region: Java, Pangrango Gunung, at 2000 m, litter in tropical forest, 23 VIII 1979, leg. J. BŁOSZYK - (2); as above, moist, decayed leaves under *Ericaceae* - (1) (NIEDBAŁA 1992). Sri Lanka, Nuwara Eliya, moss forest, 23-24.VI.1968, leg. J. BALOGH – (3).

DISTRIBUTION. A Semicosmopolitan species.



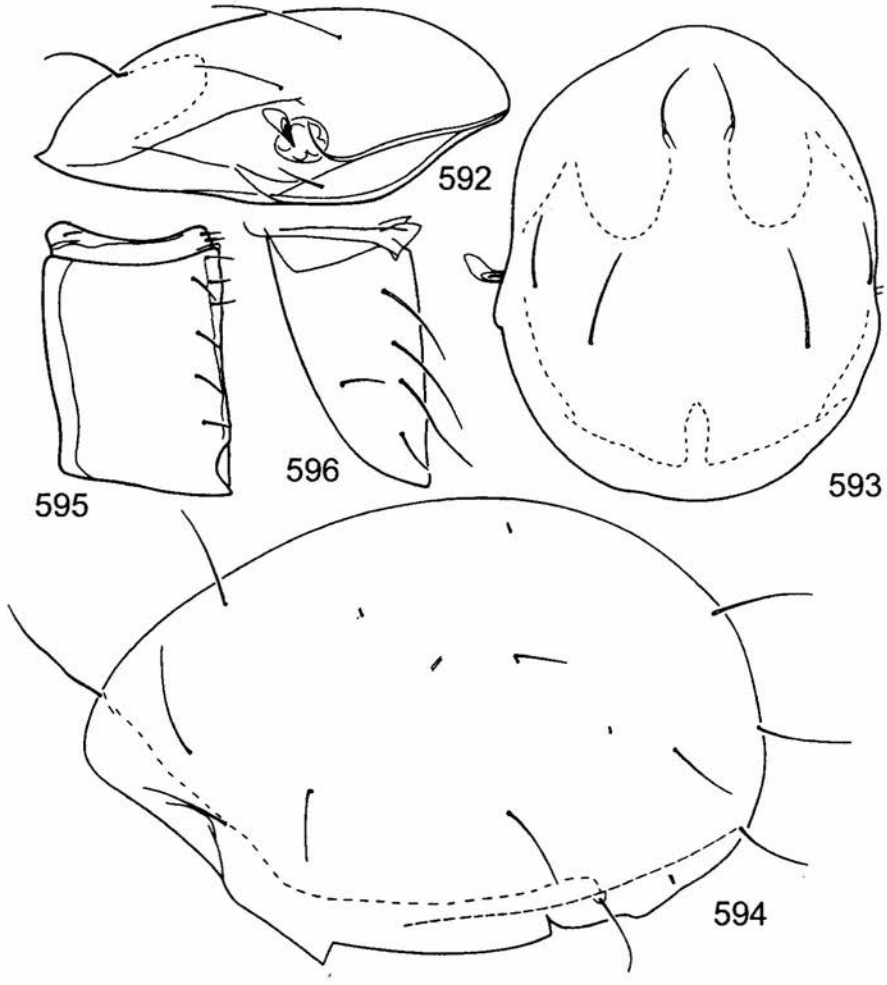
586-591. *Phthiracarus abstemius* NIEDBAŁA, 1989 (holotype): 586 - prodorsum, lateral view, 587 - prodorsum, dorsal view, 588 - notogaster, lateral view, 589 - genitoaggenital plate, 590 - anoadanal plate, 591 - trochanter and femur of leg I

Phthiracarus australis (Aoki, 1980)

(Figs 597-599)

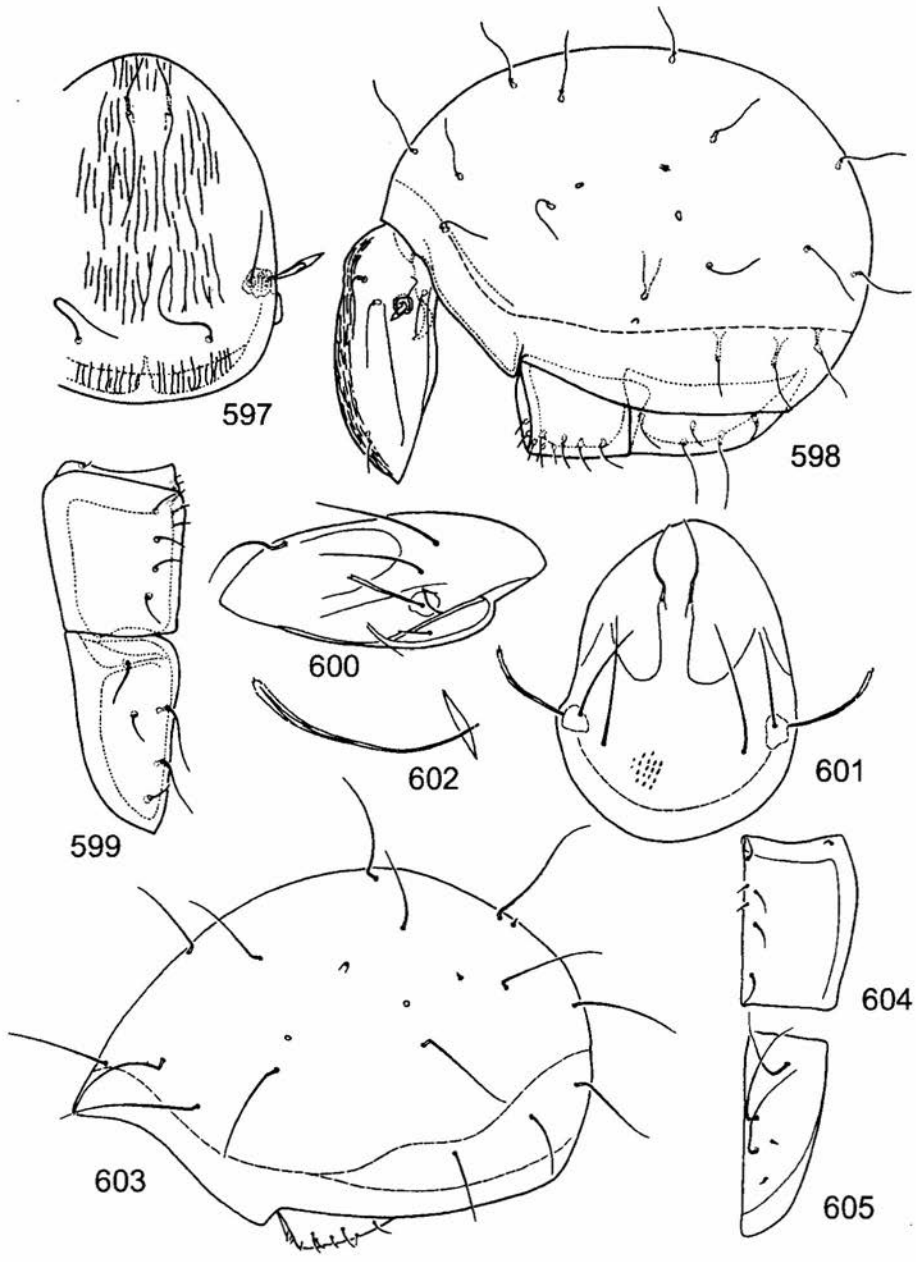
Paraphthiracarus australis Aoki, 1980
Phthiracarus australis: Niedbała 1986, 1992

Diagnosis. Median field of prodorsum fairly narrow; lateral carinae long, extend beyond sinus; sensilli short, narrowly fusiform, with pointed distal end, $in > le > ro$. Notogaster with 15 pairs of fairly short ($c_1 < c_1$-d_1) setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 7(4+3): 2; anoadanal plates each with 5 well developed setae, ad_1 and $ad_2 < ad_3 < an_1$ and an_2. Chaetotaxy of legs complete.



592-596. *Phthiracarus anonymus* Grandjean, 1933 (specimen from Poland): 592 - prodorsum, lateral view, 593 - prodorsum, dorsal view, 594 - notogaster, lateral view, 595 - genitoaggenital plate, 596 - anoadanal plate

MATERIAL. Localities in the border zone of the Oriental region: Japan, South Japan, at the top of Mt. Omoto-dake, Ishigaki Island, from litter, 6 XII 1972, leg. J. AOKI - (1); Sonai, Iriomote Island, from litter, 26 XI 1972, leg. S. NAKATAMARI and J.



597-599. *Phthiracarus australis* (AOKI, 1980) (after AOKI 1980): 597 - prodorsum, dorsal view, 598 - lateral view of body, 599 - genitoaggenital and anoadanal plates; 600-605. *Phthiracarus boresetosus* JACOT, 1930 (specimen from Poland): 600 - prodorsum, lateral view, 601 - prodorsum, dorsal view, 602 - sensillus, dorsal view, 603 - notogaster, lateral view, 604 - genitoaggenital plate, 605 - anoadanal plate

AOKI - (5); Shirahama, Iriomote Island, from litter, 30 XI 1972, leg. J. AOKI - (10); as above, 27 XI 1972 - (1) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.

Phthiracarus boresetosus JACOT, 1930

(Figs 600-605)

Phthiracarus boresetosus: NIEDBALA 1986, 1992
Phthiracarus tenuis HEMMER, 1977
Phthiracarus dudichi MAHUNKA, 1982

DIAGNOSIS. Prodorsum with median and laterals fields well marked; lateral carinae reach sinus; sensilli long, filiform, swollen at distal end and covered with small spines; setae attenuate, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of long, supple and slender setae; vestigial setae f_1 anterior or posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; 7 pairs of genital setae with formula: 6(3+3): 1; anoadanal plates each with 5 setae, setae ad_1 and ad_2 vestigial, setae ad_3 shorter than anal setae. Chaetotaxy of legs reduced, setae *v'* on femora I, *l'* on genua IV, *a'* on tarsi I and II absent.

MATERIAL. Localities in the border zone of the Oriental region: Far East of Russia, Suputinski reserve, Kedrova Pad' and Sikhote Alin' - (ca 200); Primorie near Vladivostok, under cedar, leg. M. KUZNECOVA – (34); Kamchatka, near Abacha river, in forest in alders and cedars, 26 VII 1970, leg. A.D. PETROVA - (4). India, Kashmir, road between Srinagar and Kargil, in mixed forest, 6 IX 1976, leg. C. BŁASZAK and J. Błoszyk - (13); Kashmir, between Jamnu and Srinagar, under pines, 4 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (36); Kashmir, near Kud, in forest of larches and pines,15 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (18); Kashmir, between Sorbal and Somanarg, detritus under old fir, IX 1976, leg. J. BŁOSZYK and C. BŁASZAK – (2); Kashmir, road to Jamnu before Ramban, shrubs, S side of the slope, 15 IX 1976, leg. J. BŁOSZYK and C. BŁASZAK – (3). Korea, Kumgang-san, Marimun sang, in leafy forest, 18 VI 1974, leg. A. SZEPTYCKI - (1); Kymgang-san, near waterfall Kurjong-pho, in leafy forest, 29 VI 1981, leg. A. SZEPTYCKI and W.WEINER - (1); as above, mosses and litter under bushes - (3); Mychyang-san, near Sangron waterfall, in coniferous forest, 22.VI.1981, leg. W. WEINER and A. SZEPTYCKI – (1); as above, mosses on granite rock, 24.VI.1981, leg. W. WEINER and A. SZEPTYCKI – (1) (NIEDBAŁA 1992). sub *P. tenuis*: North-west Pakistan, Drosh Gol, south of Chitral, *Adiantum*, moss, liverwort, wet, leg. M. HAMMER - (4); Naran, north-east of Shogran, about 2700 m a.s.l., needles and debris under *Viburnum* shrub, moist, leg. M. HAMMER - (2) (HAMMER 1977). sub *P. dudichi*: Korea, Knagwon Prov., Mt. Kumgang-san, litter along foot-path to Kuryong Falls, 18 IX1980, leg. TOPAL and L. FORRO - (1); Chagang Prov., Mt. Myohyang-san, near Hotel Myohyang, litter in mixed forest, 13 IX1980, leg. TOPAL and L. FORRO - (1); Chagang Prov., Mt. Myohyang-san, moss growing on a big stone close Lyongyon waterfall, 590 m, 13 IX 1980, leg. TOPAL and L. FORRO - (2); Kangwon Prov., Mt. Kumgang-san, moss along foot-pathto Kuryong Falls, 18 IX 1980, leg. G. TOPAL and L. FORRO - (2) (MAHUNKA 1982).

DISTRIBUTION. A Semicosmopolitan species but absent from the Oriental, Australian and Ethiopian regions.

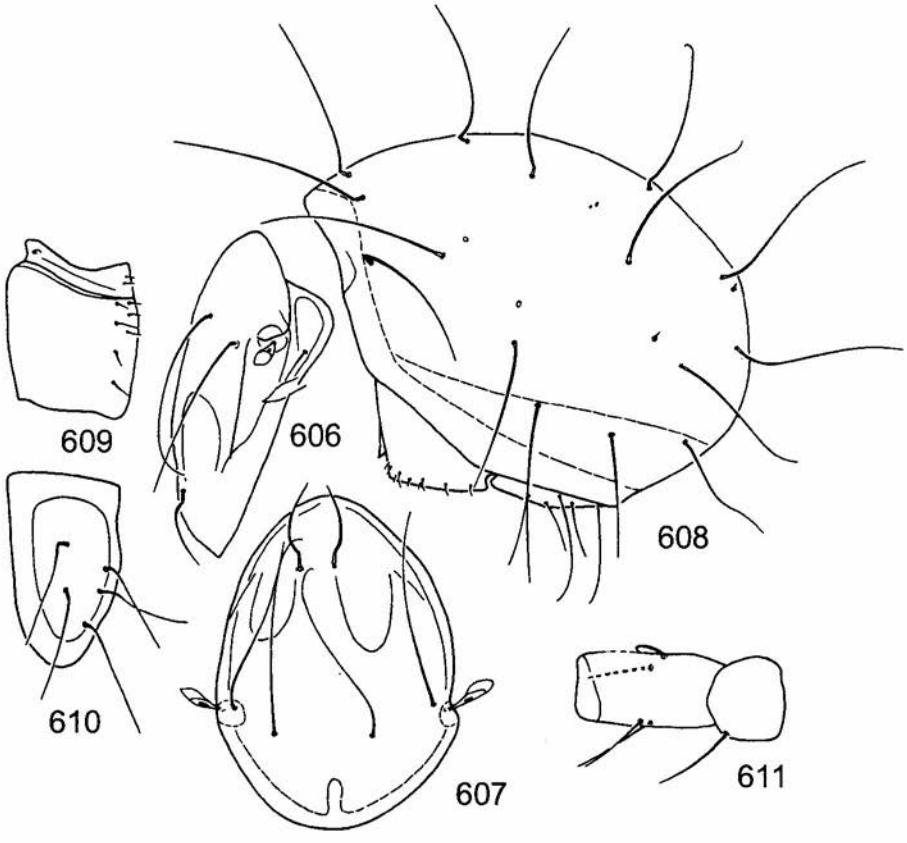
Phthiracarus bryobius JACOT, 1930

(Figs 606-611)

Phthiracarus bryobius: NIEDBALA 1986, 1992
Phthiracarus lanatus FEIDER et SUCIU, 1957
Paraphthiracarus lanatus: AOKI 1980

DIAGNOSIS. Median and lateral fields of prodorsum distinct; lateral carinae long, extend beyond sinus; sensilli short, ovally terminated; interlamellar and lamellar setae very long, *ro* > *ex*. Notogaster with 15 pairs of very long ($c_1 > c_1$-d_1) setae, setae c_3 the shortest; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates with 5 pairs of well-developed setae, adanal setae longer than anal setae. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: 83 specimens from 10 localities mainly in Central Japan (AOKI 1980). Far East of Russia, Suputinski reserve, Kedrova pad', Sikhote Alin', near Vladivostok. ca 60 specimens from 10 localities; Amur district, near Zeja, Dzuvaskit, 25 specimens from 2 localities;



606-611. *Phthiracarus bryobius* JACOT, 1930 (specimen from Poland): 606 - prodorsum, lateral view, 607 - prodorsum, dorsal view, 608 - notogaster, lateral view, 609 - genitoaggenital plate, 610 - anoadanal plate, 611 - trochanter and femur of leg I

Kamchatka, near Abacha river, in forest of alders and cedars, 5.VI.1971, leg. A.D. PETROVA – (4) (NIEDBAŁA 1992).

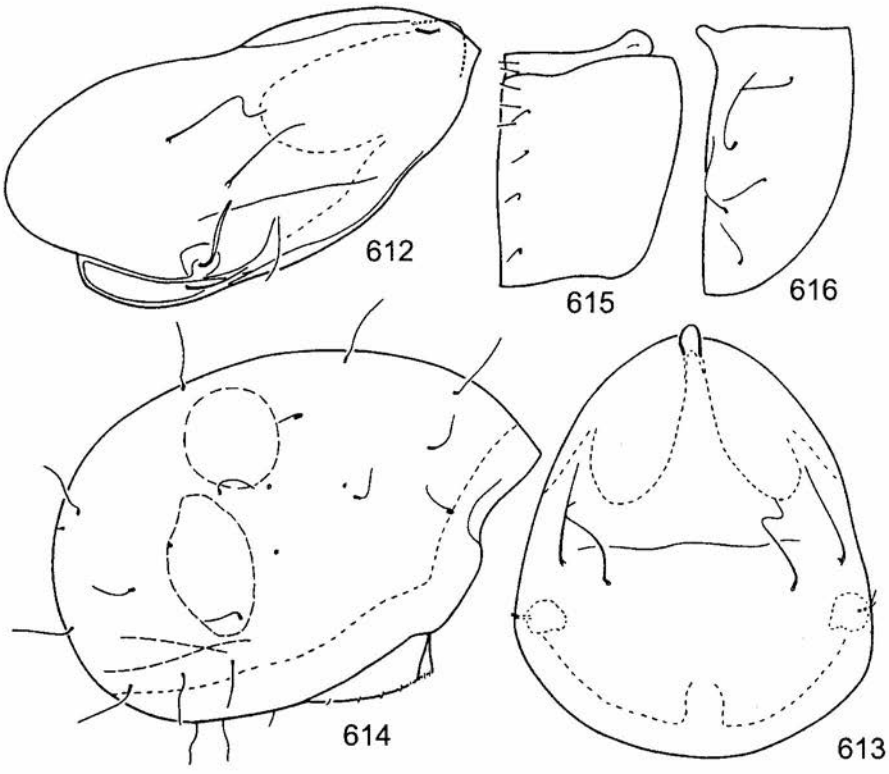
DISTRIBUTION. A Holarctic species.

Phthiracarus clemens AOKI, 1963

(Figs 612-616)

Phthiracarus clemens: NIEDBALA 1986, 1992
Phthiracarus clemens clemens AOKI 1980
Phthiracarus clemens kyushuensis AOKI, 1980

DIAGNOSIS. Median field of prodorsum tapering anteriorly, longer than lateral fields; median carina short and robust; lateral carinae reach sinus; sensilli long, narrow, ending in a point, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of short ($c_1 < c_1$-d_1) setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them, but in specimen from Nepal longer than distance between them; formula of genital setae: 7(4+3): 2; setae ad_1 and ad_2 of anoadanal plates vestigial but in specimen from Nepal well-developed. Chaetotaxy of legs complete.



612-616. *Phthiracarus clemens* AOKI, 1963 (specimen from Nepal): 612 - prodorsum, lateral view, 613 - prodorsum, dorsal view, 614 - notogaster, lateral view, 615 - genitoaggenital plate, 616 - anoadanal plate

MATERIAL. Localities in the border zone of the Oriental region: 40 specimens from 9 localities mainly from Central Japan (AOKI 1963, 1980). Nepal, S of Mt. Anapurna, at 3000 m, near village of Honko, in coniferous forest with bamboo undergrowth, 12 IX 1981, leg. J. BŁOSZYK - (1) (NIEDBAŁA 1982); Nepal, Phulchoki, at 2600 m, 20.IV.1982, leg. A. and Z. SMETANA – (2).India, Kashmir, Dachigam Nat. Forest, litter in grove of large *Platanus*, 20.III.1986, leg. R. NORTON – (5);

DISTRIBUTION. SE border of the Palaearctic region.

Phthiracarus comatus NIEDBAŁA, 1983

(Figs 617-621)

Phthiracarus comatus: NIEDBAŁA 1983
Phthiracarus comatus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields of prodorsum well-developed; lateral carinae very short above bothridium; sensilli very short, broad, fusiform; setae slender, rostral setae near each other, *le* > *in* > *ro* > *ex*. Notogaster with 15 pairs of supple, long ($c_1 > c_1$-d_1) setae, setae c_3, d_2, e_2 and ps_2 shorter than remainder; vestigial setae posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2, anoadanal plates each with 5 well developed setae, anal setae shorter than adanal setae, setae ad_3 the longest. Chaetotaxy of legs complete.

MATERIAL. Locality in the border zone of the Oriental region: Russia, Sakhalin, Okhinski region, spruce forest, 3 VIII 1966, leg. A.D. PETROVA - (1) (NIEDBAŁA 1983, 1992).

DISTRIBUTION. Sakhalin, perhaps an endemic species.

Phthiracarus comosus (AOKI, 1980)

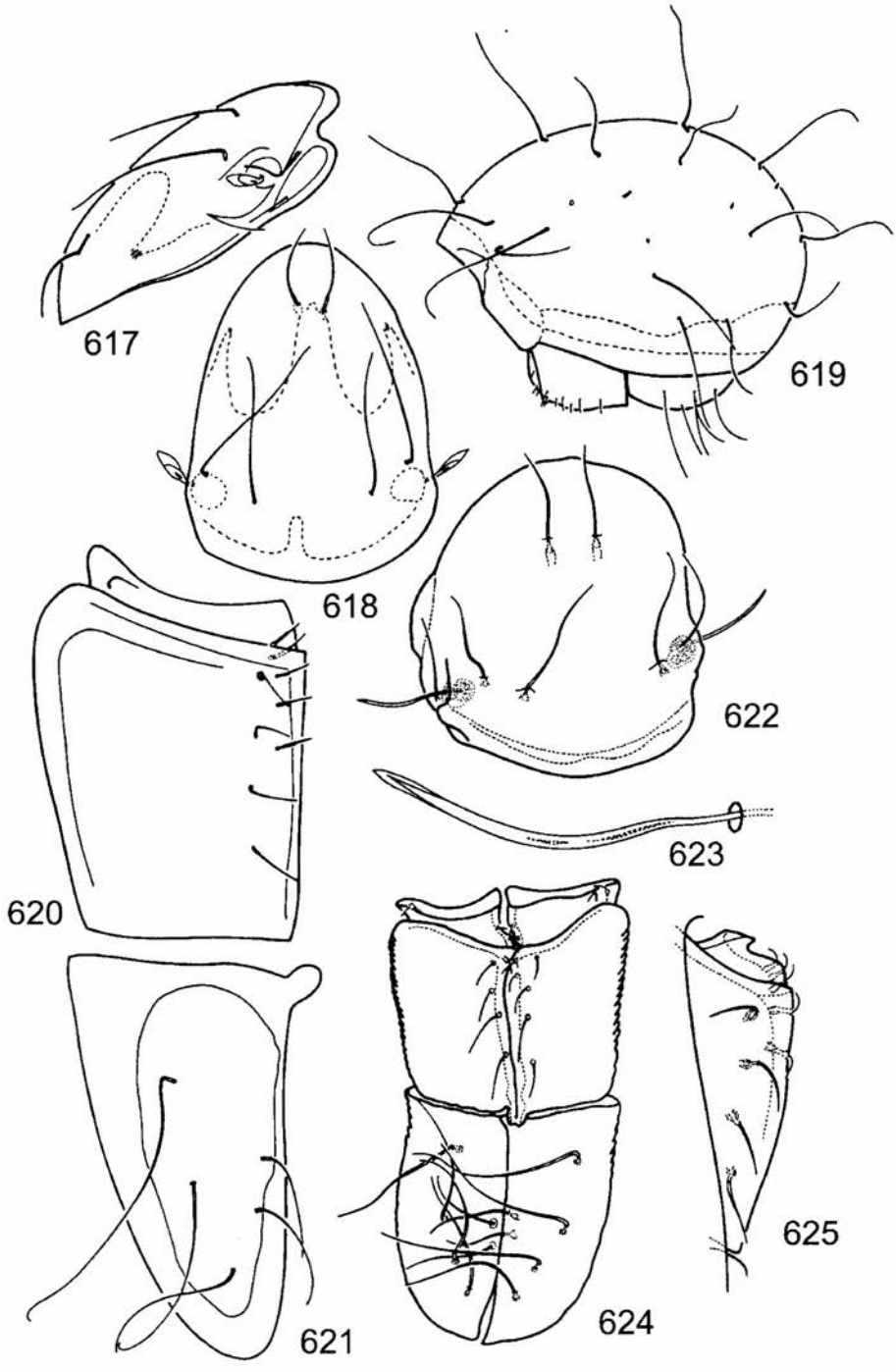
(Figs 622-626)

Phthiracarus comosus: NIEDBAŁA 1986, 1992
Neophthiracarus comosus AOKI, 1980

DIAGNOSIS. Median field of prodorsum bifurcate, lateral fields very long; lateral carinae absent; sensilli long, narrow and smooth; setae long, *in* = *le* > *ro* > *ex*. Notogaster with remarkable neotrichy of setae, but the number of setae is asymmetric; vestigial setae f_1 and f_2 present, all four pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, formula of genital setae: 6(4+2): 3, anoadanal plates with neotrichy of adanal setae, 4 pairs of adanal setae longer than 2 pairs of anal setae. Chaetotaxy of legs complete,

MATERIAL. Localities in the border zone of the Oriental region: Japan, Hatchozaka, Mt. Ishizuchi, Ehimeken, from litter, 8 VIII 1969, leg. K. MORIKAWA - (2); Mt. Higashi-akashi, Ehime-ken, 27 X 1968, leg. M.TSURUHARA - (1) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.



617-621. *Phthiracarus comatus* NIEDBAŁA, 1983 (holotype): 617 - prodorsum, lateral view, 618 - prodorsum, dorsal view, 619 - notogaster, lateral view, 620 - genitoaggenital plate, 621 - anoadanal plate; 622-625. *Phthiracarus comosus* (AOKI, 1980) (after AOKI 1980): 622 - prodorsum, dorsal view, 623 - sensillus, dorsal view, 624 - genitoaggenital and anoadanal plates, 625 - genitoaggenital plate

Phthiracarus compressus JACOT, 1930

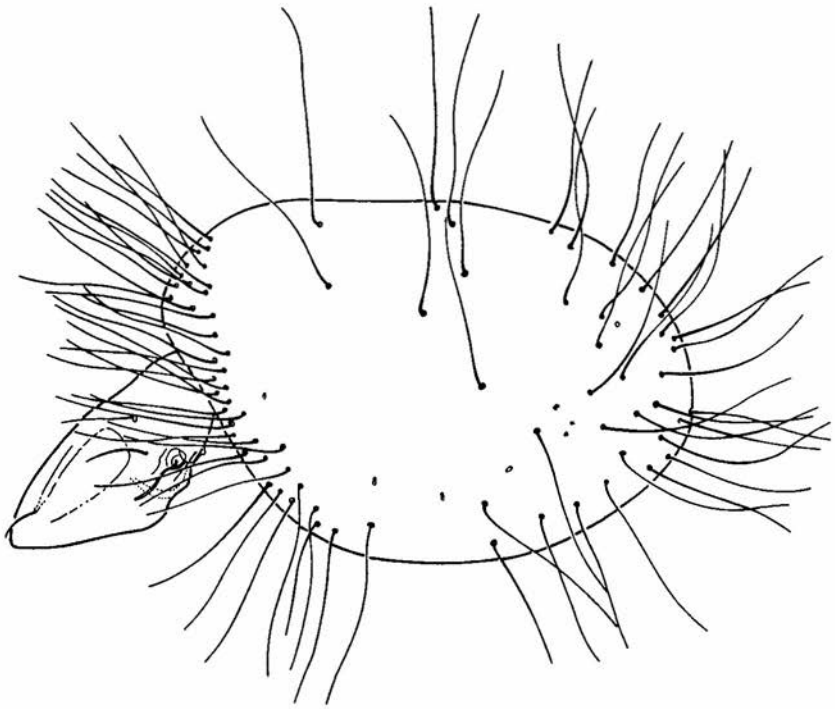
(Figs 627-632)

Phthiracarus compressum JACOT, 1930
Phthiracarus compressus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields of prodorsum distinct; lateral carinae long, extending beyond sinus; sensilli fusiform with pointed distal end; *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of medium length setae; vestigial setae f_1 may be located anterior, posterior to or at the level of setae h_1; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7 (4+3): 2; anoadanal plates with 5 pairs of setae, ad_1 and ad_2 setae vestigial (in population from India well-developed), anal setae longer than ad_3 setae. Leg chaetotaxy reduced, setae *a'* on tarsi I and usually setae *l'* on genua absent.

MATERIAL. Localities in the border zone of the Oriental region. India, Kashmir, Dachigam Nat. Forest, litter in grove of large *Platanus*, 20.III.1986, leg. R. NORTON – (2).

DISTRIBUTION. A Holarctic species.



626. *Phthiracarus comosus* (AOKI, 1980): paratype, lateral view of body

Phthiracarus crispus HAMMER, 1972

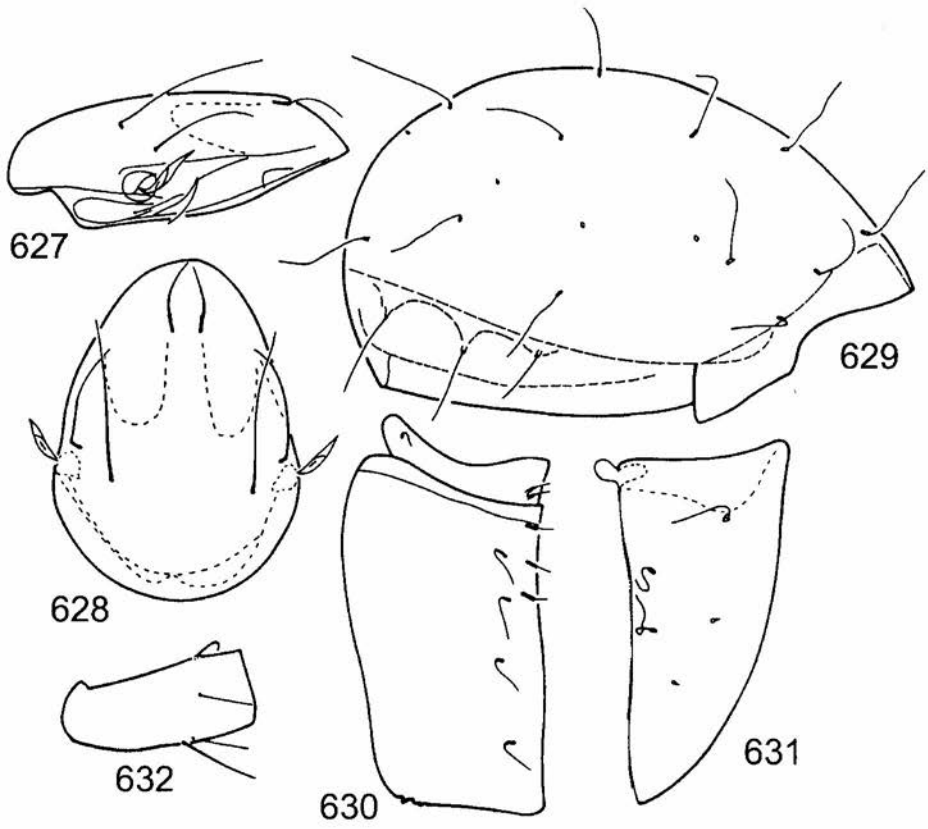
(Figs 633-638)

Phthiracarus crispus: NIEDBAŁA 1986, 1992, 1994

DIAGNOSIS. Median and lateral fields of prodorsum long and narrow; lateral carinae long, posterior furrows present; sensilli long, narrow, smooth, enlarging in their proximal third and ending in a point; *in*> *le*> *ro*> *ex*. Notogaster with 15 pairs of fairly short setae ($c_1 < c_1$-d_1); vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 7 (4+3): 2; anoadanal setae well developed, anal setae longer than adanal. Leg chaetotaxy reduced, setae *v'* on femora I, *a'* on tarsi I absent.

MATERIAL. Locality in the Oriental region: Vietnam N, Cha-Pa, moulder under beam, 3.V.1961, leg. A. BARTKE – (9)

DISTRIBUTION. An Oriental species, probably introduced to Tahiti.



627-632. *Phthiracarus compressus* JACOT, 1930 (specimen from Poland): 627 - prodorsum, lateral view, 628 - prodorsum, dorsal view, 629 - notogaster, lateral view, 630 - genitoaggenital plate, 631 - anoadanal plate, 632 - femur of leg I

Phthiracarus gibber (AOKI, 1980)

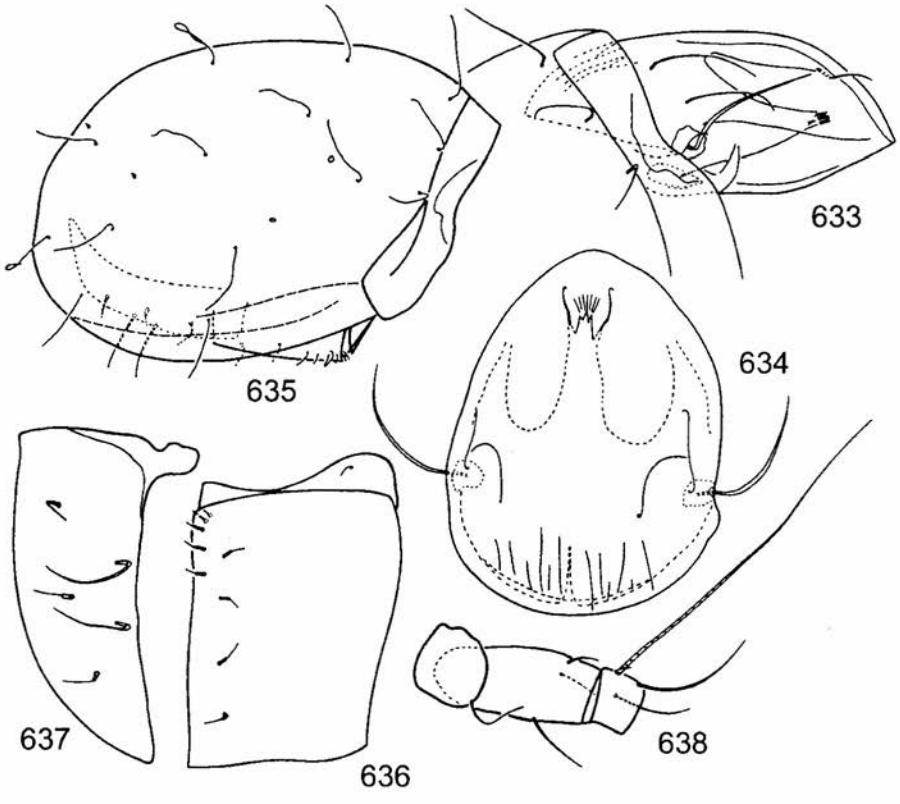
(Figs 639-641

Phthiracarus gibber: NIEDBALA 1986, 1992
Paraphthiracarus gibber, 1980

DIAGNOSIS. Median field long, narrow, lateral fields shorter; median carina distinct, lateral carinae long, extend beyond sinus; sensilli short, fusiform; *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of fairly short ($c_1 < c_1$-d_1) setae; vestigial setae f_1 anterior to h_1 setae; all four pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, formula of genital setae: 7(4+3): 2, anoadanal plates each with 5 well developed setae, anal setae longer than adanal setae. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: South Japan, Mt.Yuwan-dake, Amami-Oshima, from litter and soil, 8 I 1973, leg.H. SUZUKI - (5); Tanbara-cho, Shuso-gun, Ehimeken, 13 IV1968, leg. K. OKUDA - (1); Iriomote Island, upper basin of Nakama-gawa River, from litter, 5 XII 1972, leg. S. NAKATAMARI and J. AOKI - (2); S. Japan, Yuyaguchi, Shuso-gun, Ehime-ken, 28 VI 1968, leg. K. ISHIKAWA - (3) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.



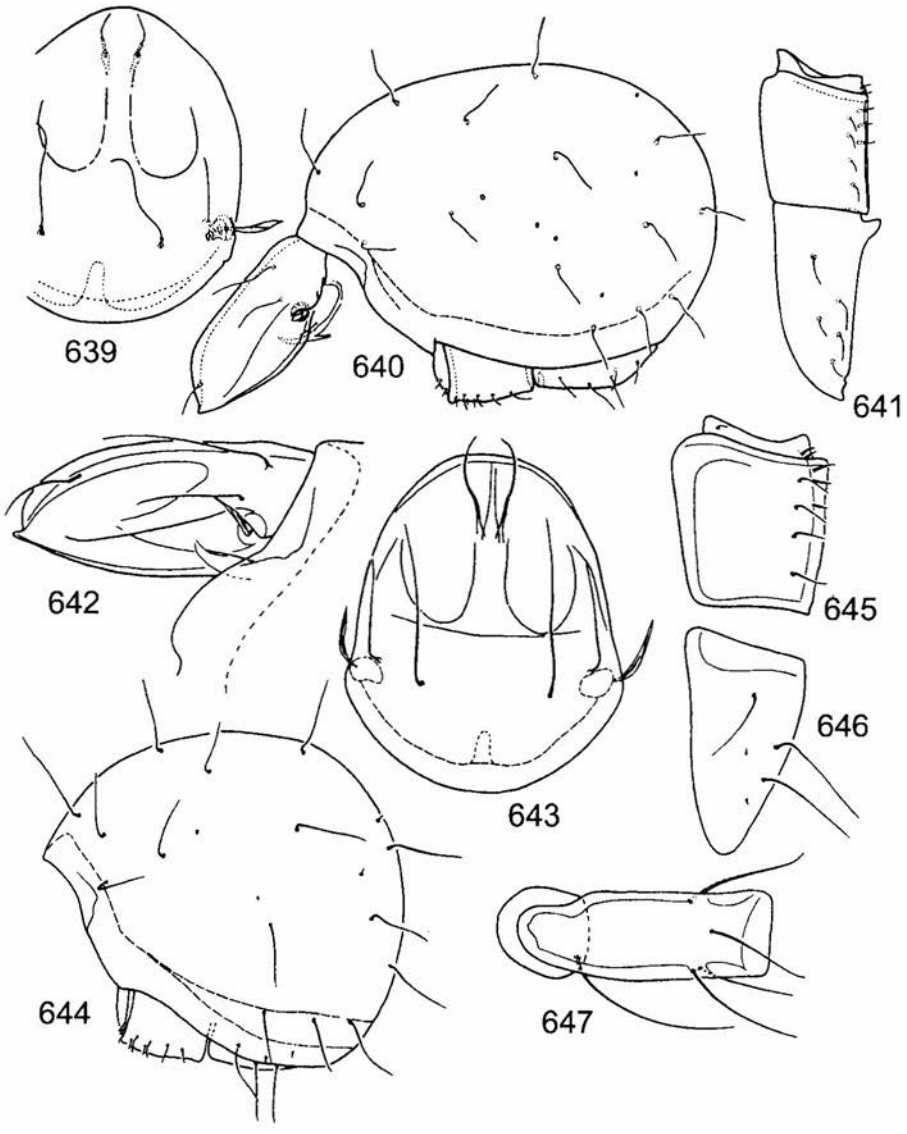
633-638. *Phthiracarus crispus* HAMMER, 1972 (specimen from Tahiti): 633 - prodorsum and anterior part of notogaster, lateral view, 634 - prodorsum, dorsal view, 635 - notogaster, lateral view, 636 - genitoaggenital plate, 637 - anoadanal plate, 638 - trochanter, femur and genu of leg I

Phthiracarus globosus (C. L. Koch, 1841)

(Figs 642-647)

Hoplophora globosa C. L. Koch, 1841
Phthiracarus globosus: Niedbala 1986, 1992

Diagnosis. Prodorsum with robust median carina, lateral carinae long, extend beyond sinus; median field narrow; sensilli long and narrow; *in* > *le* > *ro* > *ex*.



639-641. *Phthiracarus gibber* Aoki, 1980 (after Aoki 1980): 639 - prodorsum, dorsal view, 640 - lateral view of body, 641 - genitoaggenital and anoadanal plates; 642-647. *Phthiracarus globosus* (C.L. Koch, 1841) (specimen from Poland): 642 - prodorsum, lateral view, 643 - prodorsum, dorsal view, 644 - notogaster, lateral view, 645 - genitoaggenital plate, 646 - anoadanal plate, 647 - trochanter and femur of leg I

Notogaster with 15 pairs of medium-length setae, $c_1 < c_1$-d_1; vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates with 5 pairs of setae, setae ad_1 and ad_2 vestigial, but occasionally setae ad_1 and ad_2 found normally developed, anal setae longer than setae ad_3. Leg chaetotaxy complete.

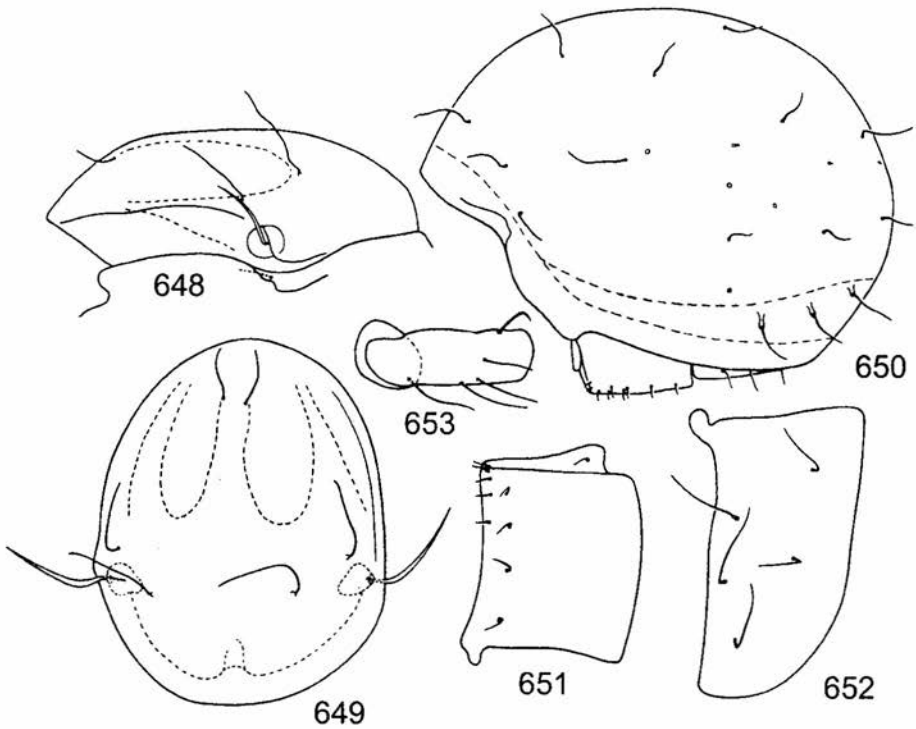
MATERIAL. Localities in the border zone of the Oriental region: India, Kashmir, in valley of Indus, under bushes, 4.IX.1976, leg. Cz. BŁASZAK and J. BŁOSZYK – (1); Kashmir, Dachigam Nat. Forest, mixed shrub with pine litter, 20.III.1986, leg. R. NORTON – (10); Kashmir, Dachigam Nat. Forest, litter at base of 20" dbh elm (*Ulmus wallechiana*) in mixed forest, 20.III.1986, leg. R. NORTON – (14). Far Est of Russia, Amur district, Zeja 52 km from Zolotaja Gora, in leafy forest, 25. V. 1972 – (2) (NIEDBAŁA 1992).

DISTRIBUTION. A Holarctic species.

Phthiracarus invenustus sp. nov.

(Figs 648-653)

DESCRIPTION. Measurements of holotype: prodorsum: length 257, width 202, height 106, sensillus 68.3, setae: interlamellar 60.7, lamellar 45.5, rostral 35.4,



648-653. *Phthiracarus invenustus* sp. nov. (holotype): 648 - prodorsum, lateral view, 649 - prodorsum, dorsal view, 650 - notogaster, lateral view, 651 - genitoaggenital plate, 652 - anoadanal plate, 653 - trochanter and femur of leg I

exobothridial 17.7; notogaster: length 490,width 389, height 374, setae: c_1 60.7, h_1 and ps_1 55.7; genitoaggenital plate 106x90.9, anoadanal plate 156x80.8. Colour yellow, surface of body punctate. Prodorsum with long and narrow fields, lateral fields longer than median, lateral carinae very long, exceed insertion point of rostral setae. Sensilli long, narrow, tapering, smooth. Setae simple, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of simple, short (c_1/c_1-d_1 = 0.51) setae, setae c_1 and c_2 remote from anterior margin, setae c_1 more so than c_2, setae c_3 near anterior margin. Vestigial setae f_1 posterior to h_1 setae. Four pairs of lyrifissures *ia, im, ip, ips* present. Ventral side, setae *h* of mentum longer than distance between them. Formula of genital setae: 7(4+3): 2. All five pairs of setae on anoadanal plates present, anal setae longer than adanal setae. Chaetotaxy of legs of complete type, setae *a"* on tarsi I and II and setae *ft"* on tarsi II straight distally.

DIAGNOSIS. This species belong to „*lentulus*" group with *P. lentulus* (C. L. KOCH, 1841), *P. membranifer* Parry, 1979 and *P. ferrugineus* (C. L. KOCH, 1841) but it differs from the other species by the following combination of caracteres: setae c_1 the furthest and setae c_3 the nearest of anterior margin of notogaster, vestigial setae f_1 posterior to h_1 setae, all four pairs of lyrifissures present, all setae on anoadanal plates present.

ETYMOLOGY. The name *invenustus* is Latin for "not charming", "ungraceful" and alludes to the common, ordinary shape of the body of the species.

MATERIAL. Holotype: Java, Timur, Gubuh Klakah, litter of mountain forest, 29. X.1984, leg. P.T. LEHTINEN. Other localities in the Oriental region: Northern Thailand, Doi Sutep, at 1100-1200 m, Kaseas Dal, 14.IX.1959, leg. Birgid DAGERBØL Zool. Mus. Køb. – (1); Vietnam, Tam Dao, sub.montane foggy forest, litter and soil sample, 1200 m, 16 X 1988, leg. J. STARY – (1); as above, secondary pine forest, litter sample, 980 m, 19 X 1988, leg. J. STARY – (2).

DISTRIBUTION. An Oriental species.

Phthiracarus japonicus AOKI, 1958

(Figs 654-657)

Phthiracarus japonicus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields of prodorsum long and narrow; lateral carinae reach sinus; sensilli short and fusiform; *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of fairly short (c_1/c_1-d_1 = 0.5) setae; vestigial setae f_1 posterior to or at the level of h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; setae ad_1 and ad_2 of anoadanal plates vestigial, anal setae longer than setae ad_3. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: 116 specimens from 20 localities mainly of Central Japan (AOKI 1958, 1980). Far East of Russia, Kuril Islands, under birch and bamboos, 18 VIII 1982, leg. A.D. PETROVA - (2); as above, mosses on trunk among herbs - (5) (NIEDBAŁA 1992).

DISTRIBUTION. Japan and Kuril islands, easter border of the Palaearctic region.

Phthiracarus largus NIEDBAŁA, 1984

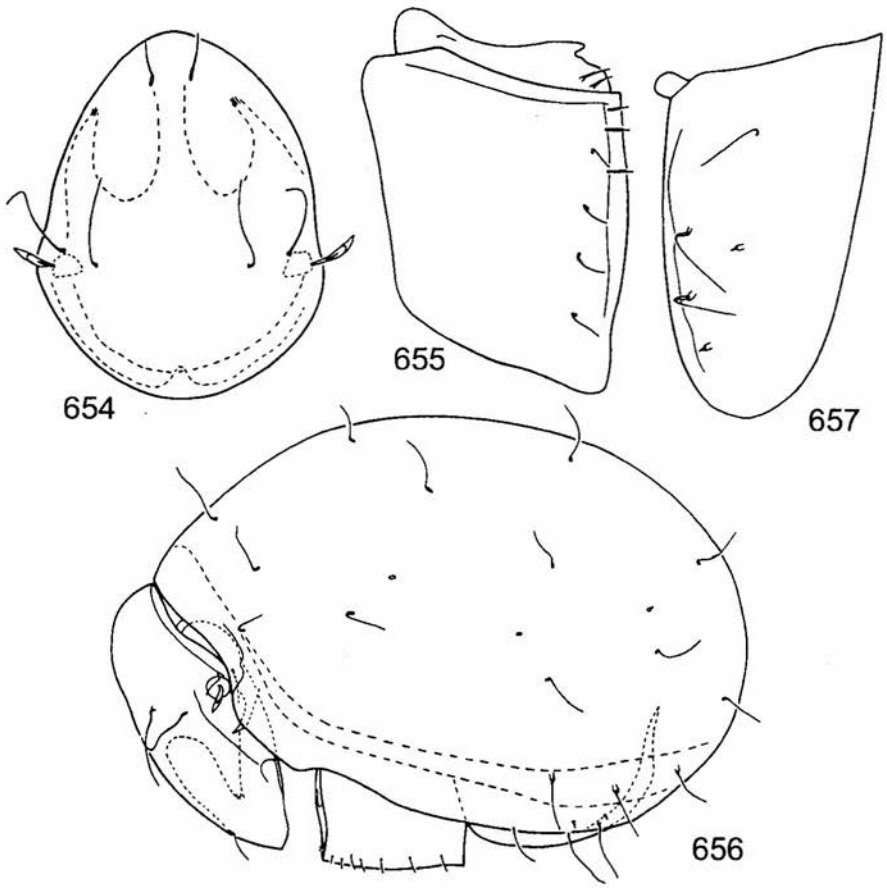
(Figs 658-665)

Phthiracarus largus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum short, lateral fields distinct; lateral carinae long extend to sinus; sensilli very long, curved in falcate shape; rostral setae near each other, $in = le > ro > ex$. Notogaster with 15 pairs of medium-length ($c_1 < c_1$-d_1) setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates with 5 pairs of well developed setae, anal setae longer than adanal setae. Chaetotaxy of legs complete.

MATERIAL. Locality in the border zone of the Oriental region: Far East of Russia, Sakhalin, Okhinski region, under birch, 3 VIII 1966, leg. A. D. PETROVA - (1) (NIEDBAŁA 1984c, 1992).

DISTRIBUTION. Asian part of the Palaearctic (Altai, Central Siberia and Far East).



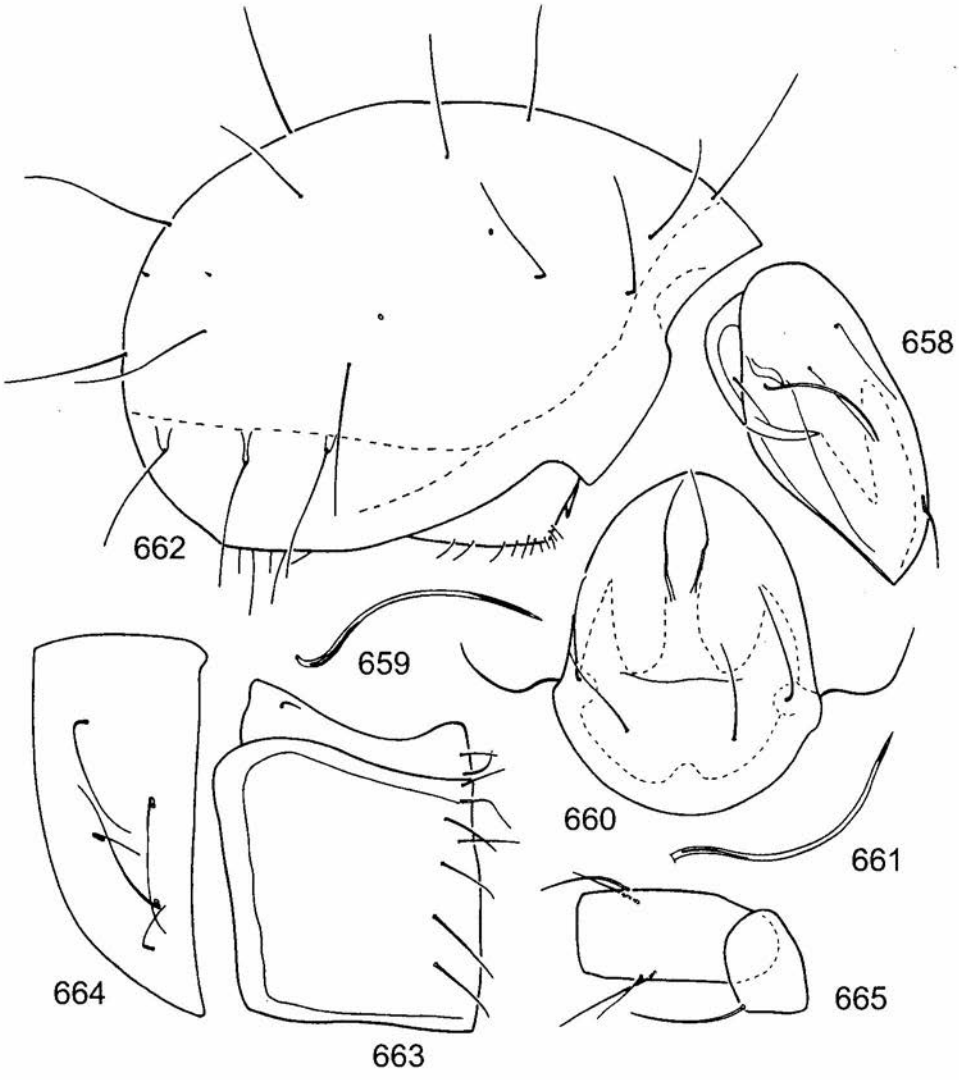
654, 655. *Phthiracarus japonicus* AOKI, 1958 (specimen from Kuril Islands): 654 - prodorsum, dorsal view, 655 - genitoaggenital plate; 656, 657. *Phthiracarus japonicus* AOKI, 1958 (specimen from Kuril Islands): 656 - lateral view of body, 657 - anoadanal plate

Phthiracarus lentulus (C. L. KOCH, 1841)

(Figs 666-672

Hoplophora lentula C. L. KOCH, 1841
Phthiracarus lentulus: NIEDBAŁA 1986, 1992

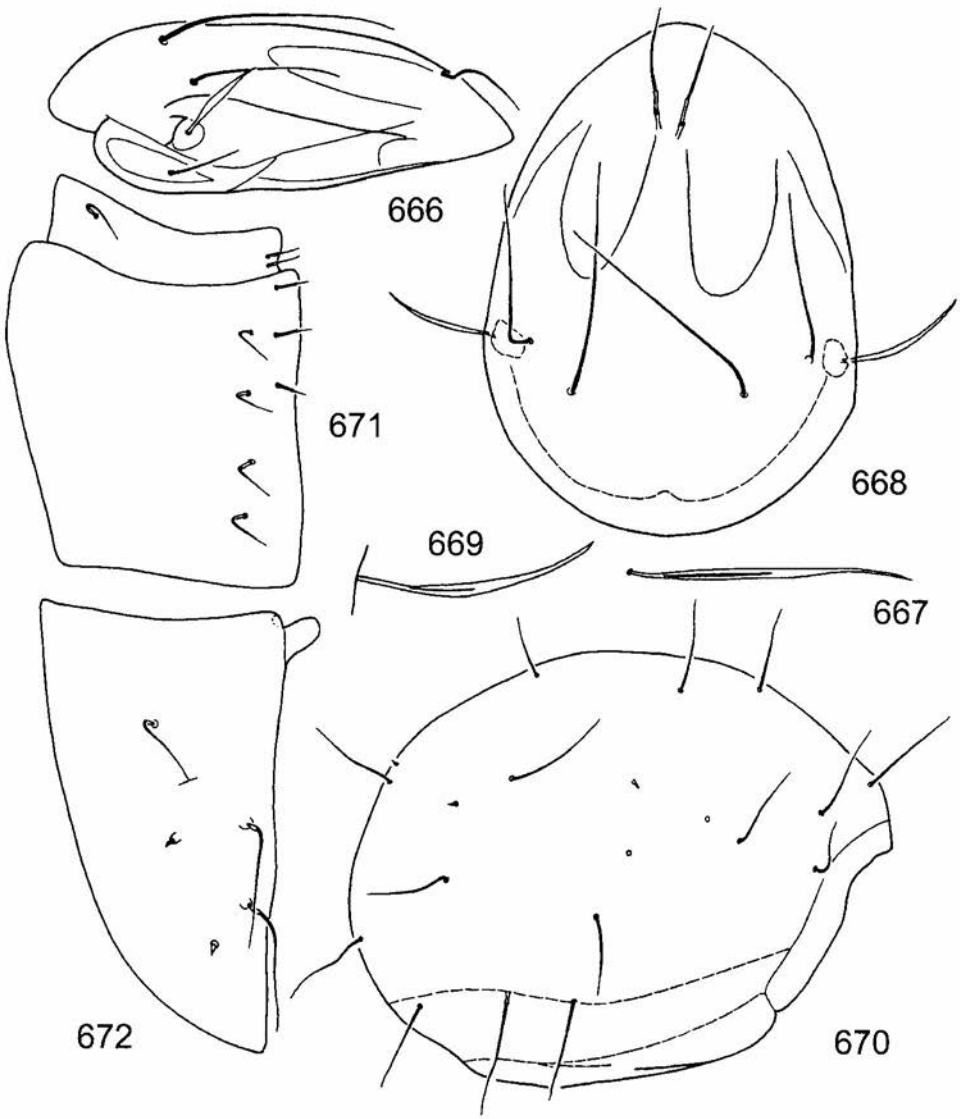
DIAGNOSIS. Narrow median field of prodorsum and lateral fields distinct; lateral carinae long, extend beyond sinus; sensilli fairly long, narrow, ending in a point; *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of fairly short ($c_1 < c_1$-d_1) setae; vestigial setae f_1 in



658-665. *Phthiracarus largus* NIEDBAŁA, 1984 (holotype): 658 - prodorsum, lateral view, 659 - sensillus, lateral view, 660 - prodorsum, dorsal view, 661 - sensillus, dorsal view, 662 - notogaster, lateral view, 663 - genito-aggenital plate, 664 - anoadanal plate, 665 - trochanter and femur of leg I

variable position, posterior, anterior to or at the level of h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates each with 5 setae, setae ad_1 and ad_2 vestigial, anal setae longer than ad_3 setae. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: Far East of Russia, Suputinski reserve, Kedrova pad', Sikhote Alin', near Vladivostok, ca 30 specimens from 10 localities. Korea, vicinity of Kaesong, 20 km W of Kaesong, in



666-672. *Phthiracarus lentulus* (C.L. KOCH, 1841) (specimen from Poland): 666 - prodorsum, lateral view, 667 - sensillus, lateral view, 668 - prodorsum, dorsal view, 669 - sensillus, dorsal view, 670 - notogaster, lateral view, 671 - genitoaggenital plate, 672 - anoadanal plate

accacia forest, 14 VII 1981, leg. A. SZEPTYCKI and W. WEINER - (1); Sykung-ho lake near Sarivon, in leafy forest with pines, 16 VII 1981, leg. A. SZEPTYCKI and W. WEINER - (3) (NIEDBAŁA 1992).

DISTRIBUTION. A Palaearctic species.

Phthiracarus longulus (C. L. KOCH, 1841)

(Figs 673-677)

Hoplophora longula C. L. KOCH, 1841
Phthiracarus longulus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields distinct; lateral carinae long, extend beyond sinus; sensilli short, fusiform; *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of medium-length ($c_1 < c_1$-d_1) setae; vestigial setae f_1 positioned variably: generally anterior to h_1 setae, at the level of h_1 setae or posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital plate: 7(4+3): 2, anoadanal plates each with 5 setae, setae ad_1 and ad_2 vestigial, anal setae longer then ad_3 setae. Chaetotaxy of legs reduced, setae *v'* on femora I, setae *a'* on tarsi I and setae *l'* on gena IV absent.

MATERIAL. Localities in the border zone of the Oriental region: Far East of Russia, ca 50 specimens from 26 localities from Suputinski reserve, Kedrova Pad', Sikhote Alin', near Vladivostok, Kamchatka, Sakhalin, Kuril Islands (NIEDBAŁA 1992).

DISTRIBUTION. A Holarctic species.

Phthiracarus membranifer PARRY, 1979

(Figs 678-683)

Phthiracarus membranifer: NIEDBAŁA 1986, 1992

DIAGNOSIS. Measurements of one specimen from sample from Sri Lanka, jungle litter: prodorsum: length 223, width 164, height 86.0, sensillus 58.2, setae: interlamellar 75.9, lamellar 35.4, rostral 80.9, exobothridial 40.5; notogaster: length 439, width 298, height 308, setae: c_1 68.3, h_1 43.0, ps_1 48.1; genitoaggenital plate 111x73.4, anoadanal plate 124x63.2. Fields of prodorsum long and narrow; lateral carinae long, extend to sinus; sensilli long, narrow, smooth, tapering towards distal ends; rostral and exobothridial setae rather long with comparison to lamellar setae. Notogaster with 15 pairs of fine (c_1/c_1-$d_1 = 0.56$) setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; setae ad_1 and ad_2 of anoadanal plates vestigial, anal setae longer than ad_3 setae. Chaetotaxy of legs of reduced type, setae *v*" on femora I and *l'* on genua IV absent.

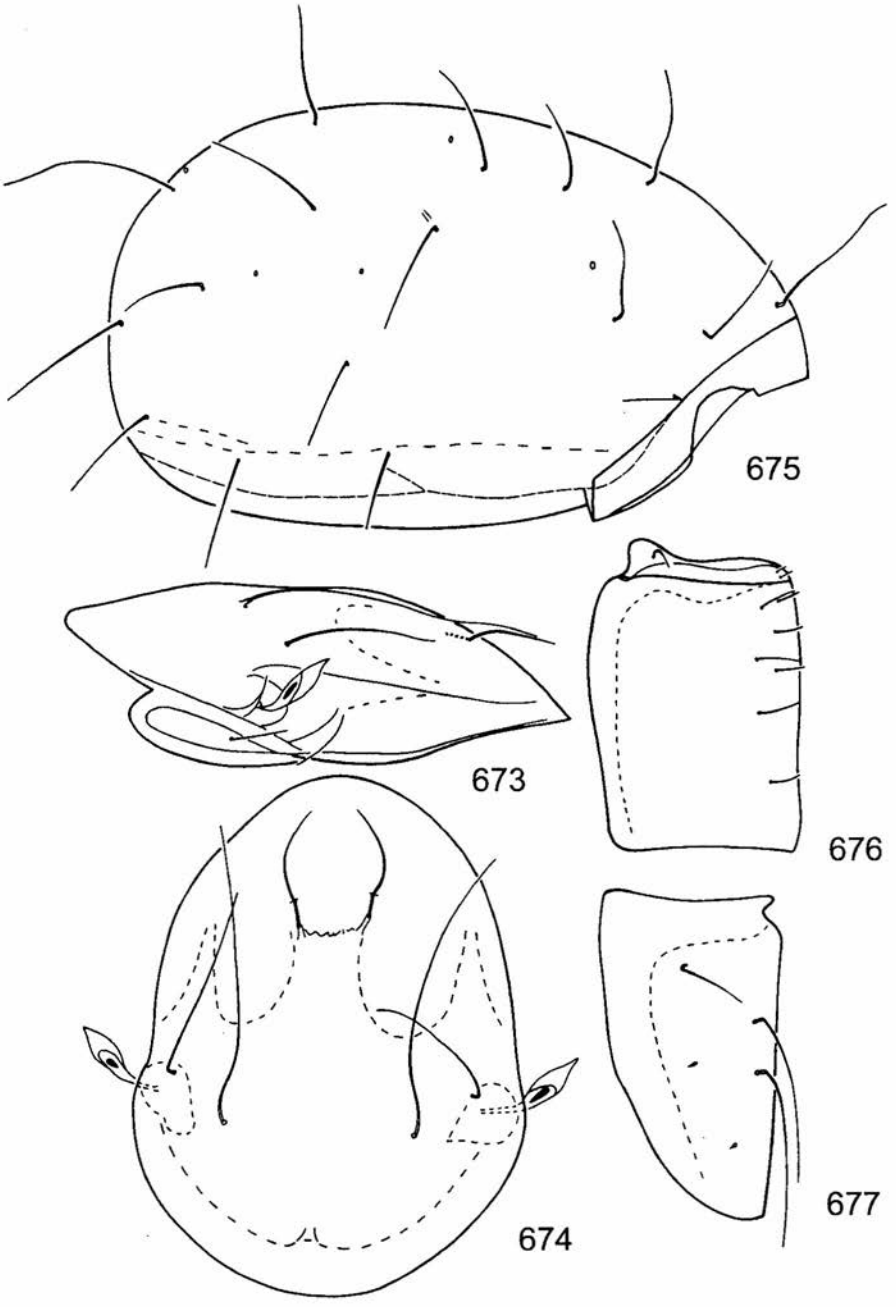
MATERIAL. Locality in the Oriental region: Sri Lanka, Central Prov., Pidurutalagalla 1900 m, litter of mountain slope near road side, 17.X.1984, leg. P.T. LEHTINEN – (1); as above, 1600 m, broad leaved jungle litter, 17.X.1984, leg. P.T. LEHTINEN – (4).

DISTRIBUTION. An Occidental Palaearctic species, probably introduced to Sri Lanka.

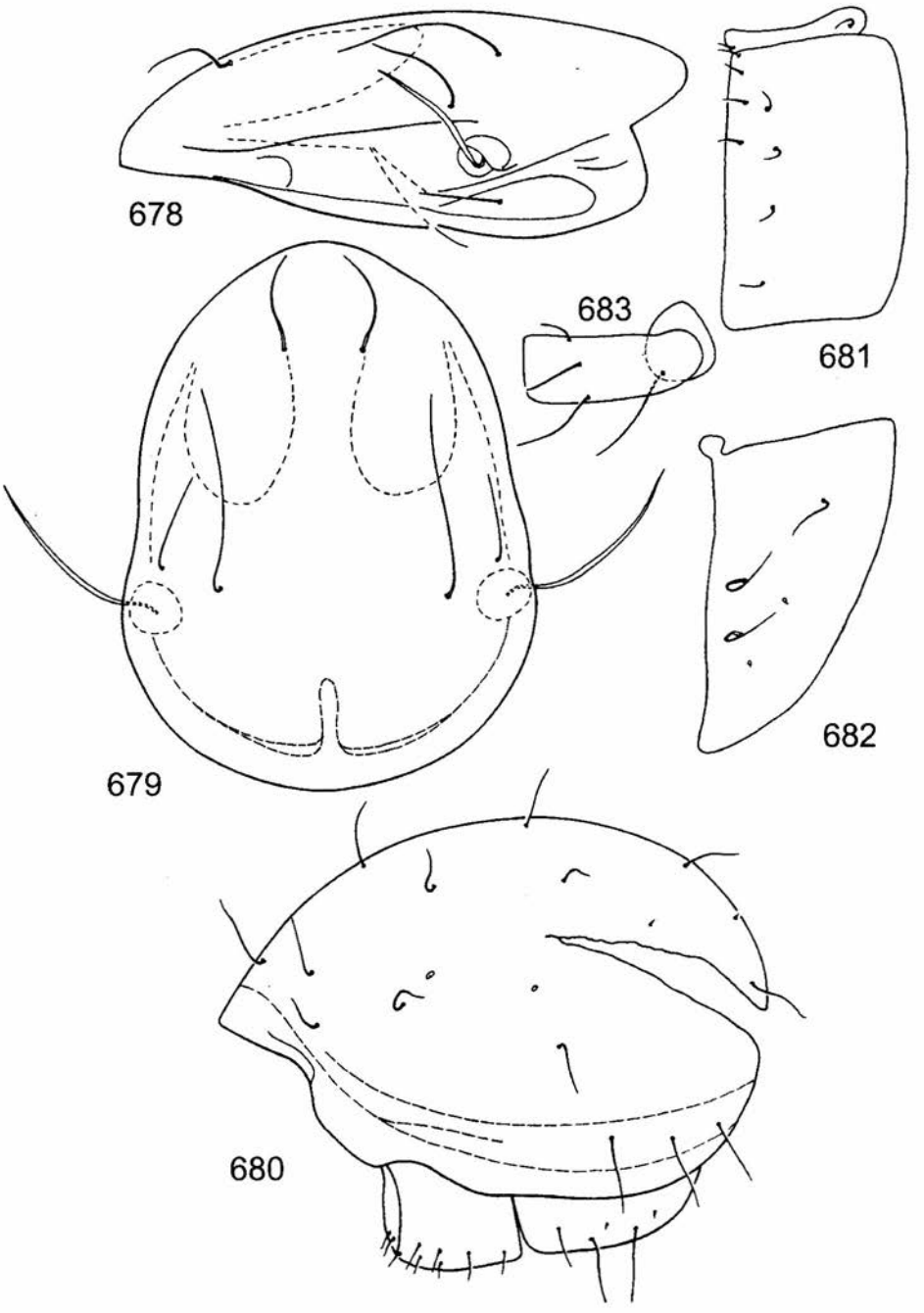
Phthiracarus obscurus NIEDBAŁA, 1986

(Figs 684-688)

Phthiracarus obscurus: NIEDBAŁA 1992, NIEDBAŁA & CORPUZ-RAROS 1998



673-677. *Phthiracarus longulus* (C. L.KOCH, 1841) (specimen from Poland): 673 - prodorsum, lateral view, 674 - prodorsum, dorsal view, 675 - notogaster, lateral view, 676 - genitoaggenital plate, 677 - anoadanal plate

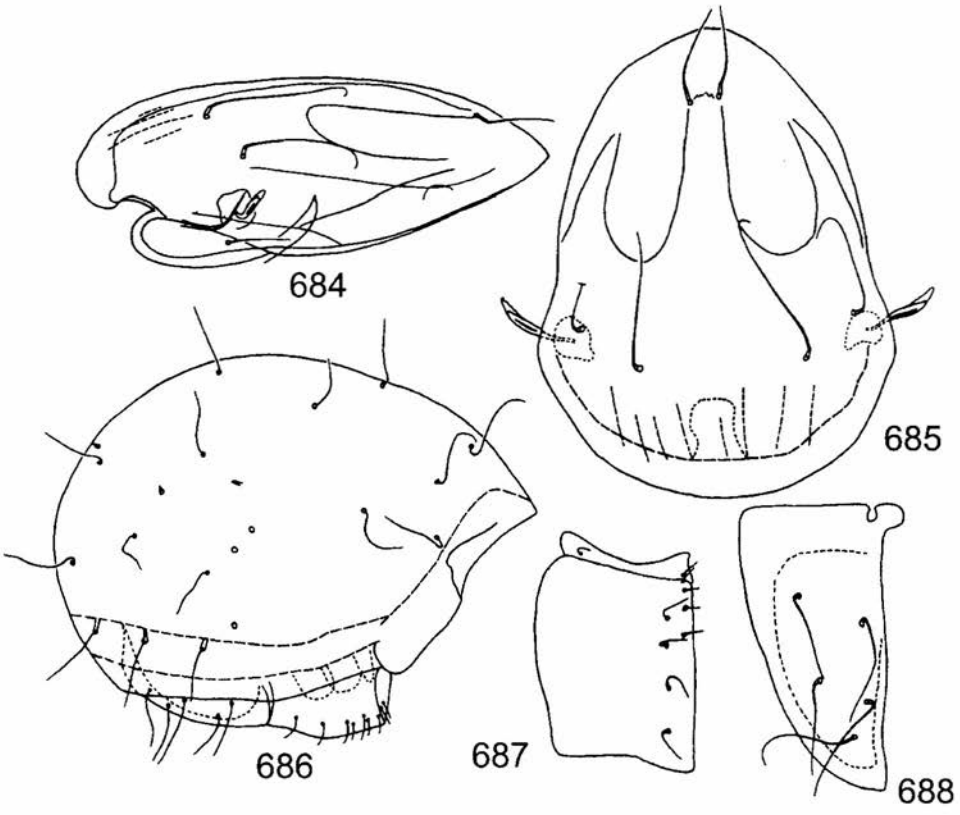


678-683. *Phthiracarus membranifer* PARRY, 1979 (specimen from Sri Lanka): 678 - prodorsum, lateral view, 679 - prodorsum, dorsal view, 680 - notogaster, lateral view, 681 - genitoaggenital plate, 682 - anoadanal plate, 683 - trochanter and femur of leg I

DIAGNOSIS. Median and lateral fields of prodorsum and lateral carinae long; posterior furrows present; sensilli fusiform with undulating margin; *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of fairly short ($c_1 < c_1$-d_1) setae; vestigial setae f_1 anterior to h_1 setae; three pairs of lyrifissures *ia, im, ip* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates with 5 pairs of well-developed setae. Chaetotaxy of legs is complete.

MATERIAL. Locality in the Oriental region: Vietnam N, Phy-Lien, at 115 m, litter under lawn, 1.X.1960, leg. A. BARTKE – (2); Tam Dao, sample of mosses on the wall of house ruins, 920 m, 15 X 1988, leg. J. STARY – (1). Indonesia, Java, near Cibodas, at 2580 m, moist forest, 23 VIII 1979, leg. J. BŁOSZYK - (2) (NIEDBAŁA 1986). Malaysia, Borneo, Sabah Mt Kinabalu N.P. Sumit Trail Pondok Ubah, at 2050 m, 26.IV.1987, leg. A. SMETANA – (7); Sumatra Barat Distr., Padangpanjang, Gunnung Singalang, 2500 m, cloud forest (TF), 27.IX.1978, leg. P.T. LEHTINEN – (1). Philippines, Negros Is., Talinis, Negros Oriental Prov., 4800-5000 ft., litter, 31.III.1981, leg. S.G. RAYES – (1) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. An Oriental species.

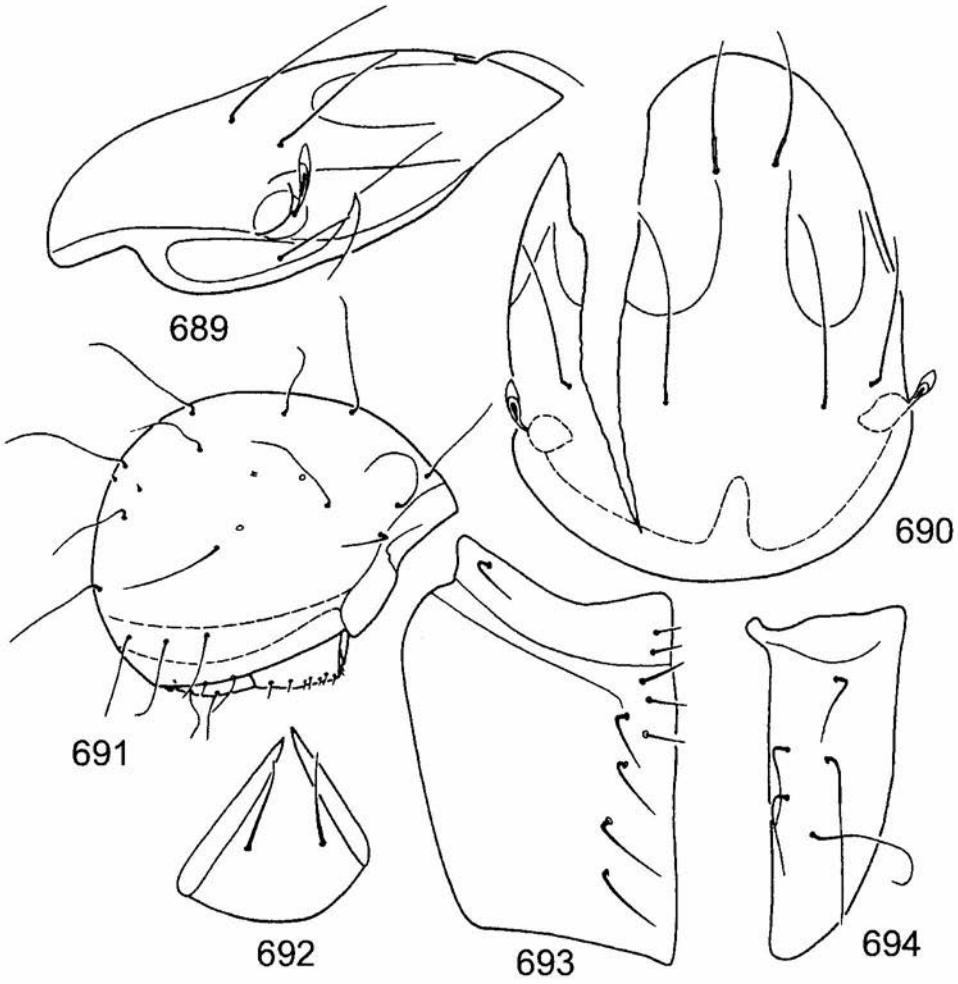


684-688. *Phthiracarus obscurus* NIEDBAŁA, 1986 (holotype): 684 - prodorsum, lateral view, 685 - prodorsum, dorsal view, 686 - notogaster, lateral view, 687 - genitoaggenital plate, 688 - anoadanal plate

Phthiracarus opacus NIEDBAŁA, 1986
(Figs 689-694)

Phthiracarus opacus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields normally developed; lateral carinae of medium length; sensilli short, fusiform; $in > le > ro > ex$. Notogaster with 15 pairs of fairly long setae ($c_1 < c_1$-d_1); vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital plate: 7(4+3): 2, anoadanal plates with 5 pairs of well developed setae, setae ad_1 and ad_2 the longest, setae ad_3 the shortest. Chaetotaxy of legs complete.



689-694. *Phthiracarus opacus* NIEDBAŁA, 1986 (holotype): 689 - prodorsum, lateral view, 690 - prodorsum, dorsal view, 691 - notogaster, lateral view, 692 - mentum of infracapitulum, 693 - genitoaggenital plate, 694 - anoadanal plate

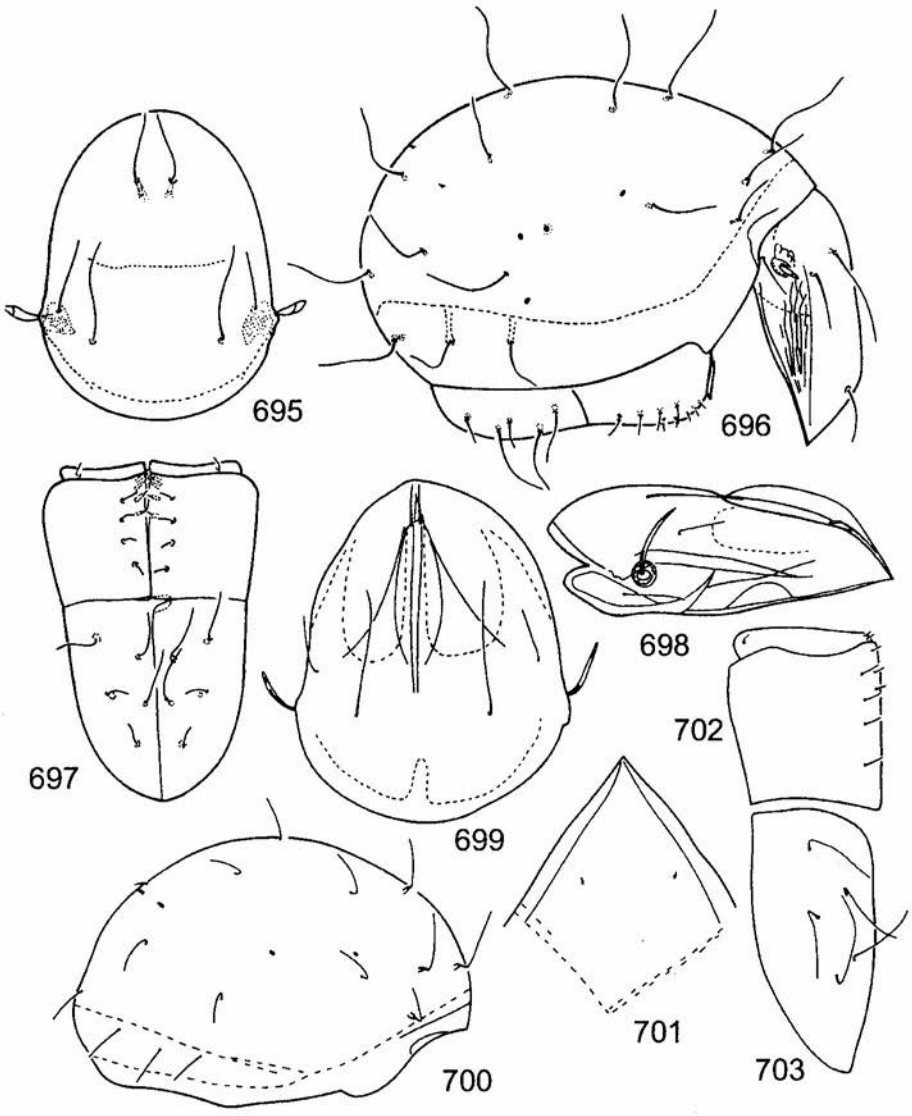
MATERIAL. Locality in the border zone of oriental region: Korea, Kaesong-si, Pakchon, in forest, 7 VI 1974, leg. A. SZEPTYCKI - (1) (NIEDBAŁA 1986, 1992).

DISTRIBUTION. A Palaearctic species.

Phthiracarus ornatus MAHUNKA, 1991

(Figs 695-697)

Phthiracarus (*Archiphthiracarus*) *ornatus* MAHUNKA, 1991



695-697. *Phthiracarus ornatus* MAHUNKA, 1991 (after MAHUNKA 1991a): 695 - prodorsum, dorsal view, 696 - lateral view of body, 697 - ventral region; 698-703. *Phthiracarus paraglobosus* NIEDBAŁA, 1982 (holotype): 698 - prodorsum, lateral view, 699 - prodorsum, dorsal view, 700 - notogaster, lateral view, 701 - mentum of infracapitulum, 702 - genitoaggenital plate, 703 - anoadanal plate

DIAGNOSIS. Prodorsum with lateral carinae very long; sensilli short, fusiform; setae fine, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of flagellate setae; vestigial setae f_1 anterior to h_1 setae; four pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, all 5 pairs of setae on anoadanal plates well-developed, anal setae the longest, ad_1 and ad_2 setae the shortest. Chaetotaxy of legs probably complete.

MATERIAL. Locality in the Oriental region: Sabah (West Coast Residency), Mt. Kinabalu, „Bukit Ular Trail" (sentier reliant la „Kambarangan Road" a la „Power Station"), foret de *Lithocarpus-Castanopsis*, prelevement de sol au pied d'un grand arbre, 1850 m, 28 IV 1982 - (14) (MAHUNKA 1991a).

DISTRIBUTION. Sabah, perhaps an endemic species.

Phthiracarus paraglobosus NIEDBAŁA, 1982

(Figs 698-703)

Phthiracarus paraglobosus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum long and narrow, lateral fields normally developed; median carina robust, lateral carinae long, extend beyond sinus; sensilli narrowly fusiform, but do not end in a point; *in* > *le* = *ex* >*ro*. Notogaster with 15 pairs of feeble and short ($c_1 < c_1$-d_1) setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum minute, widely apart; formula of genital setae: 7(4+3): 2; anoadanal plates with 5 pairs of well developed, fairly long setae. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: India, Kashmir, in valley of Indus, uder bushes, 4 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (1); Kashmir, between Jamnu and Srinagar, under pines, 4 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (6); Kashmir, near Ramban, under bushes, 15 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (8); Kashmir, road beetwen Srinagar and Kargil, in mixed forest, 6.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (6) (NIEDBAŁA 1982, 1992).

DISTRIBUTION. India, Kashmir, perhaps an endemic species.

Phthiracarus paratubulus NIEDBAŁA 1991

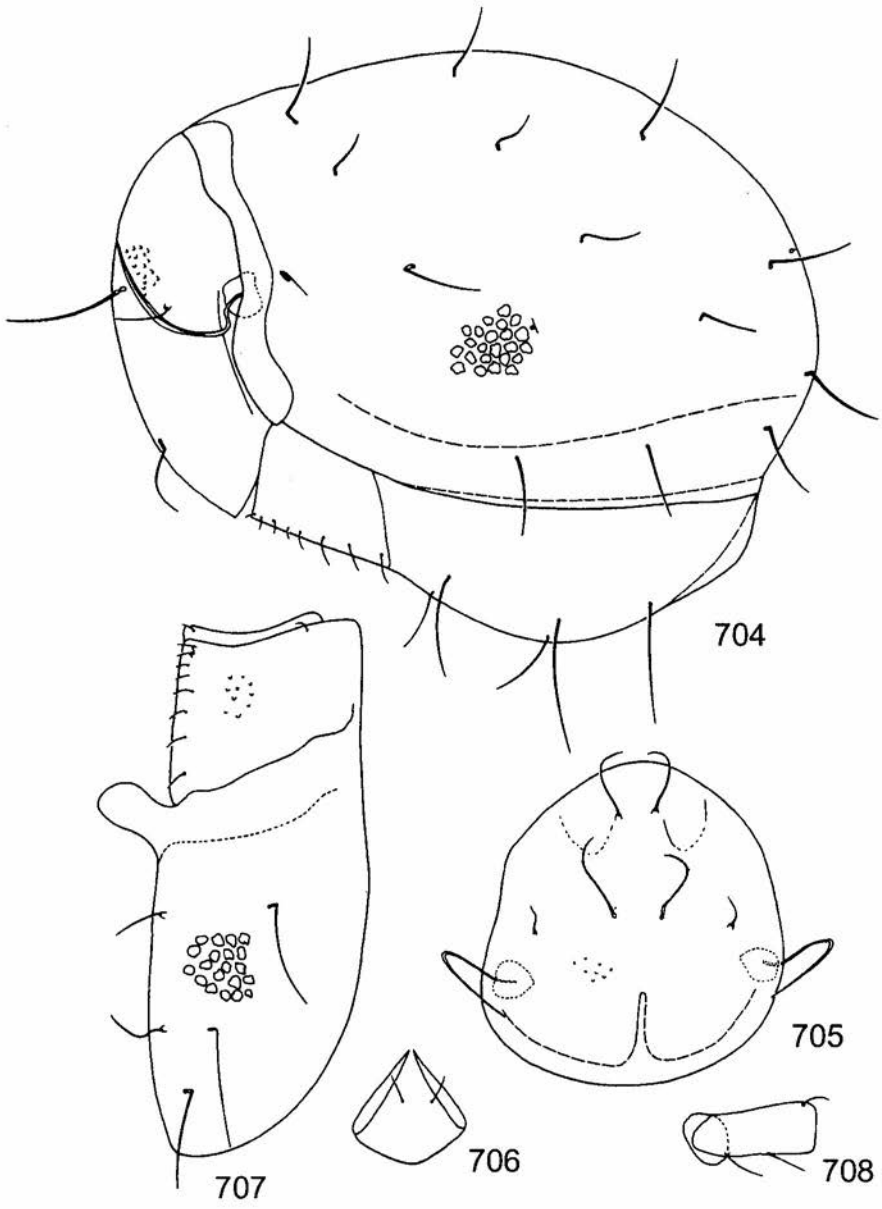
(Figs 704-708)

Phthiracarus paratubulus: NIEDBAŁA 1992

DIAGNOSIS. Surface of prodorsum and genitoaggenital plates with small concavities, surface of notogaster and anoadanal plates with reticulate ornamentation. Prodorsum with median and lateral fields indistinct; lateral carinae reach sinus; sensilli long, curved, lanceolate; interlamellar setae long, erect covered with small spines, rostral and lamellar setae smooth, *in* > *ro* > *le*. Notogaster with 15 pairs of short ($c_1 < c_1$-d_1), rigid setae covered with thin spines; vestigial setae f_1 at the level of h_1 setae; vestigial setae and lyrifissures invisible. Ventral region, setae *h* of mentum as long as distance between them; formula of genital setae: 8(4+4): 1; anoadanal plates with 5 pairs of setae, anal setae remote from each other, ad_2>ad_3>ad_1>an. Chaetotaxy of legs reduced, setae *v'* on femora I, *a'* on tarsi I and *l'* on genua absent.

MATERIAL. Locality in the Oriental region: Sri Lanka, Kalutara, litter from peatbog, 19 VI 1968, leg. J. BALOGH - (11); as above, soil with roots under scrubs, 19.VI.1968, leg. J. BALOGH – (2); Battula Oya, litter under large trees, 29.VI.1968, leg. J. BALOGH – (12); as above, litter under large trees, 29.VI.1968, leg. J. BALOGH – (26) (NIEDBAŁA 1991a).

DISTRIBUTION. Sri Lanka, perhaps an endemic species.



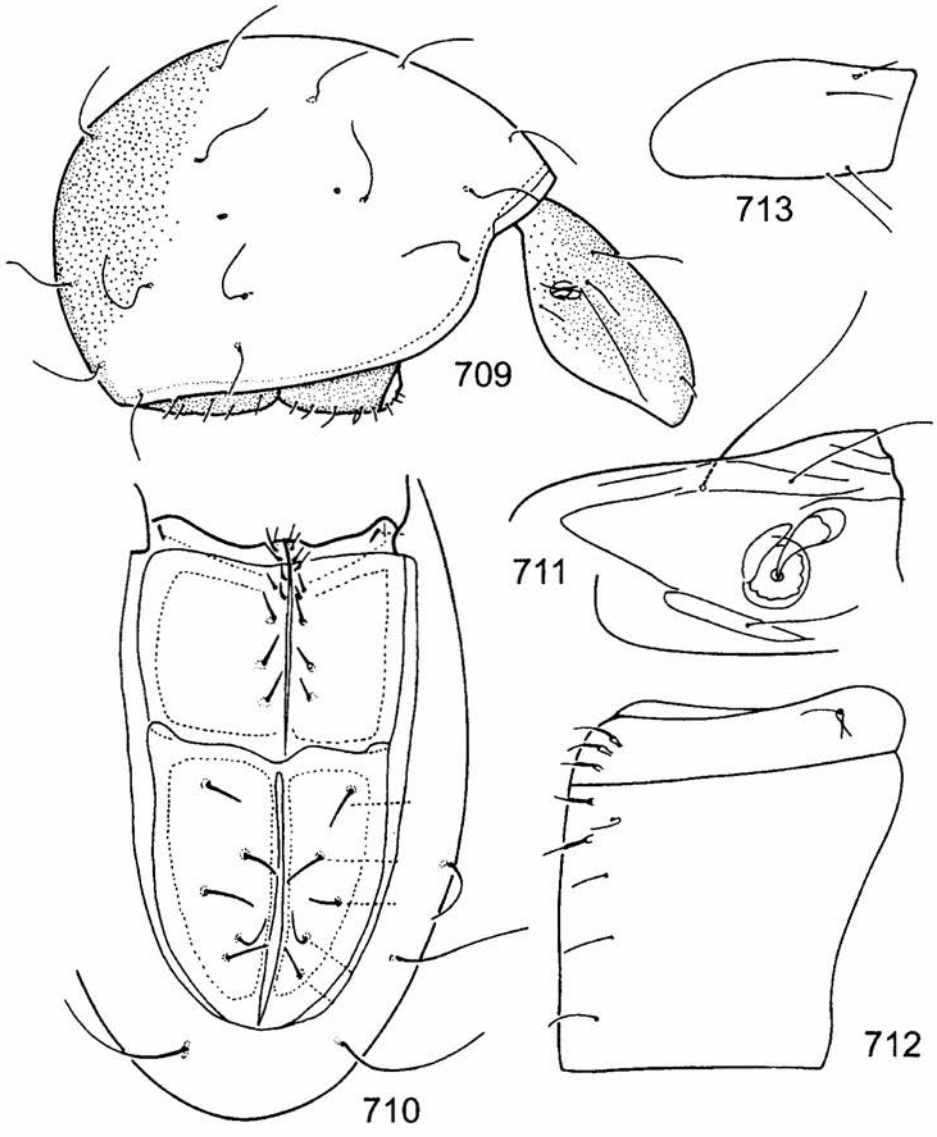
704-708. *Phthiracarus paratubulus* NIEDBAŁA, 1991 (holotype): 704 - lateral view of body, 705 - prodorsum, dorsal view, 706 - mentum of infracapitulum, 707 - genitoaggenital and anoadanal plates, 708 - trochanter and femur of leg

Phthiracarus parmatus (NAKATAMARI, 1985)

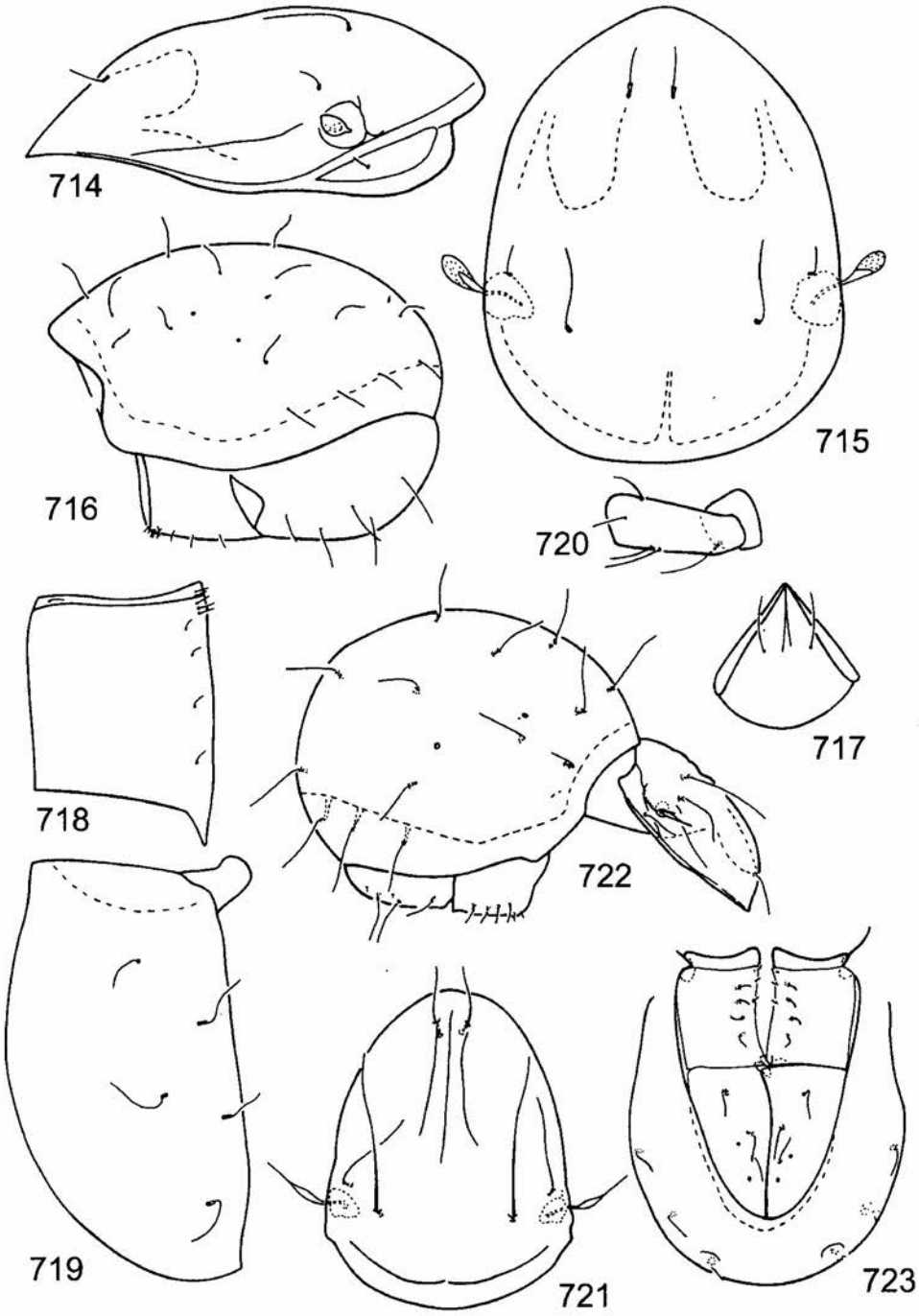
(Figs 709-713)

Paraphthiracarus parmatus NAKATAMARI, 1985
Phthiracarus parmatus: NIEDBAŁA 1994a

DIAGNOSIS. Prodorsum with long lateral carinae; sensilli short with thick, clavate head; setae smooth, relatively long, *in* > *le* > *ex* > *ro*. Notogaster with 15 pairs of



709, 710. *Phthiracarus parmatus* (NAKATAMARI, 1985) (after NAKATAMARI 1985): 709 - lateral view of body, 710 - ventral region; 711-713. *Phthiracarus parmatus* (NAKATAMARI, 1985) (specimen from NAKATAMARI): 711 - fragment of prodorsum with sensillus, 712 - genitoaggenital plate, 713 - femur of leg I



714-720. *Phthiracarus paucus* NIEDBAŁA, 1991 (holotype): 714 - prodorsum, lateral view, 715 - prodorsum, dorsal view, 716 - notogaster, lateral view, 717 - mentum of infracapitulum, 718 - genitoaggenital region, 719 - anoadanal region, 720 - trochanter and femur of leg I; 721-723. *Phthiracarus persimplex* MAHUNKA, 1982 (after MAHUNKA 1982): 721 - prodorsum, dorsal view, 722 - lateral view of body, 723 - ventral region

relatively long ($c_1 < c_1$-d_1), smooth setae; vestigial setae f_1 slightly dorsal to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, arrangement of genital setae: 6(4+2): 3, anoadanal plates each with 5 pairs of short, well-developed setae. Legs, all setae on femora I situated at the distal end of segment.

MATERIAL. Locality in the border zone of the Oriental region: Japan, Naha-shi, Okinawa, 27 VI 1982 and 13 VIII 1983, leg. S. NAKATAMARI - (6) (NAKATAMARI 1985).

DISTRIBUTION. Japan, probably an endemic species.

Phthiracarus paucus NIEDBAŁA, 1991

(Figs 714-720)

DIAGNOSIS. Prodorsum with weak fields; lateral carinae distinct; sensilli short, club-like with head covered with small spines; setae short, filiform, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of fairly short setae (c_1/c_1-$d_1 = 0.55$), setae ps_1-ps_4 arranged in one row; vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum slightly longer than distance between them; 9 pairs of genital setae with formula: 7(4+3): 2; anoadanal plates with 5 pairs of well developed setae. Legs with chaetotaxy incomplete, genua IV without setae, dorsal setae *d* on femora I fairly long.

MATERIAL. Locality in the Oriental region: Vietnam, Tam Dao Nat. Park, tropical forest, 11 X 1996, leg. W. JĘDRYCZKOWSKI – (1).

DISTRIBUTION. An Oriental species dispersed to the northern part of Australian region and to the Pacific islands.

Phthiracarus persimplex MAHUNKA, 1982

(Figs 721-723)

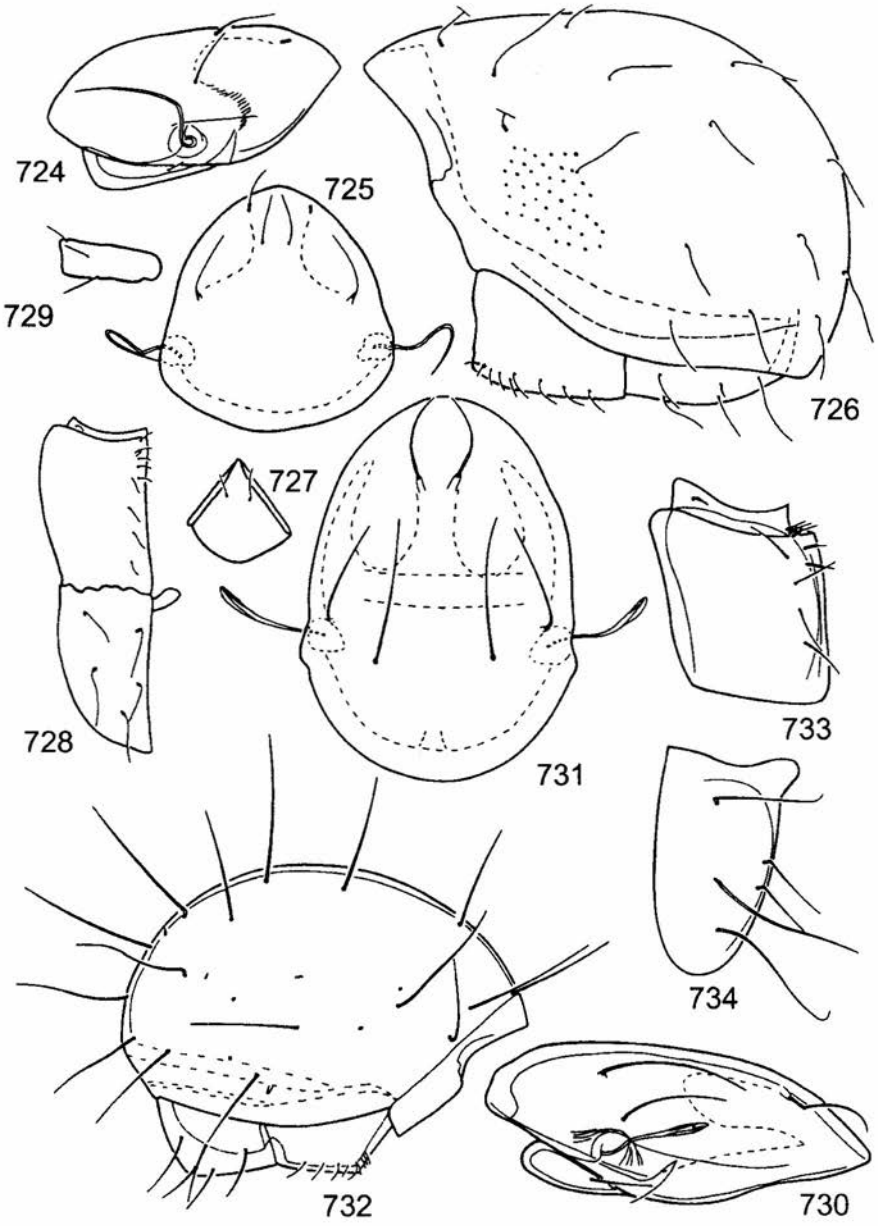
Phthiracarus persimplex: NIEDBAŁA 1986, 1992

DIAGNOSIS. Prodorsum with prominent long and narrow median carina, median field longer than laterals; sensilli fairly long, inflated in the middle and tapering to distal end and with pointed tip; setae simple, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of slender, fairly short ($c_1 < c_1$-d_1) setae; vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates each with 5 setae, setae ad_1 and ad_2 vestigial, setae ad_3 shorter than anal setae. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: Korea, Prov. Kengi, Bagyon san, Bagyon popo, about 27 km SW from Kaesong, noth-western lateral valley near waterfall, moist and dry mosses from cliffs, 7 VI 1970, leg. S. MAHUNKA and H. STEINMANN - (3); Prov. Kanwon, Kum-gang san, Guriongpopo, cliffs near waterfall basin, constantly moist litter accumulated in crevices, 1 VII 1970, leg. S. MAHUNKA and H. Steinmann -(1) (MAHUNKA 1982). Far East of Russia, Suputinsky reserve near Vladivostok, litter in ash-tree forest, 16 X 1963, leg. D.A.

KRIVOLUTSKY - (1) (NIEDBAŁA 1983); as above, lichens on tree in leafy forest, 27 VII 1966, leg. A.D. PETROVA - (1); Kedrovaja pad', under fir, 7.VIII.1966, leg. A.D. PETROVA – (4) (NIEDBAŁA 1992).

DISTRIBUTION. Far East of the Palaearctic region.



724-729. *Phthiracarus pygmaeus* BALOGH, 1958 (paratype): 724 - prodorsum, lateral view, 725 - prodorsum, dorsal view, 726 - notogaster, lateral view, 727 - mentum of infracapitulum, 728 - genitoaggenital and anoadanal plates, 729 - femur of leg I; 730-734. *Phthiracarus setosus* (BANKS, 1895) (specimen from USA): 730 - prodorsum, lateral view, 731 - prodorsum, dorsal view, 732 - notogaster, lateral view, 733 - genitoaggenital plate, 734 - anoadanal plate

Phthiracarus pygmaeus BALOGH, 1958
(Figs 724-729)

Phthiracarus pygmaeus: NIEDBAŁA 1986, 1992
Phthiracarus passimpunctatus BALOGH, 1988 **syn. nov.**

DIAGNOSIS. Surface of body with strong, spaced puncturation. Prodorsum with median field broad and lateral fields very short; lateral carinae short; sensilli rough, long and narrow, ending in a point; interlamellar setae located anterior to lamellar setae, $ro > le > in$. Notogaster with 15 pairs of short setae, $c_1 < c_1$-d_1. Ventral region, formula of genital setae: 9(4+5): 0; anoadanal plates each with 5 well developed setae. Chaetotaxy of legs reduced, setae *v'* on femora, *a'* on tarsi I and II are missing.

REMARK. I did not study the *P. passimpunctatus* but undoubtedly it is synonym of *P. pygmaeus*.

MATERIAL. Locality in the border zone of the Oriental region and in the Oriental region: India, Kashmir, 51 km from Lahore, alt. 4000 m, leaves and detritus under plants, 8 IX 1976, leg, J. BŁOSZYK and CZ. BŁASZAK – (1). Vietnam, Tam Dao, secondary pine forest, litter sample, 970 m, 10 X 1988, leg. J. STARY – (1). Sri Lanka, Kalutara, *Hevea* plantation, litter, 19.VI.1968, leg. J. BALOGH – (3); as above, litter under scrubs, near swamp, 19.VI.1968, leg. J. BALOGH – (9); as above, soil with roots under scrubs, 19.VI.1968, leg. J. BALOGH – (10). sub *P. passimpunctatus*: Sri Lanka, Waaga, rotten palm-roots, 18 VI 1968 - (1) (BALOGH 1988).

DISTRIBUTION. A Pantropical species.

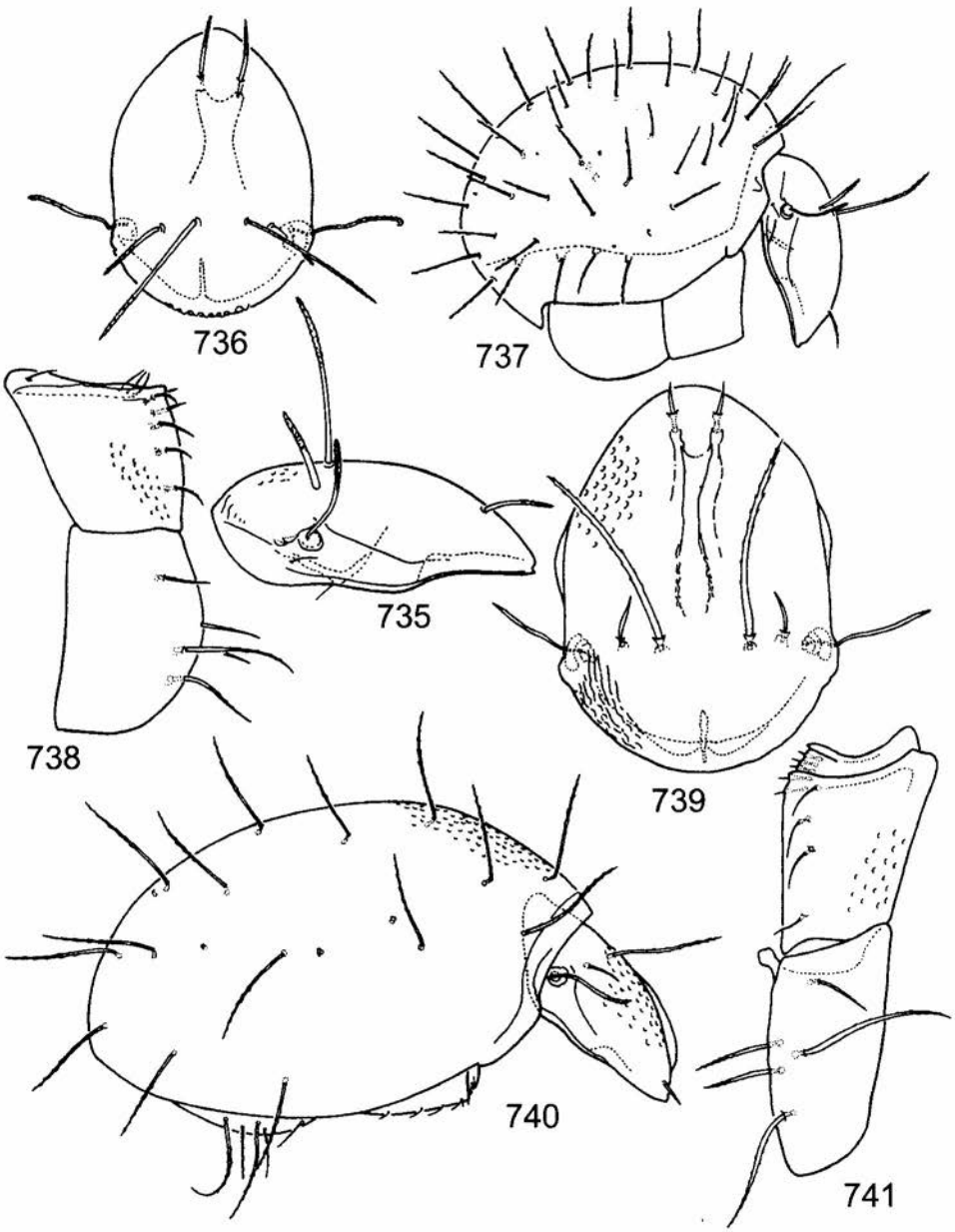
Phthiracarus setosus (BANKS, 1895)
(Figs 730-734)

Hoplophora setosa BANKS, 1895
Phthiracarus setosus: NIEDBAŁA 1986, 1992
Phthiracarus falcatus HAMMER, 1977
Metaphthiracarus bacillatus AOKI, 1980
Archiphthiracarus filiferus MAHUNKA, 1982

DIAGNOSIS. Median and laterals fields of prodorsum distinct; lateral carinae reach sinus; sensilli long, narrow, widen to distal end; setae slender, $in > le > ro > ex$. Notogaster with 15-18 pairs of rigid, long ($c_1 > c_1$-d_1) setae; vestigial setae f_1 posterior to h_1 setae; four pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, setae *h* of mentum generally longer than distance between them; formula of genital setae: 6(4+2): 3; anoadanal plates with 5 pairs of well developed setae, adanal setae longer than anal setae. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: sub *P. setosus*: Far East of Russia: ca 70 specimens from 14 localities of Suputinski reserve, Kedrova pad' and Skhote Alin' (NIEDBAŁA 1992). sub *P. falcatus*: North-west Pakistan, Bombret Valley, south-west of Chitral, thin moss, liverwortatan irrigation ditch, wet, leg. M. HAMMER - (1) (HAMMER1977); sub *M. bacillatus*: Japan, Tanbarracho, Shuso-gun, Ehimeken, 13 IV 1968, leg. K. Oruda - (4); Omogo-kei, Ehime-ken, from litter, 11 IV 1967, leg. J. AOKI - (7); Mt. Daisen, Tottori-ken, from litter under

a rotten wood. 28 IX1969, leg. K. KUROSA - (2); Mt. Kiyosumi, Chiba-ken, from Ao-layer of soil, X 1962, leg. Y. Kitazawa - (5); Mt. Nasu-dake, Tochigi-ken, from litter, 12 VIII 1965, leg. J. AOKI - (3) (AOKI 1980); sub *A. filiferus*: Korea, Prov. Kengi,



735-738. *Plonaphacarus aculeatus* (MAHUNKA, 1995) (after MAHUNKA 1995): 735 - prodorsum, lateral view, 736 - prodorsum, dorsal view, 737 - lateral view of notogaster, 738 - genitoaggenital and anoadanal plates; 739-741. *Plonaphacarus ishikawai* (AOKI, 1980) (after AOKI 1980): 739 - prodorsum, dorsal view, 740 - lateral view of body, 741 - genitoaggenital and anoadanal plates

Bagyon san, San-chon tong, about 20 km SE from Kaesong, margin of stream bed, litter and humus with fern base, 8 VI 1970, leg. S. MAHUNKA and H. STEINMANN - (1) (MAHUNKA 1982).

DISTRIBUTION. An Amfipacific species.

Steganacaridae NIEDBAŁA, 1986

DIAGNOSIS. Body surface usually covered with concavities and protuberances; posterior furrows of prodorsum usually present, lateral carinae rarely long, extending beyond sinus; setae of variable form, if smooth, then spiniform or flagelliform, most commonly covered with spicules; usually 9 pairs of genital setae present.

Plonaphacarus NIEDBAŁA, 1986

DIAGNOSIS. Dorsal and lateral fields of prodorsum not fused, rostral setae inserted far from the end of rostrum; genital setae arranged in two rows, setae g_7-g_9 always remote from the paraxial margin, Adanal setae at a distance from paraxial margin of ano-adanal plate; seta *v'* of femur I present.

Plonaphacarus aculeatus (MAHUNKA, 1995)

(Figs 735-738)

Hoplophthiracarus (Plonaphacarus) aculeatus MAHUNKA, 1995

DIAGNOSIS. Surface of body covered with alveoli. Prodorsum with short lateral carinae; setae thick, finely barbed (except simple exobothridial setae), *in* > *le* > *ro* > *ex*. Notogaster neotrichous with 40 pairs of mostly straight and erect setae, setae c_1 slightly longer than other setae; two pairs of lyrifissures *ia* and *im* as well as alveoli of vestigial setae f_1 and f_2 present. Ventral region, formula of genital setae: 6(4+2): 3; anoadanal plates with 5 pairs of roughened or finely barbed setae, $ad_2 > ad_1 > an > ad_3$. Chaetotaxy of legs reduced, setae *l* on tarsi I absent.

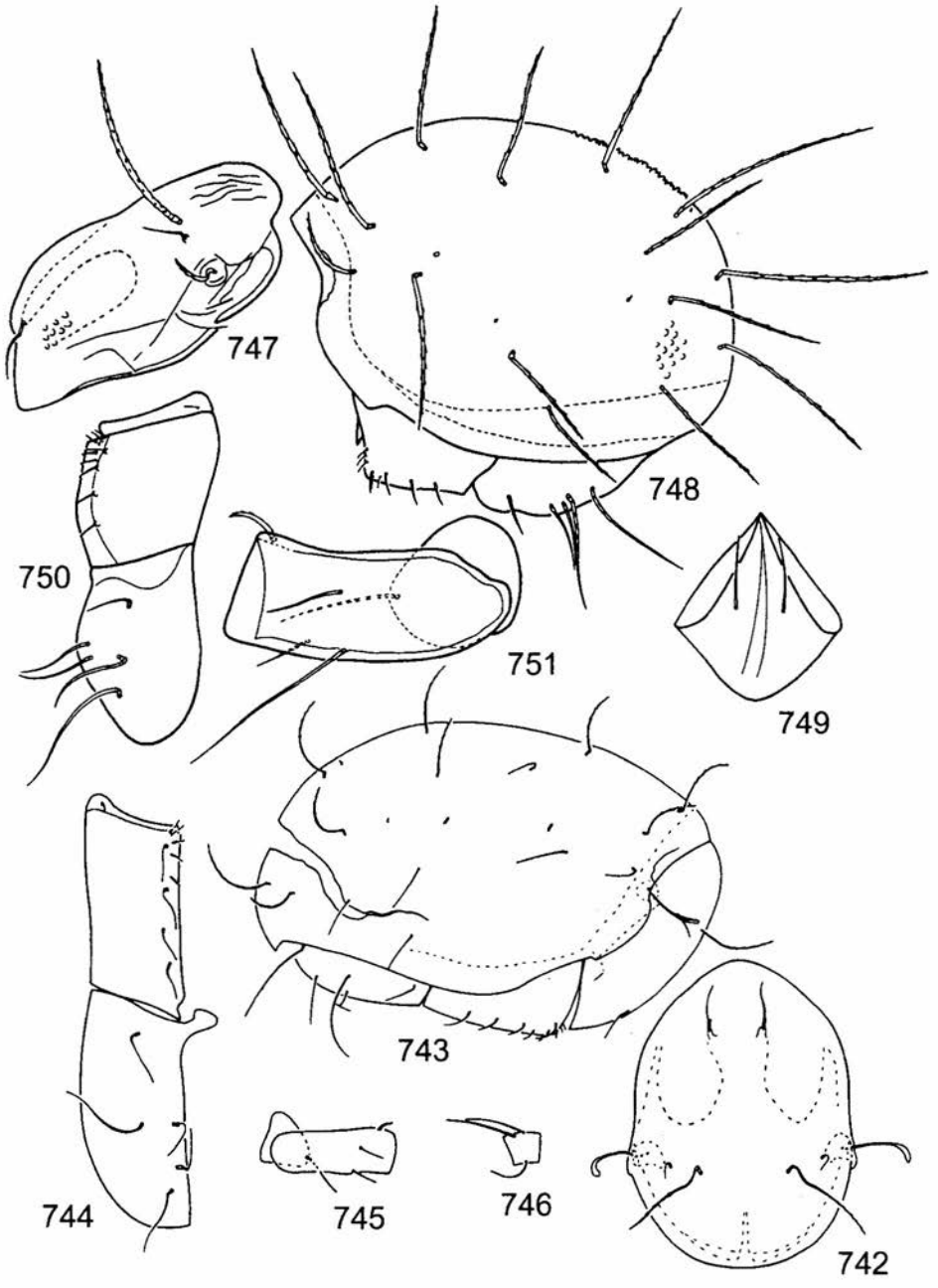
MATERIAL. Locality in the Oriental region: Brunei (Temburong District): "Peradayan Forest Reserve' (=Bukit Patoi"), a 14,5 km de Bangar (= 2,5 km de Labu) foret primaire ("Mixed dipterocarp forest"), prelevement de soldans les angles formes par les contreforts de grands arbres morts, 80 m, 24 XI 1988, leg. B.H. - (5) (MAHUNKA 1995).

DISTRIBUTION. Brunei, perhaps an endemic species.

Plonaphacarus dispar sp. nov.

(Figs 742-746)

DESCRIPTION. Measurements of holotype: prodorsum: length 185, width 131, height 75.9, sensilli 45.5, setae: interlamellar 65.8, lamellar 25.3, rostral 30.4;



742-746. *Plonaphacarus dispar* sp. nov. (holotype): 742 - prodorsum, dorsal view, 743 - lateral view of body, 744 - genitoaggenital and anoadanal plates, 745 - trochanter and femur of leg I, 746 - tibia of leg IV; 747-751. *Plonaphacarus insignitus* NIEDBAŁA, 1989 (holotype): 747 - prodorsum, lateral, 748 - notogaster, lateral view, 749 - mentum of infracapitulum, 750 - genitoaggenital and anoadanal plates, 751 - trochanter and femur of leg I

notogaster: length 353, width 227, height 212, setae: c_1 60.7, h_1 73.4, ps_1 68.3; genitoaggenital plate 109x55.7, anoadanal plate 129x63.2. Colour brown, integument with densely and finely punctate ornamentation. Prodorsum with weakly visible fields, median field slightly dilated towards rostral setae, lateral fields narrow. Lateral carinae reach sinus. Sensilli long with long pedicel and fusiform head. Interlamellar setae long, robust, erect, covered with small spines at distal end, lamellar and rostral setae shorter, smooth and spiniform, *in* > *ro* > *le*, exobothridial setae vestigial. Notogaster with 15 pairs of setae of different length and shape, dorsal setae and setae c_2, e_2, h_2 and ps_2 longer than other setae (c_1/c_1-$d_1 = 0.68$), covered with small spines distally; setae c_3, *cp*, d_2, h_3 and ps_{3-4} shorter and smooth; setae c_{1-3} slightly remote from anterior margin, setae c_2 more so than c_1 and c_3 setae; setae of row *ps* situated in one line. Vestigial setae f_1 anterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them. Formula of genital setae: 6(4+2): 3, setae g_{6-9} longer than setae g_{1-5}. Anoadanal plates with 5 pairs of setae, $ad_1 > ad_2 >$an $> ad_3$. Chaetotaxy of legs of reduced type, setae *v"* on femora I and setae *d'* on genua IV absent, setae *d* on femora I short and situated almost at distal end.

DIAGNOSIS. The new species is easily distinguishable from its congeners by the heterogenous length and shape of notogastral setae, one group covered with thin spines and second smooth; location of setae of row ps_{1-4} in one line; and g_{6-9} setae on genito-aggenital plates longer than g_{1-5} setae.

ETYMOLOGY. The specific epithet *dispar* is Latin for "unlike", "unequal", "different" and refers to the different length and shape of notogastral setae.

MATERIAL. Holotype. Indonesia, Borneo Is., Central Kilimantan, ex moss on decomposing log, 8 Nov. 1993, W. SM. GRUEZO.

DISTRIBUTION. Borneo, probably an endemic species.

Plonaphacarus insignitus NIEDBAŁA, 1989

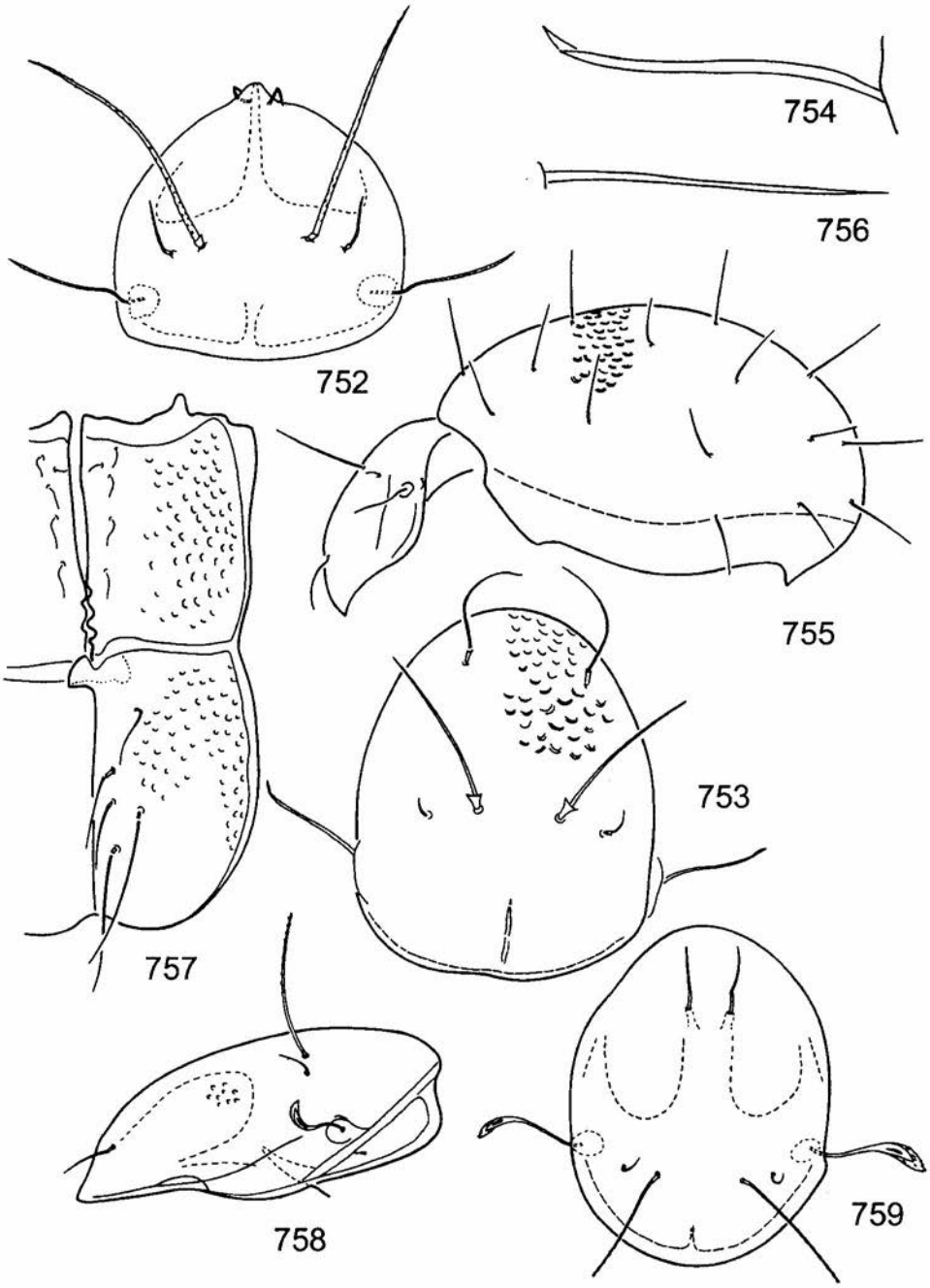
(Figs 747-751)

Plonaphacarus insignitus: NIEDBAŁA 1992

DIAGNOSIS. Surface of body covered with small tubercles. Fields of prodorsum distinct; median carina remarkable, lateral carinae reach sinus; posterior furrows present; sensilli long, narrow, sickle-shaped, covered with small spines; interlamellar setae long, thick, erect, covered with thin spines, lamellar and rostral setae spiniform, rough, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of long ($c_1 > c_1$-d_1), rigid setae covered with small spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them, formula of genital setae: 6(4+2): 3; anoadanal plates with 5 pairs of rough setae, $ad_1 > ad_2 > an > ad_3$. Chaetotaxy of legs complete.

MATERIAL. Localities in the Oriental region: Vietnam, Tam Dao Mtns, 90 km N Hanoi, old tropical forest at 1200 m, 25 X 1985, leg. M. ZACHARDA - (13); as above forest litter at 1200 m, 20 X 1985 - (1); as above, forest litter at 1400 m - (5); Dalat, 320 km N Ho Chi Minh, moist mixed litter in old tropical forest, at 1500 m, 11 XI 1985, leg. M. ZACHARDA - (7); as above 1600 m - (3) (NIEDBAŁA 1989).

DISTRIBUTION. Vietnam, probably an endemic species.



752. *Plonaphacarus insignitus* NIEDBAŁA, 1989 (holotype): prodorsum, dorsal view; 753-757. *Plonaphacarus kaszabi* (BALOGH, 1988) (after BALOGH 1988): 753 - prodorsum, dorsal view, 754 - sensillus, dorsal view, 755 - lateral view of body, 756 - seta h_1, 757 - genitoaggenital and anoadanal plates; 758, 759. *Plonaphacarus kugohi* (AOKI, 1959) (specimen from India): 758 - prodorsum, lateral view, 759 - prodorsum, dorsal view

Plonaphacarus ishikawai (AOKI, 1980)

(Figs 739-741)

Hoplophthiracarus ishikawai AOKI, 1980
Plonaphacarus ishikawai: NIEDBAŁA 1986, 1992

DIAGNOSIS. Surface of body covered with concavities; median field of prodorsum narrow, longer than laterals; lateral carinae very long; posterior furrows present; sensilli long, narrow, with pointed end, covered with spines; interlamellar setae long, robust, covered with spines, rostral and lamellar setae smooth, spiniform, exobothridial setae vestigial, *in* > *ro*> *le*. Notogaster with 15 pairs of robust setae covered with small spines, c_1 <c_1-d_1; vestigial setae f_1 at the level of h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; arrangement of genital setae: 6(4+2): 3; anoadanal plates each with 5 setae, setae ad_2 the longest and the thickest, setae ad_3 the shortest, all setae, except ad_3 rough. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

MATERIAL. Localities in the border zone of the Oriental region: Japan, Yayaguchi, Shuso-gun, Echimeken, from litter, 28 VI 1968, leg. K. ISHIKAWA - (8) (AOKI 1980); Honsiu Nara, Yoshino-Jama, litter of mixed forest, 19 VIII 1981, leg. P.T. LEHTINEN - (8).

DISTRIBUTION. Japan, probably an endemic species.

Plonaphacarus kaszabi (BALOGH, 1988)

(Figs 753-757)

Hoplophthiracarus kaszabi BALOGH, 1988
Hoplophthiracarus kaszabi: NIEDBAŁA 1992

DIAGNOSIS. Surface of body covered with strong concavities. Prodorsum with sensilli long, setiform, smooth, distal end with a separated tip; interlamellar setae long, erect, rostral setae curved inwards, lamellar setae minute. Notogaster with 15 pairs of straight, erect, smooth setae. Ventral region, genital setae arranged in two rows; anoadanal plates each with 5 setae, ad_1 and ad_2 longer than anal setae, setae ad_3 the shortest.

MATERIAL. Locality in the Oriental region: Sri Lanka, Waaga, hangingmosses on trees, 18 VI 1968 - (1) (BALOGH 1988).

DISTRIBUTION. Sri Lanka, perhaps an endemic species.

Plonaphacarus kugohi (AOKI, 1959)

(Figs 758-767)

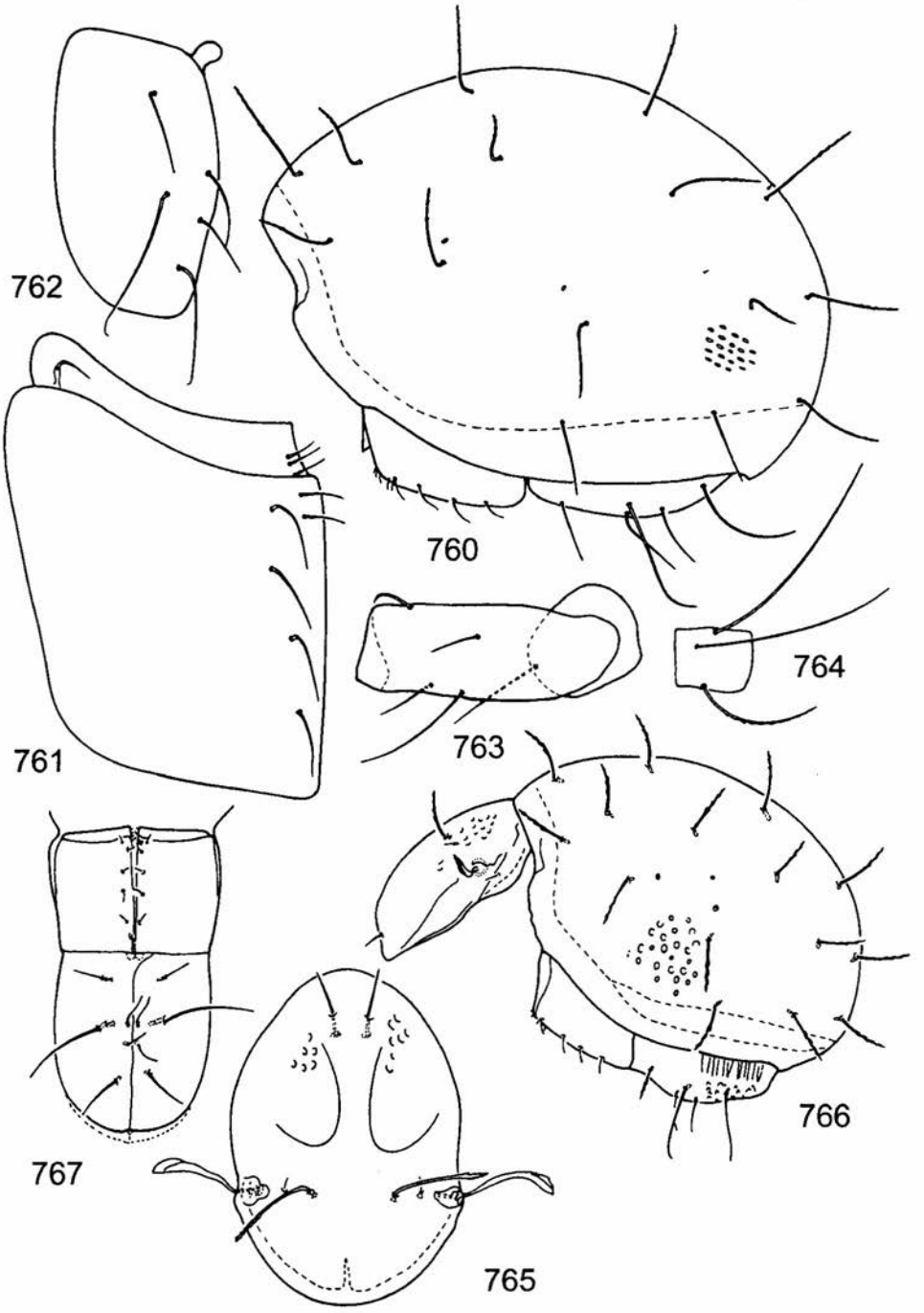
Hoplophthiracarus kugohi AOKI, 1959, 1980
Plonaphacarus kugohi: NIEDBAŁA 1986, 1992, NIEDBAŁA & CORPUZ-RAROS 1998
Hoplophthiracarus siamensis AOKI, 1965
Hoplophthiracarus kugohi siamensis AOKI, 1980
Hoplophthiracarus wittmeri BAYOUMI & MAHUNKA, 1979, MAHUNKA 1982
Hoplophthiracarus rimosus MAHUNKA, 1985 **syn. nov.**

Hoplophthiracarus minor MAHUNKA, 1991 **syn. nov.**
Hoplophthiracarus (Plonaphacarus) yoshii MAHUNKA,1991 **syn. nov.**

DIAGNOSIS. Measurements of specimen from Uttar Pradesh, India: prodorsum: length 308, width 212, height 106, sensillus 70.8, setae: interlamellar 144, lamellar 25.3, rostral 48.1, exobothridial 5.1; notogaster: length 609, width 425, height 425, setae: c_1 121, c_1/c_1-d_1 = 0.68, h_1 and ps_1 116; genitoaggenital plate 162x121, anoadanal plate 227x131. Surface of body covered with concavities. Prodorsum with median and laterals fields distinct; posterior furrows present; lateral carinae very long, extend beyond sinus and reach end of rostrum; sensilli long, narrow, swollen at the end and covered with small spines; interlamellar setae long, erect, covered with small spines in distal half, remaining setae short, smooth. Notogaster with 15 pairs of robust, fairly short ($c_1 < c_1$-d_1) setae, covered with small spines; vestigial setae f_1 posterior to h_1 setae, sometimes anterior to them; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum minute, arrangement of genital setae: 6(4+2): 3; anoadanal plates each with 5 setae, setae ad_2 the longest and the thickest, an_1 and $an_2 = ad_3 < ad_1 < ad_2$. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

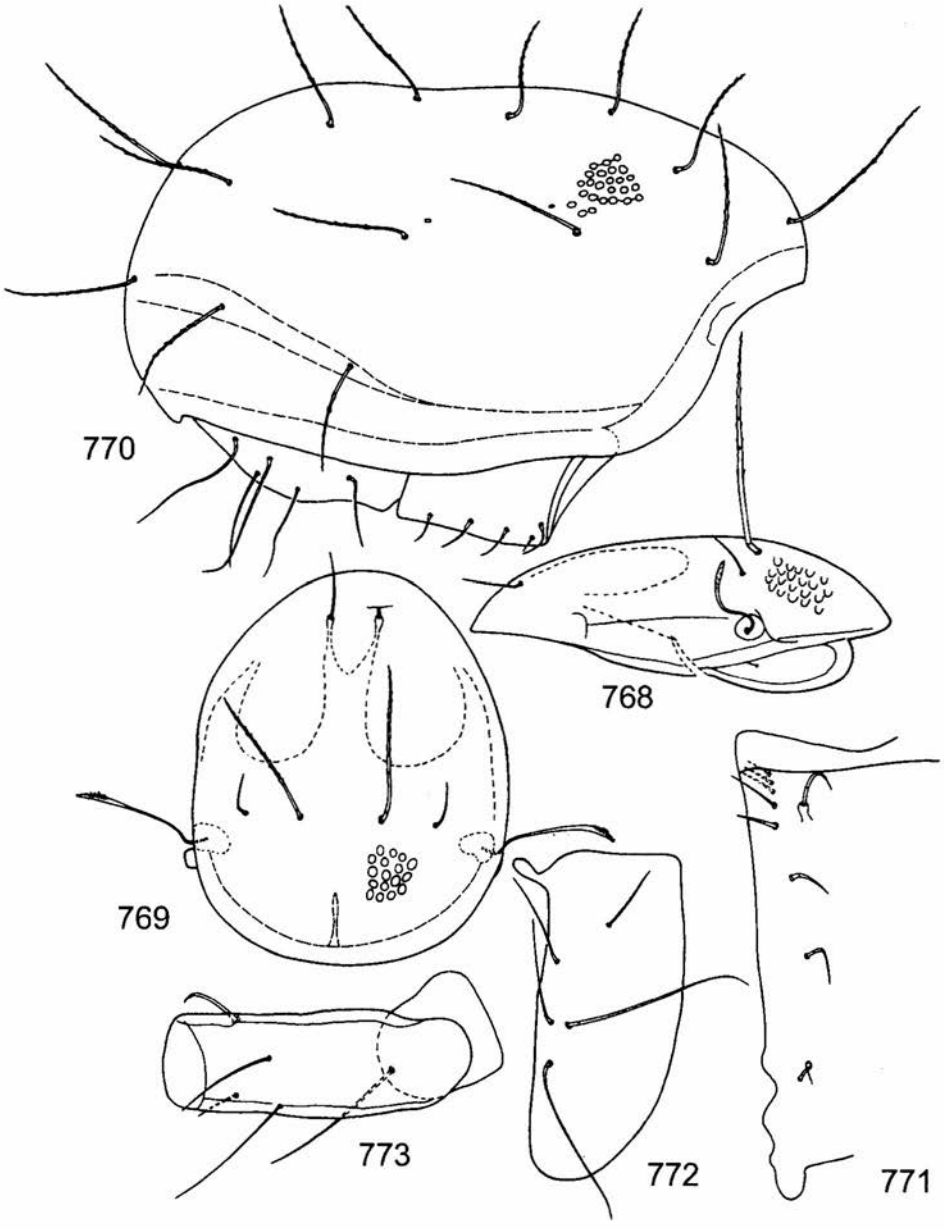
REMARK. Although I have not studied the types, the analysis of morphological features of *H. minor, H. rimosus* and *H.(P.) yoshii* indicates that they are synonyms of *P. kugohi.*

MATERIAL. Localities in the Oriental region and in its border zone: sub *H. siamensis*: Thailand, Mae Ngon Luang, 12 XI 1961, leg. K. OGINO - (6); Sara Buri, 6 X 1962, leg. K. OGINO and P. SAICHUAE - (1); Doi Suthep, 28 X 1961, leg. G. IMADATE - (1) (AOKI 1965). sub *H. wittmeri*: Bhutan, BH4, 1972, leg. W. WITTMER - (7) (BAYOUMI & MAHUNKA 1979); Korea, Prov. South Phenan: De-sang san, 12 km NE from Pyongyang, litter of a deciduous forest near a lake, 21 V1970, leg. S. MAHUNKA and H. STEINMANN; Prov. Kengi, Bagyon san, San-chon tong, about 10 km from Kaesong, detritus, litter and soil from base of sweet chestnut tree, 8 VI 1970, leg. S. MAHUNKA and H. STEINMANN; Prov. South Pyongan, Pyongyan, De-sangsan, 12 km NE from Pyongyan, litter sample from a coniferous wood, 18 VII 1975, leg. J. PAPP and A. VOJNITIS (MAHUNKA 1982). sub *H. kugohi*: Japan: Iwakiri, Miyazaki-Shi, Miyazaki-Praf. From moss and litter layer, 6 II 1958, leg. T. KUGOH - (2) (AOKI 1959); S. Japan, Yudomari, Yaku Island, from litter under a large *Ficus microcarpa* tree, 16 XI 1974, leg. J. AOKI - (3); C. Japan, Meiji-jingu Shrine, Tokyo, from forest litter, 1 XI 1975, leg. J. AOKI - (5); SW Japan,Tanbara-cho, Shuso-gun, Ehime-ken, 13 IV 1968, leg. K. OKUDA - (1) (AOKI 1980). Nepal, Kathmandu, 1500 m SWof city, in mixed forest, leg. J. BŁOSZYK, 28 VIII 1981 - (3); S of Mt. Anapurna, 3000 m, near village Hinko, under rhododendrons - (1). India, Western Ghats, Goa prov., Bendla reserve, in dry forest, leg. I. CHOJNACKI - (4); as above, litter in jungle - (2); as above, in bomboo forest on hummock - (9). Korea, 20 km W of Kaesong, in accacia forest, leg. A. SZEPTYCKI and W. WEINER - (1); as above, in mixed forest - (1); Sykung-ho lake near Sarivon, in leafy forest with pines, leg. A. SZEPTYCKI and W. WEINER - (2) (NIEDBAŁA 1992). sub *H. rimosus*: India, Kerala, Nelliampathi Hills (au nord-ouest des Anaimalai Hills), Kaikatty, 900 m, tamisages en foret, pres d'un ruisseau, 30 XI1972, leg. C. BESUCHET and I. LÖBL - (20) (MAHUNKA 1980). sub *H. minor*: Malaysia (Perak), Cascade de Sungei Simei (Cameron Highlands), 25 III 1977, leg. T. JACCOUD et P. MARCUARD - (13) (MAHUNKA 1991b). sub *H. (P.) yoshii*: Sabah



760-764. *Plonaphacarus kugohi* (AOKI, 1959) (specimen frm India): 760 - notogaster, lateral view, 761 - genitoaggenital plate, 762 - anoadanal plate, 763 - trochanter and femur of leg I, 764 - tibia of leg IV; 765-767. *Plonaphacarus rimosus* (MAHUNKA, 1985) - synonyme of *Plonaphacarus kugohi* (after MAHUNKA 1985): 765 - prodorsum, dorsal view, 766 - lateral view of body, 767 - genitoaggenital and anoadanal plates

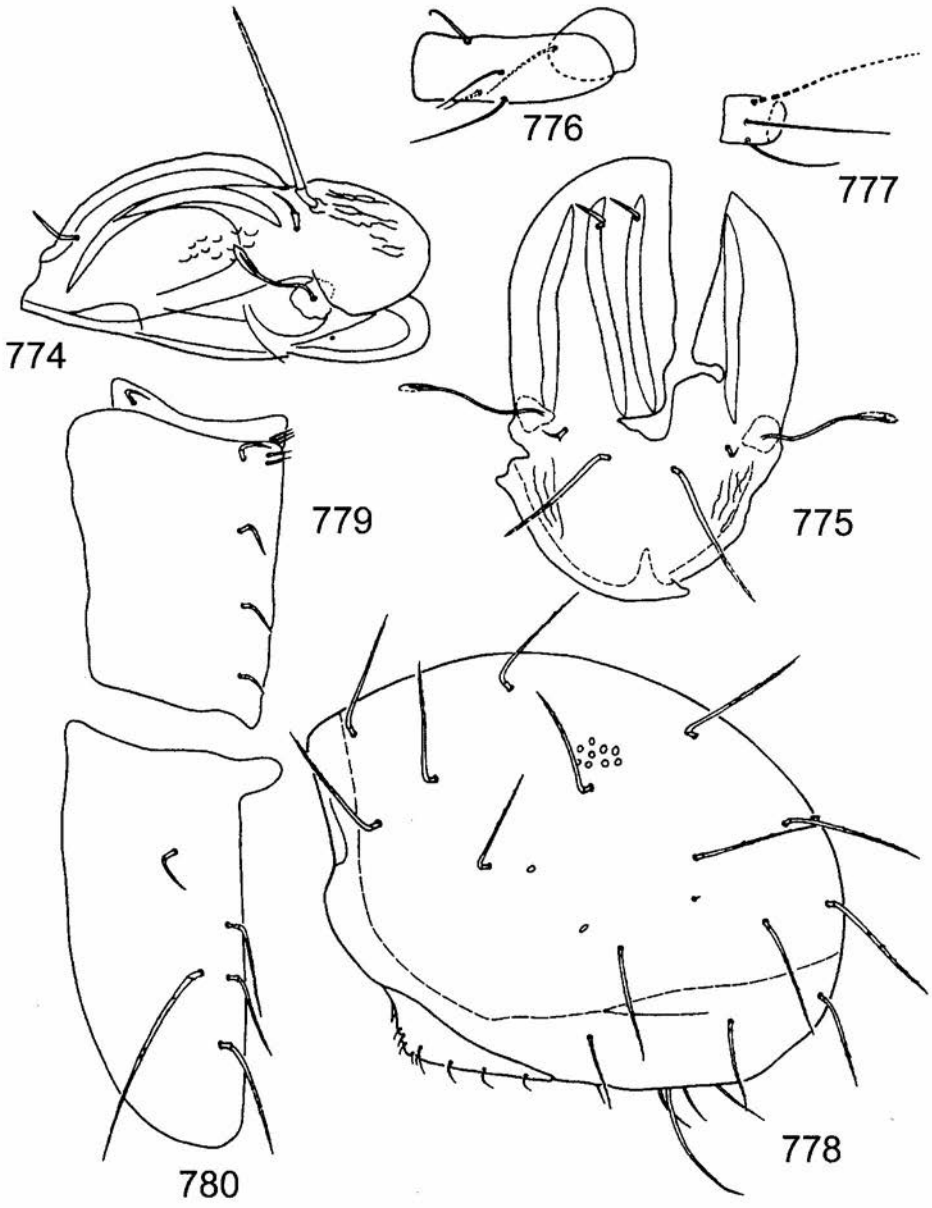
(Sandakan Residency), Sepilok, „Kabili-Sepilok Forest Reserve", foret pres du „Pond" (etang formant la reserve d'eau pour Sepilok), secondary lowland forest, tamisage de feuilles morte set de bois pourri, 30 m, 23 IV 1982 - (6); Sabah (Sandaken Residency), Sepilok, foret pres de „Orang-Utan Rehabilitation Station", lowland Dipterocarp Forest, tamisages de feuilles mortes et de bois pourri preleves



768-773. *Plonaphacarus loebli* (MAHUNKA, 1985) (paratype): 768 - prodorsum, lateral view, 769 - prodorsum, dorsal view, 770 - notogaster, lateral view, 771 - fragment of genitoaggenital plate, 772 - anoadanal plate, 773 - trochanter and femur of leg I

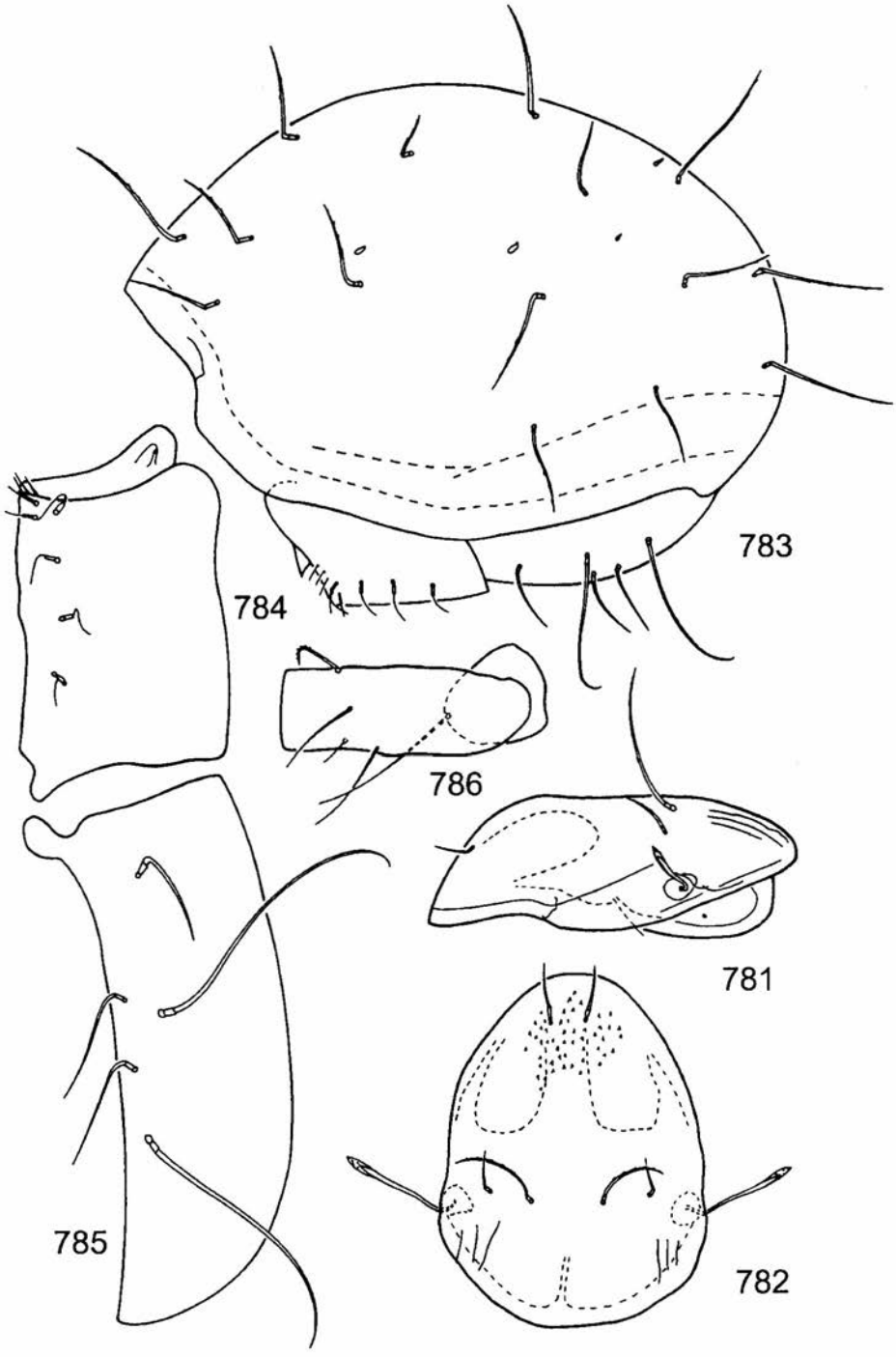
dans les anglesformes par les contreforts de grands arbres, 30 m, 3 V 1982 - (13); Sabah (Sandaken Residency), Sepilok, forest pres du Pond, secondary lowland forest, prelevement de feuilles morteset de bois pourri au pied d'un arbre, 30 m, 10 V 1982 - (10) (MAHUNKA 1991a). New localities in the border zone of the Oriental region: India, Himalah Pradesh, 15 km from Simla, pinus forest, grass, litter, detritus, 19 IX 1976, leg. J. BŁOSZYK and Cz. BŁASZAK – (1); Kaszmir, road to Jamnu before Ramban, shrubs, S side of the slope, 15 IX 1976, leg. J. BŁOSZYK and Cz. BŁASZAK – (1); India, Tamil Nadu Nilgiri Poddabeta, 2700 m, on bush, 22.IV.1979, leg. P.T. LEHTINEN – (1); India, Uttar Pradesh, Kumaon Bhimtal (1380 m), in litter of bush (TF), 17.IV.1979, leg. P.T. LEHTINEN – (1). Nepal, Bagmati, Balaju Park, bamboo forest (TF), 14.V.1979, leg. P.T. LEHTINEN – (1). Japan, Honsiu Nara, Yoshino-Jama, litter of mixed forest, 19.VIII.1981, leg. P.T. LEHTINEN – (2). New localities in the Oriental region: India, Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 700 m, litter under *Tamarindus indica*, 6.VIII.1986, leg. V. BEHAN – (1); Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 1000 m, litter and mosses under *Euphorbiacea* and cactus, 6.VIII.1986, leg. V. Behan – (1); Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 1000 m, mixed litter under *Cassia siamea, Lantana, Eucalyptus* loamy soil, 6.VIII.1986, leg. V. BEHAN – (44); Tumkur Dist. 75 km NW from Bangalore, Forest Stn. E of Tumkur, leaf litter, ferns at base of *Ficus benjamicus*, 6.VIII.1986, leg. V. BEHAN – (1); Kerala, Malappuram Inde District, Kakkenchery, litter in 2-nd-growth forest on stony slope (little litter accum.), 29.VII.1986, leg. R. NORTON, HAQ and RAMANI – (2); Kerala, Kozhikode District, Peruvannaouzhy, Central Plantation Crops Research Institute, litter in natural forest (trees 6-12" dbh), 30.VII.1986, leg. NORTON, HAQ, RAMANI – (1); Kerala, Malappuram District, Kakkenchery, litter under Irul tree on stony hillside, 29.VII.1986, leg. NORTON, HAQ, RAMANI – (4); Karnataka, Tunkur District, Devarayadurga Hills, 10 km E from Tunkur, at ca 1100 m, litter at base of tamarine tree (*Tamarindus indicus*), 6.VIII.1986, leg. R. NORTON – (18); Karnataka, Tunkur District, Devarayadurga Hills, 10 km E from Tunkur, at ca 1100 m, rich, moisty litter of *Terminalia* tree and *Lantana* shrubs, 6.VIII.1986, leg. R. NORTON – (15). Sri Lanka, Kalutara, *Hevea* plantation, litter, 19.VI.1968, leg. J. BALOGH – (11); Sri Lanka, Kalutara, litter under scrubs, near swamp, 19.VI.1968, leg. J. BALOGH – (7); Sri Lanka, Kalutara, soil with roots under scrubs, 19.VI.1968, leg. J. BALOGH – (1); Sri Lanka, Battula Oya, litter under large trees, 29.VI.1968, leg. J. BALOGH – (2); Sri Lanka, Nuwara Eliya, moss forest, 23-24.VI.1968, leg. J. BALOGH – (6); Sri Lanka, Uva Prov., Katandole Rahu, litter of secondary forest, 19.X.1984, leg. P.T. LEHTINEN – (1); Sri Lanka, Central Prov., Pidurutalagalla 1900 m, litter of mountain slope near road side, 17.X.1984, leg. P.T. LEHTINEN – (3); Sri Lanka, Central Prov., Nuwara Eliya 1800 m, litter of mixed forest, 16.X.1984, leg. P.T. LEHTINEN – (4); Sri Lanka, Central Prov., Pidurutalagalla 1600 m, broad leaved jungle litter, 17.X.1984, leg. P.T. LEHTINEN – (6). Thailand, Chienamai Pr. Doi Suthep, jungle, 14.XI.1976, leg. P.H. LEHTINEN – (1); Northern Thailand, Doi Sutep, at 1100-1200 m, Kaseas Dal, 14.IX.1959, leg. Birgid DAGERBØL Zool. Mus.Køb. – (1); Northern Thailand, Doi Sutep, 11.III.1959, leg. Birgid DAGERBØL Zool. Mus.Køb. – (1). Vietnam, Tam Dao, middle waterfall, scree forest, litter sample, 850 m, 15 X 1988, leg. J. STARY – (1); Vietnam, Tam Dao, sample of mosses on the wall of house ruins, 920 m, 15 X 1988, leg. J. STARY – (1); Vietnam, VIE-13 Hanoi, Thank-Tri, Vinh-Quynh nunnery,

garden, litter sample under trees, 8 X 1988, leg. J. STARY – (3). Indonesia, Sumatra 655 – (1); Indonesia, Sulawesi, Utara, Gorontalo d. Datahu, at 600 m, jungle slope with *Araceae*, 24.X.1979, leg. P.T. LEHTINEN – (1); Indonesia, Kalimantan, Timur, Samarinda d., Samarinda Ulu, Lac Bahu, rain forest, 27.X.1979, leg. P.T. LEHTINEN – (3); Indonesia, Kalimantan, Timur, Samarinda d., Sanga Sanga, Muara, jungle litter,



774-780. *Plonaphacarus scrupeus* NIEDBAŁA, 1989 (holotype): 774 - prodorsum, lateral view, 775 - prodorsum, dorsal view, 776 - trochanter and femur of leg I, 777 - tibia of leg IV778 - notogaster, lateral view, 779 - genito-aggenital plate, 780 - anoadanal plate

29.X.1979, leg. P.T. LEHTINEN – (1); Indonesia, Kalimantan Selatan Tapin Miawa, forested rock slope, 8.XI.1984, leg. P.T. LEHTINEN – (29). Malaysia, Sabah, Tawan d., Bal Estate, Tiger Hill, 2.XI.1979, leg. P.T. LEHTINEN – (2); Malaysia, Jahor, Kota Tinggi, BFS, rain forest, 1-4.XI.1976, leg. P.T. LEHTINEN – (1); Malaysia, Pahang, Jerantut 14 km S, litter of jungle, 17.XI.1984, leg. P.T. LEHTINEN – (12). Philippines, Palawan, Irawan, litter of jungle, 23.VIII.1981, leg. P.T. LEHTINEN – (1); Philippines, Luzon Is., Mt. Mandiklum, 300 m, San Felipe, San Lorenzo Ruiz, Camarines del Norte prov., moss, 13.IV.1994, leg. W.SM. GRUEZO – (1); Philippines, Luzon Is., Laguna Prov., Mt. Makiling, Los Baños, ex. litter near edge of creek, 27. IV.1992, leg. R. C. GARCIA – (2); Philippines, Luzon Is., Laguna Prov., Makiling Botanic Gardens, Mt. Makiling, Los Baños, ex. litter from undisturbed secondary forest, 18. III.1976, leg. R. C. GARCIA – (1); Philippines, Luzon Is., Laguna Prov., Mt. Makiling, Puting Lupa, Calamba, ex. litter from *Leucaena leucocephala*, *Gliricidia sepium* plantation, 17.I.1978, leg. Upland Hydroecology Program staff – (2); Philippines, Luzon Is., Laguna Prov., Mt. Makiling, Puting Lupa, Calamba, ex. litter from *Leucaena leucocephala*, *Gliricidia sepum* plantation, 5.IV.1978, leg. Upland Hydroecology Program staff – (1); Philippines, Leyte Is., Mt. Pangasugan, Baybay. Leyte Prov., ex. leaf litter, 10.II.1987, leg. A. M. ALMERODA – (1); Philippines, Luzon Is., Mt. Makiling, Laguna Prov., Los Baños, ex. leaf litter, X.1975, leg. A.A. BARROSO – (1); Philippines, Luzon Is., U.P. Los Baños Forestry Campus, College, Laguna Prov., leaf litter, 27.IV.1993, leg. R.C. GARCIA – (2); Philippines, Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., litter mixed upland crops, IX.1979, leg. L. SANCHEZ – (1); Philippines, Leyte Is., San Augustin, Baybay, Leyte Prov., leaf litter, 28.IX.1984, leg. L.C. ABELLA – (4); Philippines, Lapata Is. (off Luzon Is.), Padre Burgos, Quezon Prov., leaf litter, 26.II.1994, leg. O.L. EUSEBIO – (2); Philippines, Luzon Is., Mt. Makiling, Puting Lupa, Calamba, Laguna Prov., ex. litter from *Imperata cylindrica – Saccharum spontaneum* grassland, 5.IV.1978, leg. Upland Hydroecology Program staff – (1); Philippines, 189 – (1); Philippines, 4657 Luzon Is., Anos, Los Baños, Laguna, leaf litter, 21 IX 1995, leg. R.C. GARCIA – (2); Philippines, DNR 8 Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter of *Vitex parviflora*, 17 VIII 1976, leg. I.M. SOTTO and R.C. GARCIA – (2); Philippines, 1167 Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter of *Albizia falcataria*, 1 IV 1976, leg. R.C. GARCIA and C.C. CALIBO – (1); Philippines, 572 Mindanao Is., Tungao, Agusan del Norte, litter under harvestable *Albizia falcataria*, 29 IV 1975, leg. R.S. RAROS – (1). Philippines, Pt 18 Luzon Is., Carranglan, Nueva Ecija Province, forest litter, 1974, leg. V.P. GAPUD – (2). Philippines, 1041 Luzon Is, Quezon National Park, Atimonan, Quezon, forest litter, 18 I 1976, leg. R.C. GARCIA – (3); Philippines, 436 Luzon Is., Mudspring area, alt. ca. 300 m, Mt. Makiling, Los Baños, Laguna Province, litter from young plantation of *Gmelina arborea – Swietenia macrophylla*, 29 IX 1974, leg. R. and L. RAROS – (1); Philippines, 705 Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, undisturbed secondary forest litter, 26 VI 1975, leg. I.M. SOTTO and R.C. GARCIA – (1); Philippines, 753 Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, litter of *Vitex parviflora*, 19 VII 1975, leg. I.M. SOTTO and R.C. GARCIA – (1); Philippines, DNR 182 Luzon Is., Kirsudon, San Isidro, Lagangilang, Abra Province, leaf litter, 23 X 1976, leg. I.M. SOTTO and R.C. GARCIA – (1); Philippines, 1006 Luzon Is, Makiling Botanic Gardens, Los Banos, Laguna, litter of *Albizia falcataria*, 10.I.1976, leg. R.C. GARCIA – (1);



781-786. *Plonaphacarus rafalski* NIEDBALA, 1997 (holotype): 781 - prodorsum, lateral view, 782 - prodorsum, dorsal view, 783 - notogaster, lateral view, 784 - genitoaggenital plate, 785 - anoadanal plate, 786 - trochanter and femur of leg I

Philippines, 618 Luzon Is., Pangil, Laguna, litter of *Albizia falcataria*, 11 V 1975, leg. R.S. RAROS – (1); Philippines, 544 Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, undisturbed secondary forest litter, 27 IV 1975, leg. I.M. SOTTO and R.C. GARCIA – (1); Philippines 1865, Mindanao Is., Evergreen Farm, Lot 12D, Davao City, Banana leaves, 23.XI.1978, leg. L.A.C. RAROS - (4) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. A Pantropical species.

Plonaphacarus loebli (MAHUNKA, 1985)

(Figs 768-773)

Hoplophthiracarus loebli MAHUNKA, 1985
Hoplophthiracarus loebli: NIEDBAŁA 1992
Plonaphacarus loebli: NIEDBAŁA 1994a

DIAGNOSIS. Surface of body ornamented with well-developed, deep foveolae, connected on lateral part of notogaster by short double lines. Prodorsum with median and lateral narrow fields; lateral carinae weak, reaching sinus; sensilli long with lanceolate head, covered with small spines; interlamellar setae long, erect, covered with minute spines in distal half, lamellar and rostral setae spiniform and rough, exobothridial setae minute, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of fairly long setae (c_1/c_1-d_1 = 0.8), covered with small spines in distal half, setae c_2, d_2 and e_2 slightly shorter than other setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, infracapitular mentum with vestigial *h* setae; formula of genital setae: 6(4+2): 3; anoadanal plates each with 5rough setae, setae ad_2 the longest, setae ad_3 the shortest. Leg chaetotaxy reduced, setae *a'* on tarsi I absent.

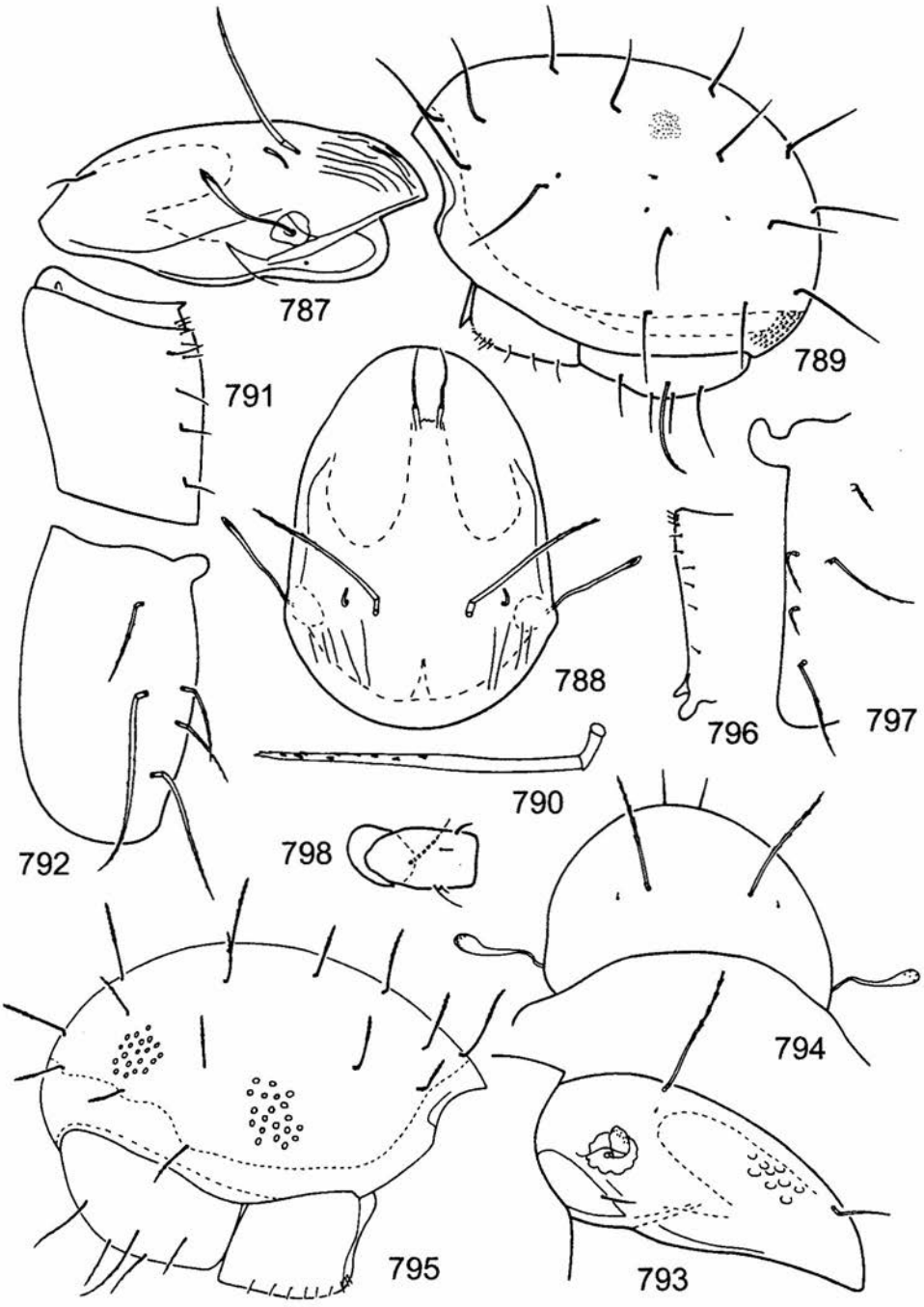
MATERIAL. Locality in the Oriental region: India, Kerala, Nelliampathi Hills (au nord-ouest des Anaimalai Hills), Kaikatty, 900 m, tamisage en foret, pres d'un ruisseau, 30 XI 1972, leg. C. BESUCHET and I. LÖBL - (9) (MAHUNKA 1985).

DISTRIBUTION. India, perhaps an endemic species.

Plonaphacarus rafalskii NIEDBAŁA 1997

(Figs 781-786)

DIAGNOSIS. Integument finely porose, posterior margin of notogaster slightly pitted. Prodorsum, surface of rostral setae covered with small spines; median and laterals fields present; lateral carinae very long, reach anterior end of rostrum; posterior furrows distinct; sensilli fairly long, with narrow pedicel and enlarged head covered with small spines; interlamellar setae long, erect, covered with small spines in distal half, lamellar setae short but robust, rostral setae spiniform, exobothridial setae vestigial, comparative length: *in* > *le* > *ro*. Notogaster with 15 pairs of stout, conical, moderately long (c_1/c_1-d_1 = 1.06) setae, sparsely covered with small spines; vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum vestigial; formula of genital setae: 6(4+2): 3, setae of anoadanal plates smooth, ad_1 and ad_2 very long, bent distally, comparative length: $ad_1 = ad_2 > an > ad_3$. Legs, formulae of setae and solenidia of reduced type, setae *a'* on tarsi I absent, setae *d* on femora I remote from distal end.



787-792. *Hoplophthiracarus angustatus* NIEDBAŁA, 1984 (holotype): 787 - prodorsum, lateral view, 788 - prodorsum, dorsal view, 789 - notogaster, lateral view, 790 - seta c_1, 791 - genitoaggenital plate, 792 - anoadanal plate; 793-798. *Hoplophthiracarus clavatellus* sp. nov. (holotype): 793 - prodorsum, lateral view, 794 - prodorsum, dorsal view, 795 - notogaster, lateral view, 796 - fragment of genitoaggenital plate, 797 - fragment of anoadanal plate, 798 - trochanter and femur of leg I

MATERIAL. Localities in the Oriental region: India, West Bengal, Darjeeling, 12 km NW of Sukhiapokri, 2350 m, cloud forest with stones, 01.05.1979, leg. P.T. LEHTINEN - 7); West Bengal, Darjeeling, Tiger Hill (2000 m), in litter of cloud forest (TF), 29.IV.1979, leg. P.T. LEHTINEN – (1); West Bengal, Darjeeling, Bhanjan Road 4 km W od Ghoom, at 2300 m, litter in cloud forest, 1.V.1979, leg. P.T. LEHTINEN – (2); West Bengal, Darjeeling, Bhanjan Road 4 km W od Ghoom, at 2300 m, litter in cloud forest (TF), 1.V.1979, leg. P.T. LEHTINEN – (1); Indonesia, Borneo, Roy Soc. N. Borneo exped. 1964, leg. G.P. ASKEV – (11).

DISTRIBUTION. An Oriental species.

Plonaphacarus scrupeus NIEDBAŁA, 1989

(Figs 774-780)

Plonaphacarus scrupeus: NIEDBAŁA 1992

DIAGNOSIS. Surface of body covered with concavities, stronger on prodorsum and on border of notogaster. Prodorsum with four robust dorsal carinae, lateral carinae long, reached of rostrum, regions indistinct; posterior furrows present; sensilli long, with narrow pedicel and fusiform head, covered with thin spines; interlamellar setae long, rigid, erect covered with small setae, lamellar setae spiniform, smooth, rostral setae short, thick, rigid, erect, exobothridial setae vestigial, *in* > *ro* > *le*. Notogaster with 15 pairs of rigid, thick, fairly short ($c_1 < c_1$-d_1) setae, covered with small setae; vestigial setae f_1 located at the level of h_1 setae; 2 pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum vestigial; formula of genital setae: 6(4+2): 3, anoadanal plates with 5 pairs of rough setae, $ad_2 > ad_1 > an > ad_3$. Chaetotaxy of legs complete.

MATERIAL. Localities in the Oriental region: Vietnam, Tam Dao Mtns, 90 km N Hanoi, forest litter at 1200 m, 22 X 1985, leg. M. ZACHARDA - (4); as above, at 1400 m, 15 X 1985 - (1); Dalat, 320 km N Ho Chi Minh, moist mixed litter in old tropical forest,1600 m, 11 XI 1985, leg. M. ZACHARDA - (19) (NIEDBAŁA 1989).

DISTRIBUTION. Vietnam, probably an endemic species.

Hoplophthiracarus JACOT, 1933

DIAGNOSIS. Body surface usually covered with concavities; dorsal field of prodorsum not fused with lateral fields, furrows usually present on back of prodorsum, interlamellar setae more or less erect, lamellar setae usually very short; notogaster with 15 pairs of setae, setae c_1 shorter than distance between setae c_1 and d_1; always 9 pairs of genital setae, adanal setae remote from paraxial margin of anoadanal plate, setae ad_1 longer than anal setae, all setae on anoadanal plate normal, neotrichy of adanal setae present; setae *d* on femora I usually at distal end of segment.

Hoplophthiracarus angustatus NIEDBAŁA, 1984
(Figs 787-792

Hoplophthiracarus angustatus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Prodorsum and notogaster finely punctate but margin of notogaster with distinct concavities. Median and lateral fields of prodorsum distinct; lateral carinae very long, extending beyond sinus; posterior furrows present but indistinct; sensilli long, narrow, enlarged in distal half and covered with small spines; interlamellar setae robust, long, erect, covered with small spines, lamellar setae small and thick, rostral setae smooth and spiniform, exobothridial setae vestigial, *in* > *ro* > *le*. Notogaster with robust setae of medium length ($c_1 < c_1$-d_1), sparsely covered with small spines in distal half; vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum vestigial; formula of genital setae: 6(4+3): 2, anoadanal plates each with 5 setae, setae ad_2 longest and thickest, anal setae shorter than adanal setae, all setae covered with small spines. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

MATERIAL. Localities in the border zone of the Oriental region: Nepal, Dhobi-Kola, 1990-2400 m, mosses, 3 V 1959, leg. K. BECKER-LARSEN - (1); as above, 2 400 m - (1) (NIEDBAŁA 1984c, 1992).

DISTRIBUTION. Nepal, perhaps an endemic species.

Hoplophthiracarus clavellatus NIEDBAŁA et CORPUZ-RAROS, 1998
(Figs 793-798)

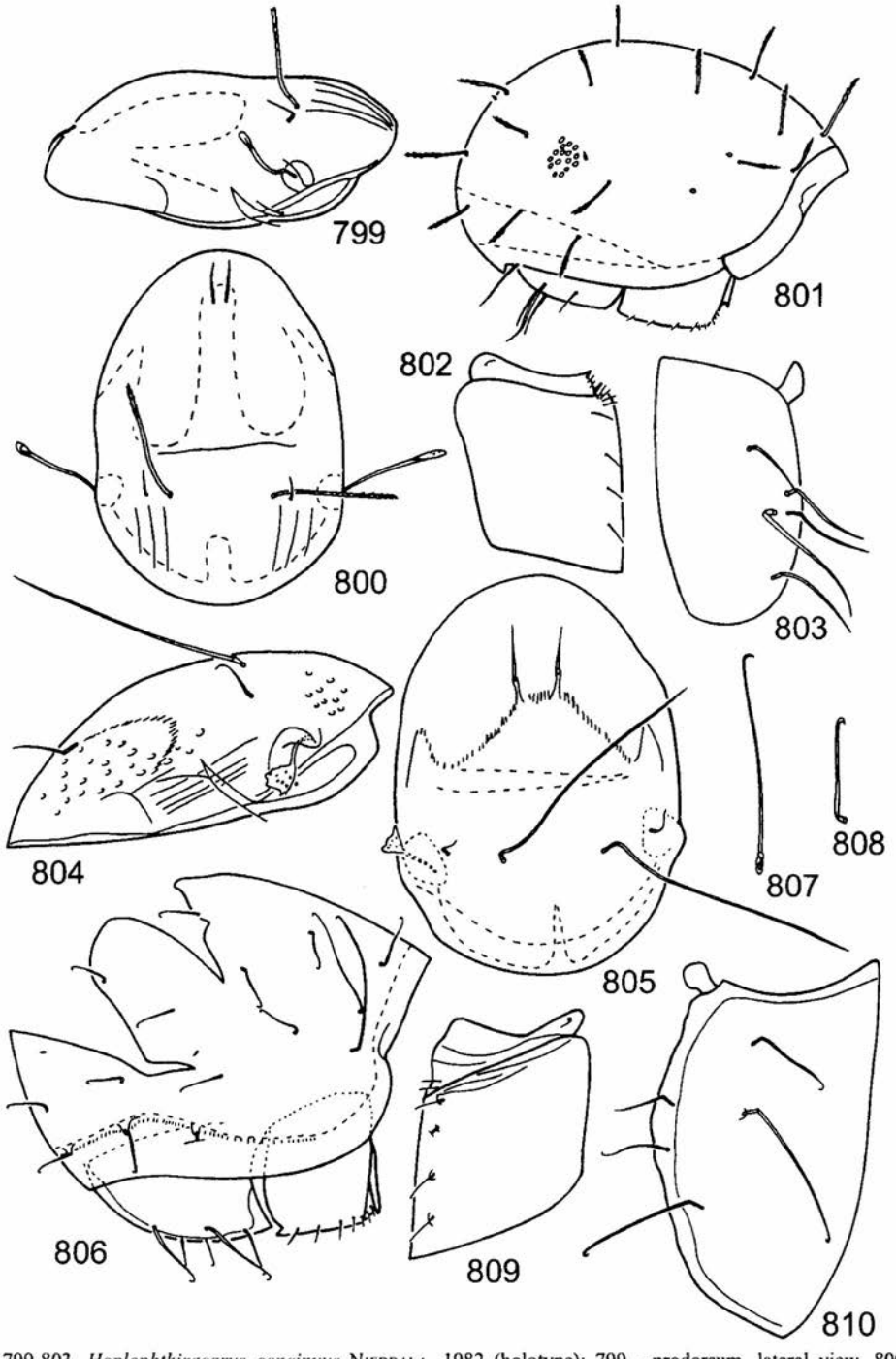
DIAGNOSIS. Prodorsum with weakly developed fields, median longer than laterals; lateral carinae absent; sensilli with long and narrow pedicel and club-like head covered with small, sparsely distributed spines; interlamellar setae long, thick, erect covered with small spines in distal half; rostral setae robust, short, spiniform, rough, lamellar setae minute, *in* > *ro*> *ex* > *le*. Notogaster with setae robust, fairly long (c_1/c_1-d_1 = 0.77) covered with small spines in distal half; vestigial setae and lyrifissures invisible because of strong integument. Ventral region, formula of genital setae: 6(4+2): 3; setae on anoadanal plates covered with small spines, $ad_2 > ad_1 > an > ad_3$. Chaetotaxy of legs of complete type, setae *d* on femora of legs I slightly remote from distal ends.

MATERIAL. Localities in the Oriental region: Philippines, Luzon Is., Mt. Labo peak, 1400 m, San Felipe, San Lorenzo Ruiz, Camarines del Norte Prov., moss, 12.IV.1994, leg. W.SM. GRUEZO – (1); Luzon Is., Mt. Viray, 800 m, San Felipe, San Lorenzo Ruiz, Camarines del Norte Prov., leaf litter, 9.IV.1994, leg. W.SM. GRUEZO – (1); Leyte Is., Mt. Pangasugan, 900 m, along trail to first peak, forest litter, 24.V.1984, leg. R.S. RAROS – (1) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. Philippines, probably an endemic species.

Hoplophthiracarus concinuus NIEDBAŁA, 1982
(Figs 799-803)

Hoplophthiracarus concinuus: NIEDBAŁA 1986, 1992



799-803. *Hoplophthiracarus concinuus* NIEDBAŁA, 1982 (holotype): 799 - prodorsum, lateral view, 800 - prodorsum, dorsal view, 801 - notogaster, lateral view, 802 - genitoaggenital plate, 803 - anoadanal plate; 804-810. *Hoplophthiracarus hamatus* (HAMMER, 1973) (holotype): 804 - prodorsum, lateral viw, 805 - prodorsum, dorsal view, 806 - notogaster, lateral view, 807 - seta c_3, 808 - seta *cp*, 809 - genitoaggenital plate, 810 - anoadanal plate

DIAGNOSIS. Surface of body covered with concavities. Median field of prodorsum narrow and longer than laterals; lateral carinae absent; posterior furrows distinct; sensilli long, narrow, with inflated head covered with small spines; interlamellar setae long, thick, covered with small spines in distal half, rostral setae rough, lamellar setae smooth, spiniform, *in* > *ro* > *ex* > *le*. Notogaster with setae short (c_1 < c_1-d_1), robust covered with small spines in distal half; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 6(4+2): 3; anoadanal plates with 5 pairs of setae, setae ad_2 the longest and the thickest, setae ad_3 the shortest and the feeblest. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: Nepal, S of Mt. Anapurna, at 3000 m, near village of Hinko, in leafy forest, 12 IX 1981, leg. J. BŁOSZYK - (1); Bhadgaon, at 1940-2170m, mosses, leg. K. BECKER-LARSEN - (1) (NIEDBAŁA 1982,1992); Nepal, Khandbari Distr. "Bakan" W Tashigaon, at 3200 m, 5.IV.1982, leg. A. and Z. SMETANA – (1). India, West Bengal, Darjeeling, Tiger Hill (2000 m), in litter of cloud forest (TF), 29.IV.1979, leg. P.T. LEHTINEN – (1); India, Meghalaya, Kast-Khasi Hills, Mawphlohg Law-Lyngdoh, in jungle litter (TF), 5.V.1979, leg. P.T. LEHTINEN – (6); India, West Bengal, Darjeeling, Bhanjan Road 4 km W od Ghoom, at 2300 m, litter in cloud forest, 1.V.1979, leg. P.T. LEHTINEN – (1).

DISTRIBUTION. An Oriental species introduced in the border zone of Palaearctic .

Hoplophthiracarus cristatus (AOKI, 1980)

(Figs 811 812)

Hoplophorella cristata AOKI, 1980
Hoplophthiracarus cristatus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum invisible under robust median carina; lateral fields short; lateral carinae absent; sensilli sickle-shaped, inflated at end and covered with thin spines; setae spiniform, smooth and short, *ro* > *in* >*le* > *ex*. Notogaster with setae very short, spiniform and smooth; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 6(4+2): 3, anoadanal plates each with 5 setae robust and smooth, setae ad_2 located near anal setae, setae ad_3 the shortest. Chaetotaxy of legs complete.

MATERIAL. Locality on the fringes of the Oriental region. Japan, Mt.Yuwan-dake, Amami-Ohshima Island, from litter and soil in a treehole and under a rock, 8 I 1973, leg. H. SUZUKI - (1) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.

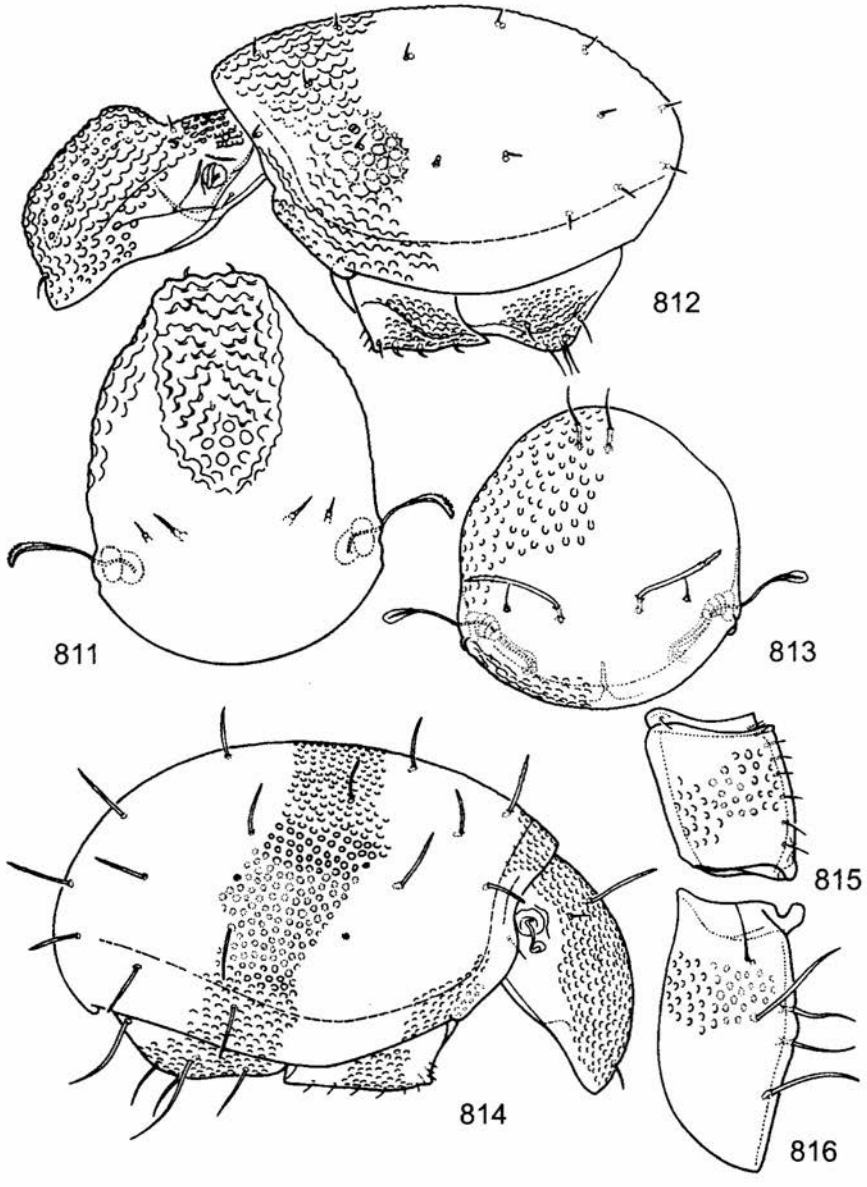
Hoplophthiracarus foveolatus AOKI, 1980

(Figs 813-816)

Hoplophthiracarus foveolatus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Body surface covered with distinct concavities. Median field and lateral carinae of prodorsum absent, lateral fields indistinct; weak posterior furrows

present; sensilli with narrow pedicel and rounded head; interlamellar setae robust, erect, covered with small spines, rostral and lamellar setae smooth and spiniform, *in* > *ro* > *le* > *ex*. Notogaster with setae short ($c_1 < c_1$-d_1), robust covered with small spines; vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 6(4+3): 2; anoadanal plates each with 5 setae, setae ad_2 the longest, anal setae $=ad_3 < ad_1$. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.



811, 812. *Hoplophthiracarus cristatus* (Aoki, 1980) (after Aoki 1980): 811 - prodorsum, dorsal view, 812 - lateral view of body; 813-816. *Hoplophthiracarus foveolatus* Aoki, 1980 (after Aoki 1980): 813 - prodorsum, dorsal view, 814 - lateral view of body, 815 - genitoaggenital plate, 816 - anoadanal plate

MATERIAL. Localities in the border zone of the Oriental region: C. Japan, Saijo-ji, Kanagawa-ken, from litter, 15 VII 1973, leg. J. AOKI - (8); Ryozu-shi, Sado Island, from litter, 8 X 1958, leg. J. KUGOH (J. AOKI) - (2); C. Japan, Takehara, Kitayama-mura, Wakayama-ken, 9 I 1959, leg. J. KUGOH (J. AOKI) - (1); Mt. Maya, Kobe, Hyogo-ken, from litter, 29 V 1969, leg. J. AOKI - (5) (AOKI 1980); Honsiu Nara, Yoshino-Jama, litter of mixed forest, 19 VIII 1981, leg. P.T. LEHTINEN - (3).

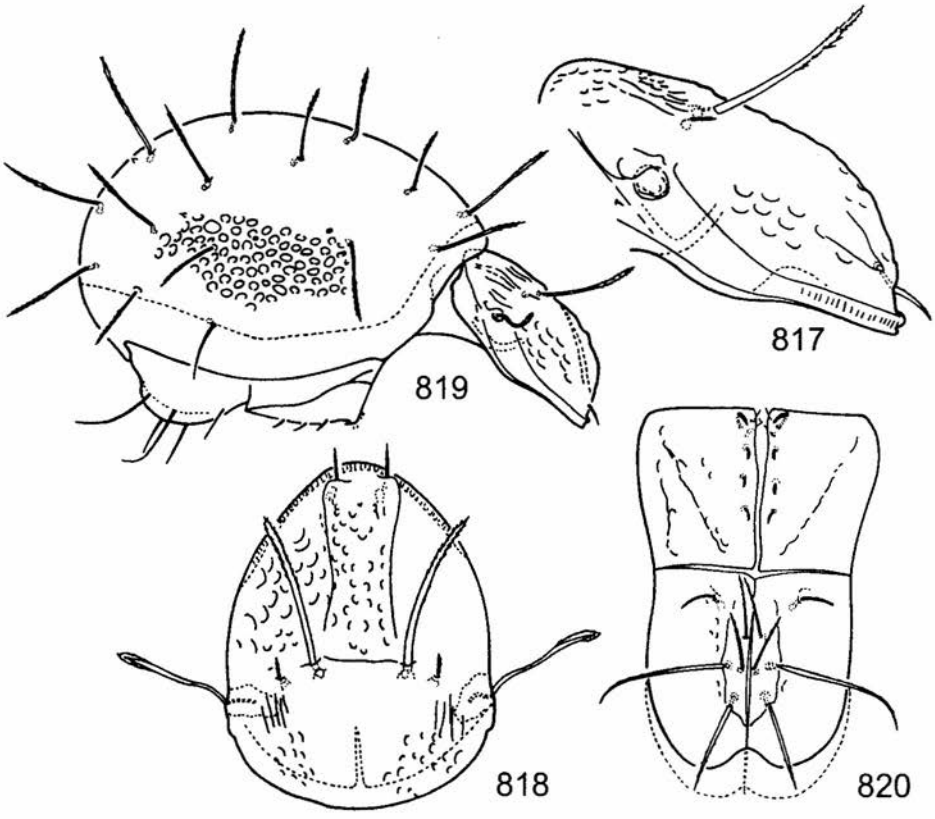
DISTRIBUTION. Japan, perhaps an endemic species.

Hoplophthiracarus hamatus (HAMMER, 1973)

(Figs 804-810)

Phthiracarus hamatus HAMMER, 1973
Notophthiracarus hamatus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Surface of body punctate but prodorsum also covered with concavities. Prodorsum with median and lateral fields short; lateral carinae absent; sensilli short with a narrow pedicel and round head covered with small spines; interlamellar setae long, erect, lamellar and rostral setae spiniform, *in* > *le* = *ro*. Notogaster with



817-820. *Hoplophthiracarus* (?) *nasalis* MAHUNKA, 1991 (after MAHUNKA 1991b): 817 - prodorsum, lateral view, 818 - prodorsum, dorsal view, 819 - lateral view of body, 820 - ventral region

15 pairs of stout setae, hooked distally, c_1 <c_1-d_1, setae c_2 and c_3 longer than others; vestigial setae f_1 posterior to h_1 setae. Ventral region, genitoaggenital plates each with 6 genital setae, their formula: 4: 2; 3 pairs of adanal setae longer than 2 pairs of anal setae, all setae hooked distally. Chaetotaxy of legs reduced, setae *l'* on genua absent, setae *d* on tibia IV long and independent of solenidia.

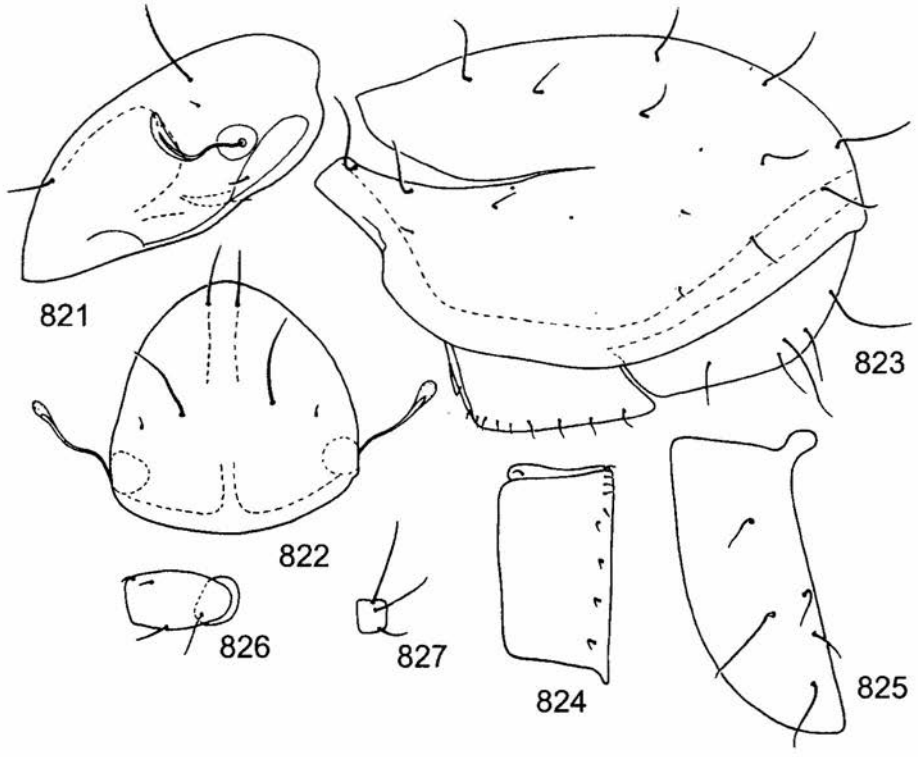
MATERIAL. Locality in the border zone of oriental region: Japan, Minami-Iwojima Island (AOKI 1982).

DISTRIBUTION. A Pantropical species.

Hoplophthiracarus heterotrichosus sp. nov.

(Figs 821-827)

DESCRIPTION. Measurements: prodorsum: length 177. width 106, height 65.8, sensillus 48.1, setae: interlamellar 40.5, lamellar 5.1, rostral 22.8, exobothridial 12.6; notogaster: length 283, width 177, height 172, setae: c_1 and ps_1 43.0, c_3 5.1, *cp* 12.6, d_1 45.5, d_2 25.3, h_3 and ps_4 7.6; genitoaggenital plate 129x55.7, anoadanal plate 83.5x50.6. Relatively small species, colour light brown, surface of body finely punctate. Prodorsum with fields weakly pronounced, lateral carinae absent. Sensilli



821-827. *Hoplophthiracarus heterotrichosus* sp. nov. (holotype): 821 - prodorsum, lateral view, 822 - prodorsum, dorsal view, 823 - notogaster, lateral view, 824 - genitoaggenital plate, 825 - anoadanal plate, 826 - trochanter and femur of leg I, 827 - tibia of leg IV

relatively long, with long pedicel and club-like, rough head. Interlamellar setae robust, erect covered with small spines in distal half, rostral setae spiniform, rough, lamellar setae very small, *in* > *ro* > *ex* > *le*. Notogaster with diversiform setae, dorsal setae longer than other setae ($c_1 < c_1$-d_1), setae c_3, *cp*, h_3 and ps_4 minute and smooth, remaining setae covered with small spines. Vestigial setae f_1 anterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 8(4+4): 1; anoadanal plates with 5 pairs of rough setae, setae ad_1 and ad_2 longer than anal and ad_3 setae. Chaetotaxy of legs of reduced type, setae *v"* on femora I, setae *a'* on tarsi I and II, setae *d* on genua IV absent; setae *d* on femora I situated at distal end.

DIAGNOSIS. This species is easily distinguishable by the different length and shape of notogastral setae.

ETYMOLOGY. The specific name of this species indicates the difference in the shape and length of notogastral setae.

MATERIAL. Holotype and 13 paratypes: Malaysia, Pahang, Jerantut 14 km S, litter of jungle, 17 XI 1984, leg. P. T. LEHTINEN.

DISTRIBUTION. Malaysia, probably an endemic species.

Hoplophthiracarus (*?*) *nasalis* MAHUNKA, 1991

(Figs 817-820

DIAGNOSIS. Surface of body ornamented by large, well-framed and deep alveoli. Prodorsum with double median carina, lateral carinae very long, reach end of rostrum; sensilli short, with gradually widened head, covered with small spines; all setae, with the exception of minute exobothridial ones, thick, rough, erect interlamellar setae. Notogaster with setae robust, spinose and spiculate, $c_1 < c_1$-d_1; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, genital setae g_{6-9} spiculate or ciliate; anoadanal plates each with 5 setae, ad_2 the longest, ad_3 the shortest.

REMARK. It has not been established whether or not setae d on tibiae IV are independent of solenidia and therefore its placement in the *Hoplophthiracarus* is uncertain.

MATERIAL. Locality in the Oriental region: Malaysia (Pahang), Panching, 11 III 1977, leg. T. JACCOUD et P. MARCUARD - (19) (MAHUNKA 1991b).

DISTRIBUTION. Malaysia, perhaps an endemic species.

Hoplophthiracarus nepalensis SHEALS, 1965

(Figs 828-833)

Hoplophthiracarus nepalensis: NIEDBAŁA 1986, 1992

DIAGNOSIS. Surface of body covered with shallow concavities. Prodorsum with median and lateral fields distinct; lateral carinae reach sinus; posterior furrows present; sensilli long and narrow; interlamellar setae similar to notogastral setae, rostral and lamellar setae smooth and spiniform. Notogaster with setae rigid ($c_1 < c_1$-d_1) covered with small spines in distal half; vestigial setae f_1 absent; two pairs of

lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates each with 5 rough setae, $ad_2 > ad_1 > ad_3 >$ an. Chaetotaxy of legs complete.

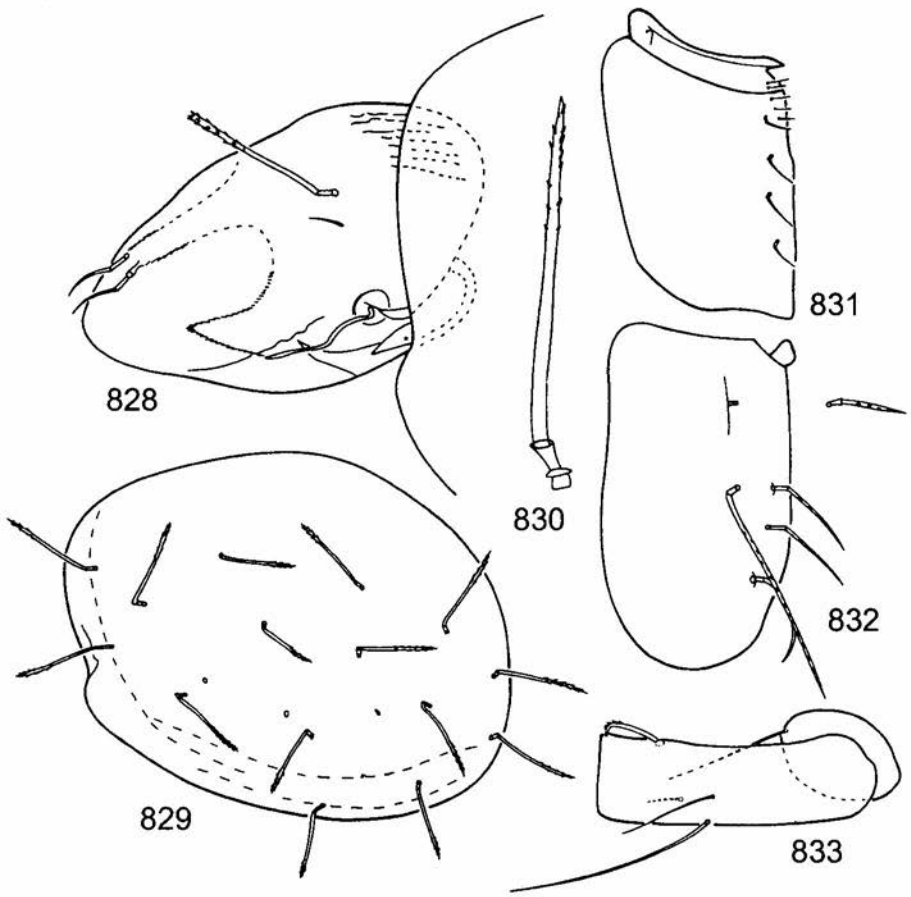
MATERIAL. Locality in the border zone of the Oriental region: Nepal, Sandakphu, bush of *Rhododendron* 12 XI 1961, leg. British Museum (Natural History) Expedition to East Nepal - (6) (SHEALS1965).

DISTRIBUTION. Nepal, perhaps an endemic species.

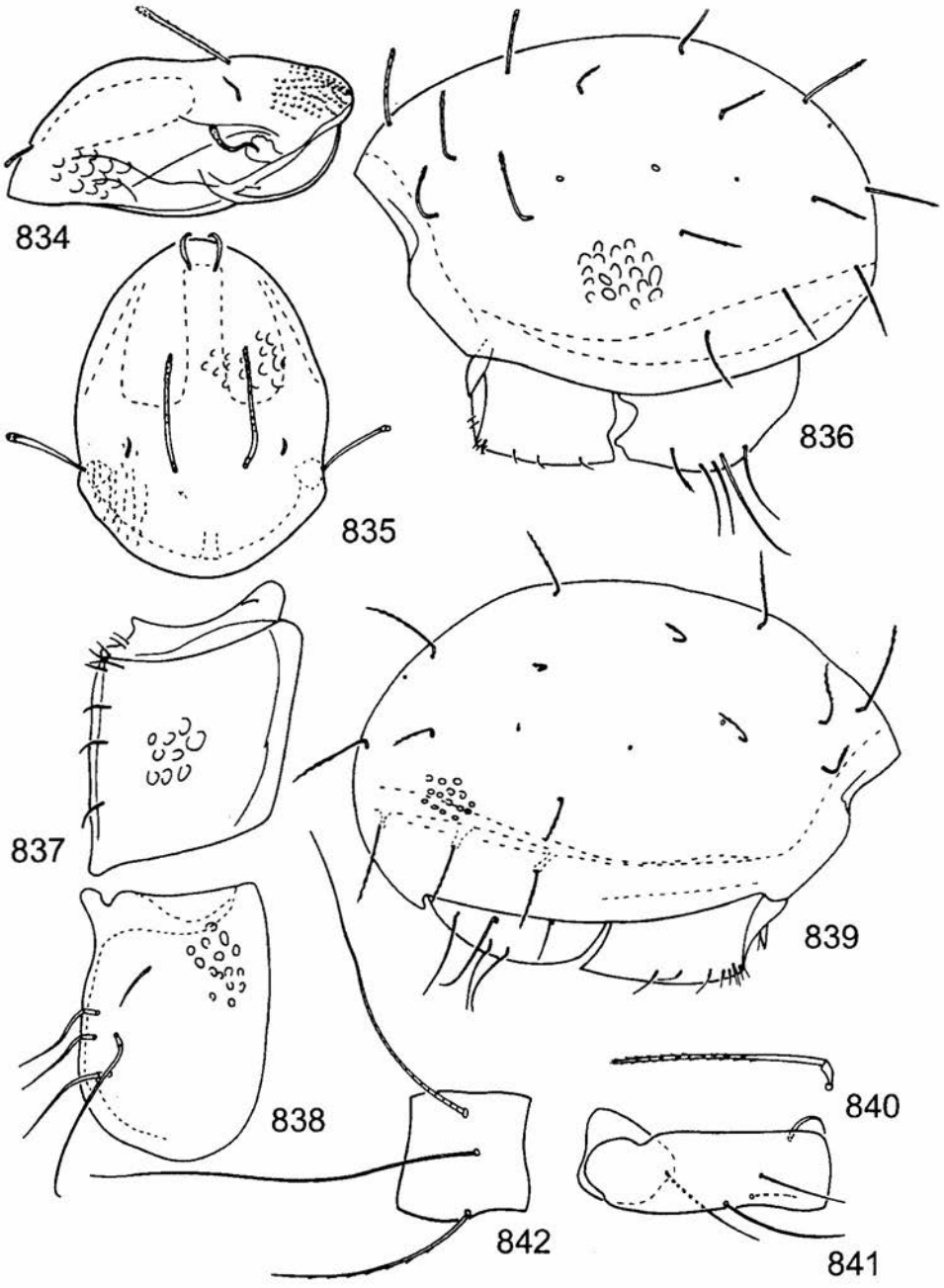
Hoplophthiracarus pakistanensis (HAMMER, 1977)

(Figs 834-838)

Hoplophorella pakistanensis HAMMER, 1977
Hoplophthiracarus pakistanensis: NIEDBAŁA 1986, 1992

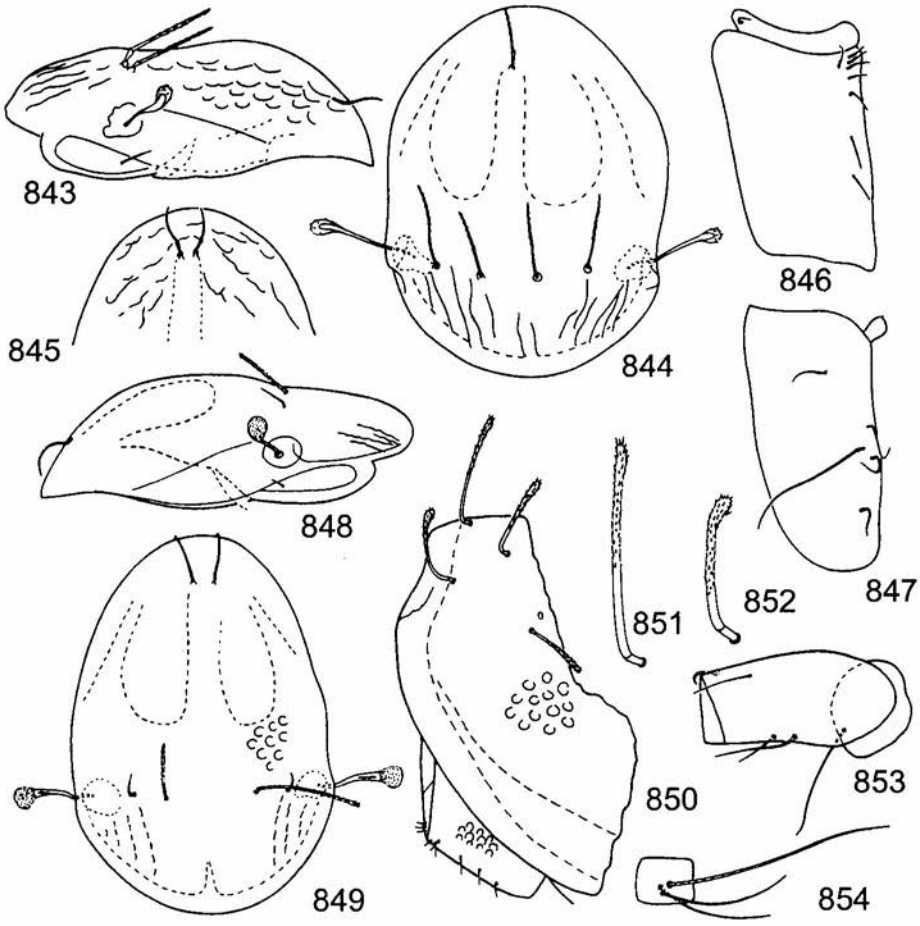


828-833. *Hoplophthiracarus nepalensis* SHEALS, 1965 (paratype): 828 - prodorsum, lateral view, 829 - notogaster, lateral view, 830 - seta c_1, 831 - genitoaggenital plate, 832 - anoadanal plate, 833 - trochanter and femur of leg I



834-838. *Hoplophthiracarus pakistanensis* (HAMMER, 1977) (specimen from India): 834 - prodorsum, lateral view, 835 - prodorsum, dorsal view, 836 - notogaster, lateral view, 837 - genitoaggenital plate, 838 - anoadanal plate; 839-842. *Hoplophthiracarus similis* sp. nov. (holotype): 839 - notogaster, lateral view, 840 - seta h_1, 841 - trochanter and femur of leg I, 842 - tibia of leg IV

DIAGNOSIS. Body surface covered with concavities. Prodorsum with median and lateral fields long and narrow; lateral carinae reach sinus; posterior furrows present; sensilli fairly long, with narrow pedicel and club-like head covered with thin spines; interlamellar setae erect, robust, covered with small spines, rostral setae thick, with blunt distal ends, rough, lamellar setae thick, small and rough, *in* > *ro* > *le* > *ex*. Notogaster with setae robust, fairly short ($c_1 < c_1$-d_1) covered with spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them, formula of genital setae: 6(4+2): 3; anoadanal plates each with 5 rough setae, setae ad_2 the longest and the thickest, setae ad_3 the shortest, anal setae shorter than ad_1 setae. Chaetotaxy of legs complete.



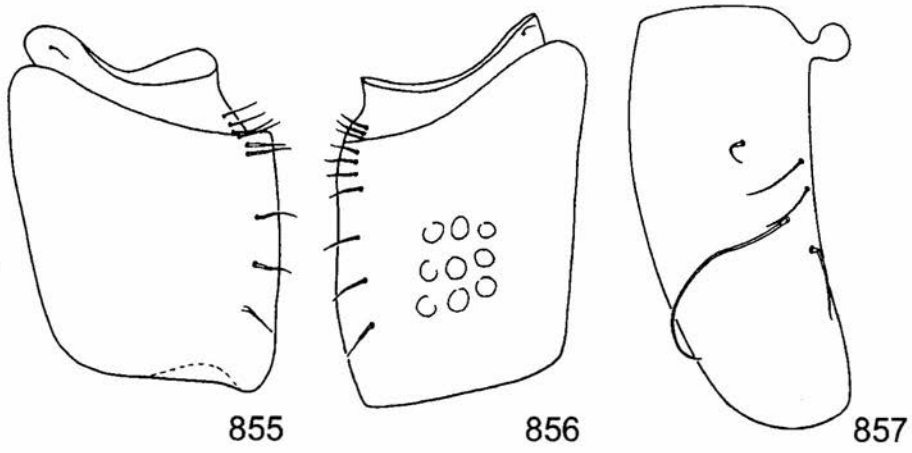
843-847. *Hoplophthiracarus similis* sp. nov. (holotype): 843 - prodorsum, lateral view, 844 - prodorsum, dorsal view, 845 - rostrum, dorsal view (paratype), 846 - genitoaggenital plate, 847 - anoadanal plate; 848-854. *Hoplophthiracarus parafoveolatus* sp. nov. (holotype): 848 - prodorsum, lateral view, 849 - prodorsum, dorsal view, 850 - anterior part of notogaster, lateral view, 851 - seta c_1, 852 - seta c_3, 853 - trochanter and femur of leg I, 854 - tibia of leg IV

MATERIAL. Localities in the border zone of the Oriental region: North-west Pakistan, Naran north-east of Shogran, about 2700 m a.s.l., needles and debris under *Viburnum* shrub, moist, leg. M. HAMMER - (3); North-West Pakistan, Citral valley, *Pinus* needles on moist soil, leg. M. HAMMER - (2); Shogran Forest Research Station, about 2600 m a.s.l., rich moss, *Brunella*, on a slope with running water, leg. M. HAMMER - (1); as above, moist littes - (2) (HAMMER 1977); India, Kashmir, road between Srinagarand Kargil, in mixed forest, 6 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (33); near Sorbal, under fir, 7 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (1); between Jammu and Srinagar,underpines,4IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (51); 215 km from Jammu towards Srinagar, under bushes, 14 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (2); near Kud, in forest of larches and pines, 15 IX1976, leg. C. BŁASZAK, J. BŁOSZYK - (28); Himachal Pradesh, 11 km from Simla, in forest of larches and pines, 19 IX1976, leg. C. BŁASZAK, J. BŁOSZYK - (100) (NIEDBAŁA 1992); India, Kashmir, Dachigam Nat. Forest, litter in grove of large *Platanus*, 20.III.1986, leg. R. NORTON – (2)

DISTRIBUTION. Southern border of the Palaearctic; Pakistan and North-West India.

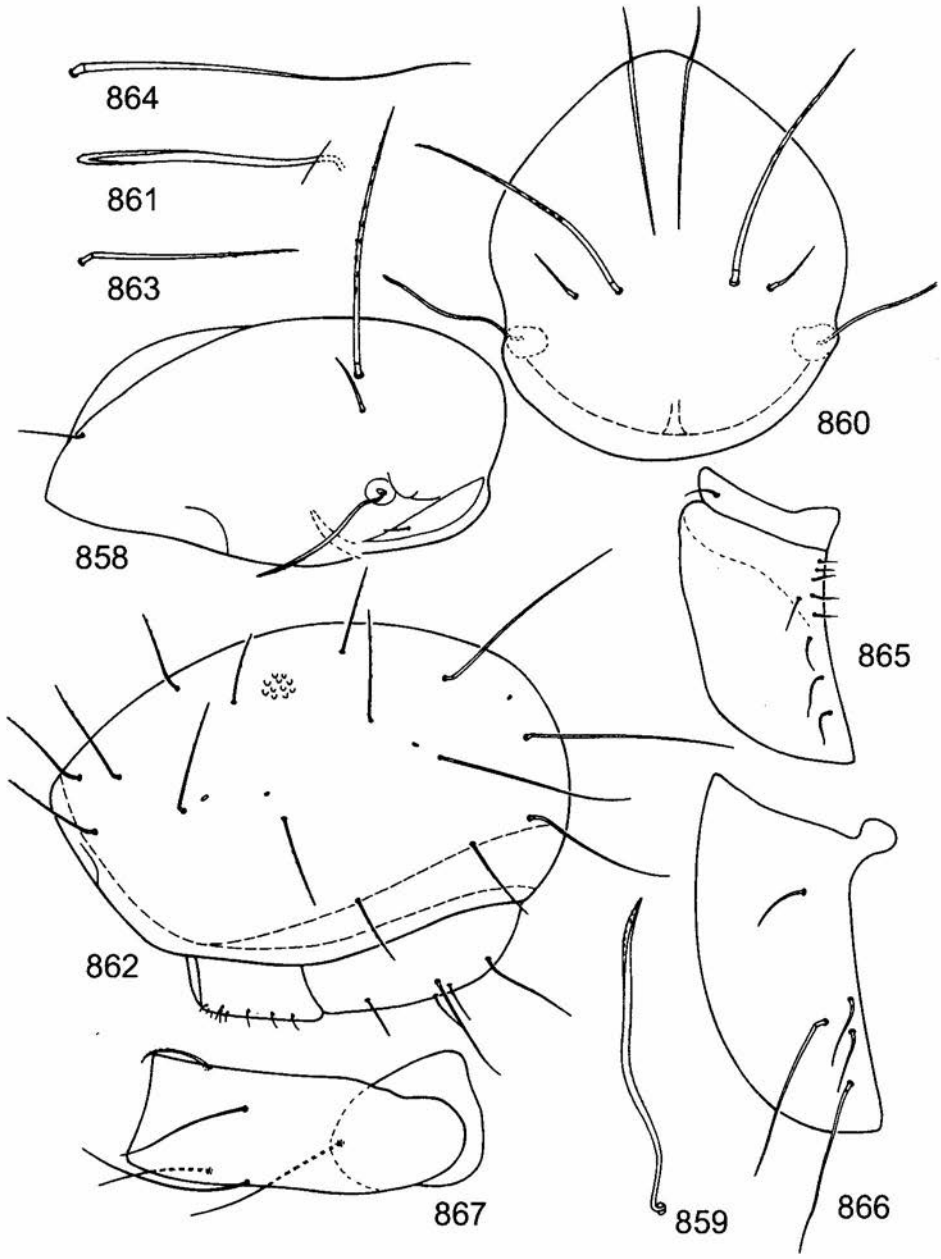
Hoplophthiracarus parafoveolatus sp. nov.
(Figs 848-857)

DESCRIPTION. Measurements of holotype: prodorsum: length 240, width 167, height 88.5, sensillus 45.5, setae: interlamellar (left) 45.5, lamellar 17.4, rostral 35.4, exobothridial 10.1; notogaster: length 454, setae: c_1 50.6, ps_1 40.5; genitoaggenital plate 119x93.6, anoadanal plate 128x65.8. Colour yellow, surface of body strongly foveate. Prodorsum with weak median carina and with long and narrow median and lateral fields, lateral carinae reach sinus; posterior furrows present. Sensilli with long, narrow pedicel and with rounded head covered with small spines. Interlamellar setae robust, similar to notogastral setae, covered with thin spines, right interlamellar seta longer than left, lamellar and rostral setae rough, lamellar spiniform, rostral bent



855-857. *Hoplophthiracarus parafoveolatus* sp. nov. (holotype): 855 - right genitoaggenital plate, 856 - left genitoaggenital plate, 857 - anoadanal plate

towards surface of rostrum, *in* > *ro* > *le* > *ex*. Notogaster with setae robust, slightly dilated towards distal end, less dilated dorsal setae, all setae covered with thin spines, setae c_1 and c_3 situated near anterior margin, setae c_2 remote from margin. Vestigial setae f_1 posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present.



858-867. *Hoplophthiracarus stigmosus* sp. nov. (holotype): 858 - prodorsum, lateral view, 859 - sensillus, lateral view, 860 - prodorsum, dorsal view, 861 - sensillus, dorsal view, 862 - notogaster, lateral view, 863 - seta c_1, 864 - seta h_1, 865 - genitoaggenital plate, 866 - anoadanal plate, 867 - trochanter and femur of leg I

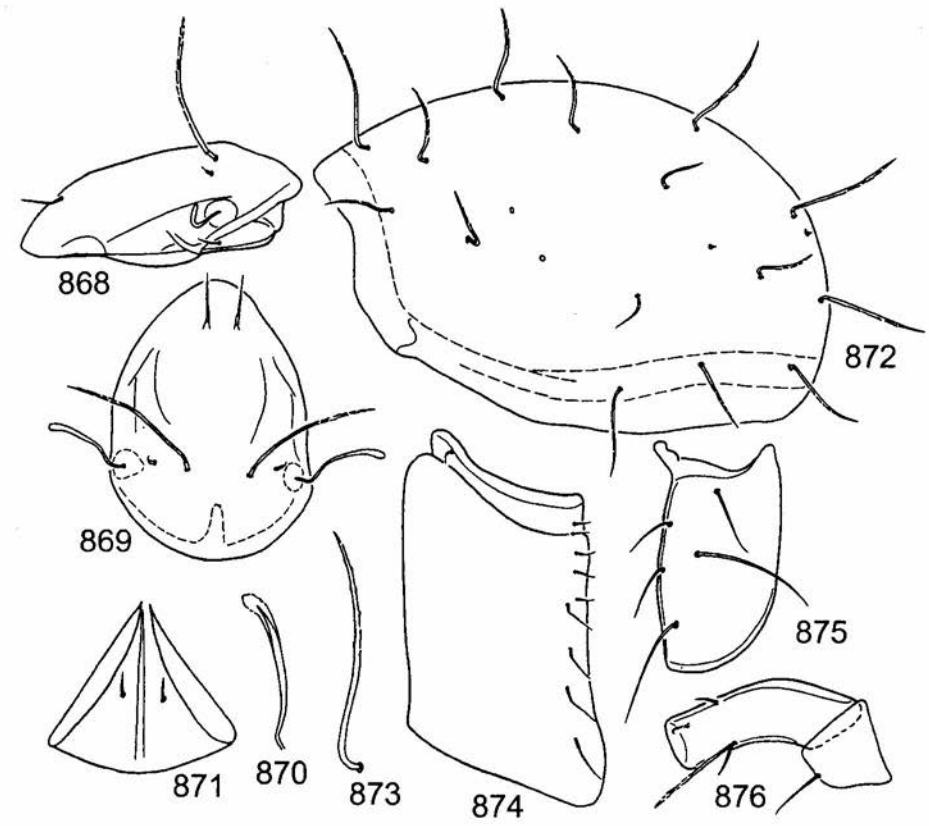
Ventral region, formula of genital setae of right plate: 7(4+3): 3 and left plate: 6(4+2): 3; anoadanal plates with 5 pairs of setae, setae ad_2 the longest and bent distally, other setae considerably shorter, $ad_1 = an > ad_3$. Chaetotaxy of legs of complete type, setae *d* on femora I situated at distal end, setae *a"* on tarsi I and II and setae *ft"* on tarsi II bent distally.

DIAGNOSIS. This species is similar to *H. foveolatus* AOKI, 1980 from Japan. It differs in the shape of rostral setae directed towards the surface of rostrum, the shape of notogastral setae, arrangement 4+2: 3 of genital setae and the length and arrangement of anal and adanal setae.

MATERIAL. Holotype: Indonesia, Sumatra, Utara Distr., Simalungun Simarpalatuk Bangun Dolog, 1400 m., pine forest, 23 IX 1978, leg. P. T. LEHTINEN.

DISTRIBUTION. Sumatra, probably an endemic species.

***Hoplophthiracarus similis* sp. nov.**
(Figs 839-847)



868-876. *Hoplophthiracarus vanderhammeni* NIEDBAŁA, 1991 (specimen from Poland): 868 - prodorsum, lateral view, 869 - prodorsum, dorsal view, 870 - sensillus, dorsal view, 871 - mentum of infracapitulum, 872 - notogaster, lateral view, 873 - seta c_1, 874 - genitoaggenital plate, 875 - anoadanal plate, 876 - trochanter and femur of leg I

DESCRIPTION. Measurements of holotype: prodorsum: length 266, width 190, height 104, sensillus 48.1, setae: interlamellar 76, lamellar 70.8, rostral 43, exobothridial 20.2; notogaster: length 560, width and height 364, setae: c_1 111, h_1 98.7, ps_1 96.1; genitoaggenital plate 167x101, anoadanal plate 187x90.9. Colour light brown, cuticle weakly foveolate. Prodorsum with fields weakly visible. Lateral carinae indistinct. Posterior furrows distinct. Sensilli club-like with rounded head covered with small spines. Interlamellar and lamellar setae similar in shape, broad, rigid, covered with robust spines, rostral setae covered with small spines. Notogaster with setae short, covered with small spines in distal half, setae c_1 and c_2 remote from anterior border, setae c_3 near the border. Vestigial setae f_1 posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region. Setae *h* of mentum longer than distance between them. Formula of genital setae: 8(4+4): 1. Setae of anoadanal plates rough, setae ad_2 the longest. Legs. Formulae of setae and solenidia of complete type.

DIAGNOSIS. This species can be distinguished from its congeners by the same shape of lamellar and interlamellar setae and the formula of genital setae: 8(4+4): 1.

ETYMOLOGY. The specific epithet is derived from Latin *similis*, meaning similar and alludes to the similar shape of lamellar and interlamellar setae.

MATERIAL. Holotype and one paratype: India, Kashmir, 51 km from Leh, ca 4 000m, leaves and detritus under plants, leg. C. BŁASZAK and J. BŁOSZYK, 8 IX 1976.

DISTRIBUTION. Kashmir, probably an endemic species.

Hoplophthiracarus stigmosus sp. nov.

(Figs 858-867)

DESCRIPTION. Measurements of holotype: prodorsum: length 379, width 283, height 182, sensillus 139, setae: interlamellar 228, lamellar 40.5, rostral 50.6, exobothridial 15.2; notogaster: length 745, width 552, height 515, setae c_1 197, h_1 and ps_1 313; genitoaggenital plate 202x111, anoadanal plate 268x121. Colour brown, light, surface of body weakly foveate and covered by strong cerotegument. Prodorsum with double median carina, lateral carinae absent, fields invisible. Sensilli long, narrow, covered with thin spines at distal end. Interlamellar setae robust, very long, erect, covered with small spines in distal half, lamellar and rostral setae thick, short and rough, *in* > *ro* > *le* > *ex*. Notogaster with setae of different length and shape. Most of setae of medium length, covered with small spines in distal half, setae h_1, h_2, ps_1 and ps_2 longer, smooth and flagellate at distal end. Vestigial setae posterior to h_1 setae, two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 9(4+5): 0, anoadanal plates with 5 pairs of setae, ad_1 and ad_2 setae the longest and rough. Chaetotaxy of legs of complete type. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II bent distally.

DIAGNOSIS. The new species is easily distinguishable from the congeners by the double median carina of prodorsum and heterotrichous setae of the notogaster.

ETYMOLOGY. The specific epithet *stigmosus* is Latin for "full of points" and refers to the ornamentation of the body surface.

MATERIAL. Holotype: Indonesia, Nusa Tenggara, Timur, Flores, Manggarai d., Gunung Ranaka, at 2200 m., mossy cloud forest, 12 X 1979, leg. P.T. LEHTINEN.

Another locality in the Oriental region: Vietnam, Tam-Dao, primary foggy forest, 1250 m., litter and soil sample, 18 X 1988, leg. J. STARY - (1).

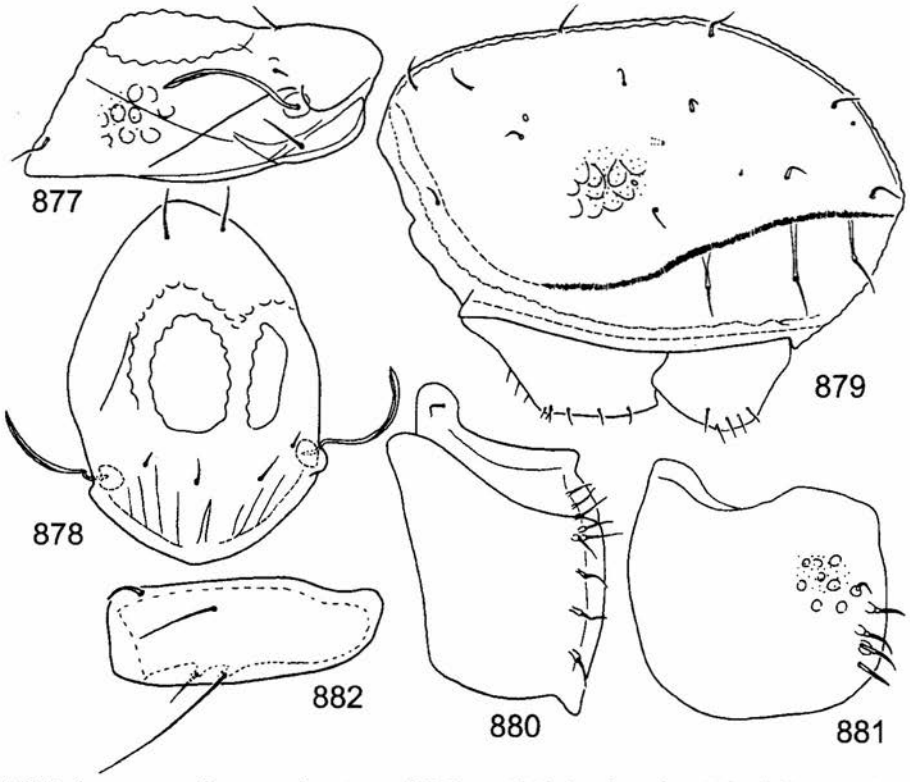
DISTRIBUTION. An Oriental species.

Hoplophthiracarus vanderhammeni NIEDBAŁA, 1991

(Figs 868-876)

Hoplophthiracarus pavidus (BERLESE, 1913) sensu HAMMEN (1963), AOKI 1980, NIEDBAŁA 1992
Hoplophthiracarus vanderhammeni: NIEDBAŁA 1992

DIAGNOSIS. Median field of prodorsum absent, lateral fields weak; lateral carinae reach sinus; posterior furrows absent; sensilli long, inflated at distal end; interlamellar setae erect, covered with small spines, lamellar and rostral setae spiniform and smooth, *in* > *ro* > *ex* > *le*. Notogaster with setae fairly short ($c_1 < c_1$-d_1), robust covered with small spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 4+3: 2, anoadanal plates with 5 pairs of setae, $ad_2 > ad_1 > an_1$ and $an_2 > ad_3$. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.



877-882. *Steganacarus* (*Tropacarus*) *carinatus* (C.L.KOCH, 1841) (specimen from Poland): 877 - prodorsum, lateral view, 878 - prodorsum, dorsal view, 879 - notogaster, lateral view, 880 - genitoaggenital plate, 881 - anoadanal plate, 882 - femur of leg I

MATERIAL. Localities in the border zone of the Oriental region: N. Japan, Mt. Takamori in Tobishima Island, from organic layer of soil under a shrine forest, 25 VI 1969, leg. Y. KUROSAWA (J. AOKI) - (3); C. Japan, *Sphagnum* moor of Tanohara in Shiga Heights, Nagano-ken, from plant detritus in water, 21 V 1970, leg. J. AOKI - (2) (AOKI 1980). India, Kashmir, 128 km from Jamnu, before Batote, in old pine forest, 15 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (4). Korea, Kymgang-san, near waterfall Kurjong-pho, in leafy forest, 29 VI 1981, leg. A. SZEPTYCKI and W. WEINER - (1) Far East of Russia, Sakhalin, Okhinski region, in fir forest, 3 VIII 1966, leg. A.D. PETROVA - (1) (NIEDBAŁA 1992).

DISTRIBUTION. A Holarctic species.

Steganacarus EWING, 1917

DIAGNOSIS. Body surface covered with concavities; lateral carinae of prodorsum does not extend beyond sinus, furrows present on back of prodorsum; 15 pairs of notogastral setae present; setae ad_1 near paraxial margin, in row with anal setae, setae ad_2 near anal setae, or displaced towards paraxial margin, in longitudinal row with anal setae on anoadanal plates; setae *v'* on femora I and setae *l'* on genua IV present.

Steganacarus (*Rhacaplacarus*) NIEDBAŁA, 1986

DIAGNOSIS. Lamellar and exobothridial setae short, length ratio of lamellar seta/prodorsum<0.18, length ratio of exobothridial seta/prodorsum< 0.07; setae *h* on infracapitulum usually shorter than distance between them; setae ad_2 displaced towards paraxial margin, near anal setae, distance between setae ad_2 and anal setae equal to that between anal setae and paraxial margin; setae *v'* on femur short, length ratio *v"*/*v'*< 2.25.

Steganacarus (*Rhacaplacarus*) *spiniger* (AOKI, 1980)

(Figs 883-885)

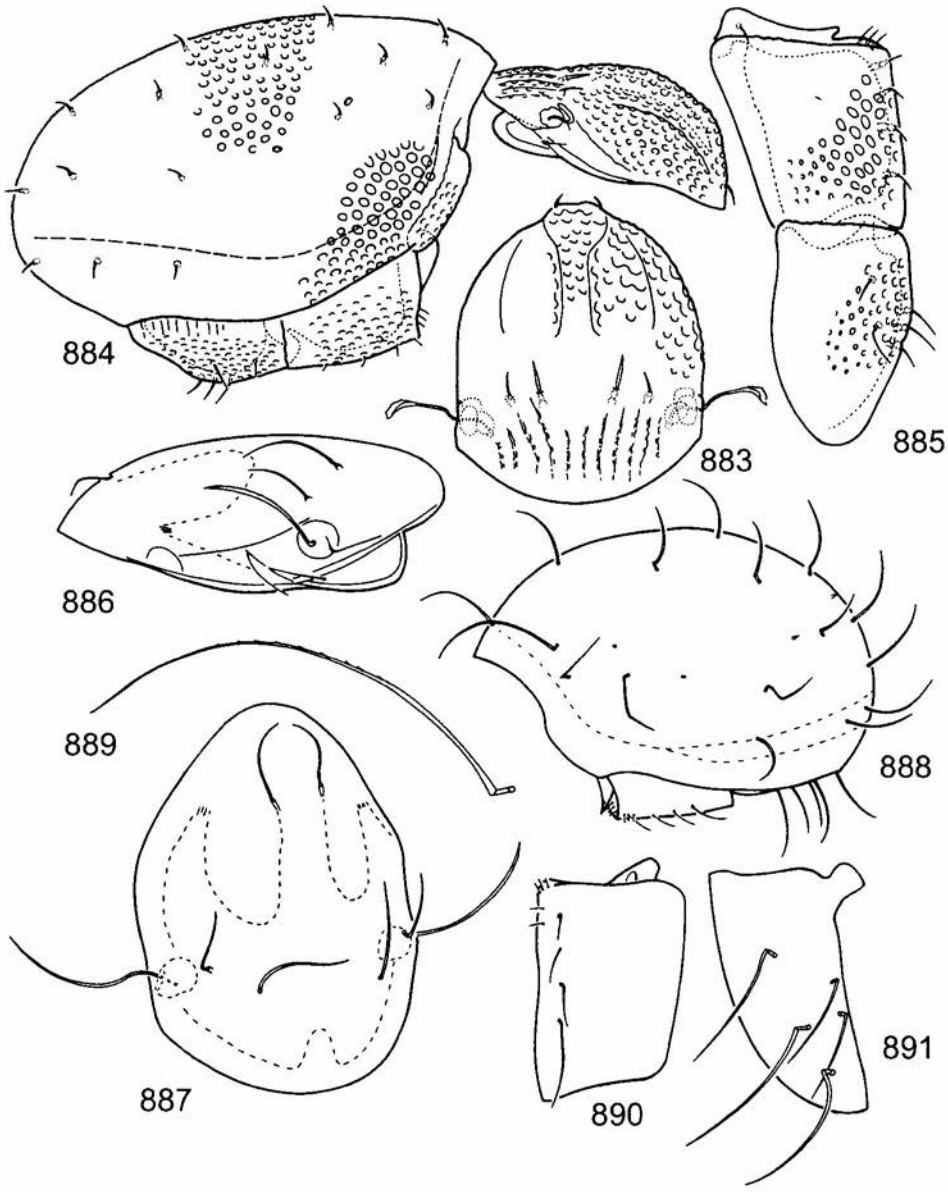
Hoplophorella spiniger AOKI, 1980
Steganacarus(*Rhacaplacarus*) *spiniger*: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum narrow, longer than lateral fields; median carina robust; lateral carinae reach sinus; sensilli short, with broad and roughened heads; setae short, smooth, spiniform, *ro* > *in* > *le* > *ex*. Notogaster with setae very short, spiniform, smooth, vestigial setae f_1 at the level of h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 6(4+2): 3, five pairs of very short setae on anoadanal plates. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

MATERIAL. Localities in the border zone of oriental region: Japan, Omogo Valley, Ehime-ken, from litter, 11 IV 1967, leg. J. AOKI - (2); Mt. Omogo, Ehime-ken, from

litter, 7 VIII 1969, leg. K. MORIKAWA - (3); Hatcho-zaka, Mt. Ishizuchi, Ehime-ken, from litter, 8 VIII 1969, leg. K. MORIKAWA - (3); Jojusha, Mt. Ishizuchi, Ehime-ken, from litter, 14 VIII 1969, leg. K. MORIKAWA - (2); Mt. Narabara, Ochi-gun, Ehime-ken, 23 IX 1968, leg. K. ISHIKAWA - (3) (AOKI 1980).

DISTRIBUTION. Japan, perhaps an endemic species.



883-885. *Steganacarus* (*Rhacaplacarus*) *spiniger* (AOKI, 1980) (after AOKI 1980): 883 - prodorsum, dorsal view, 884 - lateral view of body, 885 - genitoaggenital and anoadanal plates; 886-891. *Austrophthracarus inusitatus* (NIEDBAŁA, 1983) (holotype): 886 - prodorsum, lateral view, 887 - prodorsum, dorsal view, 888 - notogaster, lateral view, 889 - seta c_3, 890 - genitoaggenital plate, 891 - anoadanal plate

Steganacarus (*Tropacarus*) EWING, 1917

DIAGNOSIS. Median notogaster ridge present (at least partially).

Steganacarus (*Tropacarus*) *carinatus* (C. L. KOCH, 1841)

(Figs 877-882)

DIAGNOSIS. Colour brown or dark brown. Prodorsum with median carina; median and lateral fields fused; lateral carinae reach sinus; sensilli long, narrow, sickle-shaped; setae spiniform. Notogaster with short, smooth, spinifiorm setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, $h > h$-h, genitoaggenital plate with 9 pairs of small setae, with formula: 6(4+2: 3); setae of anoadanal plates very short. Chaetotaxy of legs of complete type.

MATERIAL. Locality in the border zone of the Oriental region: Kashmir, 51 km from Lahore, alt. 4000 m, leaves and detritus under plants, 8 IX 1976, leg. J. BŁOSZYK and C. BŁASZAK - (1)

DISTRIBUTION. A Palaearctic species, normally absent from Oriental Asia, probably introduced occasionally to Kashmir.

Austrophthiracarus BALOGH and MAHUNKA, 1978

DIAGNOSIS. Body surface punctate; dorsal and lateral fields of prodorsum not fused, rostral setae inserted at distance from end of rostrum; notogaster with 15 pairs of setae but often neotrichous; 9 pairs of genital setae present, genital setae arranged in two rows, setae g_6 close to, or even above g_4, at least setae g_6 and g_7 remote from paraxial region, adanal setae remote from paraxial margin of plate, all of these normal.

Austrophthiracarus inusitatus (NIEDBAŁA, 1983)

(Figs 886-891)

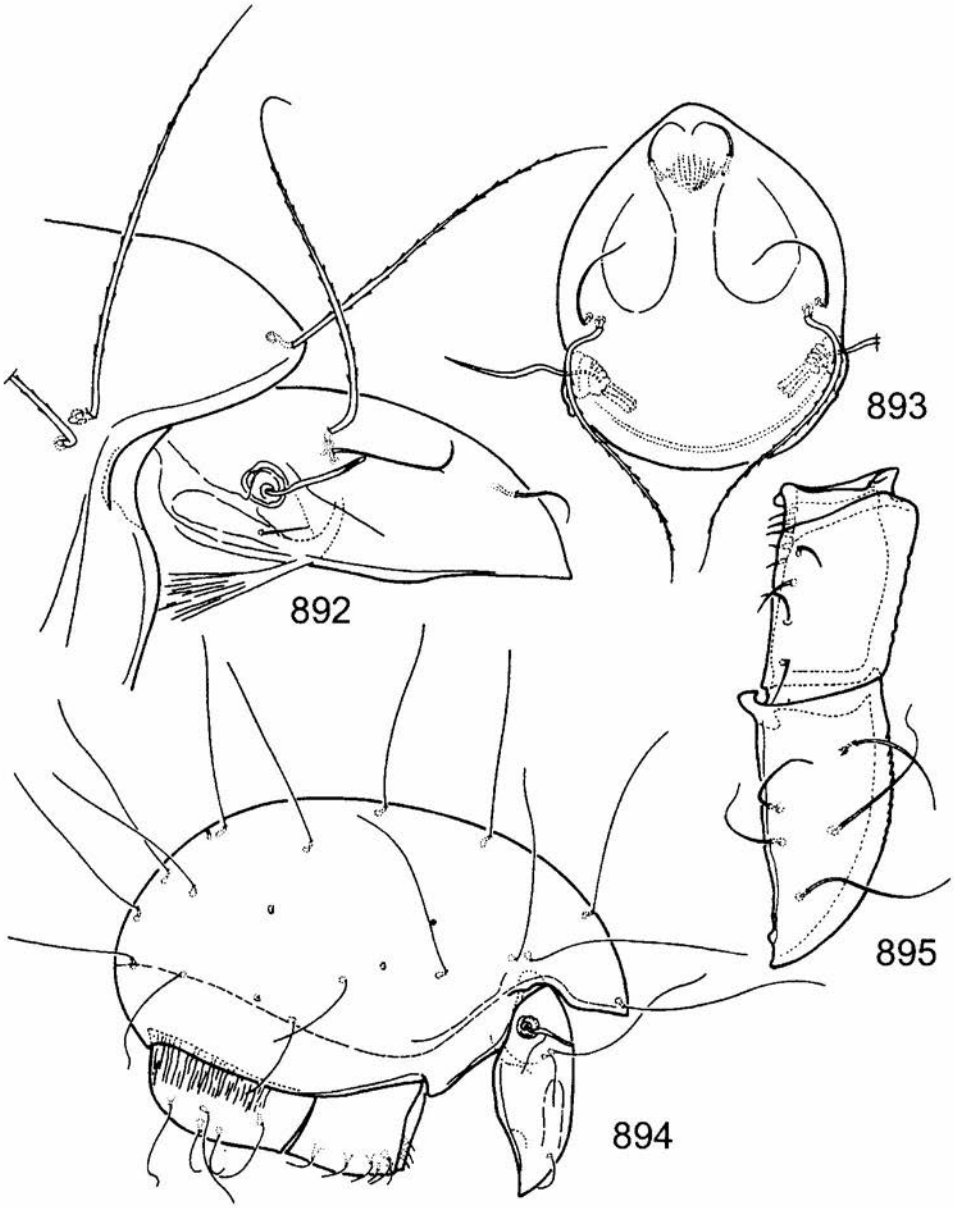
Hoplophthiracarus inusitatus NIEDBALA, 1983
Calyptophthiracarus inusitatus: NIEDBALA 1986, 1992

DIAGNOSIS. Lateral carinae reach sinus; sensilli long, very narrow and roughened, setae (except exobothridial) robust and rough, $in > ro > ex > le$. Notogaster with 16 pairs of robust setae ($c_1 < c_1$-d_1) covered with small spines, distance between setae ps_3 and ps_4 greater than between ps_2 and ps_3; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 6(4+2): 3; anoadanal plates with 5 pairs of robust setae, anal setae shorter than adanal setae, setae ad_2 the longest. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

MATERIAL. Localities in the border zone of the Oriental region: Far East of Russia, Putiatin Island near Vladivostok, under alder, 16 VIII 1965, leg. A.D.

PETROVA - (1); S of Vladivostok, Kedrova pad', litter in mixed forest, 30 VII 1966, leg. A.D. PETROVA - (2). Korea, Mychyang, near Sangron waterfall, in leafy forest, 24 VI 1981, leg. A. SZEPTYCKI, W. WEINER - (2) (NIEDBAŁA 1992).

DISTRIBUTION. Oriental Palaearctic, Far East of Russia, Korea,



892-895. *Austrophthiracarus mitratus* (AOKI, 1980) (after AOKI 1980): 892 - prodorsum, lateral view, 893 - prodorsum, dorsal view, 894 - lateral view of body, 895 - genitoaggenital and anoadanal plates

Austrophthiracarus latior (NIEDBAŁA, 1982)

(Figs 903-908)

Hoplophthiracarus latior NIEDBAŁA, 1982
Calyptophthiracarus latior: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields of prodorsum short, lateral carinae not reaching sinus; sensilli with globular, rounded head sparsely covered with spines; interlamellar setaelong, erect, distinctly serrated, rostral setae also serrated, lamellar setae spiniform, very short, smooth, *in* > *ro* > *le* = *ex*. Notogaster with 15 pairs of fairly short ($c_1 < c_1$-d_1), rough setae; vestigial setae posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum as long as distance between them; formula of genital setae: 9(4+5): 0, anoadanal plates with 5 pairs of setae covered with small spines; anal setae shorter than adanal, setae ad_2 the longest. Chaetotaxy of legs reduced, setae *a'* on tarsi I, on tarsi II, setae *l'* on genua IV and setae *pv'* on tarsi IV absent.

MATERIAL. Localities in the border zone of the Oriental region: India, Himachal Pradesh, 11 km from Simla, in larch forest with rich vegetation, 19 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (1). Far East of Russia, Suputinsky reserve, on border of Suputinka, mosses in leafy forest, 27 VII 1966, leg. A.D. PETROVA - (1) (NIEDBAŁA 1982, 1992).

DISTRIBUTION. A species of very unusual distribution: North India, Far East of Russia, Hawaii and New Caledonia. Possible interpretations are that it is an old element originating from Pangea and characterised by a disjunct distribution, or an oriental species (although not found in the Orient yet) introduced into other regions.

Austrophthiracarus mitratus (AOKI, 1980)

(Figs 892-895)

Calyptophthiracarus mitratus AOKI, 1980; NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum shorter than lateral, lateral carinae absent; sensilli long, narrow, smooth, enlarging towards distal end; interlamellar setae long, tapering towards end, covered with small spines, rostral setae rough, lamellar setae smooth, flagelliform, *in* > *le* > *ro* > *ex*. Notogaster with anterior cowl and with 16 pairs of long ($c_1 > c_1$-d_1) setae, covered with small spines; vestigial setae f_1 posterior to h_1 setae; all four pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, formula of genital setae 6(4+2): 3; anoadanal plates with 5 pairs of setae, covered with small spines, adanal setae longer than anal setae.

MATERIAL. Localities in the border zone of oriental region: Japan, Omogo Valley, Echime-ken, from litter, 11 IV 1967, leg. J. AOKI - (3); S. Japan, Mt. Yuwan-dake, Amami-Ohshima Is., from litter and soil, 8 I 1973, leg. H. SUZUKI - (1); S. Japan, Anboh Forest Path, Yaku Island, from litter, 14 XI 1974, leg. J. AOKI - (3); W. Japan, Mt. Mitake, Tsushima Is., from litter, 18 X 1968, leg. J. AOKI - (4) (AOKI 1980).

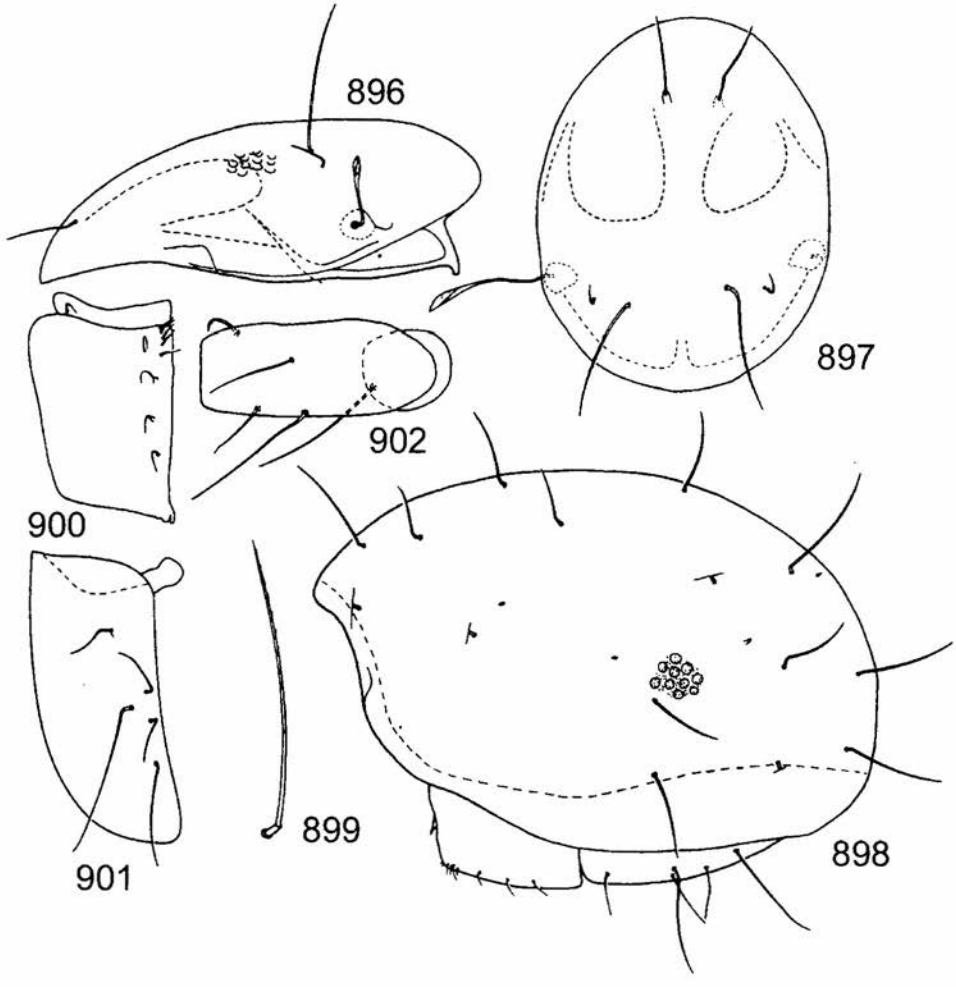
DISTRIBUTION. Japan, probably an endemic species.

Austrophthiracarus pullus (NIEDBAŁA, 1989)

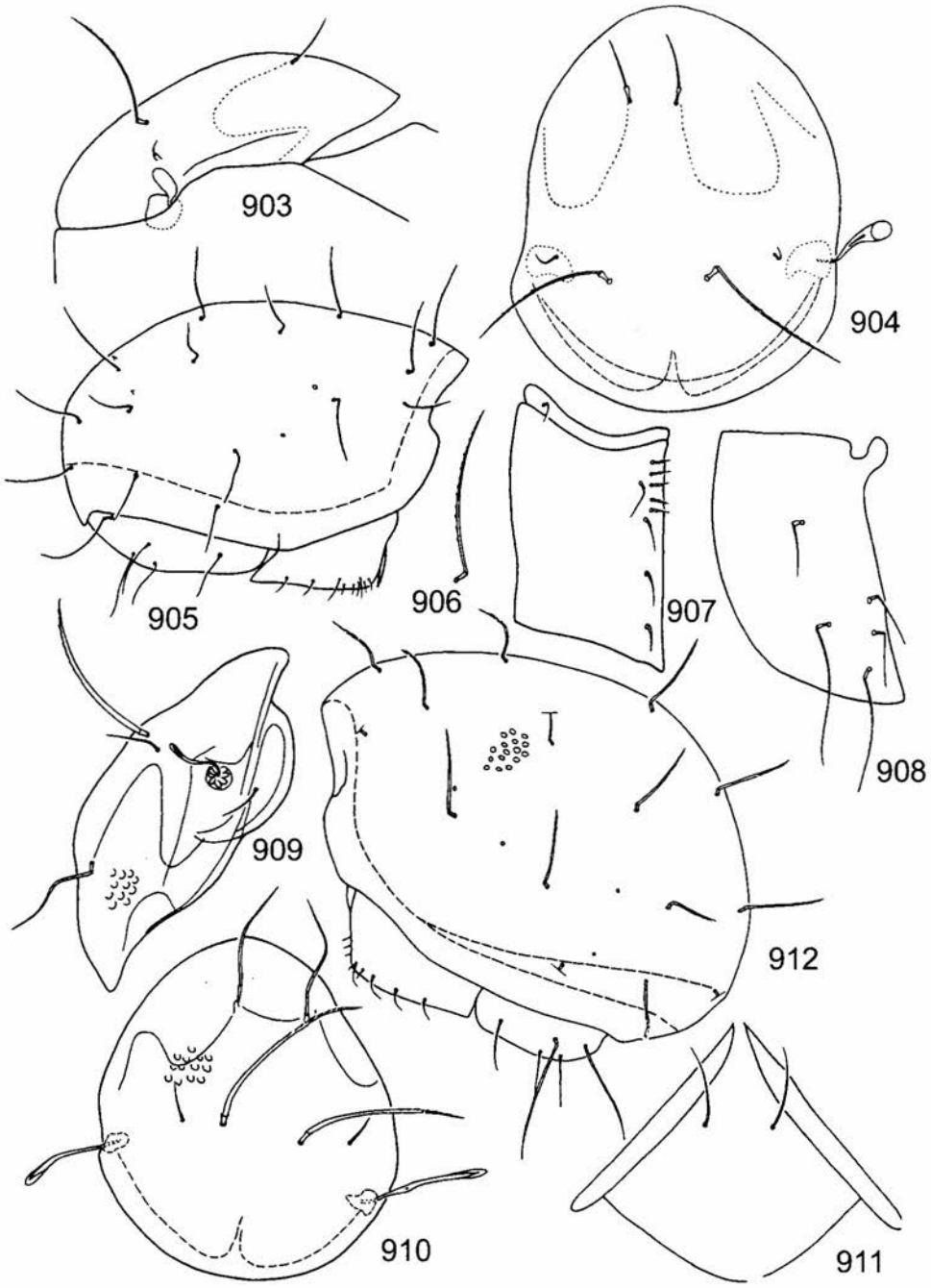
(Figs 909-915)

Calyptophthiracarus pullus NIEDBAŁA, 1989, 1992

DIAGNOSIS. Surface of body covered with concavities and thick cerotegument. Prodorsum with broad median field, lateral fields rounded, lateral carinae reach sinus; sensilli long, smooth, dilated at distal end; interlamellar setae long, thick, erect, covered with small spines in distal half, lamellar setae short, spiniform, rough, rostral setae robust, rough, bent, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of short (c_1 < c_1-d_1), robust setae, covered with small spines in distal half; vestigial setae invisible; 4 pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 6(4+2): 3;



896-902. *Austrophthiracarus sarawaki* sp. nov. (holotype): 896 - prodorsum, lateral view, 897 - prodorsum, dorsal view, 898 - notogaster, lateral view, 899 - seta c_1, 900 - genitoaggenital plate, 901 - anoadanal plate, 902 - trochanter and femur of leg I



903-908. *Austrophthiracrus latior* (NIEDBAŁA, 1982) (specimen from India): 903 - prodorsum, lateral view, 904 - prodorsum, dorsal view, 905 - notogaster, lateral view, 906 - seta h_1, 907 - genitoaggenital plate, 908 - anoadanal plate; 909-912. *Austrophthiracarus pullus* (NIEDBAŁA, 1989) (holotype): 909 - prodorsum, lateral view, 910 - prodorsum, dorsal view, 911 - mentum of infracapitulum, 912 - notogaster, lateral view

anoadanal plates with 5 pairs of rough setae, setae ad_1 and ad_2 the longest and the thickest. Chaetotaxy of legs complete.

MATERIAL. Locality in the Oriental region: India, Kerala, Malappuram District, litter in 2nd-growth forest on stony slope (little litter accum.), 29 VII 1986, leg. NORTON, HAQ, RAMANI - (1) (NIEDBAŁA 1989). Indonesia, Kalimantan, Timur, Samarinda d., Sanga Sanga, Muara, jungle litter, 29 X 1979, leg. P.T. LEHTINEN - (20).

DISTRIBUTION. An Oriental species.

Austrophthiracarus sarawaki sp. nov.

(Figs 896-902)

DESCRIPTION. Measurements of holotype: prodorsum: length 318, width 202, height 116, sensillus 65.8, setae: interlamellar 101, lamellar 20.2, rostral 32.9; notogaster: length 640, width 444, height 380, setae: c_1 119, h_1 157, ps_1 142; genitoaggenital plate 167x116, anoadanal plate 242x121. Colour brown, surface of body strongly foveolate and covered with dense and fine puncturation. Prodorsum with median field longer than lateral fields, lateral carinae absent. Sensilli with long and narrow pedicel and fusiform head covered with small spines. Interlamellar setae long, robust and erect, covered with thin spines in distal half, lamellar and rostral setae spiniform covered with small spines, *in* > *ro* > *le*, exobothridial setae vestigial. Notogaster with 15 pairs of medium-length setae (c_1/c_1-d_1 =0.73), with pointed distal end and covered with small spines, dorsal setae longer than others, setae c_1 and c_2 remote from anterior margin, setae c_2 more so than setae c_1, setae c_3 situated near anterior margin. Vestigial setae f_1 posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them. Formula of genital setae: 6(4+3): 2. Anal and adanal setae rough, setae ad_1 and ad_2 longer than anal setae and ad_3 setae. Chaetotaxy of legs of complete type, setae *d* on femora I situated almost at distal end, setae *a"* on tarsi I and II bent distally, setae *ft"* on tarsi II straight.

DIAGNOSIS. The new species is similar to *A. pullus* (NIEDBAŁA, 1989) from India and to *A. nicoleti* (NIEDBAŁA, 1987) from Australia. However *A. pullus* has a different shape of median field of prodorsum, different shape of rostral setae, its exobothridial setae are well developed and arangement of genital setae is6(4+2): 3. *A. nicoleti* has slightly a different shape of sensilli, the distal end of notogastral setae obtuse, four pairs of notogastral lyrifissures and setae d on femora I bifurcated.

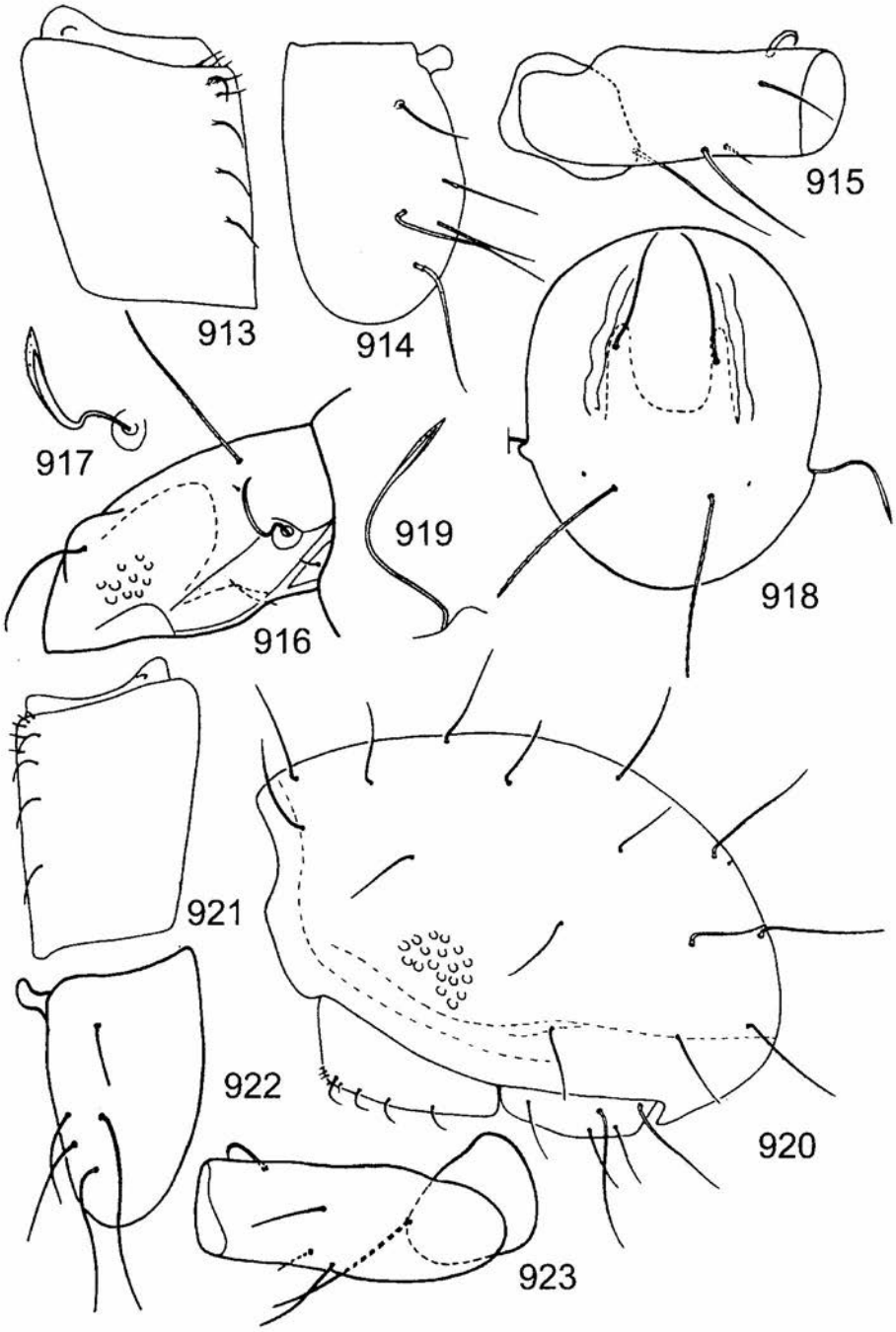
MATERIAL. Holotype and 13 paratypes: Sarawak, Mulu, Lowl rain forest path, 3 X 1977, leg. B. BOLTON. Another locality: Sarawak, Mulu, open cleared ground, 20 IX 1977, leg. B. BOLTON - (4).

DISTRIBUTION. Sarawak, probably an endemic species.

Austrophthiracarus tuberculatus NIEDBAŁA et CORPUZ-RAROS, 1998

(Figs 916-923)

DIAGNOSIS. Surface of body covered with strong concavities and protuberances, especially surface of notogaster, moreover surface covered with strong cerotegument.



913-915. *Austrophthiracarus pullus* (Niedbala, 1989): 913 - genitoaggenital plate, 914 - anoadanal plate, 915 - trochanter and genu of leg I; 916-923. *Austrophthiracarus tubercullatus* sp. nov. (holotype): 916 -prodorsum, lateral view, 917 - sensillus, lateral view, 918 - prodorsum, dorsal view, 919 - sensillus, dorsal view, 920 - notogaster, lateral view, 921 - genitoaggenital plate, 922 - anoadanal plate, 923 - trochanter and femur of leg I

Prodorsum with fields weakly marked, median field broad with deep incision, lateral carinae reach sinus, distinct hump at the level of rostral setae present; sensilli slightly sickle-shaped with dilated head and tapering towards distal end, covered with small spines; interlamellar setae long, robust, erect, covered with thin spines, rostral setae long, remote from each other, covered with small spines, lamellar setae vestigial, *in* > *ro* > *ex*. Notogaster with 15 pairs of medium-length (c_1/c_1-$d_1 = 0.75$) setae covered with small spines; vestigial setae f_1 posterior to h_1 setae; lyrifissures invisible because of strong cerotegument. Ventral region, formula of genital setae: 6(4+2: 3); anal and adanal setae long, with pointed distal end, $ad_2 > ad_1 > ad_3 = an$. Chaetotaxy of legs of incomplete type, setae *d* on femora I remote from distal end, setae *a'* on tarsi I absent.

MATERIAL. Localities in the Oriental region: Thailand, Chienamai Pr. Doi Suthep, jungle, 14.XI.1976, leg. P.H. LEHTINEN – (2); Northern Thailand, Doi Sutep, L. 34, 11.I.1959, leg. Birgid DAGERBØL Zool. Mus.Køb. – (1). Indonesia, Kalimantan, Timur Kutal d., Lao Janan, in jungle litter, 30.X.1979, leg. P.T. LEHTINEN – (1). Philippines, Luzon Is., Mt. Makiling, Kapos, San Rafael, Santo Tomas, Batangas Prov., leaf litter, 8 VII 1993, leg. R.C. GARCIA - (1); Luzon Is., Palayan ng Bayan, alt. 1500 ft., Tanay, Rizal Province, leaf litter, 28 V 1979, leg. L.S. CUY – (2); Luzon Is., Pagbilao, Quezon Province, alt. 900 ft, forest litter, X 1976, leg. L.S. CUY – (1) (NIEDBAŁA and CORPUZ-RAROS 1998).

DISTRIBUTION. An Oriental species.

Austrophthiracarus villosus (NIEDBAŁA, 1982)

(Figs 924-929)

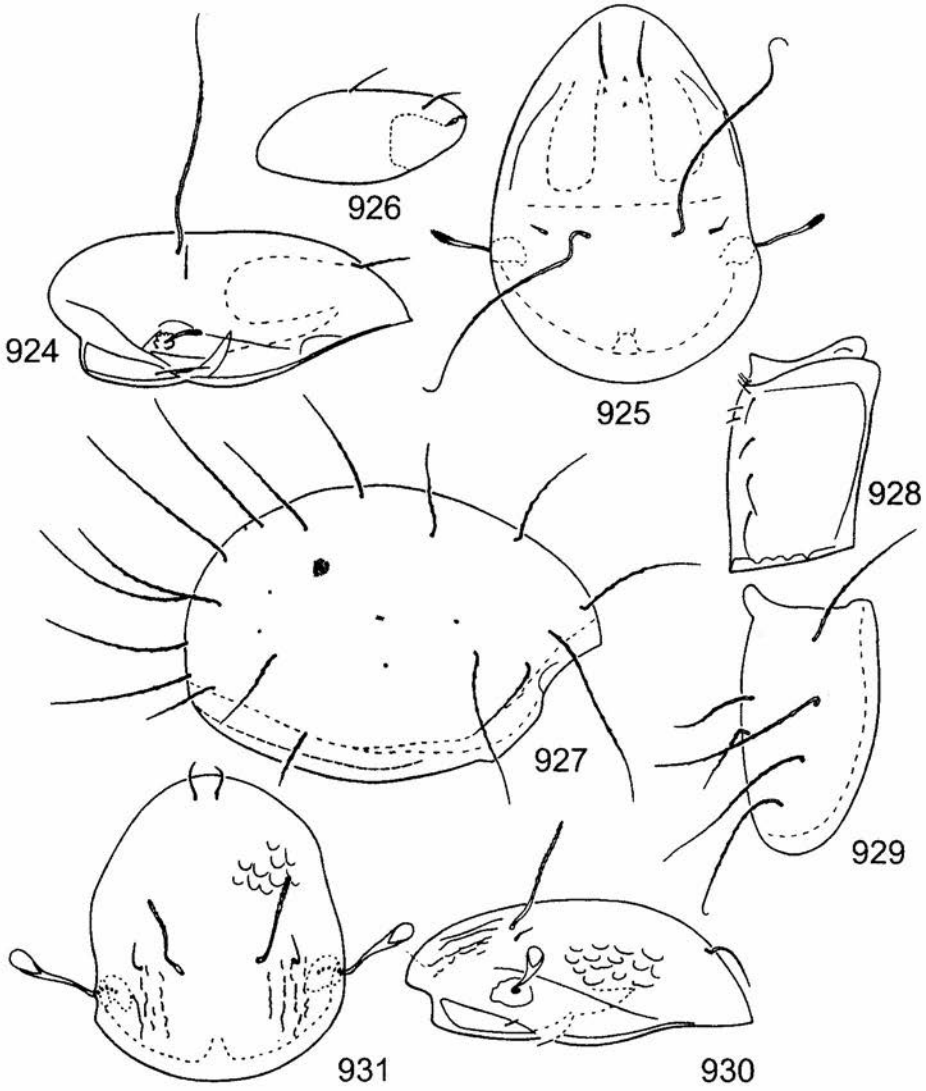
Neophthiracarus villosus NIEDBAŁA, 1982
Calyptophthiracarus villosus: NIEDBALA 1986, 1992

DIAGNOSIS. Median and lateral fields of prodorsum distinct, lateral carinae reach sinus, few spines on surface between rostral setae; sensilli distally dilated, terminal part covered with small spines; interlamellar setae very long, erect, covered with small spines with flagelliform distal end, rostral setae spiniform and rough, lamellar setae spiniform and smooth. Notogaster with 17 pairs of long ($c_1 > c_1$-d_1) setae, covered with small spines; vestigial setae posterior to h_1 setae; three pairs of lyrifissures *ia, im, ip* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plate with 5 or 6 rough setae, anal setae shorter than adanal setae. Chaetotaxy of legs complete.

MATERIAL. Localities in the border zone of the Oriental region: India, Kashmir, road between Srinagar and Kargil, in mixed forest, 6 IX1976, leg. C. BŁASZAK and J. BŁOSZYK - (2); Kashmir, in valley of Indus, under bushes, 4 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (1); Kashmir, between Jamnu and Srinagar, under pines, 4 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (1); Kashmir, near Kud, in forest of larches and pines, 15 IX 1976, leg. C.BŁASZAK and J. BŁOSZYK - (11); Himachal Pradesh, near Simla, litter in oak forest, 2000 m, 19 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (134) (NIEDBAŁA 1982, 1992); Kashmir, Dachigam Nat. Forest, litter in grove of large *Platanus*, 20.III.1986, leg. R. NORTON – (6); Kashmir, Dachigam Nat. Forest,

litter at base of 20" dbh elm (*Ulmus wallechiana*) in mixed forest, 20.III.1986, leg. R. NORTON – (9); Uttar Pradesh, Kvmaom Nainital, Pains 1920 m, mountain forest (TF), 16.IV.1979, leg. P.T. LEHTINEN – (70); Uttar Pradesh, Kumaon, Mainital Mallital (1940 m), in jungle litter (TF), 15.IV.1979, leg. P.T. LEHTINEN – (3); Uttar Pradesh, Kumaon Nainital Poins, at 1920 m, mountain forest, 16.IV.1979, leg. P.T. LEHTINEN – (1).

DISTRIBUTION. Southern border of Palaearctic; India: Kashmir, Himachal and Uttar Pradesh.



924-929. *Austrophthiracarus villosus* (NIEDBALA, 1982) (holotype): 924 - prodorsum, lateral view, 925 - prodorsum, dorsal view, 926 - mandibule, 927 - notogaster, lateral view, 928 - genitoaggenital plate, 929 - anoadanal plate; 930, 931. *Arphthicarus evexus* sp.nov. (holotype): 930 - prodorsum, lateral view, 931 - prodorsum, dorsal view

Arphthicarus Niedbała, 1994

Diagnosis. Dorsal and lateral fields of prodorsum not fused, lamellar setae short, length ratio of lamellar setae/prodorsum <0.18; notogaster with 15 pairs of setae, rarely neotrichous, setae c_1 shorter than distance between setae c_1 and d_1; setae g_7-g_9 displaced towards the paraxial margin of anoadanal plate, almost in row with setae g_1-g_5, setae g_6 either remote from margin and located above g_5, when it is placed below these setae, distance between g_6 and g_5 shorter than that between g_5 and g_4, setae ad_1 at a distance from paraxial margin and longer than anal setae; setae ad_2 far from margin, adanal setae normal; setae *ft"* on tarsi I normal

Arphthicarus evexus sp. nov.

(Figs 930-935)

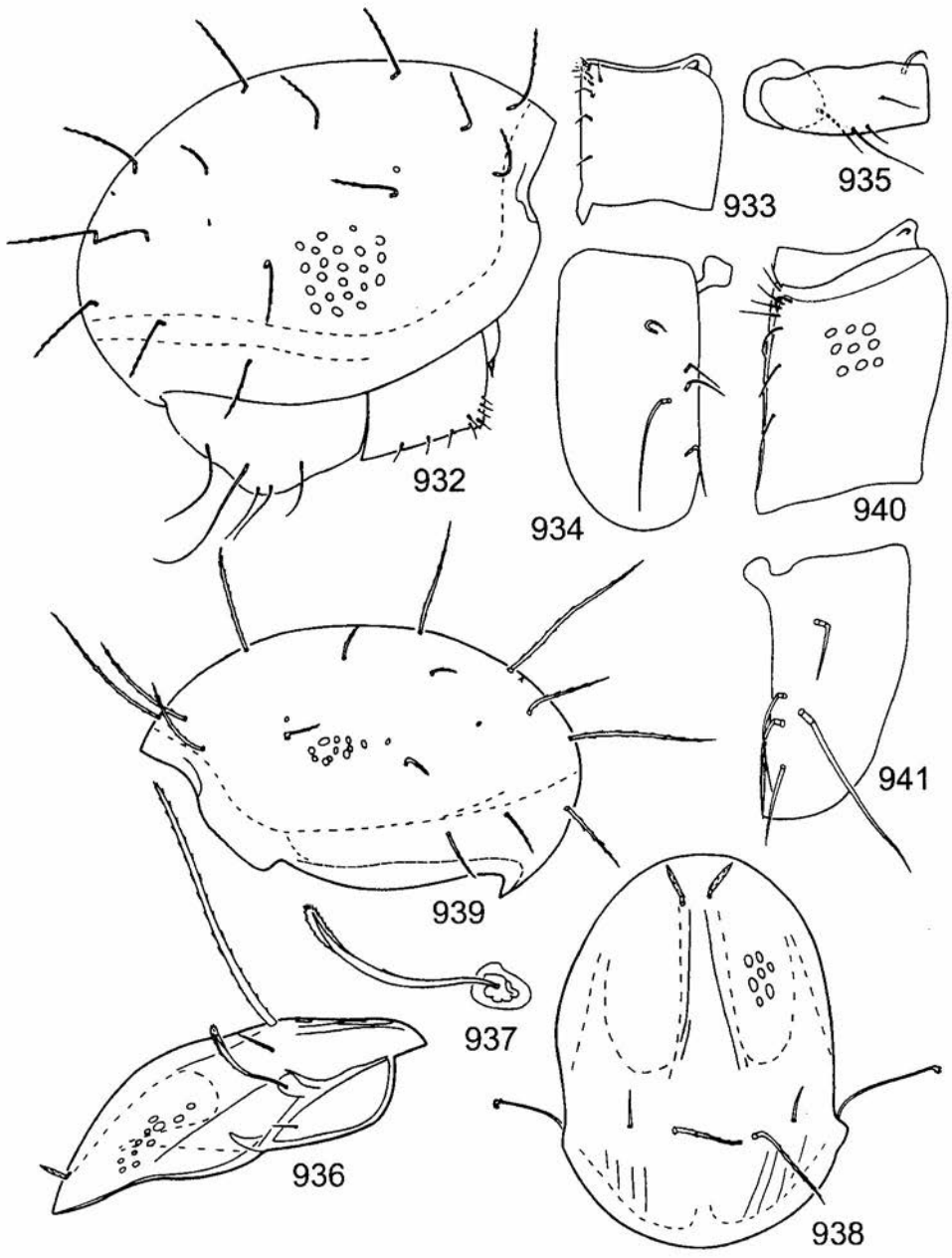
Description. Measurements of holotype: prodorsum: length 202, width 147, height 73.4, sensillus 40.5, setae: interlamellar 75.9, lamellar 12.6, rostral 37.9, exobothridial 7.6; notogaster: length 485, width 252, height 318; genitoaggenital plate 88.5x63.2, anoadanal plate 144x75.9. Colour light to dark brown, microsculpture of integument foveate. Prodorsum with strong sculpture, fields weakly visible, lateral carinae distinct. Sensilli club-like with rounded head. Interlamellar setae erect, robust, covered with small spines, rostral setae spiniform, lying paralel to surface of prodorsum, lamellar and exobothridial setae minute. Notogaster with 15 pairs of rigid setae covered with small spines at distal end, setae c_1 and c_3 situated near anterior margin, setae c_2 remote from margin. Vestigial setae f_1 situated posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region. Setae *h* of mentum shorter than distance between them, formula of genital setae: 6(4+2): 3. Anoadanal plate with formula of setae 2: 3, setae ad_2 the longest and situated near an_1 setae, setae ad_3 covered with small setae. Legs. Formulae of setae and solenidia of complete type.

Diagnosis. This species is similar to *A. remotus* Niedbała, 1989 from Australia. However it has only two pairs of lyrifissures, vestigial setae f_1 situated posterior to h_1 setae and setae ad_2 located near an_1 setae.

Etymology. The specific epithet *evexus* is Latin for "rounded at the apex, top" and refers to the shape of head of sensilli.

Material. Holotype: Vietnam, Tam Dao, secondary pine forest, litter sample, 980 m, 19. 10. 1988, leg. J. Stary; 3 paratypes: Vietnam, Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20. 10. 1988, leg. J. Stary - (3). Another material: localities in Vietnam: Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. Stary – (8); Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. Stary – (2); Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. Stary – (2); Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. Stary – (2).

Distribution. Vietnam, probably an endemic species.

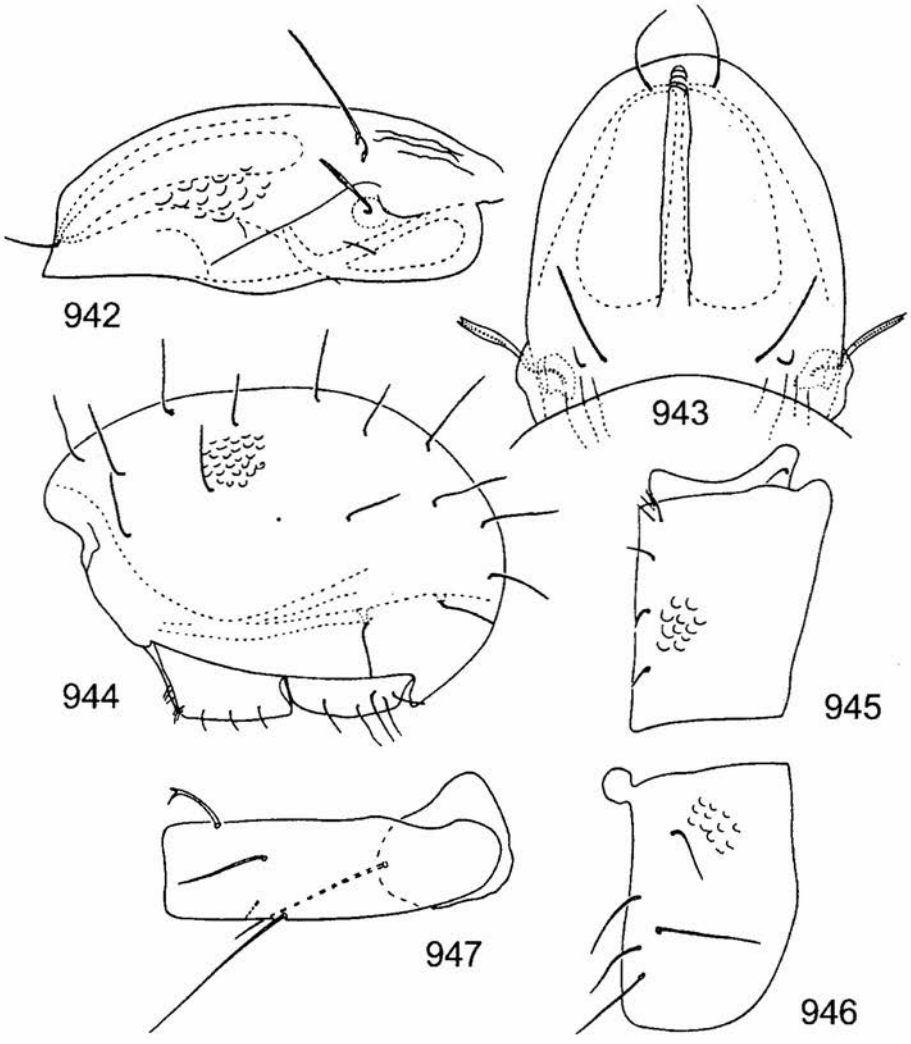


932-935. *Arphthicarus evexus* sp.nov. (holotype): 932 - notogaster, lateral view, 933 - genitoaggenital plate, 934 - anoadanal plate. 935 - trochanter and femur of leg I; 936-941. *Arphthicarus inenarrabilis* (Niedbała, 1982) (holotype): 936 - prodorsum, lateral view, 937 - sensillus, lateral view, 938 - prodorsum, dorsal view, 939 - notogaster, lateral view, 940 - genitoaggenital plate, 941 - anoadanal plate

Arphthicarus furcatus Niedbała et Corpuz-Raros, 1998

(Figs 942-947)

Diagnosis. Prodorsum with long, narrow and joined fields; median carina robust, lateral carinae reach sinus; sensilli narrow, lanceolate and bifurcate at distal end; interlamellar setae long, robust, spinose in distal half, lamellar setae short, thick, spiniform; rostral setae long, spiniform, roughened. Notogaster with 15 pairs of robust setae, moderately short, with small spinules in distal half; vestigial setae not visible; only lyrifissures *im* visible. Ventral region, setae *h* of mentum slightly longer than distance between them; formula of genital setae: 5(4+1): 4; anoadanal plates

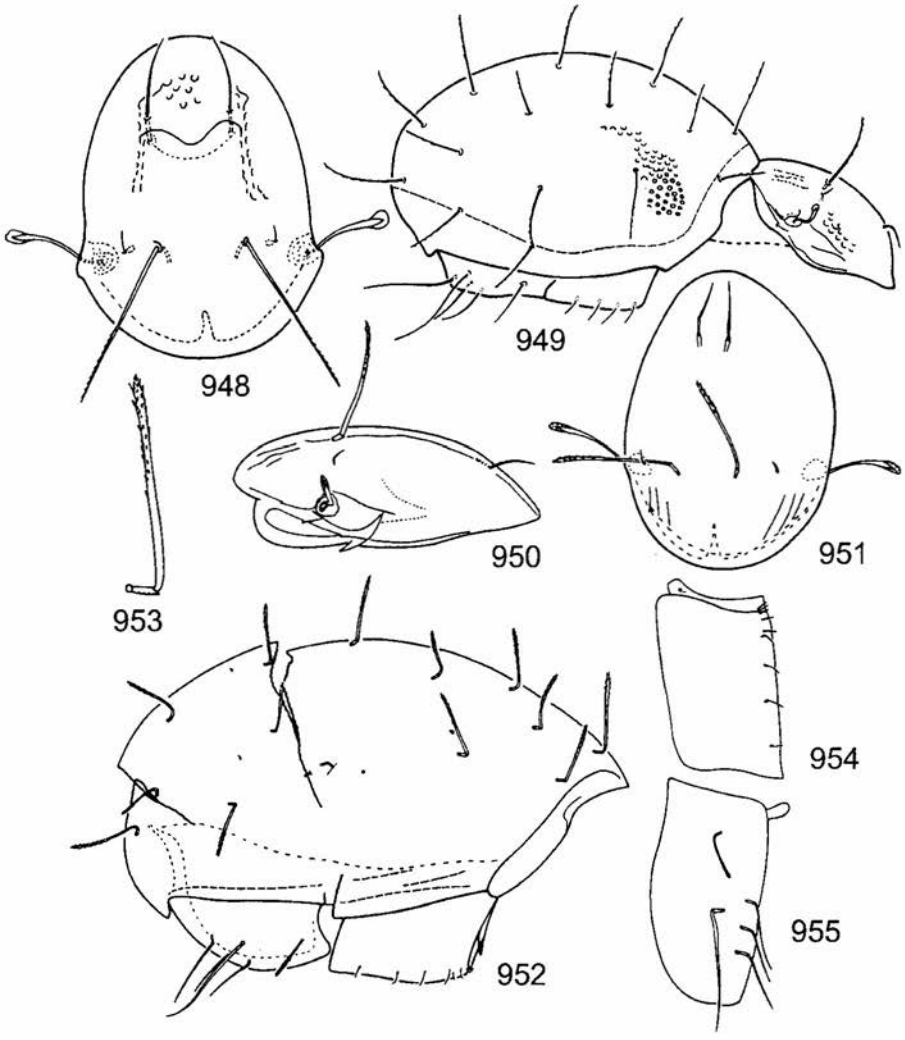


942-947. *Arphthicarus furcatus* Niedbała et Corpuz-Raros (holotype): 942 - prodorsum, lateral view, 943 - prodorsum, dorsal view, 944 - notogaster, lateral view, 945 - genitoaggenital plate, 946 - anoadanal plate, 947 - trochanter and femur of leg I

with 5 pairs of setae, adanal setae rough, longer and stronger than anal and ad_3 setae. Leg chaetotaxy of complete type, setae *d* on femora I bifurcate at distal end.

MATERIAL. Localities in the Oriental region: Philippines, DNR 429 Luzon Is., Mt. Banahaw, alt. 450 m, Codncepcion, Sariaya, Quezon Province, leaves of *Neolitsea vidalii*, 11 II 1977, leg. R.C. GARCIA – (1); Philippines, DNR 896 Luzon Is., Gagabutan, Rizal, Cagayan, primary forest litter, 29 III 1977, leg. R.C. GARCIA – (1) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. Philippines, probably an endemic species.



948, 949. *Arphthicarus indicus* (BAYOUMI, MAHUNKA, 1979) (after BAYOUMI, MAHUNKA 1979): 948 - prodorsum, dorsal view, 949 - lateral view of body; 950-955. *Arphthicarus ineptus* (NIEDBALA, 1984) (holotype): 950 - prodorsum, lateral view, 951 - prodorsum, dorsal view, 952 - notogaster, lateral view, 953 - seta c_1, 954 - genito-aggenital plate, 955 - anoadanal plate

Arphthicarus indicus (BAYOUMI et MAHUNKA, 1979)

(Figs 948, 949)

Hoplophthiracarus indicus BAYOUMI et MAHUNKA, 1979
Austrophthiracarus indicus: NIEDBALA 1986, 1992

DIAGNOSIS. Body surface covered with deep concavities. Prodorsum with median field broad and short, lateral fields short; lateral carinae reach sinus; posterior furrows distinct; sensilli with long and narrow pedicel and round head; interlamellar setae erect, long, covered with small spines, rostral setae long, rough, lamellar setae minute, spiniform, *in* > *ro* > *ex* > *le*. Notogaster with 15 pairs of fairly short ($c_1 < c_1$-d_1), robust setae covered with small spines in distal half; vestigial setae absent; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 6(4+2): 3, setae $g_{6\text{-}9}$ very long; anoadanal plates each with 5 rough setae, setae ad_1 and ad_2 the longest and the thickest. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

MATERIAL. Localities in the border zone of the Oriental region: Bhutan, Phuntsholing, 2 400 m, 21-28 IX 1976, leg. W. WITTMER - (17). India, Maghalaya, Cerrapunjee, 1200 m, 15 VI 1976, leg. W. WITTMER and U. BARONI - (1) (BAYOUMI & MAHUNKA 1979).

DISTRIBUTION. S border of Palaearctic: North India and Bhutan..

Arphthicarus inenarrabilis (NIEDBAŁA, 1982)

(Figs 936-941)

Hoplophthiracarus inenarrabilis NIEDBAŁA, 1982
Austrophthiracarus inenarrabilis: NIEDBAŁA, 1986, 1992

DIAGNOSIS. Median field of prodorsum longer than lateral, lateral carinae reach sinus; posterior furrows distinct; sensilli long, dilated at distal end and covered with small spines; interlamellar setae very long, thick, erect and rough, rostral setae short, thick, erect and rough, lamellar setae spiniform, rough, *in* > *le* > *ro* > *ex*. Notogaster with setae of unequal length length, covered with small spines, setae *cp*, d_2, e_2, h_3 very short, setae c_1, d_1, e_1,h_1 and ps_1 very long ($c_1 > c_1$-d_1); vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 7(4+3): 2; anoadanal plates with 5 pairs of setae, setae ad_2 the longest and the thickest. Chaetotaxy of legs complete.

MATERIAL. Locality in the border zone of the Oriental region: India, Kashmir, road between Srinagar and Kargil, in mixed forest, 6 IX1976, leg. C. BŁASZAK and J. BŁOSZYK - (5) (NIEDBAŁA 1982, 1992).

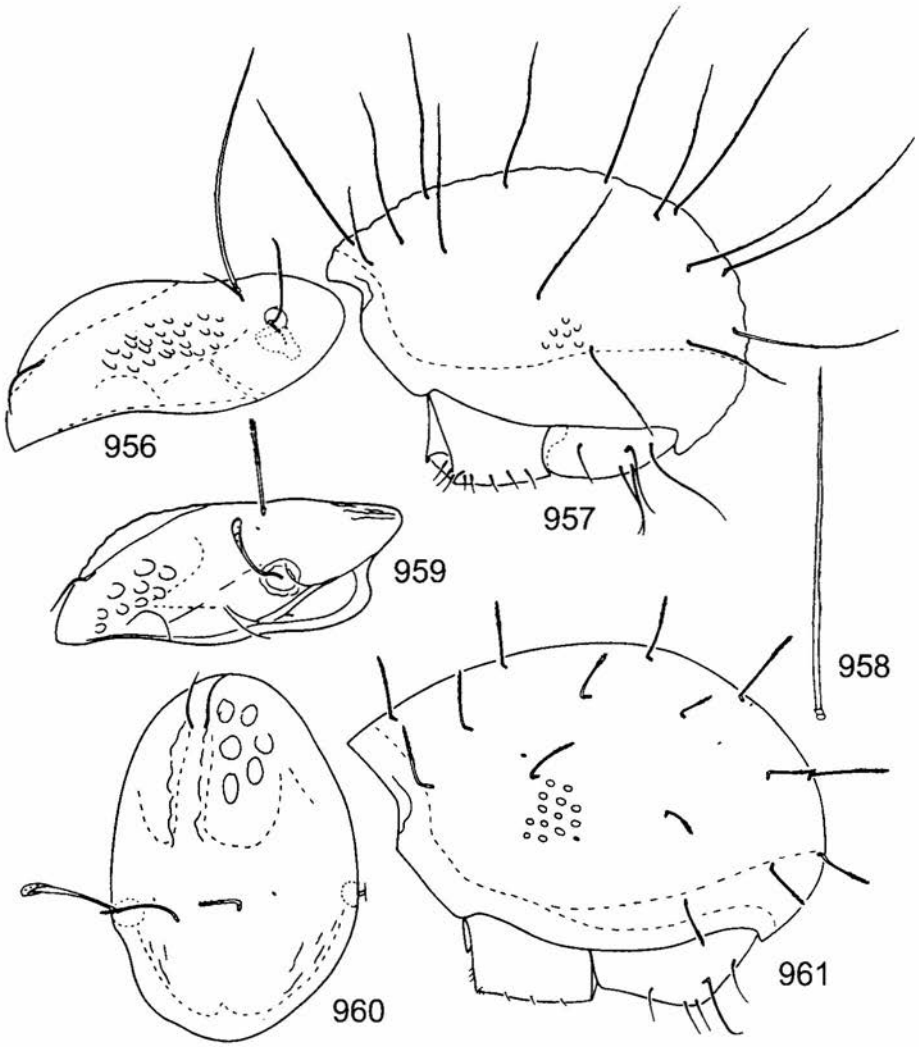
DISTRIBUTION. India, Kashmir, perhaps an endemic species.

Arphthicarus ineptus (NIEDBAŁA, 1984)

(Figs 950-955)

Hoplophthiracarus ineptus NIEDBAŁA, 1984
Austrophthiracarus ineptus: NIEDBALA 1986, 1992

DIAGNOSIS. Median field of prodorsum not distinct, lateral fields and posterior furrows indistinct; lateral carinae short; sensilli long, narrow, dilated distally and round-ended, covered with small spines; interlamellar setae long, thick, erect, covered with small spines in distal half; rostral and lamellar setae spiniform, smooth, *in* > *ro* > *ex* > *le*. Notogaster with thick setae covered with robust spines in distal half; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 6(4+2): 3; anoadanal plates with 5 pairs of setae, anal setae shorter than ad_1 and ad_2 setae, setae ad_3 the shortest, covered with small spines, similar to gastronotic setae. Chaetotaxy of legs reduced, setae *a'* on tarsi I and II absent.



956-958. *Arphthicarus parasentus* sp. nov. (holotype): 956 - prodorsum, lateral view, 957 - notogaster, lateral view, 958 - seta c_1; 959-961. *Arphthicarus sentus* (NIEDBALA, 1989) (holotype): 959 - prodorsum, lateral view, 960 - prodorsum, dorsal view, 961 - notogaster, lateral view

MATERIAL. Locality in the border zone of the Oriental region: India, Kashmir, near Jamnu, under bushes, 4 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (8) (NIEDBAŁA 1984c, 1992).

DISTRIBUTION. A species of very unusual distribution: Kashmir and Solomon islands.It is either an old element from before the breaking up of Pangea, or an oriental species introduced in SE A Palaearctic and Solomon islands, however, not found in the Orient yet.

Arphthicarus parasentus sp. nov.

(Figs 956-958)

DESCRIPTION. Measurements of holotype: prodorsum length 318, width 227, height 116, sensillus 65.6, setae: interlamallar 227, lamellar 50.5, sostral 55.5; notogaster: length 581, width 404, height 358, setae: c_1 252, h_1 308, ps_1 338; genitoaggenital plate 161x116, anoadanal plate 161x106.

DIAGNOSIS. This species is covered with strong sculpure and regions, vestigial setae and lyrifissures are invisible. It is similar to *A. sentus* NIEDBAŁA, 1989 from Vietnam but the notogastral setae are very long and attenuate and lamellar setae are much longer.

MATERIAL. Holotype: Vietnam, Tam Dao National Park, mountain tropical forest, litter sample, 900 m. 02. 09. 1996, leg. W. JĘDRYCZKOWSKI.

DISTRIBUTION. Vietnam, probably an endemic species.

Arphthicarus sentus (NIEDBAŁA, 1989)

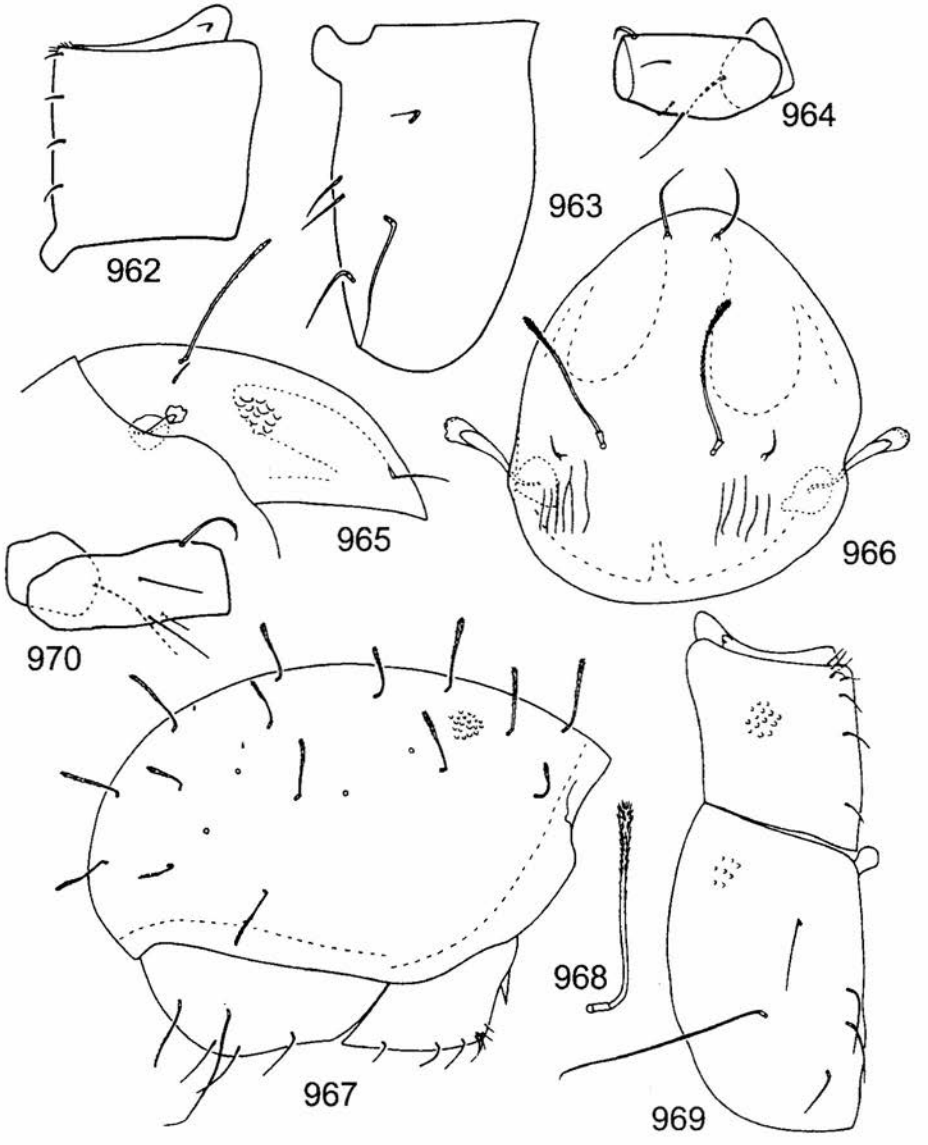
(Figs 959-964)

Austrophthiracarus sentus NIEDBAŁA, 1989, 1992

DIAGNOSIS. Surface of body covered with strong widely spaced concavities. Prodorsum with fields weakly visible; median carina distinct; lateral carinae reach sinus; posterior furrows indistinct; sensilli with long, narrow pedicel and rounded head covered with small spines; interlamellar setae long, robust, erect, covered with small spines, rostral setae spiniform, smooth, located near each other, lamellar setae vestigial, *in* > *ro* > *ex*. Notogaster with trong, fairly short ($c_1 < c_1$-d_1) setae covered with small spines in distal half; vestigial setae f_1 posterior to h_1 setae; 2 pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum a little longer than distance between them; formula of genital setae: 6: 3; anoadanal plates with 5 pairs of rough setae, $ad_2 > ad_1 > an > ad_3$, ad_2 setae with curved distal end. Chaetotaxy of legs complete.

MATERIAL. Localities in the Oriental region: Vietnam, Tam Dao Mtns, 90 km N Hanoi, forest litter at 1200 m, 22 X 1985, leg. M. ZACHARDA - (21); as above, old tropical forest, 25 X 1985 - (15); as above, forest litter at 1300 m - (6); as above, forest litter at 1200 m, 20 X 1985 - (4); as above, forest litter at 1400 m, 15 X 1985 - (3); Dalat,320 km N Ho Chi Minh, moist mixed litter in old tropical forest,1500 m, 11 XI 1985, leg. M. ZACHARDA - (4); as above, 1600 m - (2) (NIEDBAŁA 1989); Vinh

Phu, Tan Dao, 1450 m, bamboo forest (TF), 20.X.1978, leg. P.H. LEHTINEN – (2); Quang Minh, Ha Long, 40 m, jungle litter (TF), 13.X.1978, leg. P.T. LEHTINEN – (2); Tam Dao, primary foggy forest, stone steps near near TV tower, litter and soil sample, 1100 m, 16 X 1988, leg. J. STARY – (1); Tam Dao, secondary pine forest, litter sample, 980 m, 10 X 1988, leg. J. STARY – (1); Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. STARY – (1); Tam Dao, submontane foggy forest, litter and soil sample, 1200 m, 12 X



962-964. *Arphthicarus sentus* (NIEDBALA, 1989) (holotype): 962 - genitoaggenital plate, 963 - anoadanal plate, 964 - trochanter and femur of leg I; 965-970. *Arphthicarus sumatranus* sp. nov. (holotype): 965 - prodorsum, lateral view, 966 - prodorsum, dorsal view, 967 - notogaster, lateral view, 968 - seta c_1, 969 - genitoaggenital and anoadanal plates, 970 - trochanter and femur of leg I

1988, leg. J. STARY – (1); Tam Dao, secondary pine forest, litter sample, 950 m, 19 X 1988, leg. J. STARY – (2); Tam Dao, submontane foggy forest, litter and soil sample, 1200 m, 12 X 1988, leg. J. STARY – (2); Tam Dao, primary foggy forest, litter sample, 1250 m, 18 X 1988, leg. J. STARY – (3); Tam Dao, primary foggy forest, litter sample under pine-apple tree, 1250 m, 18 X 1988, leg. J. STARY – (1); Tam Dao, submontane foggy forest, sample of lichens on the rock, 1150 m, 16 X 1988, leg. J. STARY – (1); Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. STARY – (3); Tam Dao, secondary pine forest, litter sample, 980 m, 19 X 1988, leg. J. STARY – (3); Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. STARY – (1); Tam Dao, primary submontane foggy forest near TV-transmitter, litter and soil sample, 1350 m, 20 X 1988, leg. J. STARY – (3); Tam Dao, primary foggy forest, sample of litter and rhizosphere of fern, 1300 m, 18 X 1988, leg. J. STARY – (2); Tam Dao, submontane foggy forest, litter and soil sample, 1200 m, 12 X 1988, leg. J. STARY – (1); Tam Dao, secondary pine forest, litter sample, 980 m, 19 X 1988, leg. J. STARY – (4); Tam Dao, primary foggy forest, 1180 m, litter and soil sample, 20 X 1988, leg. J. STARY – (4); Tam Dao, secondary pine forest with Pinue sp., litter sample, 1050 m, 19 X 1988, leg. J. STARY – (1); Tam Dao, secondary pine forest, litter sample, 970 m, 19 X 1988, leg. J. STARY – (1); Tam Dao, primary foggy forest, 1250 m, litter and soil sample, 18 X 1988, leg. J. STARY – (4); Tam Dao, primary foggy forest, 1350 m, litter and soil sample, 18 X 1988, leg. J. STARY – (7); Vietnam, 3, leg. Jędryczkowski – (1). Indonesia, Sumatra Barat Distr., Padangpanjang, Gunnung Singalang, 2500 m, cloud forest (TF), 27.IX.1978, leg. P.T. LEHTINEN – (2).

DISTRIBUTION. An Oriental species.

Arphthicarus sumatranus sp. nov.

(Figs 965-970)

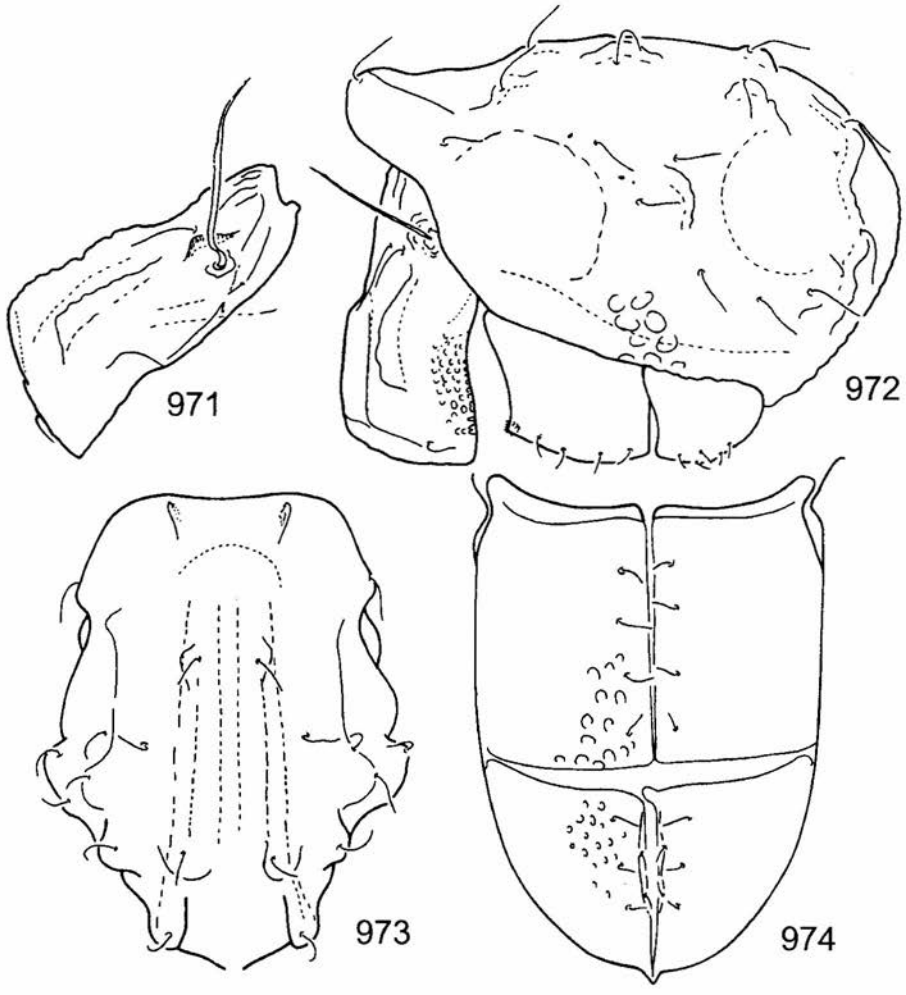
DESCRIPTION. Measurements of holotype: prodorsum: length 273, width 202, height 104, sensillus 45.5, setae: interlamellar 119, lamellar 25.3, rostral 48.1; notogaster: length 495, width 343, height 293, setae: c_1 81, h_1 75.9, ps_1 65.8; genitoaggenital plate 126x80.8, anoadanal plate 202x111. Colour brown. Microsculpture of integument foveolate. Prodorsum with median and lateral fields visible, posterior furrows distinct, lateral carinae absent. Sensilli club-like with irregular distal border. Interlamellar setae erect, covered with small spines in distal half, rostral setae rough, lamellar setae spiniform, exobothridial setae vestigial. Notogaster with setae broadening distally and covered with small spines, setae c_1 and c_3 near anterior border, setae c_2 positioned considerably further posteriorly. Vestigial setae f_1 inserted dorsally of h_1. Four pairs of lyrifissures, *ia, im, ip, ips* present. Ventral region. Setae *h* of mentum longer than distance between them. Formula of genital setae: 5(4+1): 3. Anoadanal plates with setal formula 3: 2, setae ad_1 covered with small spines, other setae rough. Legs. Formula of setae and solenidia of complete type.

DIAGNOSIS. This species can be distinguished from its congeners by the shape of notogastral setae, broadening distally, setae ad_1 covered with small spines, presence of all four pairs of lyrifissures, formula of genital setae: 5(4+1): 3.

MATERIAL. Holotype: Sumatra, 655.
DISTRIBUTION. Sumatra, probably an endemic species.

Notophthiracarus Ramsay, 1966

DIAGNOSIS. Notogaster with 15 pairs of setae, rarely neotrichous; 9 pairs of genital setae arranged in a single row, distance between setae g_6 and g_9 longer than that between g_5 and g_4 or g_3 and g_4; Notogaster with 15 pairs of notogastral setae, 5 pairs of setae on anoadanal plates present, setae ad_1 and ad_2 remote from paraxial margin, normal, minute or vestigial; setae *v'* on femora I (if present) minute (length ratio *v"*/*v'*<2.25), setae *l'* on genua IV always present, setae *ft"* on tarsi I normal.



971-974. *Notophthiracarus enigmaticus* (MAHUNKA, 1996) (after MAHUNKA 1996): 971 - prodorsum, lateral view, 972 - lateral view of body, 973 - notogaster, dorsal view, 974 - ventral region

Notophthiracarus enigmaticus (MAHUNKA, 1996)

(Figs 971-974)

Kakophthiracarus enigmaticus MAHUNKA, 1996

DIAGNOSIS. Surface of body covered with thick cerotegument, extremely thick in deeper hollows of notogaster. Surface of prodorsum alveolate, quadrangular in lateral view, crown-shaped in frontal view; median crista very robust, parallel with pair of smaller lateral cristae; lateral carinae absent; sensilli very long, setiform, distinctly spinose unilaterally, setae thin, simple. Notogaster with three dorsal crests, anterior hood and deep hollow behind it, surface with many tubercules besides two pairs of larger hollows; 15 pairs of thin and simple setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 6: 3; formula of thin and simple anoadanal setae 2:3. Leg chaetotaxy of complete type.

MATERIAL. Locality in the Oriental region: Malaysia, Sarawak, Serian District, Penrissen Road 12 miles de Kuching „Semongok Wildlife Rehabilitation Centre: Nursery Centre of the Forest Department", prelevement de sol dans les angles formes par les contreforts de grands arbres, 50 m, 8 XII 1987, leg. B.H. - (24) (MAHUNKA 1996).

DISTRIBUTION. Malaysia, Sarawak, perhaps an endemic species.

Notophthiracarus extraordinarius sp. nov.

(Figs 979-986)

DESCRIPTION. Measurements of holotype: prodorsum: length 374, width 279, height 104, sensillus 60.6, setae: interlamellar 268, lamellar 212, rostral 85.8; notogaster: length 690, width 469, height 488, setae c_1 247, h_1 257, ps_1 379; genitoaggenitalplate 212x172, anoadanal plate 268x141. Colour light brown, surface of body covered with concavities, more intense on notogastral margin. Prodorsum with narrow, joined median and lateral fields, lateral carinae absent. Sensilli leaf-like, with pointed distal end and covered with small spines. Setae thick (except vestigial exobothridial setae), interlamellar and lamellar long and erect, rostral setae erect but short, all covered with thin spines. Notogaster with 15 pairs of robust setae of different length, dorsal setae the longest (c_1/c_1-d_1 = 1.58), setae h_3 and ps_4 the shortest, setae c_2, c_3, cp, e_2 and ps_3 of intermediate length, all setae covered with small spines, setae c_1 and c_2 slightly remote from anterior border, setae c_3 near margin. Vestigial setae f_1 posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them. Formula of genital setae: 5: 4. Setae of anoadanal plate rough, ad_1 > an > ad_2 > ad_3. Chaetotaxy of legs of complete type, setae *a"* on tarsi I and II bent distally, setae *ft"* on tarsi II straight.

DIAGNOSIS. This species differs from its congeners in the joined median and lateral fields of prodorsum, and short h_3 and ps_4 setae in comparison with other setae of notogaster.

ETYMOLOGY. The specific name extraordinarius indicates the unusual differentiation of the length of the notogastral setae and the unusual joined regions of the prodorsum in this genus.

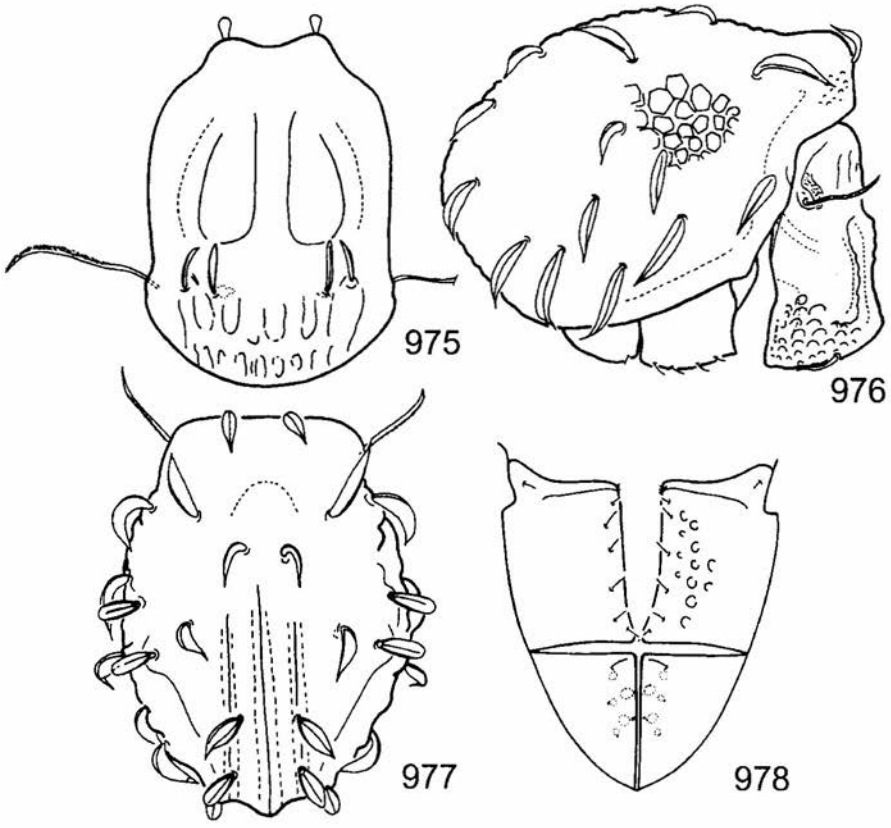
MATERIAL. Holotype and 18 paratypes: Sri Lanka, Central Prov., Nuwara Eliya 1800 m., litter of mixed forest, 16 X 1984, leg. P.T. LEHTINEN.

DISTRIBUTION. Sri Lanka, probably an endemic species.

Notophthiracarus hauseri MAHUNKA, 1995

(Figs 975-978)

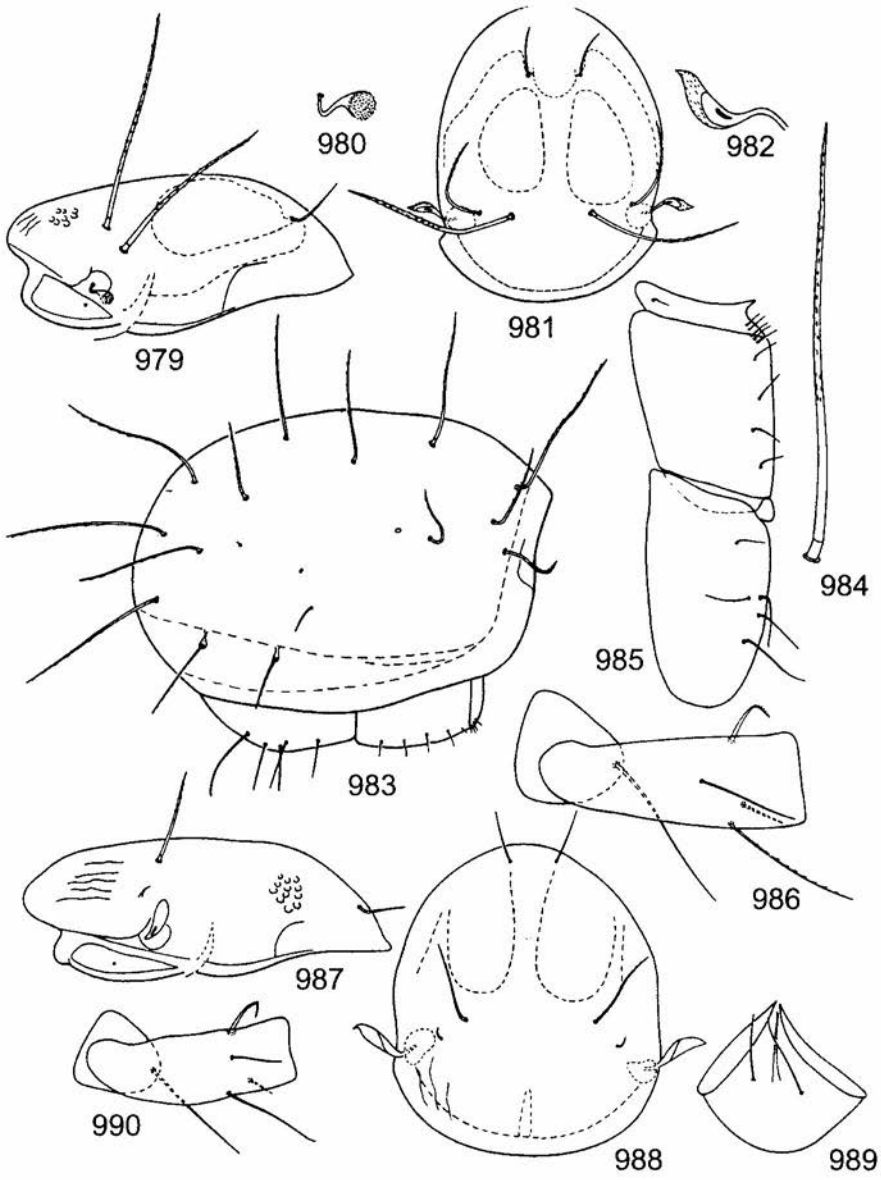
DIAGNOSIS. Surface of prodorsum with areoles in anterior part and in posterior part ornamented by longitudinal rugae amongs which are oblong spots. Prodorsum with robust median crista and weaker lateral cristae, lateral carinae absent; sensilli long, thin, setiform, distinctly spinose, setae phylliform (excepting exobothridial setae). Notogaster with three longitudinal ribs gradually disappearing anteriorly, 15 pairs of phylliform setae present with sharply pointed distal end. Ventral region, formula of genital setae: 6: 3; formula of anoadanal setae 2:3, anal setae and ad_1 and ad_2 vestigial, only setae ad_3 well developed. Legs chaetotaxy of complete type.



975-978. *Notophthiracarus hauseri* MAHUNKA, 1995 (after MAHUNKA 1995): 975 - prodorsum, dorsal view, 976 - lateral view of body, 977 - notogaster, dorsal view, 978 - ventral region

MATERIAL. Locality in the Oriental region: Brunei, (Belait District): „Andulau Forest Reserve", a 3,5 km au sud de Sungai Liang (= a 39,5 km de Labi), foret primaire („Mixed dipterocarp forest"), K-7 („Compartement 7"), prelevement de sol dans les angles formes par les contreforts de grands arbres, 50 m, 19 XI 1988, leg. B. H. - (6) (MAHUNKA 1995).

DISTRIBUTION. Brunei, perhaps an endemic species.



979-986. *Notophthiracarus extraordinarius* sp. nov. (holotype): 979 - prodorsum, lateral view, 980 - sensillus, lateral view, 981 - prodorsum, dorsal view, 982 - sensillus, dorsal view, 983 - notogaster, lateral view, 984 - seta ps_2, 985 - genitoaggenital and anoadanal plates, 986 - trochanter and femur of leg I; 987-990. *Notophthiracarus ignobilis* sp. nov. (holotype): 987 - prodorsum, lateral view, 988 - prodorsum, dorsal view, 989 - mentum of infracapitulum, 990 - trochanter and femur of leg I

Notophthiracarus ignobilis sp. nov.

(Figs 987-994)

DESCRIPTION. Measurements of paratype: prodorsum: length 273, width 197, height 106, sensillus 30.4, setae: interlamellar 78.4, lamellar 7.6, rostral 37.9; notogaster: length 545, width 361, height 330, setae: c_1 75.9, h_1 81.0, ps_1 73.4; genitoaggenital plate 162x90.9, anoadanal plate 217x101. Colour light brown, surface of body covered with foveole but on notogaster on the border only. Prodorsum with weakly visible narrow fields, lateral carinae absent, posterior furrows present. Sensilli short, club-like with pointed distal end. Interlamellar setae robust , long, erect, covered with small spines, rostral setae robust, short, spiniform, covered with small spines, lamellar setae minute, exobothridial setae vestigial, *in* > *ro* > *le*. Notogaster with 15 pairs of fairly short (c_1/c_1-d_1 = 0.58) setae covered with small spines, setae c_1 and c_3 situated near anterior margin, setae c_2 far from margin. Vestigial setae f_1 posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 7: 2; anoadanal plates with setae of unequal length, $ad_1 > an_1 > ad_2 > an_2 > ad_3$, adanal setae situated relatively near paraxial border. Chaetotaxy of legs of complete type, setae *d* on femora I remote from distal end, setae *a"* on tarsi I and II and setae *ft"* on tarsi II straight distally.

DIAGNOSIS. This species easily distinguishable from its congeners by the club-like shape of sensilli with pointed distal end and by the unequal length of setae of anoadanal plates.

ETYMOLOGY. The specific epithet *ignobilis* is Latin for "unknown", "obscure" and alludes to the fact of the hitherto ignorance of the existence of the new species.

MATERIAL. Holotype and two paratypes: Sri Lanka, Central Prov., Pidurutalagalla, 1600 m., broad leaved jungle litter, 17 X 1984, leg. P.T. LEHTINEN.

DISTRIBUTION. Sri Lanka, probably an endemic species.

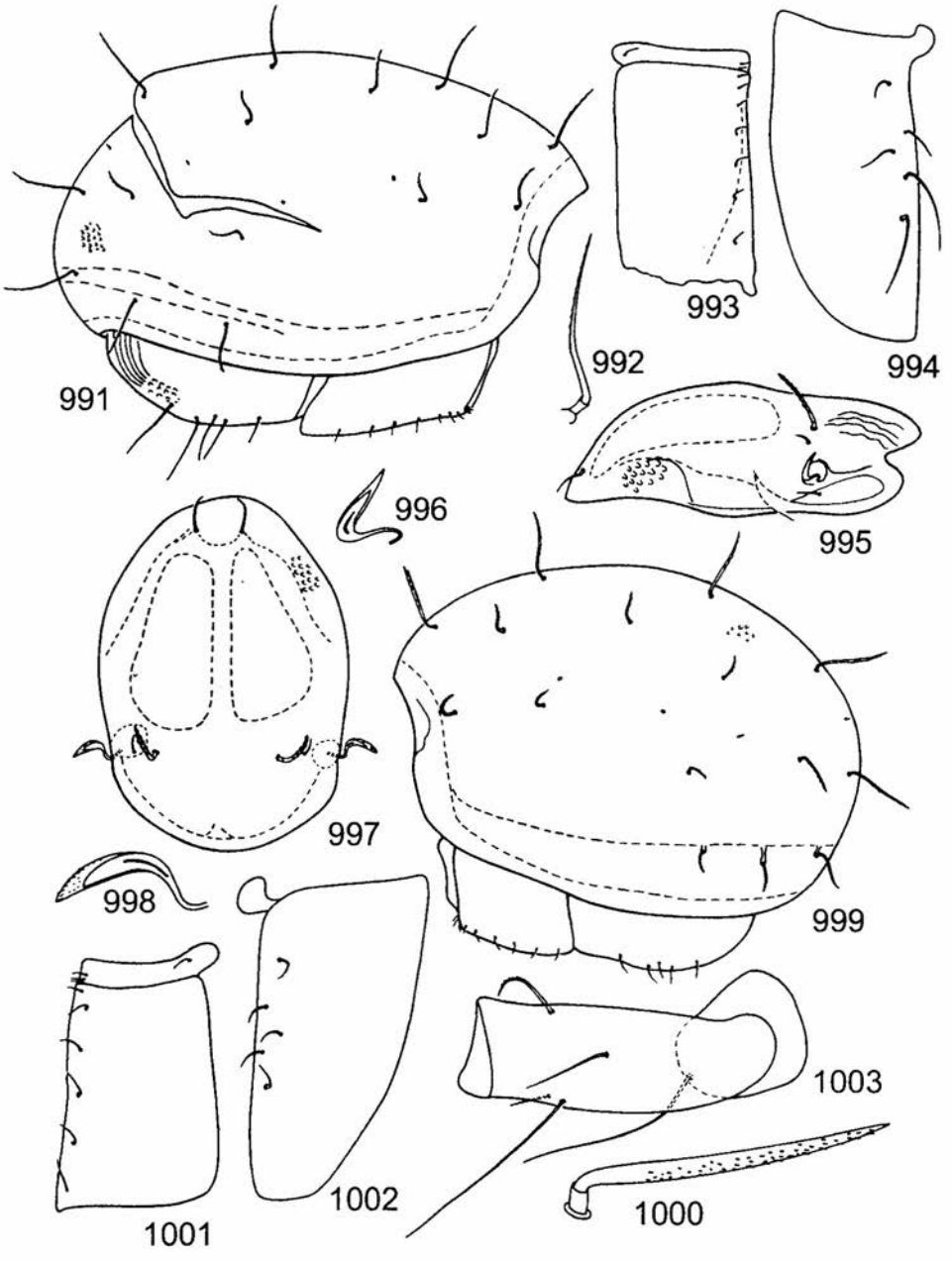
Notophthiracarus lienhardi MAHUNKA, 1996

(Figs 1004-1006)

DIAGNOSIS. Surface of body alveolate, in lateral part of prodorsum polygonate, basally some rugae present, surface of median band of notogaster smooth. Prodorsum with very high and wide median crista, lateral carinae absent; sensilli long, slightly dilated distally, spinose; rostral setae setiform, lamellar and interlamellar setae straight, erect, spiculate or spinose, *in* > *ro* > *le* > *ex*. Notogaster with anterior hood, slightly dilated laterally and continuing in broad median band posteriorly, 17 pairs of straight and erect setae, spinose in distal half, two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 6: 3. Chaetotaxy of legs of complete type.

MATERIAL. Locality in the Oriental region: Malaysia: Sarawak: Serian District, Penrissen Road 12 miles de Kuching, „Semongok Wildlife Rehabilitation Centre: Nursery Centre of the Forest Department", prelevement desol dans les angles formes par les contreforts de grands arbres, 50 m, 8 XII 1987, leg. B. H. - (2) (MAHUNKA 1996).

DISTRIBUTION. Malaysia, Sarawak, perhaps an endemic species.



991-994. *Notophthiracarus ignobilis* sp. nov. (holotype): 991 - notogaster, lateral view, 992 - seta Ci, 993 - genitoaggenital plate, 994 - anoadanal plate; 995-1003. *Notophthiracarus mirus* sp. nov. (holotype): 995 - prodorsum, lateral view, 996 - sensillus, lateral view, 997 - prodorsum, dorsal view, 998 - sensillus, dorsal view, 999 - notogaster, lateral view, 1000 - seta h_1, 1001 - genitoaggenital plate, 1002 - anoadanal plate, 1003 - trochanter and femur I

Notophthiracarus mirus sp. nov.

(Figs 995-1003)

DESCRIPTION. Measurements of holotype: prodorsum: length 459, width 313, height 167, sensillus 73.4, setae: interlamellar 86.0, lamellar 12.6, rostral 58.2, exobothridial 25.3; notogaster: length 902, width 580, height 626, setae: c_1 131, h_1 and $ps_1$141; genitoaggenital plate 268x162, anoadanal plate 328x162. Colour brown or dark brown, surface of body strongly foveate. Prodorsum with narrow and joined median and lateral fields, lateral carinae absent, posterior furrows distinct. Sensilli curved like swan neck, with narrow pedicel and fusiform head, pointed at distal end. Interlamellar setae relatively short, thick, erect, covered with small spines, lamellar and rostral setae short, spiniform, rough. Notogaster with 15 pairs of relatively short (c_1/c_1-d_1 = 0.58), robust and thick setae covered with thin spines, dorsal setae longer than other setae, setae c_3 situated near anterior margin, setae c_1 remote, setae c_2 far from margin, vestigial setae f_1 posterior to h_1 setae, two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum slightly longer than distance between them. Formula of genital setae: 6: 3, setae g_9 situated near posterior margin of genitoaggenital plates. Anoadanal plates with setae of almost equal length, adanal setae situated near paraxial border of anoadanal plates. Chaetotaxy of legs of complete type, setae *a"* on tarsi I and II bent distally, setae *ft"* of tarsi II remain straight.

DIAGNOSIS. This species is similar to *N. extraordinarius* sp. nov. but differs in the length and the shape of interlamellar and lamellar setae of prodorsum and notogastral setae, the arrangement of genital setae and the length of setae on anoadanal plates.

ETYMOLOGY. The specific epithet *mirus* is Latin for "wonderful", "extraordinary" and refers to the shape of sensilli and unusually joined prodorsal regions in this genus .

MATERAL. Holotype and 2 paratypes: Sri Lanka, Central Prov., Pidurutalagalla, 1600 m., broad leaved jungle litter, 17 X 1984, leg. P.T. LEHTINEN.

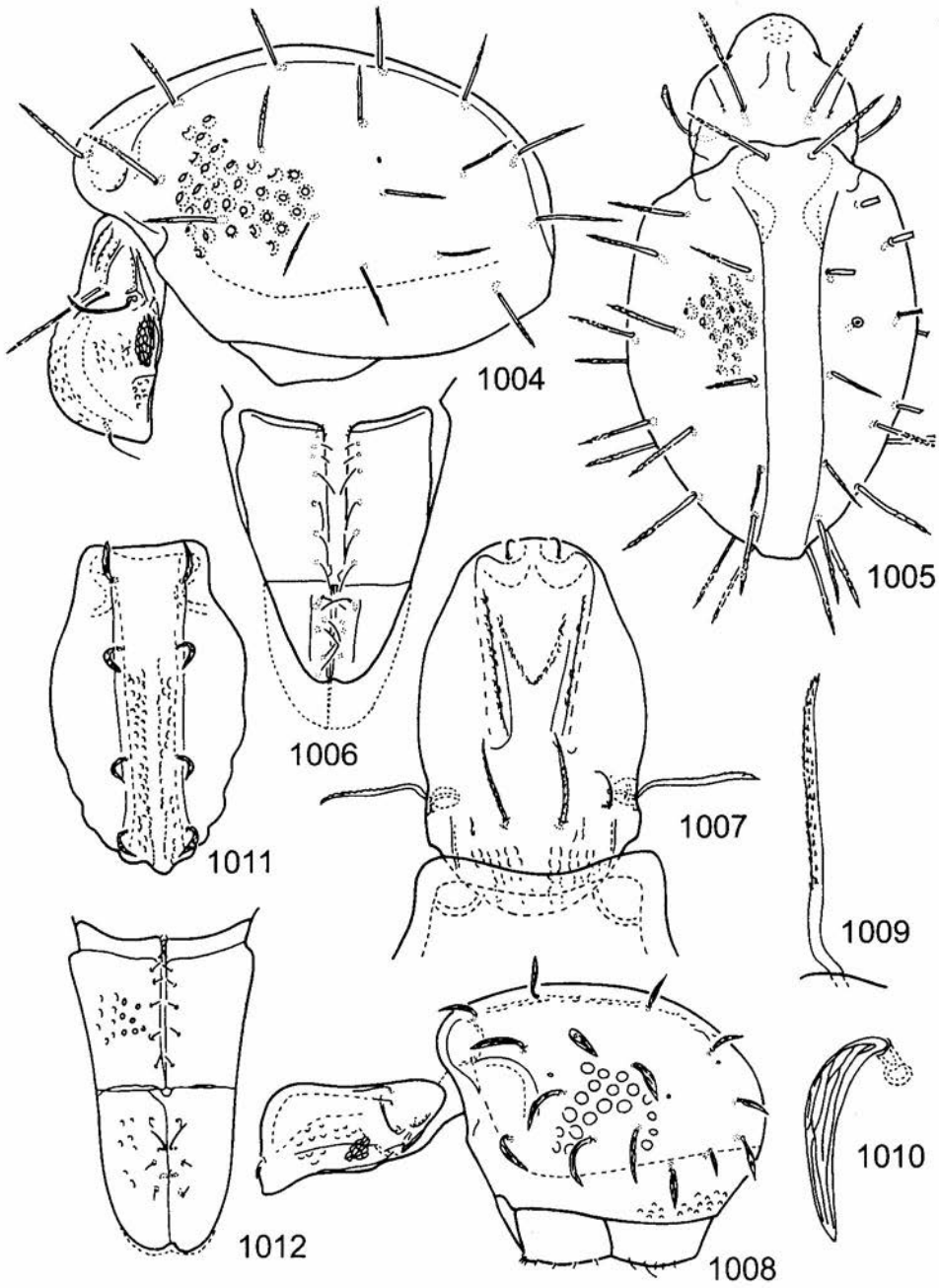
DISTRIBUTION. Sri Lanka, probably an endemic species.

Notophthiracarus orientalis (MAHUNKA, 1985)

(Figs 1007-1012)

Besuchetacarus orientalis MAHUNKA, 1985
Besuchetacarus orientalis: NIEDBALA 1992

DIAGNOSIS. Surface of body covered with strong, foveolate sculpture. Prodorsum with powerful median carina, lateral carinae absent; fields well marked; sensilli long, thin and squamose with setose margin; interlamellar setae weakly widened and covered with small spines, rostral and lamellar setae minute, smooth. Notogaster dorsally flat with two parallel ridges, setae c_1, d_1, e_1 and h_1 originating on these ridges, 15 pairs of phylliform setae present, setae c_1 and c_2 remote from anterior margin, setae c_3 near the margin; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 5: 4; anoadanal plates with simple and minute setae, close to each other, setae an_2 longer than setae an_1.



1004-1006. *Notophthiracarus lienhardi* MAHUNKA, 1996 (after MAHUNKA 1996): 1004 - lateral view of body, 1005 - dorsal view of body, 1006 - ventral region; 1007-1012. *Notophthiracarus orientalis* (MAHUNKA, 1985) (after MAHUNKA 1985): 1007 - prodorsum, dorsal view, 1008 - lateral view of body, 1009 - sensillus, lateral view, 1010 - seta *cp*, 1011 - notogaster, dorsal view, 1012 - ventral region

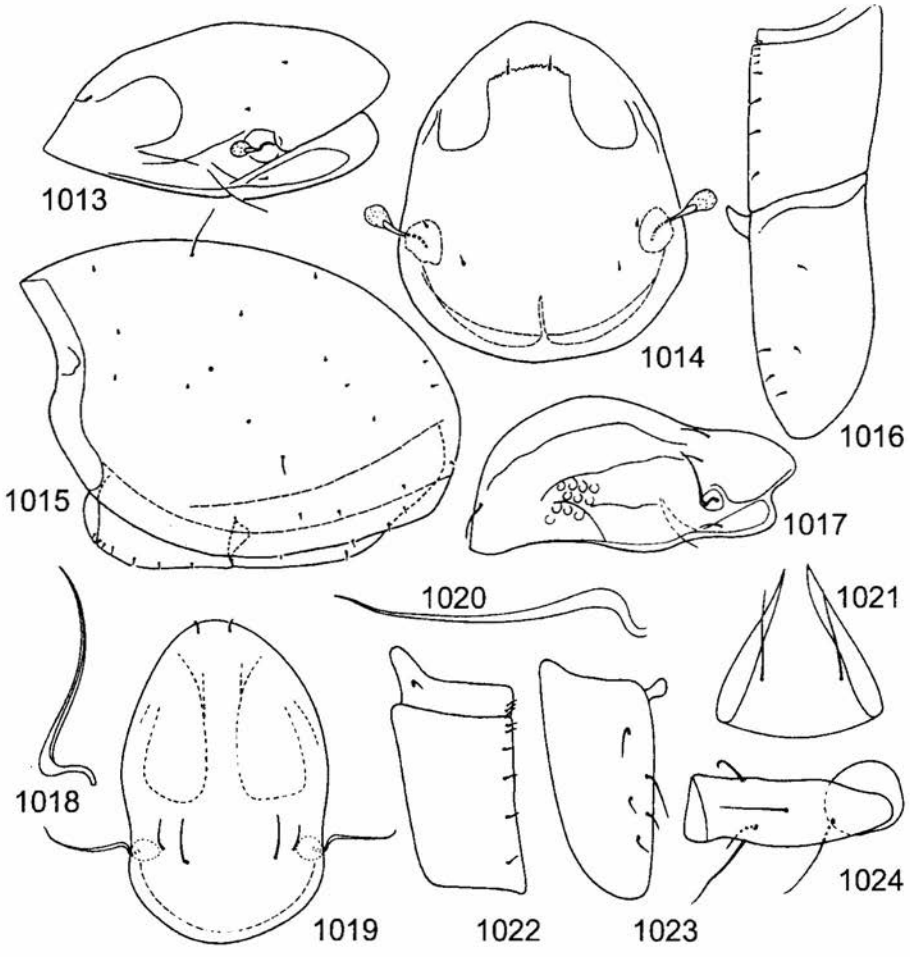
MATERIAL. Localities in the Oriental region: India, Kerala, Cardamom Hills, entre Pambanar et Peermade, 950 m, tamisages en foret, pres d'une riviere, 9 XI 1972, leg. C. BESUCHET and I. LÖBL - (5); Kerala, Nelliampathi Hills (au nord-ouest des Anaimalai Hills), Kaikatty, 900 m, tamisages en foret, pres d'un ruisseau, 30 XI 1972, leg. C. BESUCHET and I. LÖBL - (11) (MAHUNKA 1985).

DISTRIBUTION. India, Kerala, perhaps an endemic species.

Notophthiracarus perparvus NIEDBAŁA, 1989

(Figs 1013-1016)

Notophthiracarus perparvus: NIEDBAŁA 1992



1013-1016. *Notophthiracarus perparvus* NIEDBAŁA, 1989 (holotype): 1013 - prodorsum, lateral view, 1014 - prodorsum, dorsal view, 1015 - notogaster, lateral view, 1016 - genitoaggenital and anoadanal plates; 1017-1024. *Notophthiracarus planus* (MAHUNKA, 1985) (specimen from India): 1017 - prodorsum, lateral view, 1018 - sensillus, lateral view, 1019 - prodorsum, dorsal view, 1020 - sensillus, dorsal view, 1021 - mentum of infracapitulum, 1022 - genitoaggenital plate, 1023 - anoadanal plate, 1024 - trochanter and femur of leg I

DIAGNOSIS. Small species. Prodorsum with broad median field longer than lateral fields; lateral carinae reach sinus; posterior furrows absent; sensilli short with narrow pedicel and globular head covered with thin spines; rostral and exobothridial setae thin, interlamellar and lamellar setae vestigial. Notogaster with 15 pairs of very small setae, almost vestigial, only setae d_1 and h_3 of left side and setae h_2 of right side are short and fine; vestigial setae f_1 anterior to h_1 setae; 2 pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 7: 2; anoadanal plates with very short setae, setae ad_1 situated near an_1 setae. Chaetotaxy of legs reduced, setae *l'* on genua IV absent.

MATERIAL. Localities in the Oriental region: Vietnam, Tam Dao Mtns, 90 km N Hanoi, forest litter at 1400 m, 15 X 1985, leg. M. ZACHARDA - (1) (NIEDBAŁA 1989); Dalat, 320 km N from HoChiMinh, moistly mixed litter in old tropical forest, at 1500 m., 11 XI 1985, leg. M. ZACHARDA - (1)

DISTRIBUTION. Vietnam, perhaps an endemic species.

Notophthiracarus planus (MAHUNKA, 1985)

(Figs 1017-1026)

Besuchetacarus planus MAHUNKA, 1985, 1992

ADDITIONAL DESCRIPTION. Body covered by strong cerotegument, colour brown, integument covered with distinct concavities. Measurements of specimen from Tamil Nandu sample: prodorsum: length 478, width 313, height 230, sensillus 101, setae: interlamellar 55.7, lamellar 37.9, rostral 58.2, exobothridial 43.0; notogasetr: length 938, width 635, height 626, setae: c_1 48.1, h_1 50.6, ps_1 55.7; genitoaggenital plate 227x136, anoadanal plate 237x116. Prodorsum with robust median carina, lateral carinae absent. Median and lateral fields distinct. Sensilli long, slightly thickened in proximal parts, with serrate margins. Setae very short, simple, smooth, $ro > in > ex > le$. Notogaster dorsally with flat area limited by two lines, setae c_1, d_1, e_1 and h_1 originating on its margin, anteriorly angular in dorsal view with 15 pairs of simple, small (c_1/c_1-$d_1 = 0.25$) setae, setae c_1 and c_2 remote from anterior margin, setae c_3 near the margin. Vestigial setae f_1 posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region. Formula for genital setae: 6: 3. Anoadanal plates with simple, short setae, close to each other, $an_2 > ad_3 > ad_1 > ad_2 > an_1$. Chaetotaxy of legs complete, setae *a"* of tarsi I and II bent distally, setae *ft"* of tarsi II straight.

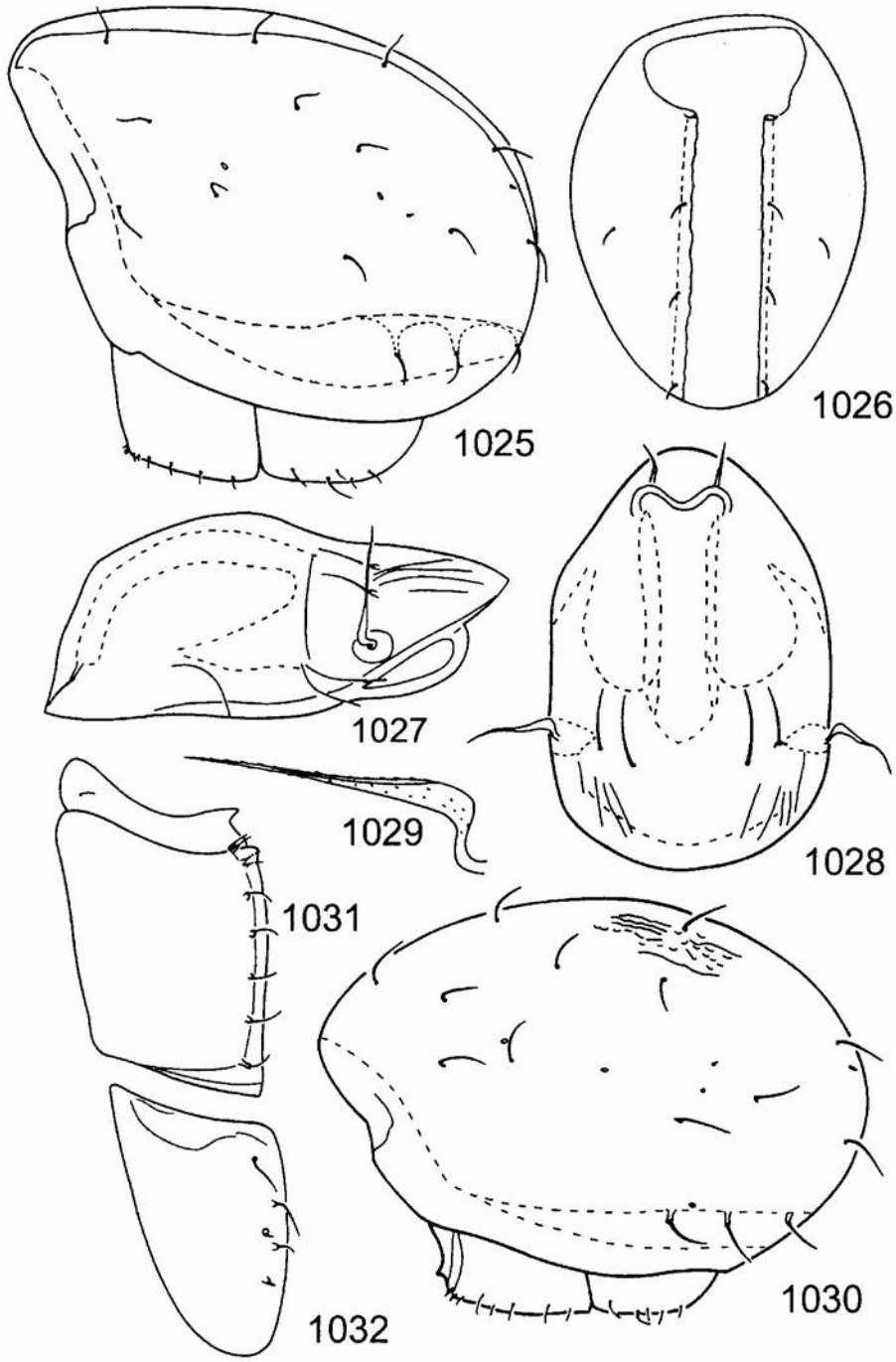
MATERIAL. Locality in the Oriental region: India, Kerala, Cardamom Hills,entre Pambanar et Peermade, 950 m, tamisages en foret, pres d'un riviere, 9 XI 1972, leg. C. BESUCHET and I. LÖBL - (15) (MAHUNKA 1985); India, Tamil Nandu, Tenggara Barat Bali Murtosari, litter of dry bush, 1 XI 1984, leg. P.T. LEHTINEN - (7).

DISTRIBUTION. India, perhaps an endemic species.

Notophthiracarus robertsi (SHEALS, 1965)

(Figs 1027-1032)

Phthiracarus robertsi SHEALS, 1965; NIEDBAŁA, 1982
Notophthiracarus robertsi: NIEDBALA 1986, 1992



1025,1026. *Notophthiracarus planus* (MAHUNKA, 1985) (specimen from India): 1025 - notogaster, lateral view, 1026 - notogaster, ventral view; 1027-1032. *Notophthiracarus robertsi* (SHEALS, 1965) (specimen from Nepal): 1027 - prodorsum, lateral view, 1028 - prodorsum, dorsal view, 1029 - sensillus, dorsal view, 1030 - notogaster, lateral view, 1031 - genitoaggenital plate, 1032 - anoadanal plate

DIAGNOSIS. Tegument covered with concavities. Prodorsum with median carina remarkable, lateral carinae absent; median field narrow, longer than lateral; posterior furrows present; sensilli long, with short pedicel, somewhat rolled, inflated in middle and tapering towards distal end, covered with thin spines; setae smooth, spiniform, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of simple, short ($c_1 < c_1$-d_1) setae; vestigial setae f_1 posterior to h_1 setae; four pairs of lyrifissures: *ia, im, ip, ips* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 5: 4;setae ad_1 and ad_2 vestigial, situated near anal setae, an_1 shorter than an_2 and ad_3. Chaetotaxy of legs of complete type.

MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: Nepal, Milke Danra forest, 24 XI 1961, leg. British Museum (Natural History) Expedition to East Nepal - (6) (SHEALS 1965); au sud de la montagne Annapurna, 3000 m, pres du village Hinko,litiere sous les rhododendron en foret feuillue (chene, platane,bambou, rhododendron), 12 IX 1981, leg. J. BŁOSZYK - (2) (NIEDBAŁA 1982); road Hinko-Chumru, under rhododendrons and bamboos, 12 IX 1981, leg. J. BŁOSZYK - (1) (NIEDBAŁA 1992). India, West Bengal, Darjeeling, Tiger Hill, 2600 m., in litter of cloud forest, 29 IV 1979, leg. P.T. LEHTINEN - (1); Darjeeling, 12 km NW of Sukhiapokri, at 2350 m., in cloud forest with stones, 1 V 1979, leg. P.T. LEHTINEN - (2).

DISTRIBUTION. An Oriental species intruduced in the southern part of Palaearctic.

Notophthiracarus stenotus NIEDBAŁA et CORPUZ-RAROS, 1998

(Figs 1033-1038)

DIAGNOSIS. Species with narrow body. Prodorsum with robust and long median carina, lateral carinae absent; fields very narrow, joined at distal part; sensilli sickle shaped, thick, covered with small spines, setae (except minute exobothridial) short, thick, spiniform, roughened. Notogaster with 15 pairs of phylliform setae with sharp distal end, covered with small spines; only vestigial setae f_2 and lyrifissures *ia* and *im* visible. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 5: 4; anal setae on anoadanal plates minute, adanal setae vestigial. Chaetotaxy of legs of complete type.

MATERIAL. Localities in the Oriental region: Philippines, Luzon Is., Quezon National Park, Atimonan, Quezon Prov., forest litter, 18 I 1976, leg. R.C. GARCIA - (4); as above, 17 I 1976 - (2) (NIEDBAŁA & CORPUZ-RAROS, 1998).

DISTRIBUTION. Philippines, probably an endemic species.

Notophthiracarus turgidus NIEDBAŁA, 1991

(Figs 1039-1045)

Notophthiracarus turgidus: NIEDBAŁA 1992

DIAGNOSIS. Surface of body covered with polygonal mosaic. Posterior margin of prodorsum wavy; fields and lateral carinae distinct; sensilli long, dilated in middle and tapering towards the distal end, distal end rough; setae flagellate, thin, rostral

setae remote from the end of rostrum; *in* > *le* > *ro*> *ex*. Notogaster neotrichous, with 17 pairs of short, thin and flagelliform setae; 4 pairs of lyrifissures *ia, im, ip, ips* present. Ventral region, setae *h* of mentum somewhat longer than distance between them; formula of genital plates: 8: 1; anoadanal plates with setae well developed, flagellate. Chaetotaxy of legs reduced, setae *v'* on femora I and setae *a'* on tarsi I absent.

MATERIAL. Locality in the Oriental region: Sri Lanka, Novarra Elya, humus under Patna-grass grown at the edge of a moss-forest, 23 VI1968, leg. J. BALOGH - (7) (NIEDBAŁA 1991a).

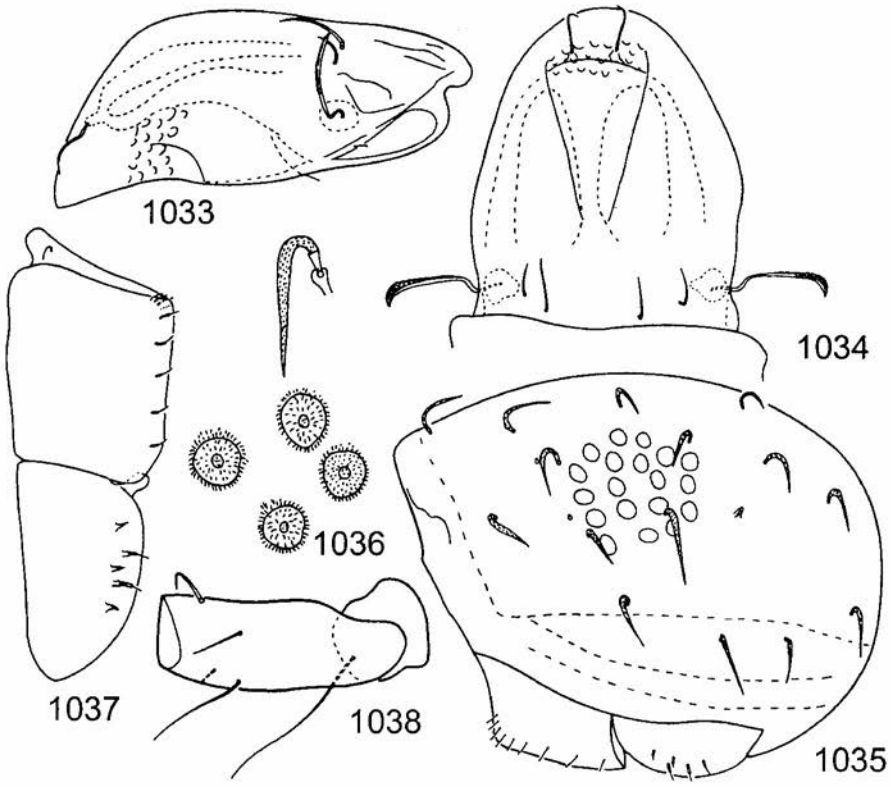
DISTRIBUTION. Sri Lanka, perhaps an endemic species.

Notophthiracarus unqus NIEDBAŁA, 1991

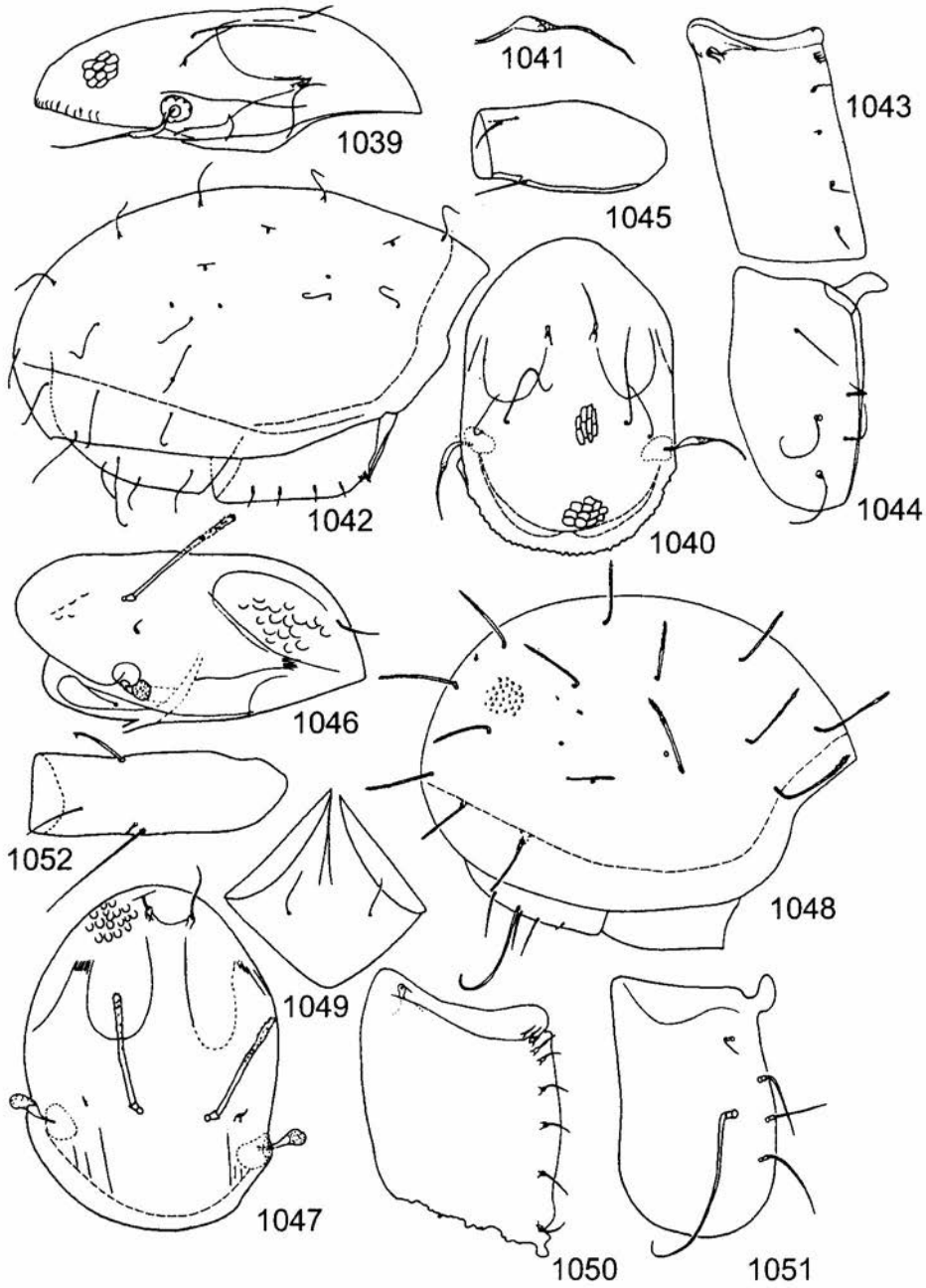
(Figs 1046-1052)

Notophthiracarus unqus: NIEDBAŁA 1992

DIAGNOSIS. Surface of body covered with deep concavities. Median field of prodorsum longer than lateral; lateral carinae absent; posterior furrows distinct;



1033-1038. *Notophthiracarus stenotus* NIEDBAŁA et CORPUZ-RAROS (holotype): 1033 - prodorsum, lateral view, 1034 - prodorsum, dorsal view, 1035 - notogaster, lateral view, 1036 - sculpture of notogaster with seta *cp*, 1037 - genitoaggenital and anoadanal plates, 1038 - trochanter and femur of leg I



1039-1045. *Notophthiracarus turgidus* NIEDBAŁA, 1991 (holotype): 1039 - prodorsum, lateral view, 1040 - prodorsum, dorsal view, 1041 - sensillus, dorsal view, 1042 - notogaster, lateral view, 1043 - genitoaggenital plate, 1044 - anoadanal plate, 1045 - femur of leg I; 1046-1052. *Notophthiracarus unqus* NIEDBAŁA, 1991 (holotype): 1046 - prodorsum, lateral view, 1047 - prodorsum, dorsal view, 1048 - notogaster, lateral view, 1049 - mentum of infracapitulum, 1050 - genitoaggenital plate, 1051 - anoadanal plate, 1052 - femur of leg I

sensilli short, club-like, covered with small spines; interlamellar setae long, thick covered with small spines in distal half, rostral setae short, spiniform, rough, lamellar setae mince, exobothridial setae vestigial. Notogaster with 15 pairs of rigid setae, relatively long (c_1/c_1-d_1 = 0.89); vestigial setae f_1 posterior to h_1 setae; 3 pairs of lyrifissures *ia, im, ip* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 6: 3; setae ad_2 the longest with curved distal ends, ad_1 setae longer than anal setae, setae ad_3 mince. Chaetotaxy of legs complete.

MATERIAL. Locality in the Oriental region: Borneo, Sabah MT., Kinabalu N.P. Sumit Trail Pondok Ubah, 2050 m, 26 IV 1987, leg. A. SMETANA - (1) (NIEDBAŁA 1991a).

DISTRIBUTION. Borneo, perhaps an endemic species.

Atropacarus EWING, 1917

DIAGNOSIS. Body surface covered with concavities; posterior furrows of prodorsum present, lamellar setae minute (length ratio of lamellar setae/prodorsum<0.18); genital setae in a single row or nearly so, distance between setae g_6 and g_5 longer than that between g_5 and g_4, setae ad_1 always close to paraxial margin, in a row with anal setae, setae ad_2 remote from paraxial margin or close to it; setae *v'* on femora I minute (length ratio *v"*/*v'*<2.25).

Atropacarus (*Hoplophorella*) NIEDBAŁA, 1986

DIAGNOSIS. 15 pairs of notogastral setae; as a rule only 2 lyrifissures, *ia* and *im* present;9 pairs of genital setae and 5 pairs of anal and adanal setae present, setae ad_2 remote from paraxial margin; setae *ft"* on tarsi I normal.

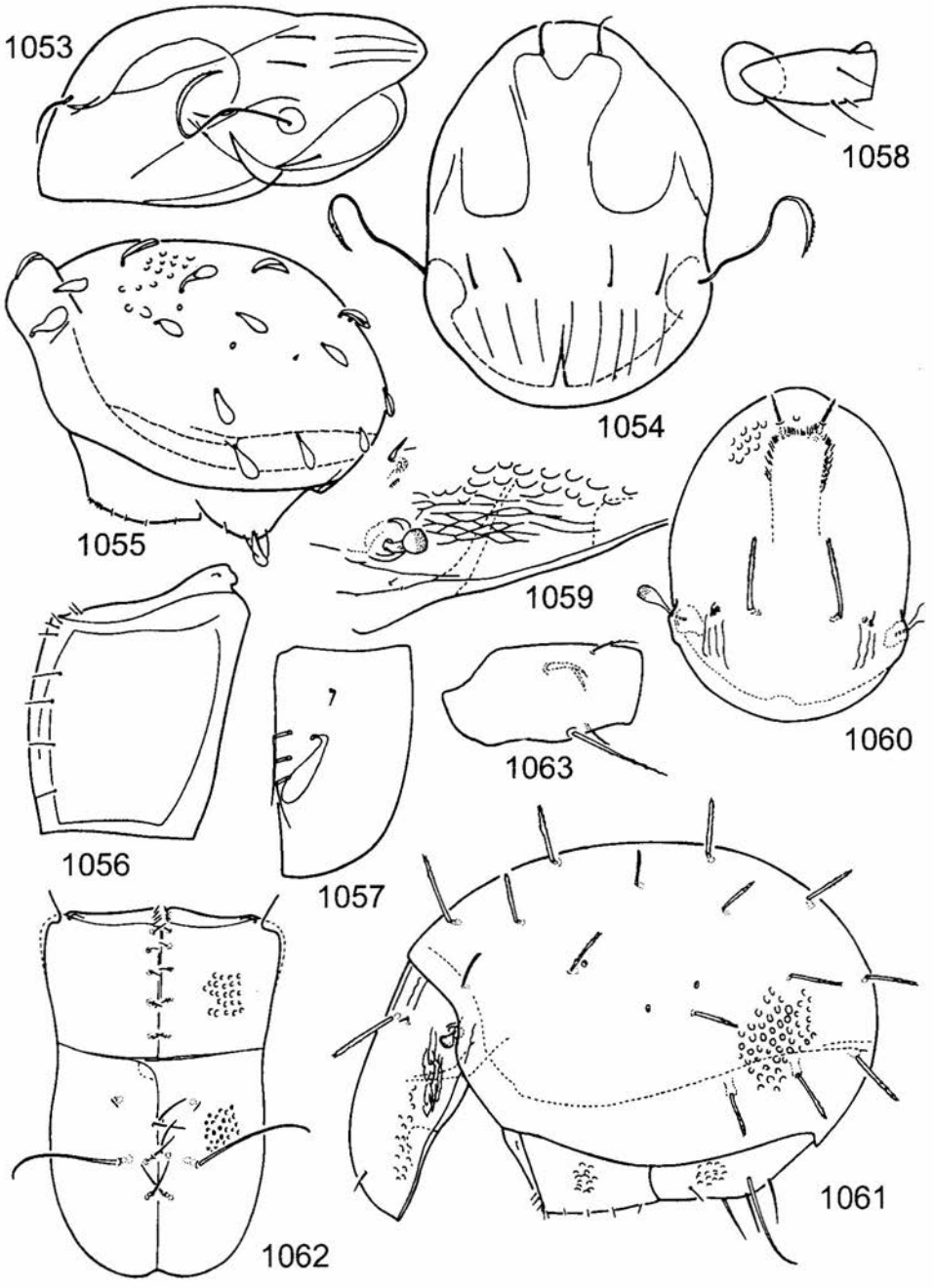
Atropacarus (*Hoplophorella*) *cucullatus* (EWING, 1909)

(Figs 1053-1058)

Hoploderma cucullatum EWING, 1909
Atropacarus (*Hoplophorella*) *cucullatus*: NIEDBAŁA 1986,1992, NIEDBAŁA & CORPUZ-RAROS 1998

DIAGNOSIS. Prodorsum with median field fairly broad, with incision between rostral setae, lateral fields much shorter; lateral carinae reaching sinus; sensilli long, narrow, sickle-shaped, covered with thin spines at distal end; setae spiniform, *ex* > *in* = *le* = *ro*. Notogaster with well-developed anterior hood, setae short ($c_1 < c_1$-d_1), leaf-shaped; vestigial setae f_1 posterior to h_1 setae. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 7: 2; anoadanal plates with setae ad_2 of foliate form, the remaining setae smooth, spiniform, setae ad_3 the shortest. Chaetotaxy of legs reduced, setae *a'* on tarsi I and setae *l'* on genua IV are missing.

MATERIAL. Localities in the Oriental region and its border zone: Japan, Iwakiri, Miyazaki-Shi, Miyazaki-Praf, from moss and litter layer, 6. II 1958 leg. T. KUGOH - (2) (AOKI 1959, 1980), W. Japan, Ebijima Island, N of Tsushima, Nagasaki-gen,



1053-1058. *Atropacarus* (*Hoplophorella*) *cucullatus* (EWING, 1909) (specimen from Canada): 1053 - prodorsum, lateral view, 1054 - prodorsum, dorsal view, 1055 - notogaster, lateral view, 1056 - genitoaggenital plate, 1057 - anoadanal plate, 1058 - trochanter and femur of leg I; 1059-1063. *Atropacarus* (*Hoplophorella*) *sabahnus* (MAHUNKA, 1991) (after MAHUNKA 1991a): 1059 - fragment of prodorsum with sensillus, lateral view, 1060 - prodorsum, dorsal view, 1061 - lateral view of body, 1062 - ventral region, 1063 - femur of leg I

from surface layer of soil under a beach forest, 25 VII 1968 leg I. FUJIYAMA - (4); W. Japan, Ohmasu in Kami-tsushima-cho,Tsushima Is., from litter, 16 X 1968, leg. J. AOKI - (1); W. Japan, NE of Ohmasu in Kami-tsushima-cho, Tsushima Is., from litter, 16 X 1968, leg. J. AOKI - (1); W. Japan, Mt. Ohkora in Gaya, Shimoagata-gun, Tsushima Is., from litter under mixed forest, 22 X 1968, leg. J. AOKI - (1); W. Japan, Mt. Mokkoku in Tsutsu, Tsushima Is., from litter under a laurel forest, 23 X 1968, leg. J. AOKI - (1); W. Japan, Sasunain Kamiagata-cho, Tsushima Is., from moss growing near a stream, 1VIII 1968, leg. T. YAMAZAKI - (1); S. Japan, Nagamine Sunny Park, Yaku Island, from litter of a laurel forest, 11 XI 1974, leg. J. AOKI - (3); S. Japan, Anboh,Yaku Island, from litter under a coastal forest, 15 XI 1974, leg. J. AOKI - (1) (AOKI 1980). India, Himachal Pradesh, 20 km from Ambala, litter in mixed forest, 20 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (1); Himachal Pradesh, 10 km from Kalka, litter in mixed forest, 20.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (1); Himachal Pradesh, 15 km from Shimla, in pine forest, 19.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (1); Himachal Pradesh, 20 km from Shimla, under bushes, 19.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (2); Himachal Pradesh, 15 km from Shimla, in oak forest, 19.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (4); Himachal Pradesh, 35 km from Shimla, under pines and *Rosa* sp., 19.IX.1976, leg. CZ. BŁASZAK and J. BŁOSZYK – (2); Western Ghats, Goa prov., Bendla reserve, litter in jungle, 3.VI.1981, leg. J. CHOJNACKI – (2) (NIEDBAŁA 1992). Nepal, S of Mt. Anapurna, ferns near Gundruk, in bamboo forest, 12.IX.1981, leg. J. BŁOSZYK – (2) (NIEDBAŁA 1992). North Korea, Pyongyang-namdo prov., Nampho distr., leafy litter in mixed forest, 10.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (1); North Korea, Vicinity of Kaesong, Chonma-san Mts., in mixed forest near waterfall, 16.VII.1981, leg. W. WEINER and A. SZEPTYCKI – (9); North Korea, Sykung-ho lake near Sarivon, in leafy forest with pines, VII. 1981, leg. W. WEINER and A. SZEPTYCKI – (7) (NIEDBAŁA 1992). NEW MATERIAL: Nepal, Bagmati, Phulchoki, at 2000 m, dry litter of sparse bush (TF), 12.V.1979, leg. P.T. LEHTINEN – (2); Bagmati, Shivapuri Mohanpokhari, at 2000 m, mountain bush, (TF), 14.V.1979, leg. P.T. LEHTINEN – (1). India, Meghalaya, East Khasi Hills, Umran 1100 m, jungle litter (TF), 4.V.1979, leg. P.T. LEHTINEN – (1). Thailand, Sarawak, Mulu, open cleared ground, 20.IX.1977, leg. B. BOLTON – (1). Indonesia, Kalimantan, Timur, Samarinda d., Sanga Sanga, Muara, jungle litter, 29.X.1979, leg. P.T. LEHTINEN – (3); Indonesia, Kalimantan Selatan Tapin Miawa, forested rock slope, 8.XI.1984, leg. P.T. LEHTINEN – (7). Indonesia, Sarawak. Mulu, open cleared ground, 20.IX.1977, leg. B. BOLTON – (1); Sarawak. Mulu, Lowl rain forest path, 3.X.1977, leg. B. BOLTON – (3). Malaysia, Pahang, Jerantut 14 km S, litter of jungle, 17.XI.1984, leg. P.T. LEHTINEN – (4). Maldives Islands, Bathala Island, within Ari Atoll, near the coast line but terrestrial, pieces of a dead coral block, January 1987, leg. R. SCHUSTER – (4). Philippines, 1599 Luzon Is., Makiling Botanic Gardens, Los Baños, Laguna, secondary forest litter, 14 VI 1976, leg. R.C. GARCIA and C.C. CALIBO – (1); Luzon Is., Anos, Los Baños, Laguna, leaf litter, 21 IX 1995, leg. R.C. GARCIA – (4); Luzon Is., Animal Science pasture, UPLB Campus, College, Laguna, soil at base of *Imperata cylindrica*, 1 II 1976, leg. I.M. SOTTO and R.C. GARCIA – (1); Luzon Is, Quezon National Park, Atimonan, Quezon, forest litter, 18 I 1976, leg. R.C. GARCIA – (1); 565 Mindanao Is., Tud-ol, Tungao, Agusan del Norte, litter from 14-year old plantation of *Eucalyptus deglupta*, 29 IV 1975, leg. R.S. RAROS – (1) (NIEDBAŁA & CORPUZ-RAROS 1998).

DISTRIBUTION. A Semicosmopolitan species.

Atropacarus (Hoplophorella) floridus (JACOT, 1933)

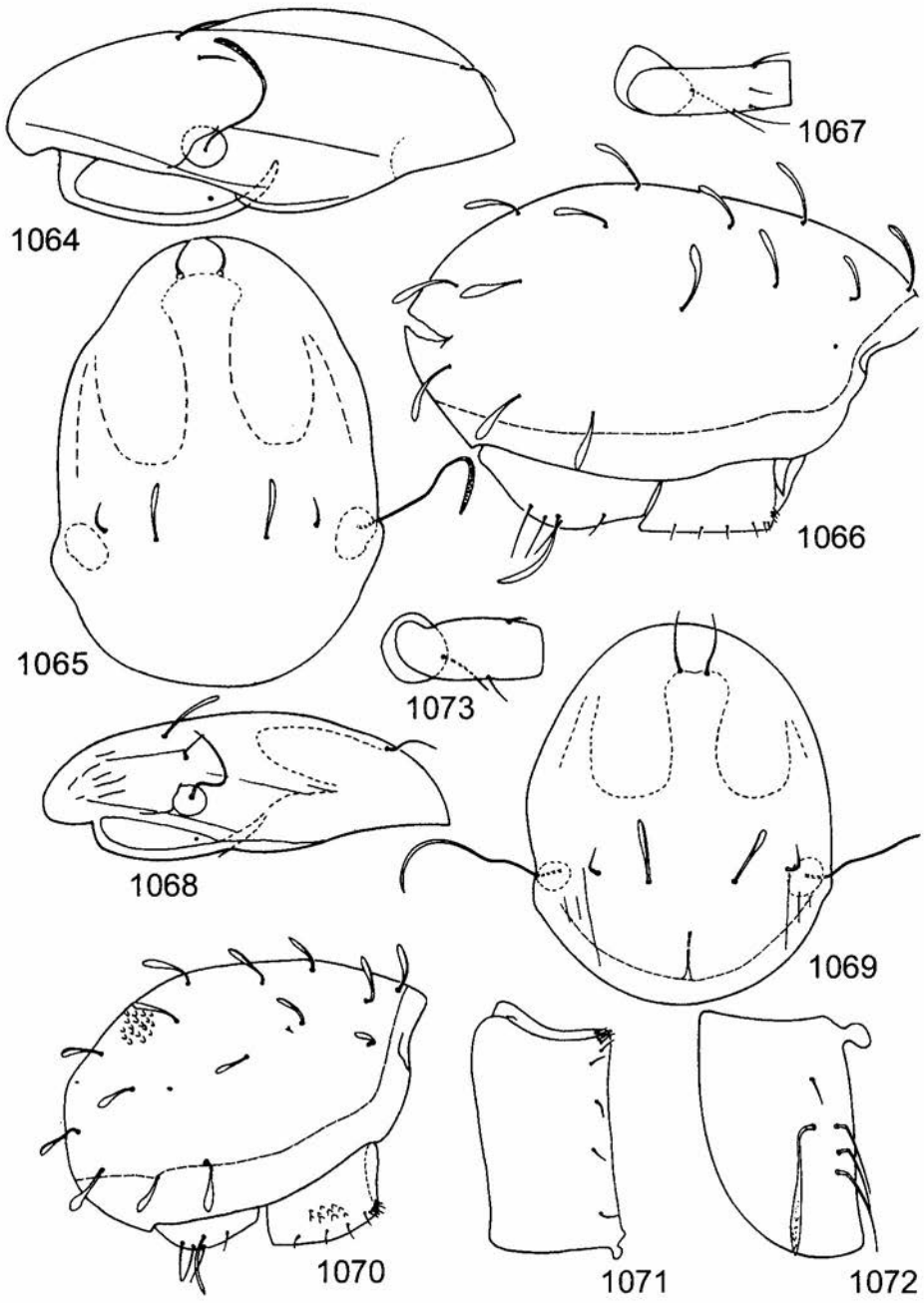
(Figs 1064-1085)

Hoplophorella cucullata floridae JACOT, 1933
Hoplophorella floridae: AOKI 1980
Atropacarus (Hoplophorella) floridae: NIEDBAŁA 1986,1992
Atropacarus (Hoplophorella) floridus: NIEDBAŁA 1994a
Hoplophorella glauca HAMMER, 1972 **syn. nov.**
Atropacarus (Hoplophorella) glaucus: NIEDBAŁA 1986,1992,NIEDBAŁA & CORPUZ-RAROS 1992
Hoplophorella schauenbergi MAHUNKA, 1978 **syn. nov.**
Atropacarus (Hoplophorella) schauenbergi: NIEDBAŁA, 1992
Hoplophorella spatulata Parry, 1980 **syn. nov.**
Hoplophorella perisi Subias, SARKAR, 1984 **syn. nov.**
Hoplophorella cuneiseta MAHUNKA, 1988 **syn. nov.**
Hoplophorella cuneiseta: NIEDBAŁA 1992
Atropacarus (Hoplophorella) cuneisetus: NIEDBAŁA 1994a

DIAGNOSIS. Measurements of "paratype": prodorsum: length 174, width 114, height 75.9, sensillus 81.0, setae: interlamellar 35.4, lamellar 25.3, rostral 30.4; notogaster: length 318, width 202, height 207, setae: c_1 43.0, h_1 35.4, ps_1 40.5; genitoaggenital plate 93.6x53.1, anoadanal plate 86.0x53.1. Surface of body covered with concavities. Posterior furrows present, median field of prodorsum longer than lateral and enlarging towards rostral setae, median carina weak; lateral carinae short, not reaching sinus; sensilli long, narrow, sickle-shaped with narrow pedicel and broad head covered with thin spines, interlamellar setae phylliform, similar to notogastral setae, lamellar setae spiniform, smooth, *in* > *ro* > *le*, exobothridial setae vestigial. Notogaster with setae spoon-shaped, short ($c_1 < c_1$-d_1), covered with small spines, vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 6: 3; anoadanal plates with setae ad_2 spoon-shaped, the remaining setae spiniform, setae ad_3 shorter than anal setae and ad_1 setae. Chaetotaxy of legs reduced, setae *a'* on tarsi I and setae *l'* on gena IV absent (according to PARRY (1980) setae *l'* on genua IV are present).

REMARKS. After very careful study and redescriptions of species it appears that *H. cuneiseta*, *H. glauca*, *H. perisi*, *H. schauenbergi* and *H. spatulata*, are synonyms of *A. (H.) floridus*.

MATERIAL. A paratype of *Hoplophorella spatulata* in alcohol labelled: "1979.4.6.1 West Java, Botanical Garden, Bogor, thick, slightly moist moss at base of *Samanea saman*, coll. M. HAMMER 30 I 1974, det B.W. PARRY" (courtesy Dr. A.S. BAKER, Department of Entomology, British Museum (Natural History), London). Localities in the border zone of the Oriental region and in the Oriental region: sub *Hoplophorella perisi*: India, from Atharamura,Tripura, 10 V 1975, leg. S. SARKAR - (1) (Subias, SARKAR 1984). sub *Hoplophorella spatulata*: Java, Bogor's Botanical Garden, from moist moss on trunk of *Samanea saman*, 30 I 1974, leg. M. HAMMER - (2) (PARRY 1980). sub *Hoplophorella floridae*: S. Japan, Sumiyoshi, Iriomote Island, from litter of *Casuarina litorea*, 30 XI 1972, leg. J. AOKI (S. NAKATAMARI) - (18) (AOKI 1980); India, Kashmir, 128 km from Jammu, before Batote, in old pine forest, 15 IX 1976, leg. C.BŁASZAK and J. BŁOSZYK - (1) (NIEDBAŁA 1992). sub *Hoplophorella cuneiseta*: Vietnam, Vinh Phu, Tam Dao, waterfall, litter and humus taken from cracks of rocky wall, 21 I 1986, leg. S. MAHUNKA and J. OLAH - (2) (MAHUNKA 1988b). New



1064-1067. *Atropacarus* (*Hoplophorella*) *floridus* (JACOT, 1933) (specimen from Gainesville collection): 1064 - prodorsum, lateral view, 1065 - prodorsum, dorsal view, 1066 - notogaster, lateral view, 1067 - trochanter and femur of leg I; 1068-1073. *Hoplophorella cuneiseta* MAHUNKA, 1988 (holotype) - synonym *of Atropacarus* (*Hoplophorella*) *floridus:* 1068 - prodorsum, lateral view, 1069 - prodorsum, dorsal view, 1070 - notogaster, lateral view, 1071 - genitoaggenital plate, 1072 - anoadanal plate, 1073 - trochanter and femur of leg I

MATERIAL: India, Kerala, Kozhikode Inde District, seashore, near Beypore Village, debris under old piles of shells and driftwood, 29.VII.1986, leg. R. NORTON – (10). Indonesia, Sulawesi, Tengah, Marawula d., Lambara riverside jungle, 25.X.1979, leg. P.T. LEHTINEN – (1). Maldives Islands, Bathala Island within Ari Atoll, near the coastline but terrestrial, pieces of dead coral block, January 1987– (3), leg. R. SCHUSTER; Tari Island wiyhin Mali Atoll, near the coast line but terrestrial, dead coral rubble, January 1987, leg. R. SCHUSTER – (5). Philippines, Lapata Is. (off Luzon Is.), Padre Burgos, Quezon Prov., moss, 26.II.1994, leg. O.L. EUSEBIO – (1); Luzon Is., Animal Science pasture, UPLB campus, College, Laguna, soil at lease of *Imperata cylindrica*, 10 VI 1976, leg. R.C. GARCIA and C.C. CALIBO – (1) (NIEDBAŁA & CORPUZ-RAROS 1992).

DISTRIBUTION. A Pantropical species.

Atropacarus (*Hoplophorella*) *manipurensis* MISRA, BHADURI et RAYCHAUDHURI, 1983

(Figs 1086, 1087)

Hoplophorella manipurensis MISRA, BHADURI et RAYCHAUDHURI,1983; NIEDBAŁA, 1992

This species is described insufficiently and difficult to identify.

DIAGNOSIS. Surface of body pitted. Prodorsum with posterior furrows present; sensilli long with knob-like head; rostral setae spine-like, smooth, directed inwards, lamellar setae minute, interlamellar setae similar to rostral setae but longer. Notogaster with setae short, stiff, spine-like, smooth with sharp points. Ventral region, anoadanal plates with setae stiff, spine-like and smooth, ad_2 as long as median ones, setae ad_3 minute.

REMARK. The species differs from *A.(H.) stilifer* in a greater distance between rostral setae and minute lamellar setae.

MATERIAL. Locality in the Oriental region: India, Manipur, Mao (by theside of a rotten spring), humus, 25 II 1976 - (1); Manipur, Tengnupal, rotten leaves, 22 XII 1977 - (2); Manipur, Ukhrul, compost heaps, 16 I 1978 - (3) (MISRA, BHADURI and RAYCHAUDHURI 1983).

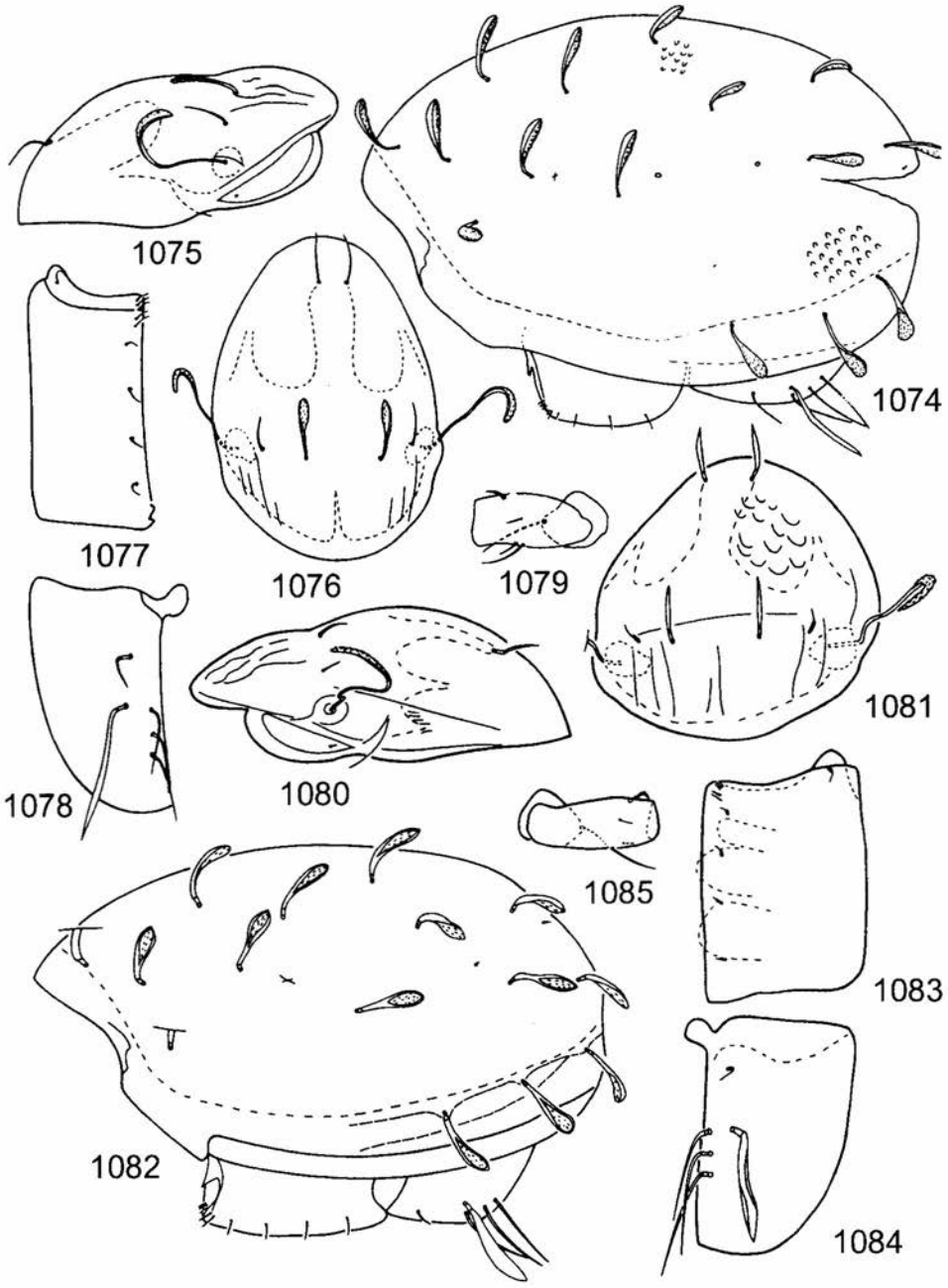
DISTRIBUTION. India, Manipur, probably an endemic species.

Atropacarus (*Hoplophorella*) *sabahnus* (MAHUNKA, 1991)

(Figs 1059-1063)

Hoplophorella sabahna MAHUNKA, 1991

DIAGNOSIS. Surface of body ornamented by strong and large alveoli. Prodorsum with posterior furrows distinct but fields weakly visible; sensilli very short with rounded head, covered with very fine spines; interlamellar setae robust with blunt distal end, strongly spiculate, rostral and lamellar setae short, spiniform, rough. Notogaster with setae robust, baciliform, short ($c_1 < c_1$-d_1), covered with small spines in distal half, setae c_3 shorter and thinner than other setae; vestigial setae f_1 anterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital



1074-1079. *Hoplophorella spatulata* PARRY, 1980 (paratype) - synonym *of Atropacarus* (*Hoplophorella*) *floridus:* 1074 - notogaster, lateral view, 1075 - prodorsum, lateral view, 1076 - prodorsum, dorsal view, 1077 - genitoaggenital plate, 1078 - anoadanal plate, 1079 - trochanter and femur of leg I; 1080-1085. *Hoplophorella glauca* HAMMER, 1972 - synonym of *Atropacarus* (*Hoplophorella*) *floridus:* 1080 - prodorsum, lateral view, 1081 - prodorsum, dorsal view, 1082 - notogaster, lateral view, 1083 - genitoaggenital plate, 1084 - anoadanal plate, 1085 - trochanter and femur of leg I

setae: 6: 3, anodanal plates with adanal setae ad_2 the longest and curved distally, setae ad_3 the shortest. Chaetotaxy of legs probably complete, setae *d* on femora I bifurcated distally

MATERIAL. Locality in the Oriental region: Sabah (West Coast Residency), Mt. Kinabalu, „Summit Trail" (sentier reliant la „Power Station"au sommet), en dessous de la cabane „Panar Laban Huts", prelevement de sol dans une foret de *Leptospermum*, 3270 m, 30 IV1982 - (9) (MAHUNKA 1991a).

DISTRIBUTION. Sabah, perhaps an endemic species.

Atropacarus (Hoplophorella) singularis (SELLNICK, 1959)

(Figs 1088-1093)

Hoplophorella singularis SELLNICK, 1959
Atropacarus (Hoplophorella) singularis: NIEDBALA 1986,1992
Hoplophorella sundarbanensis SANYAL et BHADURI, 1982 **syn. nov.**

DIAGNOSIS. Prodorsum with median field longer than lateral; lateral carinae absent; posterior furrows present, sensilli with narrow pedicel and rounded head; interlamellar setae thick, long, almost perpendicular to the surface, covered with small spines, lamellar and rostral setae spiniform, *in* > *ro* > *le* > *ex*. Notogaster with setae fairly short ($c_1 < c_1$-d_1), robust, covered with small spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 6: 3; anoadanal plates with setae ad_3 thick, covered with small spines, resembling notogastral setae, remaining setae long, smooth, setae ad_3 the longest. Chaetotaxy of legs complete.

REMARK. The main character - the shape of ad_3 setae indicate that *Hoplophorella sundarbanensis* is a synonym of *A.(H.) singularis*.

MATERIAL. Localities in the Oriental region: sub *H. sundarbanensis*: India, West Bengal, Sagar Island, 22 V 1977 - 1); Bakhali, 26 II 1978 - (5); 29 I 1978 - (2); 18 XII 1977 - (1); 6 XI 1977 - (1); Namkhana, 7 VIII 1977 - (1), all collected by A.K. SANYAL (SANYAL and BHADURI 1982); India, Kerala, Kozhikode Inde District, seashore, near Beypore Village, debris under old piles of shells and driftwood, 29.VII.1986, leg. R. NORTON – (14); Kerala, Kozhikode District, Peruvannaouzhy, Central Plantation Crops Research Institute, litter in natural forest (trees 6-12" dbh), 30.VII.1986, leg. NORTON, HAQ, RAMANI – (2). Maldives Islands: Bathala Island wihin Ari Atoll, near the coast line but terrestrial, pieces of a dead coral block, January 1987, leg. R. SCHUSTER – (1).

DISTRIBUTION. A Pantropical species.

Atropacarus (Hoplophorella) stilifer (HAMMER, 1961)

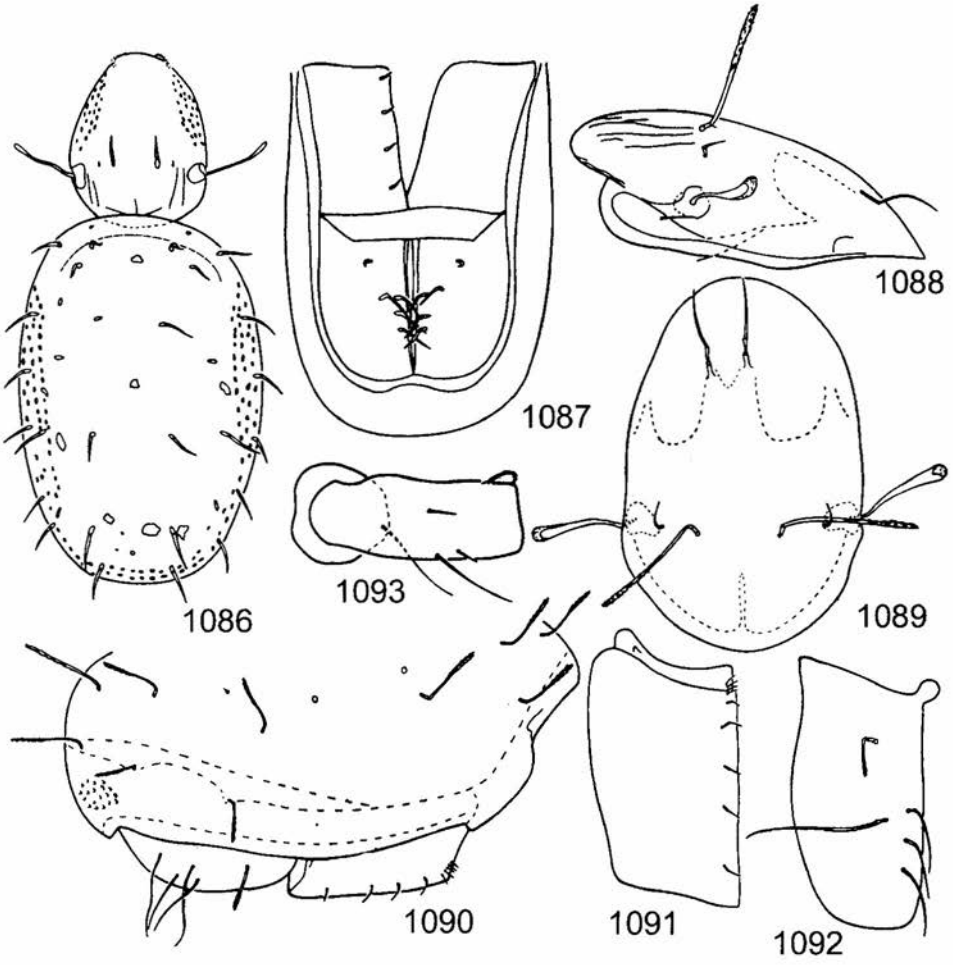
(Figs 1094-1099)

Steganacarus stilifer HAMMER, 1961
Atropacarus (Hoplophorella) stilifer: NIEDBALA 1986, 1992

DIAGNOSIS. Median field of prodorsum narrow, longer than lateral; lateral carinae reach sinus; sensilli long, recurved, sickle shaped with distal end covered with small

spines; setae short and lanceolate (except exobothridial setae), *in* > *ro* > *le* > *ex*. Notogaster with setae short ($c_1 < c_1$-d_1), lanceolate; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 6: 3; anoadanal plates with 5 setae, setae ad_2 the longest, lanceolate, setae ad_3 the smallest. Chaetotaxy of legs reduced, setae *l'* on genua IV absent.

MATERIAL. Localities in the Oriental region: India, Western Ghats, Goa prov., Bendla reserve, in dry forest, 3 VI 1981, leg. I. CHOJNACKI - (4); as above, litter in jungle - (2); as bove, in bamboo forest on hummock - (1) (NIEDBAŁA 1992); India, Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 1000 m, litter and mosses under *Euphorbiacea* and cactus, 6.VIII.1986, leg. V. BEHAN – (3); India, Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 700 m, litter in mixed



1086, 1087. *Atropacarus* (*Hoplophorella*) *manipurensis* MISRA, BHADURI et RAYCHAUDHURI, 1983 (after MISRA, BHADURI and RAYCHAUDHURI 1983): 1086 - dorsal view of body, 1087 - ventral region; 1088-1093. *Hoplophthiracarus regalis* MAHUNKA, 1978 - synonym *of Atropacarus* (*Hoplophorella*) *singularis* (SELLNICK, 1959): 1088 - prodorsum, lateral view, 1089 - prodorsum, dorsal view, 1090 - fragment of notogaster, lateral view, 1091 - genitoaggenital plate, 1092 - anoadanal plate, 1093 - trochanter and femur of leg I

deciduous forest, 6.VIII.1986, leg. V. BEHAN – (23); India, Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 1000 m, mixed litter under *Cassia siamea*, *Lantana*, *Eucalyptus* loamy soil, 6.VIII.1986, leg. V. BEHAN – (3); India, Kerala, Malappuram Inde District, Kakkenchery, litter in 2-nd-growth forest on stony slope (little litter accum.), 29.VII.1986, leg. R. NORTON, HAQ and RAMANI – (6); India, Kerala, Kozhikode Inde District, seashore, near Beypore Village, debris under old piles of shells and driftwood, 29.VII.1986, leg. R. NORTON – (1); India, Kerala, Kozhikode District, Peruvannaouzhy, Central Plantation Crops Research Institute, litter in natural forest (trees 6-12" dbh), 30.VII.1986, leg. NORTON, HAQ, RAMANI – (8); India, Kerala, Malappuram District, Kakkenchery, litter under Irul tree on stony hillside, 29.VII.1986, leg. NORTON, HAQ, RAMANI – (4); India, Karnataka, Tunkur District, Devarayadurga Hills, 10 km E from Tunkur, at ca 1100 m, *Eucalyptus* and legume (*Cassia siamea*) litter accum. among rocks, 6.VIII.1986, leg. R. NORTON – (8); India, Meghalaya, East Khasi Hills, Umran 1100 m, jungle litter (TF), 4.V.1979, leg. P.T. LEHTINEN – (2). Vietnam, Hanoi, N.R.C. of Vietnam garden, grass litter Rhizosphere, 30.IX.1985, leg. M. ZACHARDA – (1).

DISTRIBUTION. A Pantropical species.

Atropacarus (Hoplophorella) vitrinus (BERLESE, 1913)

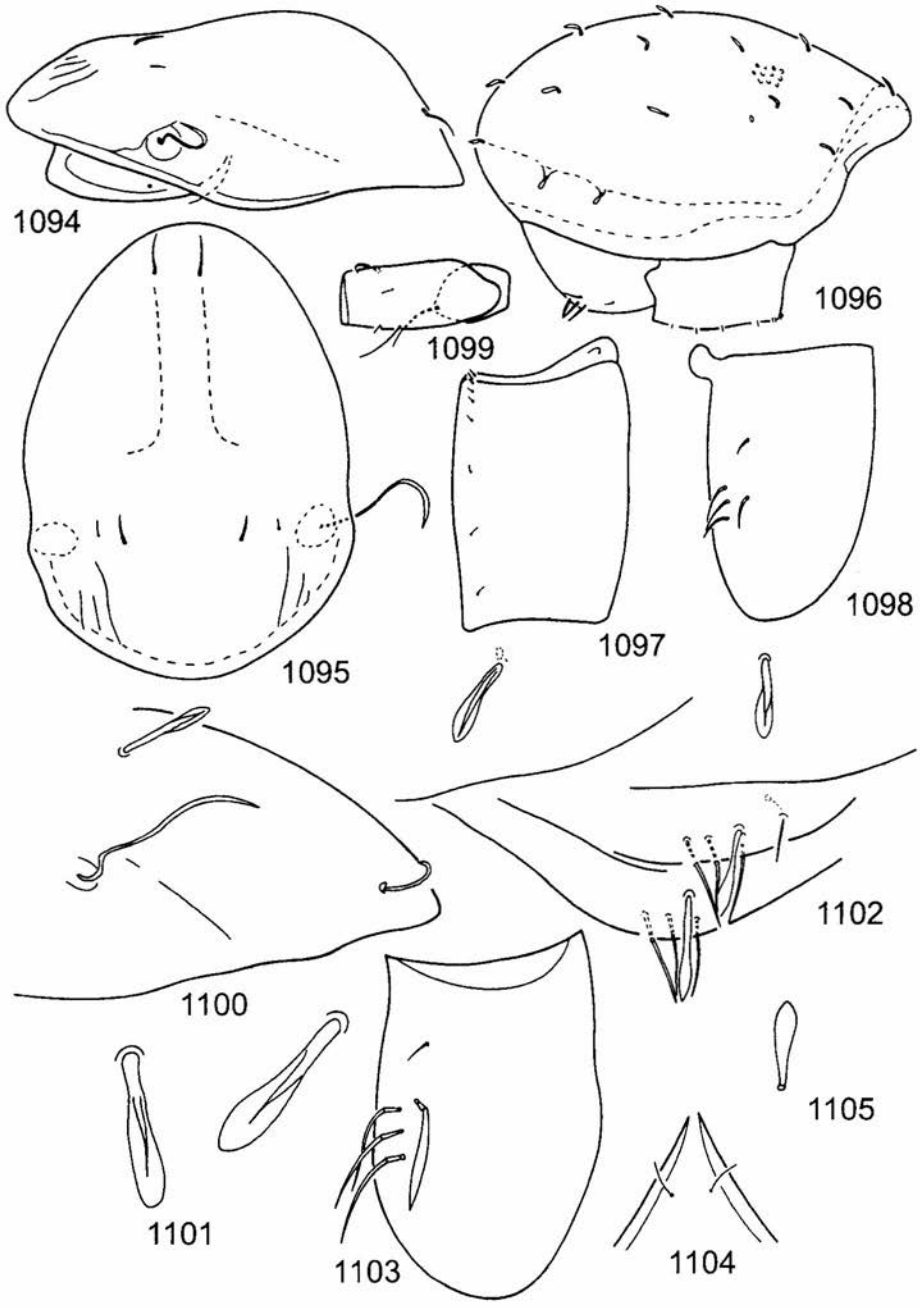
(Figs 1100-1111)

Hoplophorella vitrinum: MAHUNKA 1994
Atropacarus (Hoplophorella) vitrinum: NIEDBAŁA 1994b
Steganacarus andrei BALOGH, 1958 **syn. nov.**
Atropacarus (Hoplophorella) andrei: NIEDBAŁA & CORPUZ-RAROS 1998
Hoplophorella scapellata AOKI, 1965 **syn. nov.**
Atropacarus (Hoplophorella) scapellatus: NIEDBAŁA 1986,1992
Hoplophorella africana WALLWORK, 1967 **syn. nov.**
Hoplophorella raychaudhurii SUBIAS et SARKAR, 1984 **syn. nov.**
Hoplophorella lienhardi MAHUNKA, 1987 **syn. nov.**

DIAGNOSIS. Median field of prodorsum bifurcate, with deep incision, longer than lateral; lateral carinae reach sinus; sensilli long, narrow, inflated in middle, covered with thin spines; interlamellar setae lanceolate, rough, lamellar setae spiniform, minute, rostral setae robust, thick, directed inwards, rough, *ro* > *in* > *ex* > *le*. Notogaster with setae foliate, fairly short ($c_1 < c_1$-d_1), covered with small spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 6: 3, anoadanal plate with setae ad_2 foliate, covered with small spines, remaining setae short, spiniform, setae ad_3 somewhat shorter than others. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

REMARK. Typical specimens of *Hoploderma vitrinum* are not very well preserved, they are completely transparent and fragmented (NIEDBAŁA 1994a). Some visible characters, especially rostral setae directed inwards and shape of sensilli and setae indicate that many species described after 1913 are synonyms of *A.* (*H.*) *vitrinum*.

MATERIAL. Localities in the Oriental region and in the border zone of the Oriental region: sub *H. vitrinum*: Java, Smarang (BERLESE 1913). sub *H raychaudhurii*: India,



1094-1099. *Atropacarus* (*Hoplophorella*) *stilifer* (HAMMER, 1961) (specimen from India): 1094 - prodorsum, lateral view, 1095 - prodorsum, dorsal view, 1096 - notogaster, lateral view, 1097 - genitoaggenital plate, 1098 - anoadanal plate, 1099 - trochanter and femur of leg I; 1100-1102. *Atropacarus* (*Hoplophorella*) *vitrinus* (BERLESE, 1913) (after MAHUNKA 1994): 1100 - anterior part of prodorsum, lateral view, 1101 - notogastral setae, 1102 - anoadanal plates, lateral view; 1103-1105. *Atropacarus* (*Hoplophorella*) *vitrinus* (BERLESE, 1913) (after redescription of NIEDBALA 1994b): 1103 - anoadanal plate, 1104 - mentum of infracapitulum, 1105 - notogastral seta

Tripura, Sipahijala, 16 III 1977 - (3); Atharamura, 10 V 1975 - (1); Durlavpur, 2 III 1975 - (2); Jampaijala, 5 IX1975 - (1), all collected by S. SARKAR (SUBIAS and SARKAR 1984). sub *H. scapellata:* Thailands, Doi Suthep, 28 X 1961, leg.G. IMADATE - (2); Doi Suthep, 17 XI 1961, leg. G. IMADATE - (1); Mae Ngon Luang, 12 XI 1961, leg. K. OGINO - (4) (AOKI 1965). Malaysia (Pahang), Panching, 11 III1977, leg. J. JACCOUD et P. MARCUARD - (10); Malaysia (Perak), Cascade de Sungei Simei (Cameron Highlands), 25 III1977, leg. T. JACCOUD et P. MARCUARD - (9); Malaysia (Pahang), Temerloh, 9 III 1977, leg. T. JACCOUD et P. MARCUARD - (3) (MAHUNKA 1991b). India, Kashmir, near Kud, in forest of larches and pines, 15 IX 1976, leg. C. BŁASZAK and J. BŁOSZYK - (8); Himachal Pradesh, 20 km from Ambala, litter in mixed forest, 20 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (1); Himachal Pradesh, 11 km from Simla, in pine forest, 19 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (1); as above, in oak forest - (4); as obove, under bushes - (2); Himachal Pradesh, 35 km from Simla, in pine forest, 19 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (2); Western Ghats,Goaprov., Bendla reserve, litter in jungle, 3 VI 1981, leg. I. CHOJNACKI - (2) (NIEDBAŁA 1992). Nepal, road Hinko-Chumru, in leafy forest, 12 IX 1981, leg. J. BŁOSZYK - (2) (NIEDBAŁA 1992). Korea, Pyongyang-namdo prov., Nampho distr., leafy litter in mixed forest, 10 VII 1981, leg. A. SZEPTYCKI, W. WEINER - (1); Sunan region, Sokam-ho, in mixed forest, 15 VII 1981, leg. A. SZEPTYCKI, W. WEINER - (9); Sykung-ho lake near Saviron,in leafy forest with pines, 13 VII 1981 - (7) (NIEDBAŁA 1992). New MATERIAL: India, Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 700 m, litter under *Tamarindus indica*, 6.VIII.1986, leg. V. BEHAN – (13); Tumkur Dist. 75 km NW from Bangalore, Devarayadurga, at 700 m, litter in mixed deciduous forest, 6.VIII.1986, leg. V. BEHAN – (5); Nandi Hills, ca 400 km N from Bangalore, mixed, thick, moisty deciduous litter, at. 1400 m, 2.VIII.1986, leg. V. BEHAN – (11); Nandi Hills, ca 400 km N from Bangalore, mixed moss from tree trunks, at. 1400 m, 2.VIII.1986, leg. V. BEHAN – (3); Nandi Hills, ca 400 km N from Bangalore, *Eucalyptus* litter, at. 1400 m, 2.VIII.1986, leg. V. BEHAN – (1); Nandi Hills, ca 400 km N from Bangalore, moss and *Eucalyptus* litter at base of rock, at. 1190 m, 2.VIII.1986, leg. V. BEHAN – (1); Bangalore, GKVK Campus of Univ. of Agriculture, litter under *Eucalyptus* some *Mimosa* and sandlewood, 3.VIII.1986, leg. V. BEHAN – (6); Kerala, Malappuram Inde District, Kakkenchery, litter in 2-nd-growth forest on stony slope (little litter accum.), 29.VII.1986, leg. R. NORTON, HAQ and RAMANI – (2); Karnataka, Bangalore District, Bangalore (a) Bagh Botanic Gardens, debris in crotch of fig tree, 3.VIII.1986, leg. R. NORTON – (33); Karnataka, Tunkur District, Devarayadurga Hills, 10 km E from Tunkur, at ca 1100 m, litter in *Eucalyptus* forest, 6.VIII.1986, leg. R. NORTON – (20); Karnataka, Tunkur District, Devarayadurga Hills, 10 km E from Tunkur, at ca 1100 m, *Eucalyptus* and legume (*Cassia siamea*) litter accum. among rocks, 6.VIII.1986, leg. R. NORTON – (1); Karnataka, Tunkur District, Devarayadurga Hills, 10 km E from Tunkur, at ca 1100 m, rich, moisty litter of *Terminalia* tree and *Lantana* shrubs, 6.VIII.1986, leg. R. NORTON – (4 sp); Tamil Nadu, Nilgiri District, Mudumala, Game, Sanc., Bokkapuram Area, NE slope Nilgiri Hills, rich forest litter 3 m from stream, at 3200 ft, 16.VIII.1986, leg. R. NORTON – (7). Indonesia, Sulawesi, Tengah, Marawula d., Lambara riverside jungle, 25.X.1979, leg. P.T. LEHTINEN – (1); Sulawesi, Solaton, Maras d., Pattunuang, base of rock wall on riverside (TF), 19.X.1979, leg. P.T. LEHTINEN – (1); Indonesia, Kalimantan, Timur, Samarinda d., Sanga Sanga, Muara, jungle litter, 29.X.1979, leg. P.T. LEHTINEN – 1 (sp.); Kalimantan Selatan Tapin Miawa, forested rock slope, 8.XI.1984, leg. P.T. LEHTINEN – (4); Indonesia, Celebes 1954, Tomohon, 5.VIII.1954, leg. A.H.G.

ALSKON – (2); Indonesia, Java, Bagor, decaying bamboo leaves, 2.II.1954, leg. A.H.G. ALSKON – (1). Malaysia, Pahang, Jerantut 14 km S, litter of jungle, 17.XI.1984, leg. P.T. LEHTINEN – (4). Philippines, Leyte Is., Mt. Pangasugan, Baybay. Leyte Prov., ex. leaf litter, 10.II.1987, leg. A. M. ALMERODA – (1); Luzon Is., Villaricia, Pantabangan, Nueva Ecija Prov., ex. litter of mixed upland crops, 25.I.1980, leg. L.A.C. RAROS – (2); Mindanao Is., Pandapan, Tagum, Davao del Norte Prov., ex. bamboo leaf litter, 12.VIII.1992, leg. I.J. Lit jr. – (2); Philippines, 722 Animal Science pasture, UPLB Campus College, Laguna Prov., litter mostly of accacia along edge of stream, 29.VI.1975, leg. J.M. SOTTO and R.C. GARCIA – (1); Luzon Is., Animal Science pasture, UPLB Campus, College, Laguna, litter of *Imperata cylindrica*, 16 IX 1975, leg. I.M. SOTTO and R.C. GARCIA – (2); Luzon Is., Animal Science pasture, UPLB campus, College, Laguna, soil at base of *Imperata cylindrica,* 14 IV 1976, leg. R.C. GARCIA and C.C. CALIBO – (2); Luzon Is., Animal Science pasture, UPLB Campus, College, Laguna, soil at base of *Imperata cylindrica*, 1 II 1976, leg. I.M. SOTTO and R.C. GARCIA – (2); Mindanao Is., Tungao, Agusan del Norte, litter under harvestable *Albizia falcataria*, 29 IV 1975, leg. R.S. RAROS – (3); Luzon Is., Animal Science pasture, UPLB campus, College, Laguna, soil at lease of *Imperata cylindrica*, 10 VI 1976, leg. R.C. GARCIA and C.C. CALIBO – (4); Philippines, 1834 Picop, Bislig, Surigao del Sur Prov., alt. 850 ft., decompositing bark, 26.V.1977, leg. J.M. SOTT and R.C. GARCIA – (1); Palawan Is., Tiniguiban, Puerto Princesa, Palawan Province, sea level, litter from mango plantation (*Mangifera indica*), 23 X 1979, leg. L.S. CUY – (2); Luzon Is., Animal Science pasture, University of the Philippines campus, Los Baños, Laguna, litter of *Imperata cylindrica*, 29 VI 1975, leg. I.M. SOTTO and R.C. GARCIA – (3) (NIEDBAŁA & CORPUZ-RAROS 1998). Thailand, Chienamai Pr. Doi Suthep, jungle, 14.XI.1976, leg. P.H. LEHTINEN – (1); Vietnam N, Phu-Lain, litter, 7.X.1960, leg. A. BARTKE – (5). Vietnam, VIE-26 Tam Dao, mosses on the steps of road on TV-transmitter, 910 m, 12 X 1988, leg. J. STARY – (1); Vietnam N., Phu-Lain, litter, 7 X 1960, leg. A. BARTKE - (5).

DISTRIBUTION. A Pantropical species.

Atropacarus (*Atropacarus*) EWING, 1917

DIAGNOSIS. Cerotegument usually present; lateral carinae of prodorsum usually absent, sensilli long, rostral setae usually positioned at end of rostrum; 16 or more pairs of setae on notogaster (rarely 15 pairs), vestigial setae f_1 always posterior to h_1 setae; lyrifissures *im* below the line *cp*-h_3; four setae (ad_1, an_1, an_2, ad_2) on paraxial margin of anoadanal plates, all setae on anoadanal plates normal, adanal setae neotrichy present; setae d on femora I located at the distal end of segment; setae *a"* on tarsi I and setae *a"* on tarsi II not recurved distally, setae *ft"* on tarsi I minute.

Atropacarus (*Atropacarus*) *clavatus* AOKI, 1980

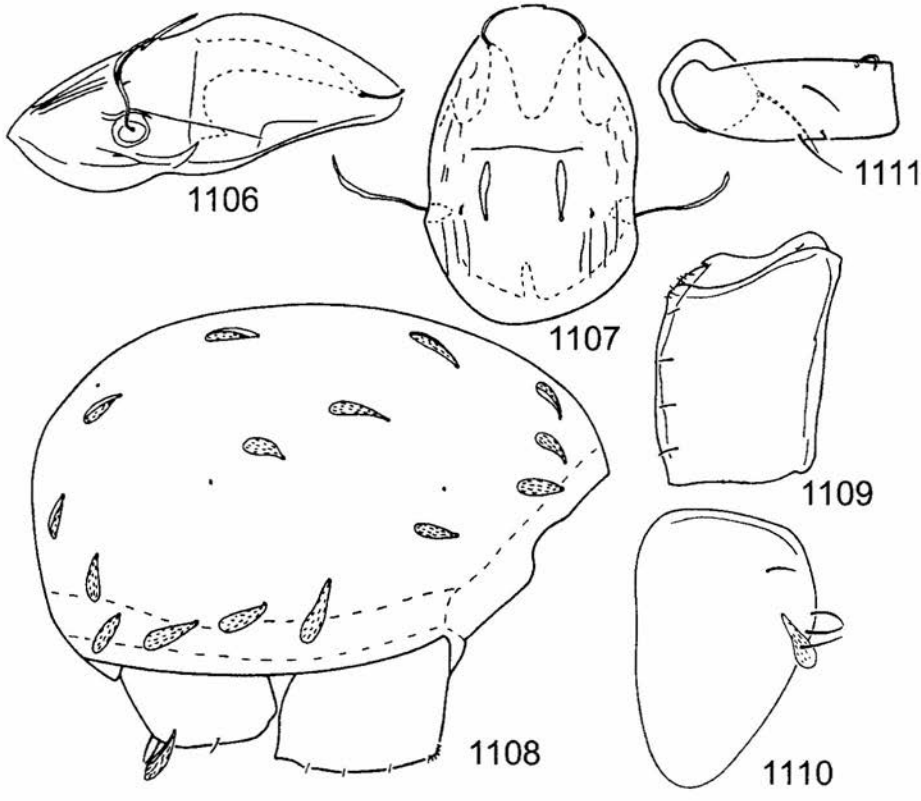
(Figs 1112-1116)

Atropacarus striculus var. *clavatus* AOKI, 1980
Atropacarus (*Atropacarus*) *clavatus*: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields of prodorsum weakly visible; lateral carinae absent; posterior furrows present; sensilli long, thick, sickle-shaped, covered with small spines; interlamellar setae robust, covered with spines, rostral and lamellar setae spiniform, smooth, *ro* > *in* > *le* > *ex*. Notogaster with 16 pairs of short ($c_1 < c_1$-d_1) setae with inflated distal end, covered with thin spines; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae: 6: 3; anoadanal plates with 5 pairs of setae, setae along paraxial border diminish anterad. Chaetotaxy of legs reduced, setae *a'* on tarsi I absent.

MATERIAL. Localities in the border zone of the Oriental region: Japan, panorama station of Mt. Ischizuchi, Ehime-ken, from litter, 6VIII 1969 - (2); Hatcho-zaka of Mt. Ishizuchi, Ehime-ken, from litter, 8 VIII 1969, leg. K. MORIKAWA - (1); Panorama station of Mt. Ishizuchi, from litter, 14 VIII 1969, leg. K. MORIKAWA - (2); Between the 1 st and 2 nd rest places, Mt. Ishizuchi, from litter, 9 VIII 1969, leg.K. MORIKAWA - (1) (AOKI 1980).

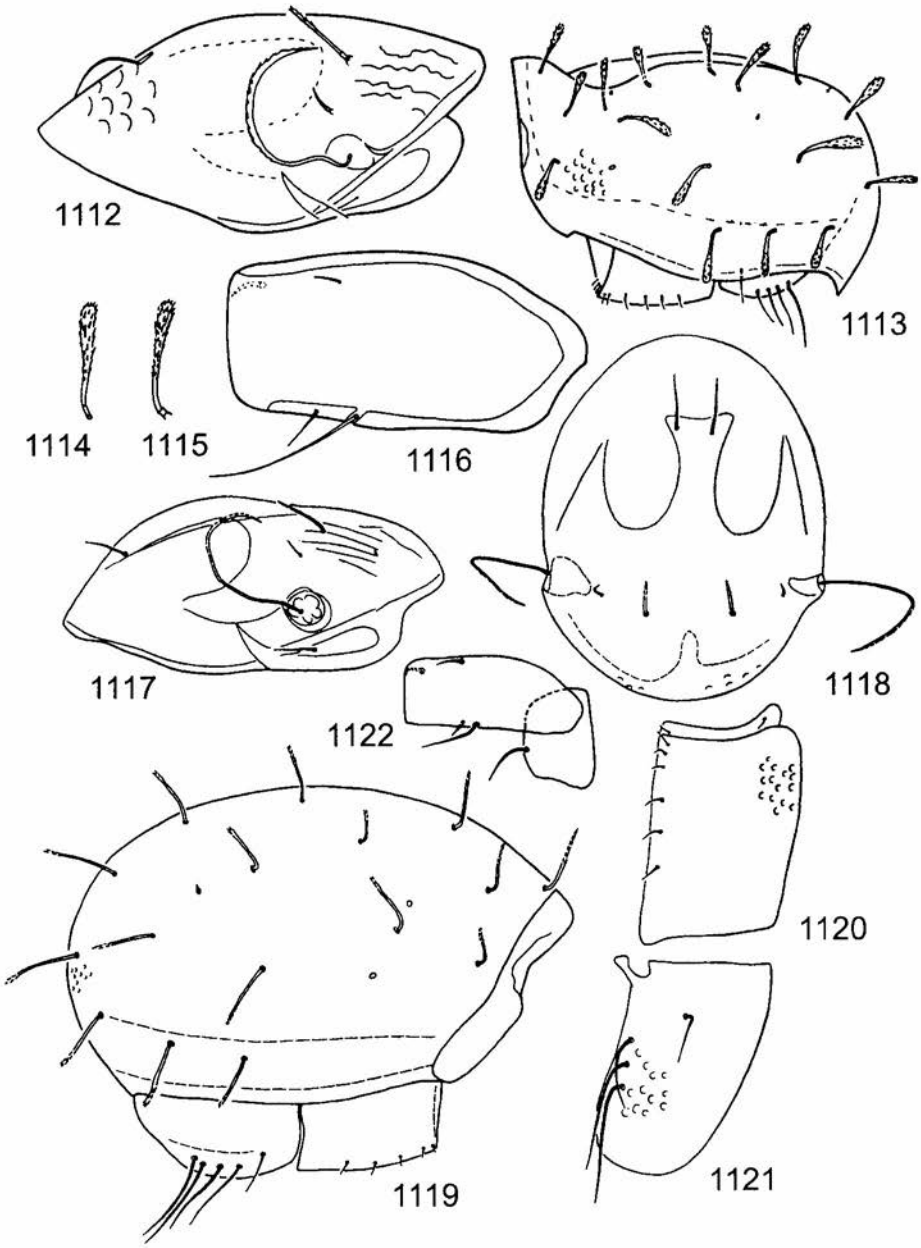
DISTRIBUTION. Japan, perhaps an endemic species.



1106-1111. *Hoplophorella scapellata* AOKI, 1965 - synonym *of Atropacarus* (*Hoplophorella*) *vitrinus:* 1106 - prodorsum, lateral view, 1107 - prodorsum, dorsal view, 1108 - notogaster, lateral view, 1109 - genitoaggenital plate, 1110 - anoadanal plate, 1111- trochanter and femur of leg I

Atropacarus (*Atropacarus*) *striculus* (C. L. Koch, 1836)

(Figs 1117-1122)



1112-1116. *Atropacarus* (*Atropacarus*) *clavatus* Aoki, 1980 (specimen from Japan): 1112 - prodorsum, lateral view, 1113 - notogaster, lateral view, 1114 - seta c_1, 1115 - seta ps_1, 1116 - femur of leg I; 1117-1122. *Atropacarus* (*Atropacarus*) *striculus* (C.L. Koch, 1836) (specimen from Vietnam): 1117 - prodorsum, lateral view, 1118 - prodorsum, dorsal view, 1119 - notogaster, lateral view, 1120 - genitoaggenital plate, 1121 - anoadanal plate, 1122 - trochanter and femur of leg I

Atropacarus (*Atropacarus*) *striculus*: NIEDBAŁA 1986, 1992
Steganacarus senex AOKI, 1958
Steganacarus trichosus MAHUNKA, 1982

DIAGNOSIS. Surface of body covered with concavities. Prodorsum with median field slightly longer than lateral, with shallow incision between rostral setae; posterior furrows present; sensilli narrow, sickle-shaped, covered with thin spines; interlamellar setae thicker than the others, covered with small spines, rostral and lamellar setae spiniform, rough, *in* > *ro* > *le* > *ex*. Notogaster with 16 pairs of short ($c_1 < c_1$-d_1), robust setae, covered with small spines; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with 7 pairs of setae, formula: 6: 1; anoadanal plates each with 5 setae, four on proximal margin diminish forwards. Chaetotaxy of legs reduced, setae *a'* of tarsi I absent.

MATERIAL. Localities in the border zone of the Oriental region and in the Oriental region: sub *S. trichosus*: Korea, Chagang Prov., Mt. Myohang-san, Chongchonriver valley, moss collected from stone standing in the water 12 IX 1980, leg. G. TOPAL and L. FORRO - (5); Prov. Kanwon,Kum-gang san, Man-mul san, from ant nest, 30 V 1970, leg. S. MAHUNKA and H. STEINMANN - (6); Kangwon Prov., Mt.Kumgang-san, moss collected along foot-path to Kuryong Falls, 18IX 1980, leg. G. TOPAL and L. FORRO - (15) (MAHUNKA 1982); sub *S. senex*: Japan, near Sanshiro-Weide, 1200 m, Utsukushigahara, Nagano-Praf, humus of scrub, 17 X 1956, leg. J. AOKI (AOKI 1958). sub *S. striculus*: Far East of Russia, 375 specimens from 50 MATERIAL. Localities from Far East of Russia (NIEDBAŁA 1992). Japan Utsukushigahara, Nagano-Praf, near Sanshiro-meadow, 1200 m, rohhumus under bush, 17 X 1956 - (1); Utsukushigahara, Nagano-Praf, 1800 m, rohhumus under a conifer forest. 16 X 1956- (2) (AOKI 1958); Hokkaido, S of Kushiro, in leafy forest, 25 IX1976, leg. T. WOJTERSKI (NIEDBAŁA 1992); Japan, 119 specimens from 24 MATERIAL. Localities of different parts of Japan (AOKI 1980). Nepal, S of Anapurna, at 3000 m, near village of Hinko, in leafy forest, 12 IX 1981, leg. J. BŁOSZYK - (1); road Hinko-Chumru, in leafy forest, 12 IX 1981, leg. J. BŁOSZYK - (3); Ambrang, at 1400-1800m, mosses, 20 III 1959, leg. K.Becker-Larsen - (1); Chandragiri, at 1790-2270 m, mosses, 7 V 1959, leg. K. BECKER-LARSEN - (1) (NIEDBAŁA 1992); S of Mt. Anapurna, ferns near Gundruk, in bamboo forest, 12.IX.1981, leg. J. BŁOSZYK – (3); Nepal, Bagmati, Phulchoki, at 2000 m, dry litter of sparse bush (TF), 12.V.1979, leg. P.T. LEHTINEN – (3). India, Himachal Pradesh, near Simla, at 2000 m, litter of oak forest, 19 IX 1976, leg. C.BŁASZAK, J. BŁOSZYK - (9), 20 km from Ambala, mosses in mixed forest, 20 IX 1976, leg. C. BŁASZAK, J. BŁOSZYK - (12) (NIEDBAŁA 1992). Korea, Kumgung san, Marimun sang, in mixed forest, 18 VI 1974, leg. A. SZEPTYCKI - (4); as obove in leafy forest - (7); Pyongyang-namdo prov., Sunan region, Sakam-ho, in pine forest, 7 VII 1981, leg. A. SZEPTYCKI, W. WEINER - (6); vicinity of Kaesong, Chonma-san Mts., in leafy forest near waterfall, 15 VII 1981, leg. A. SZEPTYCKI, W. WEINER - (4); as above, mosses and detritus under bushes - (6); 20 km, in mixed forest, 14 VII 1981, leg. A. SZEPTYCKI, W. WEINER - (6); Kumgang-san, near waterfall Kurjong-pho, in leafy forest, 29 VI1981, leg. A. SZEPTYCKI, W.WEINER - (3); Mychyang-san, near Sangron waterfall, in leafy forest, 24 VI 1981, leg. A. SZEPTYCKI, W.WEINER - (1) (NIEDBAŁA 1992); North Korea, Kesong-si, Kesong, 5.VI.1974, leg. A. SZEPTYCKI – (1); North Korea, Kesong-si, Pakjon, 7.VI.1974, leg. A. SZEPTYCKI – (1); North Korea, Hamjong pukto, Oupho vid,

D[illegible]lug, 24.V.1974, leg. A. SZEPTYCKI – (2). Vietnam N, Cha-Pa, litter close to house, 25.III.1961, leg. A. BARTKE – (2); Vietnam N, Cha-Pa, moulder under mosses, 7.III.1961, leg. A. BARTKE – (2); Vietnam N, Cha-Pa, moulder under mosses, 21.XII.1960, leg. A. BARTKE – (17); Vietnam N, Cha-Pa, litter close to wall, 22.IV.1961, leg. A. BARTKE – (1); Vietnam N, Cha-Pa, moulder under mosses, 12.XII.1960, leg. A. BARTKE – (1); Vietnam N, Cha-Pa, under mosses on the wall, 5.III.1961, leg. A. BARTKE – (1); Vietnam N, Cha-Pa, moss on the leafy tree, 11.XI.1960, leg. A. BARTKE – (1); Vietnam N, 8 km E from Cha-Pa, litter under dry leaves, X-XI.1960, leg. A.Bartke – (9); Vietnam N, Phy-Lien, at 115 m, litter under lawn, 1.X.1960, leg. A. BARTKE – (11); Vietnam N, Cha-Pa, litter close to house, XI-XII.1960, leg. A. BARTKE – (1); Vietnam, VIE-173 Tam Dao, secondary pine forest, litter sample, 980 m, 10 X 1988, leg. J. STARY – (1).

DISTRIBUTION. A Holarctic species, probably introduced in the Oriental region.

5.1.1.3.IDENTIFICATIONS KEY TO GENERA, SUBGENERA AND SPECIES OF PTYCTIMOUS *ORIBATIDA*

1. Either notogaster with well discernible furrows on posterior half of body or ventral side with distinct ventral plate showing genital and anal openings well separated by brachypily - *Enarthronota* GRANDJEAN, 1947 2
-. Neither posterior notogastral furrows nor a brachypilic ventral plate displaying separated genital and anal openings present. Genital and anal openings joined, large and wide or narrow - *Mixonomata* GRANDJEAN, 1969 6
2. Pygidial part of "notogaster" with several distinct transverse sutures ..... *Protoplophoroidea*
   a. sensilli clavate ..... *Prototritia glomerata*
   b.sensilli setiform ..... *Prototritia grandjeani*
-. Pygidial part of "notogaster" without distinct transverse sutures – *Mesoplophoroidea* 3
3. Adult with suture separating genital plates in two parts – *Mesoplophoridae* 4
-. Adult without suture separating genital plates – *Apoplophoridae* 5
4. Anal and genital plates touching, adanal plates distinct, three pairs of anal, three pairs of adanal setae present ..... *Archoplophora*
- Anal plates separated from genital plates, adanal plates absent, 2-4 pairs of anal setae present ..... *Mesoplophora*
   a. 3-4 pairs of anal setae present ..... *Mesoplophora* (*Parplophora*)
   b. 2 pairs of anal setae present ..... *Mesoplophora* (*Mesoplophora*)
5. Anal and genital plates almost touching, adanal plates present, genital plate quadrate ..... *Dudichoplophora*
-. Distance between anal and genital plates longer than anal plates, adanal plates absent, genital plates triangular ..... *Apoplophora*
6. Body considerably compressed laterally, ano-genital region narrow, V-shaped ..... *Euphthiracaroidea*
-. Body less compressed laterally, ano-genital region relatively wide, U-shaped ..... *Phthiracaroidea*

Euphthiracaroidea

1. Genitoaggenital and anoadanal plates separated by a pair of latero-ventral lobes ..... *Temburongiidae*
-. Latero-ventral lobes absent 2
2. Genital setae situated in anterior part of genitoaggenital plates 3
-. Genital setae situated in paraxial position of genitoaggenital plates 4
3. One group of genital setae situated in pregenital position, second posterior to them, behind suture kag ..... *Synichotriidae*
-. Only 1 or 2 pairs of long genital setae situated posterior to suture kag ..... *Sabahtriitidae*
4. Ventral plates not completely fused, at least anal plate separated by suture, longitu dinal suture of anogenital region without interlocking triangle ..... *Oribotritiidae*
-. Ventral plates completely fused, at least one triangle in longitudinal suture of anogenital region present ..... *Euphthiracaridae*

Oribotritiidae

1. Genitoaggenital suture absent, two plates completely fused 2
-. Genitoaggenital suture present or at least partly present, two plates at least posteriorly well separated from each other 3
2. One pair of exobothridial setae present, palps 5 – segmented ..... *Austrotritia*
-. Two pairs of exobothridial setae present, palps 3 – segmented ..... *Terratritia*
3. Genitoaggenital suture incomplete ..... *Indotritia*
-. Genitoaggenital suture complete 4
4. Bothridial scale situated above bothridium, suture between genital and anal plates present ..... *Oribotritia*
-. Bothridial scale situated below bothridium, suture between genital and anal plates absent 5
5. Lamellar setae of prodorsum situated near rostral setae ..... *Mesotritia*
-. Lamellar setae situated approximatelly between interlamellar and rostral setae 6
6. Posterior median apodeme of prodorsum absent ..... *Maerkelotritia*
-. Posterior apodeme present 7
7. Genua of legs IV with solenidia ..... *Protoribotritia*
-. Genua of legs IV without solenidia ..... *Sobacarus*

Euphthiracariidae

1. Two triangles, one medial and one posterior situated in longitudinal suture separating ventral plates 2
-. Only one medial triangle in longitudinal suture 3
2. Bothridial scale situated above bothridium ..... *Sumatrotritia*
-. Bothridial scale situated below bothridium ..... *Euphthiracarus*
   a. rostral setae originating anterior to lamellar setae ..... subgenus *Euphthiracarus*
   b. rostral setae originating posterior or at the level of lamellar setae, always between them ..... subgenus *Pocsia*

3. Genitoaggenital plates with 4-5 genital setae, trochanters of legs III and IV with one seta ..... *Microtritia*
-. Genitoaggenital plates with 7-9 genital setae, trochanters of legs III and IV with two setae 4
4. Genua of legs IV with at least one seta ..... *Rhysotritia*
-. Genua of legs IV without setae ..... *Bukitritia*

Oribotritia

1. Lateral carinae of prodorsum consisting of three laminae 2
-. Lateral carinae of prodorsum with single or double laminae 4
2. Sensilli bulbiform proximally ..... *bulbifer*
-. Sensilli bacilliform or setiform 3
3. Sensilli bacilliform ..... *paraaoki*
-. Sensilli setiform ..... *aoki*
4. Lateral carinae of prodorsum with double laminae 5
-. Lateral carinae of prodorsum with single laminae 8
5. 2-3 pairs of anal setae present 6
-. One pair of anal setae present 7
6. 3 pairs of anal setae present ..... *angusta*
-. 2 pairs of anal setae present ..... *anceps*
7. Lyrifissures *iad* anteriorly to setae ad_3 ..... *submolesta*
-. Lyrifissures *iad* between setae ad_2 and ad_3 ..... *bipartita*
8. 1 pair of anal setae present 9
-. 2 or 3 pairs of anal setae present 10
9. Setae e_1, h_1, ps_1 of notogaster robust, erect, rough, different in shape from other setae ..... *heterotricha*
-. All setae of notogaster of the same shape ..... *nepalensis*
10. 2 pairs of anal setae 11
-. 3 pairs of anal setae 12
11. Sensilli slightly thickened distally ..... *chichijimensis*
-. Sensilli tapering ..... *gigas*
12. Setae of prodorsum minute, 2 pairs of adanal setae ..... *corporaali*
-. Setae of prodorsum long, 3 pairs of adanal setae 13
13. Lyrifissures *iad* anterior to setae ad_3 ..... *fennica*
-. Lyrifissures *iad* posterior to setae ad_3 14
14. Exobothridial setae longer than other setae of prodorsum ..... *capitanea*
-. Exobothridial setae shorter than other setae of prodorsum 15
15. Setae of body relatively short, rostral setae not exceeding end of rostrum ..... *tokukoae*
-. Setae of body relativell longer, rostral setae considerably exceeding end of rostrum ..... *asiatica*

Mesotritia

1. Two pairs of anal setae ..... *dissimilis*
-. One pair of anal setae 2

2. 9 pairs of genital setae ..... *nitida*
-. 5-7 pairs of genital setae 3
3. 7 pairs of genital setae present, rostral and lamellar setae inserted almost in line ..... *clara*
-. Less than 7 pairs of genital setae present, rostral setae inserted posterior to lamellar setae 4
4. Lyrifissures *iad* inserted between ad_3 and anal setae ..... *similis*
-. Lyrifissures *iad* inserted anterior to anal setae 5
5. Distance between interlamellar setae slightly shorter than that between lamellar setae ..... *okuyamai*
-. Distance between interlamellar setae slightly longer than that between lamellar setae ..... *märkeli*

Indotritia

1. Two pairs of anal setae ..... *krakatauensis*
-. One pair of anal setae 2
2. Lyrifissures *iad* posterior to setae ad_2 ..... *propinqua*
-. Lyrifissures *iad* anterior to setae ad_2 3
3. Prodorsum with double lateral carinae 4
-. Prodorsum with single lateral carinae 5
4. Sensilli spindle-shaped ..... *lanceolata*
-. Sensilli setiform ..... *javensis*
5. Lateral carinae with short ramification anteriorly ..... *aspera*
-. Lateral carinae without ramification ..... *undulata*

Austrotritia

1. Anal setae absent 2
-. 1-2 pairs of anal setae present 3
2. Sensilli lanceolate, shorter than prodorsal setae ..... *ramsai*
-. Sensilli setiform, longer than prodorsal setae ..... *kinabaluensis*
3. One pair of anal setae 4
-. Two pairs of anal setae 7
4. Single lateral carinae of prodorsum present 5
-. Double lateral carinae of prodorsum present 6
5. Exobothridial setae vestigial, distance between interlamellar setae equal to that between rostral setae ..... *unicarinata*
-. Exobotridial setae normal, distance between interlamellar setae greater than that between rostral setae ..... *lebronneci*
6. Setae of notogaster short, half as long as distance between setae, exobothridial setae vestigial ..... *robusta*
-. Setae of notogaster longer, reach insertion of neighbouring setae, exobothridial setae normal ..... *saraburiensis*
7. Setae relatively long, interlamellar setae exceed the incersions of lamellar setae ..... *gibba*

-. Setae relatively short, merely half as long as distance between insertions points of setae 8
8. End of rostrum dentate ..... *dentata*
-. End of rostrum not dentate ..... *glabrata*

Terratritia

1. Sensilli setiform, lateral carinae long, reaching lateral rim ..... *askewi*
-. Sensilli dilated distally, lateral carinae short, not reaching lateral rim ..... *seconda*

Euphthiracarus

1. Surface of notogaster covered with reticulate ornamentation 2
-. Surface of notogaster without reticulation 3
2. Setae ag_2 longer and thicker than setae ag_1 ..... *parareticulatus*
-. All aggenital setae equal in length and shape ..... *klabati*
3. Surface of ventral plates covered with labyrinthical sculpture ..... *labyrinthicus*
-. Surface of ventral plates without labyrinthical sculpture 4
4. Sensilli clavate or almost globular 5
-. Sensilli setiform or fusiform 6
5. Sensilli with globular head, heterotrichy of notogastral setae present ..... *vietnamicus*
-. Sensilli with clavate head, notogastral setae similar in length and shape ..... *takahasii*
6. Aggenital setae almost equal in length ..... *foveolatus*
-. Setae ag_2 always longer and thicker then ag_1 7
7. Posterior four genital setae longer than anterior setae 8
-. Genital setae similar in length or six posterior setae slightly longer than three anterior 10
8. Setae ag_1 minute, shorter than setae g_{1-5} ..... *aggenitalis*
-. Setae ag_1 longer than setae g_{1-5} 9
9. Setae ag_1 shorter than half length of setae ag_2, setae g_{1-5} almost half length of g_{6-9} ..... *pakistanensis*
-. Setae ag_1 longer than half of length of setae ad_2, setae g_{1-5} shorter than half length g_{6-9} ..... *shogranensis*
10. Two pairs of lateral carinae on prodorsum present ..... *cribarius*
-. One pair of lateral carinae on prodorsum present ..... *inglisi*

Rhysotritia

1. Double lateral carinae of prodorsum present ..... *duplicata*
-. Simple lateral carinae of prodorsum present 2
2. Lateral carinae of prodorsum forked distally 3
-. Lateral carinae of prodorsum not forked distally 8
3. Surface of notogaster with polygonal sculpture 4
-. Surface of notogaster without polygonal sculpture 5
4. Lamellar setae as long as half length of interlamellar setae and inserted nearer rostral than interlamellar setae ..... *penicillata*
-. Lamellar setae longer than half length of interlamellar setae and inserted at half distance between interlamellar and rostral setae ..... *furcata*

5. All tarsi monodactylous 6
-. Tarsi of legs I bidactylous; II-IV heterotridactylous 7
6. Upper ramification of lateral carinae of prodorsum longer than half length of lateral carinae ..... *refracta*
-. Upper ramification of lateral carinae of prodorsum shorter than half length of lateral carinae ..... *divida*
7. Sensilli spindle-shaped ..... *vestita*
-. Sensilli clavate ..... *comteae*
8. Tarsi of legs I bidactylous; II-IV heterotridactylous 9
-. All tarsi monodactylous 11
9. Sensilli without head ..... *gracile*
-. Sensilli with head 10
10. Aggenital setae situated near anterior margin of plate ..... *ardua*
-. Aggenital setae remote from anterior margin of plate ..... *hauseri*
11. Sensilli with almost globular head ..... *lucida*
-. Sensilli with fusiform or setiform head 12
12. Sensilli setiform, swollen distally ..... *simile*
-. Sensilli with fusiform head 13
13. Aggenital setae arranged in transverse row ..... *aoki*
-. Aggenital setae arranged in vertical row 14
14. Setae ad_1 with blunt tip ..... *spiculifera*
-. Setae ad_1 tapering 15
15. Setae of notogaster fine ..... *rasile*
-. Setae of notogaster thick ..... *sinensis*

Sabahtritia

1. Setae of body simple ..... *sarawak*
-. Setae of body dilated 2
2. Setae of notogaster and ventral region blunt distally ..... *hauseri*
-. Setae of notogaster and ventral region tapering distally 3
3. Setae of anoadanal plates serrated and long (all setae longer than distance to neighbouring setae) ..... *mirabilis*
-. Setae of anoadanal plates smooth and short (anterior setae shorter than distance to neighbouring setae) ..... *lienhardi*

Sumatrotritia

1. Three pairs of genital setae very long, considerably longer than distance between them ..... *inusitata*
-. Genital setae minute, considerably shorter than distance between them ..... *elegans*

Microtritia

1. Sensilli obtuse distally ..... *minima*
-. Sensilli tapering distally ..... *tropica*

Synichotritia

1. Sensilli setiform ..... *foveolata*
-. Sensilli bifurcate distally 2
2. All setae on anterior bar of genitoaggenital plates minute ..... *furcata*
-. 4-5 pairs of long genital setae on anterior bar of genitoaggenital plates ..... *tianmuensis*

Mesoplophora (*Parplophora*)

1. Sensilli setiform ..... *japonica*
-. Sensilli covered with barbs or with fusiform head 2
2. Sensilli with fusiform head 3
-. Sensilli covered with barbs 5
3. Posterior and lateral setae of ventral plate very long, exceeding body margin ..... *polita*
-. Ventral setae shorter and not exceeding body margin 4
4. Exobothridial setae longer than diameter of bothridium ..... *flavida*
-. Exobothridial setae shorter than diameter of bothridium ..... *subtilis*
5. Ten pairs of ventral setae ..... *paraleviseta*
-. Eight pairs of ventral setae ..... *leviseta*

Mesoplophora (*Mesoplophora*)

1. Exobothridial setae shorter than diameter of bothridium ..... *crassisetosa*
-. Exobotridial setae longer than diameter of bothridium 2
2. Setae e_1 and e_2 thicker than other setae of notogaster ..... *invisitata*
-. All setae of notogaster similar in shape ..... *vesca*

Apoplophora

1. Surface of notogaster and ventral region reticulate ..... *ornata*
-. Surface of body not reticulate 2
2. Lateral carinae of prodorsum present 3
-. Lateral carinae of prodorsum absent 4
3. Setae with short barbs, length of barbs roughly equal to width of setae, setae ag_1 shorter than half length of setae ag_2 ..... *malaya*
-. Setae with long barbs, barbs considerably longer than width of setae, setae ag_1 and ag_2 of nearly equal length ..... *cristata*
4. Setae of body short, distance between prodorsal setae always greater than length of setae ..... *spinosa*
-. Setae of body long, distance between prodorsal setae smaller than length of setae 5
5. Rostral setae thicker than other prodorsal setae ..... *phalerata*
-. All prodorsal setae of of same width 6
6. Setae c_3 fine, smooth and shorter than other setae ..... *heterotricha*
-. Setae c_3 covered with barbs and not shorter than other setae 7

7. Setae ag_2 covered with barbs ..... *marcuardi*
-. Setae ag_2 smooth ..... *pantotrema*

Phthiracaroidea

1. Four setae (ad_1, an_1, an_2, ad_2) in row near paraxial margin of anoadanal plates 2
-. Fewer setae near paraxial margin 4
2. Setae d on tibiae of legs IV short, coupled with solenidia; all genital setae located in row along paraxial margin ..... *Atropacarus* (*Atropacarus*)
-. Setae d on tibiae of legs IV long, independent of solenidia; genital setae g_{7-9} displaced towards paraxial margin of genitoaggenital plates and arranged in row with setae g_{1-5}, setae g_6 not displaced. 3
3. Median notogastral ridge present ..... *Steganacarus* (*Tropacarus*) *carinatus*
-. Median notogastral ridge absent ..... *Steganacarus* (*Rhacaplacarus*) *spiniger*
4. Three setae (ad_1, an_1, an_2) in a row near paraxial margin of anoadanal plates ..... *Atropacarus* (*Hoplophorella*)
-. Two setae (an_1 and an_2) near paraxial margin of anoadanal plate 5
5. Setae d on tibiae of legs IV long, independent of solenidia 6
-. Setae d on tibiae of legs IV short, coupled with solenidia 7
6. Genital setae arranged in two rows, g_{6-9} always in some distance from paraxial margin ..... *Plonaphacarus*
-. Genital setae situated in one row or only setae g_{1-5} situated with setae g_{7-9} in paraxial row, setae g_6 remote from paraxial margin ..... *Hoplophthiracarus*
7. Genital setae arranged in two rows, setae g_{6-9} remote from paraxial margin or at least setae g_6 and g_7 distinctly remote 8
-. Genital setae displaced towards paraxial margin and arranged in row or nearly, or setae g_{7-9} displaced towards margin, setae g_6 remote from margin 9
8. Setae on notogaster smooth, thin, tapering ..... *Phthiracarus*
-. Setae on notogaster covered with spines, if smooth then short and spiniform or long and flagellate ..... *Austrophthiracarus*
9. Genital setae arranged in row near paraxial margin of plates ..... *Notophthiracarus*
-. Genital setae g_{7-9} displaced towards paraxial margin and forming row with setae g_{1-5} ..... *Arphthicarus*

Phthiracarus

1. 4 pairs of adanal setae ..... *comosus*
-. 3 pairs of adanal setae 2
2. Lyrifissures *ia, im, ip, ips* present 3
-. Less than four pairs of lyrifissures present 5
3. Median carina of prodorsum prominent, notogastral setae long ($c_1 > c_1$-d_1), rigid ..... *setosus*
-. Median carina of prodorsum absent, notogastral setae shorter ($c_1 < c_1$-d_1), fine 4
4. Sensilli fusiform, short, not reach insertion of *in* setae ..... *gibber*
-. Sensilli narrow, long, exceed insertion of *in* setae ..... *invenustus*
5. Median carina of prodorsum prominent 6
-. Median carina of prodorsum absent 10

6. Anoadanal plates with vestigial setae ad_1 and ad_2 7
-. Setae ad_1 and ad_2 well developed 8
7. Sensilli bulbiform proximally ..... *persimplex*
-. Sensilli lanceolate ..... *globosus*
8. Prodorsum with posterior furrows, vestigial setae f_1 anterior to setae h_1 ..... *crispus*
-. Prodorsum without furrows, vestigial setae f_1 posterior to setae h_1 9
9. Setae *h* minute, ($h<1/2h$-h) ..... *paraglobosus*
-. Setae *h* long, ($>1/2h$-h) ..... *clemens*
10. Sensilli long and narrow, their length more than 10 times width 11
-. Sensilli short and wide, length not more than 10 times width 16
11. Surface of body foveolate or maculate 12
-. Surface of body punctate 13
12. Surface of body foveolate ..... *pygmaeus*
-. Surface of body maculate ..... *paratubulus*
13. Vestigial setae f_1 anterior to setae h_1 ..... *lentulus*
-. Vestigial setae f_1 posterior to setae h_1 14
14. Sensilli with distal end covered by spicules, 7 pairs of genital setae present ..... *boresetosus*
-. Sensilli smooth, 9 pairs of genital setae present 15
15. Adanal setae ad_1 and ad_2 vestigial ..... *membranifer*
-. Adanal setae well developed ..... *largus*
16. Sensilli distinctly rounded distally 17
-. Sensilli not rounded distally, usually pointed 20
17. Adanal setae ad_1 and ad_2 almost in one row with anal setae ..... *anonymus*
-. Adanal setae ad_1 and ad_2 not forming row with anal setae 18
18. Vestigial setae f_1 posterior to setae h_1 ..... *bryobius*
-. Vestigial setae f_1 anterior to setae h_1 19
19. Small species, notogaster shorter than 400 μm, genital setae g_4 posterior to setae g_5 ..... *paucus*
-. Greater species, notogaster longer than 500 μm, genital setae g_4 anterior to setae ..... *parmatus*
20. Surface of prodorsum lineate ..... *australis*
-. Surface of prodorsum smooth 21
21. Setae *v'* on femora of legs I, *l'* on genua of legs IV absent 22
-. Chaetotaxy of legs complete 23
22. Vestigial setae f_1 anterior to setae h_1 ..... *longulus*
-. Vestigial setae f_1 posterior to setae h_1 ..... *compressus*
23. Vestigial setae f_1 posterior to setae h_1 24
-. Vestigial setae f_1 anterior to or at the level of h_1 setae 25
24. Lateral carinae very short, situated above bothridium, $h<h$-h ..... *comatus*
-. Lateral carinae long, reaching the sinus, $h>h$-h ..... *opacus*
25. Adanal setae ad_1 and ad_2 well developed 26
-. Adanal setae ad_1 and ad_2 vestigial 27
26. 3 pairs of lyrifissures present, 2 pairs of genital setae in pregenital position .... *obscurus*
-. 4 pairs of lyrifissures present, no setae in pregenital position ..... *ornatus*
27. 3 pairs of lyrifissures present ..... *abstemius*
-. 2 pairs of lyrifissures present ..... *japonicus*

Plonaphacarus

1. Sensilli with distinct head 2
-. Sensilli without head 6
2. Two pairs of median carinae of prodorsum present ..... *scrupeus*
-. Prodorsum without two median carinae 3
3. Lateral carinae of prodorsum long, extending beyond sinus ..... *kugohi*
-. Lateral carinae shorter 4
4. Dorsal setae of notogaster long, covered with spines, majority of lateral setae smooth ..... *dispar*
-. All notogastral setae covered with spines 5
5. Anterior part of prodorsum spinose, exobothridial setae vestigial ..... *rafalski*
-. Anterior part of prodorsum smooth, exobothridial setae well developed ..... *loebli*
6. Notogaster with 40 pairs of setae ..... *aculeatus*
-. Notogaster with 15 pairs of setae 7
7. Notogastral setae smooth ..... *kaszabi*
-. Notogastral setae spinose 8
8. One median carina of prodorsum present, rostral and lamellar setae smooth ... *insignitus*
-. Median carina of prodorsum absent, rostral and lamellar setae spinose ..... *ishikawai*

Hoplophthiracarus

1. Median carina of prodorsum pronounced ..... *cristatus*
-. Median carina of prodorsum weak or absent 2
2. Notogastral setae hooked distally ..... *hamatus*
-. Notogastral setae not hooked 3
3. Sensilli without head 4
-. Sensilli with distinct head 5
4. All notogastral setae spinose ..... *nepalensis*
-. Most setae spinose but some setae *h* and *ps* smooth ..... *stigmosus*
5. Lamellar and interlamellar setae similar in length ..... *similis*
-. Lamellar setae distinctly shorter than interlamellar setae 6
6. Exobothridial setae longer than lamellar setae 7
-. Exobothridial setae shorter than lamellar setae 11
7. Some lateral setae of notogaster minute and smooth, other setae spinose ..... *heterotrichus*
-. All notogastral setae spinose 8
8. Median field of prodorsum absent ..... *vanderhammeni*
-. Median field well visible 9
9. Lamellar setae minute, their length almost equal to width of interlamellar setae ..... *clavellatus*
-. Lamellar setae considerably longer than width of interlamellar setae 10
10. Distance between setae *ro-ro* and *le-in* considerably greater than length of lamellar setae, head of sensilli distinct ..... *foveolatus*
-. Distance between setae *ro-ro* and *le-in* not greater than length of lamellar setae, head of sensilli not distinct ..... *concinuus*
11. Vestigial setae f_1 anterior to setae h_1 ..... *angustatus*
-. Vestigial setae f_1 posterior to setae h_1 12

12. Notogastral setae dilated towards distal end, head of sensilli short and round ..... *parafoveolatus*
-. Notogastral setae not dilated, head of sensilli elongated 13
13. Prodorsum with double median carina, lateral carinae reaching end of rostrum ... *nasalis*
-. Prodorsum without double median carina, lateral carinae reaching sinus ..... *pakistanensis*

Austrophthiracarus

1. 15 pairs of notogastral setae 2
-. More than 15 pairs of notogastral setae 5
2. Distinct hump present at the level of rostral setae ..... *tuberculatus*
-. Prodorsal hump absent 3
3. Basal part of median field of prodorsum wider than distance between setae *in*, formula of genital setae: 4+2: 3 ..... *pullus*
-. Basal part of median field narrower than distance between setae *in*, formula of genital setae: 4+3: 2 or 4+5: 0 4
4. Pedicel of sensilli longer than head, formula of genital setae: 4+3: 2 ..... *sarawaki*
-. Pedicel of sensilli shorter than head, formula of genital setae: 4+5 5
5. 17 pairs of notogastral setae, 4 pairs of adanal setae present ..... *villosus*
-. 16 pairs of notogastral setae, 3 pairs of adanal setae present 6
6. Setae *in* more than twice as long as setae *le*, notogaster with anterior cowl ..... *mitratus*
-. Setae *in* less than twice as long as setae *le*, notogaster without cowl ..... *inusitatus*

Arphthiracarus

1. Distance *ro-ro>in-in* ..... *indicus*
-. Distance *ro-ro<in-in* 2
2. Heterotrichy of notogastral setae present ..... *inenarrabilis*
-. All notogastral setae of more or less the same length and shape 3
3. 4 pairs of lyrifissures present ..... *sumatranus*
-. At most 2 pairs of lyrifissures present 4
4. Fields of prodorsum joined ..... *furcatus*
-. Fields of prodorsum separated 5
5. Setae ad_3 spinose, similar to notogastral setae ..... *ineptus*
-. Setae ad_3 smooth, different from notogastral setae 6
6. Prodorsum without median carina ..... *evexus*
-. Prodorsum with median carina 7
7. Lamellar setae not minute, notogastral setae long ($c_1 > c_1\text{-}d_1$), attenuate ..... *parasentus*
-. Lamellar setae minute, notogastral setae short ($c_1 < c_1\text{-}d_1$) ..... *sentus*

Notophthiracarus

1. 17 pairs of notogastral setae 2
-. 15 pairs of notogastral setae 3
2. Median carina of notogaster present, notogastral setae spinose ..... *lienhardi*
-. Median carina of notogaster absent, notogastral setae smooth ..... *turgidus*

3. Notogastral setae simple, smooth. 4
-. Notogastral setae spinose 7
4. Dorsal carinae of notogaster present 5
-. Dorsal carinae of notogaster absent 6
5. Notogaster with many tubercles, sensilli not dilated proximally ..... *enigmaticus*
-. Tubercules of notogaster absent, sensilli dilated proximally ..... *planus*
6. Sensilli with globular head, notogastral setae minute, almost vestigial, 2 pairs of lyrifissures present ..... *perparvus*
-. Sensilli dilated proximally, notogastral setae longer, 4 pairs of lyrifissures present ..... *robertsi*
7. Notogastral setae phylliform 8
-. Notogastral setae not phylliform 10
8. Notogaster dorsally without carinae ..... *stenotus*
-. Notogaster dorsally with carinae 9
9. Two dorsal notogastral carinae extending along entire notogaster ..... *orientalis*
-. Three dorsal notogastral carinae present disappearing anteriorly ..... *hauseri*
10. Lamellar setae almost as long as interlamellar setae ..... *extraordinarius*
-. Interlamellar setae many times longer than lamellar setae 11
11. Prodorsum with joined fields, all setae on anoadanal plates small, smaller than distance between them ..... *mirus*
-. Fields of prodorsum not joined, at least 2 or 3 setae of anoadanal plates long, longer than distance between them 12
12. 3 pairs of lyrifissures present, setae ad_2 long, hooked distally, setae ad_3 minute ..... *unqus*
-. 2 pairs of lyrifissures present, setae on anoadanal plates similar in length and shape ..... *ignobilis*

Atropacarus (*Hoplophorella*)

1. Notogastral setae phylliform 2
-. Notogastral setae not phylliform 4
2. Anterior cowl of notogaster present ..... *cucullatus*
-. Cowl of notogaster absent 3
3. Rostral setae directed medially ..... *vitrinus*
-. Rostral setae directed towards end of rostrum ..... *floridus*
4. Notogastral setae lanceolate, short (c_1<1/2c_1-d_1), thin and smooth 5
-. Notogastral setae longer (c_1>1/2c_1-d_1), spinose 6
5. Distance *ro-ro*>*in-in*, lamellar setae minute ..... *manipurensis*
-. Distance *ro-ro*<*in-in*, lamellar setae greater than half length of interlamellar setae ..... *stilifer*
6. Pedicel of sensilli longer than head, setae ad_3 spinose, similar to notogastral setae ..... *singularis*
-. Pedicel of sensilli shorter than head, setae ad_3 spiniform, smooth ..... *sabahnus*

Atropacarus (*Atropacarus*)

1. Notogastral setae rod-shaped, enlarged distally ..... *clavatus*
-. Notogastral setae not enlarged distally ..... *striculus*

India, Sri Lanka, Maldives

The total number of 81 samples from these subregion contained 37 species including 4 new ones, the majority of them belonged to the *Phthiracaroidea* (23), fewer to the *Mesoplophoroidea* (6) and the *Euphthiracaroidea* (8). The *Euphthiracaroides* are more numerous in Sri Lanka while *Phthiracaroidea* are more numerous in India. In Maldives there are only a few widespread species, belonging to 11 genera. There are three cosmopolitan species, making 8.1%, but the number of Pantropical and An Oriental species is similar: 12 (32.4%) and 10 (27%), respectively. Four of the latter: *R. hauseri, A. pullus, A. phalerata, P. pullus* occur only in this subregion, while 6 other: *A. saraburiensis, I. propinqua, H. concinuus, N. robertsi, A. heterotrichia, A. pantotrema* can be treated as invasive because they reach the southern and/or eastern borders of the A Palaearctic . *A. saraburiensis* is even more widespread, as it was found on the Pacific Islands. One species, *P. membranifer* was introduced from the A Palaearctic . Almost one third of the species are endemics (11 species, 29.7%).

China

The *Ptyctima* fauna as well as the fauna of all the *Oribatida* of China has not been studied. The descriptions of 3 species found in 4 samples were taken from the literature.

Indo-Chinese and Malaysian Peninsulas (Vietnam, Thailand, Malaysia)

One hundred samples from this subregion contained a total number of 48 species, including 11 new ones, the majority found in Vietnam. The species belong to 18 genera, the majority to the *Euphthiracaroidea*. The number of species of *Euphthiracaroidea* and *Phthiracaroidea* is 19 (39.6%) and 22 (45.8%), respectively, *Phthiracaroidea* are more richer in species in Vietnam while *Euphthir-acaroidea* are more speciose in Malaysia. There are only 3 (6.2%) cosmopolitan species and 9 (18.7%) Pantropical species. The number of oriental species is relatively high – 15 (31.2%). Over half of them occurr only in this region, these are: *A. sentus, A. tuberculatus, H. stigmosis, P. invenustus, P. obscurus, R. divida, R. hauseri, M. flavida*. Nearly half of these are invasive species. The ranges of two species: *M. similis* and *O. submolesta* reach as far as the southern Palaearctic, while those of *A. saraburiensis* and *R. aokii* reach the southern and eastern A Palaearctic . *A. saraburiensis* and *P. crispus* were found on the Pacific Islands, whereas *P. paucus* was found in the Australian region and the Pacific Islands. The most widespread species is *A. pantotrema*, reaching the eastern Palaearctic, the northern parts of the Australian region and the Pacific Islands.

Two species: *A. (A.) striculus* (Holarctic) and *M. minima* (A Palaearctic) are introduced. The number of an endemic species is rather high - 19 (39.6%).

Although over half of the species come from northern Vietnam, the influence of Palaearctic elements is insignificant. From the point of view of the *Ptyctima* fauna, this area cannot be considered as a border zone between the Palaearctic and Oriental regions, as suggested by MAHUNKA (1987).

The Philippines

The 84 samples contained 28 species belonging to 16 genera. Seven species are new to the science. Over half of them belong to the *Euphthiracaroidea*: 15 (53.6%), and one third to the *Phthiracaroidea*: 9 (32.1%). *Mesoplophoroidea* are represented

Tab. 1. Occurence of *Ptyctima* in particular subregions of the Oriental region (with designation of zoogeographical elements).

	A_1 - India, Sri Lanka, Maldives A_2 - China A_3 - Indo-Chinese and Malaysian Peninsulas (Vietnam, Thailand, Malaysia) A_4 - Philippines A_5 - Sumatra A_6 - Borneo, Timur, Sabah, Brunei, Sarawak A_7 - Sulawesi A_8 - Jawa, Bali									
		A_1	A_2	A_3	A_4	A_5	A_6	A_7	A_8	
1	*Apoplophora cristata* Mahunka, 1991			X						endemic
2	*A. heterotricha* Mahunka, 1987	X					X			oriental
3	*A. malaya* Mahunka, 1991			X						endemic
4	*A. marcuardi* Mahunka, 1991			X						endemic
5	*A. ornata* Niedbała et Corpuz-Raros, 1998						X			endemic
6	*A. pantotrema* (Berlese, 1913)	X		X	X	X	X	X	X	oriental
7	*A. phalerata* Niedbała et Corpuz-Raros, 1998	X				X		X		oriental
8	*A. spinosa* Mahunka, 1987						X			oriental
9	*Archoplophora rostralis* (Willmann, 1930)			X						semicosmopol.
10	*Arphthicarus evexus* sp. nov.			X						endemic
11	*A. furcatus* Niedbała et Corpuz-Raros, 1998				X					endemic
12	*A. parasentus* sp. nov.			X						endemic
13	*A. sentus* (Niedbała, 1989)			X		X				oriental
14	*A. sumatranus* sp. nov.					X				endemic
15	*Atropacarus* (*Atropacarus*) *striculus* (C.L. Koch, 1836)			X						holarctic
16	*A.* (*Hoplophorella*) *cucullatus* (Ewing, 1909)	X		X	X		X			semicosmopol
17	*A.* (*H.*) *floridus* (Jacot, 1933)	X		X	X			X	X	pantropical
18	*A.* (*H.*) *manipurensis* Misra, Bhaduri et Raychaudhuri, 1983	X								endemic
19	*A.* (*H.*) *sabahnus* (Mahunka, 1991)						X			endemic
20	*A.* (*H.*) *singularis* (Sellnick, 1959)	X								pantropical
21	*A.* (*H.*) *stilifer* (Hammer, 1961)	X		X						pantropical
22	*A.* (*H.*) *vitrinus* (Berlese, 1913)	X		X	X			X	X	pantropical
23	*Austrophthiracarus pullus* (Niedbała, 1989)	X					X			oriental
24	*A. sarawaki* sp. nov.						X			endemic
25	*A. tuberculatus* Niedbała et Corpuz-Raros, 1998			X	X		X			oriental
26	*Austrotritia kinabaluensis* Ramsay et Sheals, 1969						X			endemic
27	*A. lebronneci* (Jacot, 1935)				X					pantropical
28	*A. ramsayi* Mahunka, 1991						X			endemic
29	*A. robusta* Niedbała et Corpuz-Raros, 1998				X					oriental
30	*A. saraburiensis* Aoki, 1965	X		X	X	X	X	X	X	oriental
31	*Bukitritia timah* Mahunka, 1990			X						endemic
32	*Euphthiracarus* (*E.*) *klabati* sp. nov.						X	X		oriental
33	*E.* (*E.*) *labyrinthicus* Stary, 1993			X						endemic
34	*E.* (*E.*) *parareticulatus* sp. nov.			X						endemic
35	*E.* (*P.*) *sarawaki* sp. nov.						X			endemic
36	*E.* (*E.*) *vietnamicus* Stary 1993			X						endemic
37	*Hoplophthiracarus* (?) *nasalis* Mahunka, 1991			X						endemic
38	*H. clavellatus* Niedbała et Corpuz-Raros, 1998				X					endemic
39	*H. concinuus* Niedbała, 1982	X								oriental
40	*H. heterotrichus* sp. nov.			X						endemic
41	*H. parafoveolatus* sp. nov.					X				endemic
42	*H. stigmosus* sp. nov.			X			X			oriental

Tab. 1. Occurence of *Ptyctima* in particular subregions of the Oriental region (with designation of zoogeographical elements) - continuation.

43	*Indotritia javensis* (Sellnick, 1923)				X	X	X		X	oriental
44	*I. krakatauensis* (Sellnick, 1923)	X		X	X	X			X	pantropical
45	*I. propinqua* Niedbała, 1991	X								oriental
46	*Mesoplophora* (*Mesoplophora*) *crassisetosa* Subias et Sarkar, 1984	X								endemic
47	*M.* (*M.*) *invisitata* Niedbała, 1983	X								pantropical
48	*M.* (*M.*) *vesca* Niedbała et Corpuz-Raros,1998				X					endemic
49	*M.* (*Parplophora*) *flavida* Niedbała, 1985			X	X	X				oriental
50	*M.* (*P.*) *leviseta* Hammer, 1979								X	endemic
51	*M.* (*P.*) *paraleviseta* Mahunka, 1991			X						endemic
52	*M.* (*P.*) *polita* Niedbała, 1985						X			oriental
53	*M.* (*P.*) *subtilis* Niedbała, 1981	X				X				pantropical
54	*Mesotritia similis* sp. nov.			X						oriental
55	*Microtritia minima* (Berlese, 1904)			X						palaearctic
56	*M. tropica* Markel, 1964				X		X		X	pantropical
57	*Notophthiracarus enigmaticus* (Mahunka, 1996)						X			endemic
58	*N. extraordinarius* sp. nov.	X								endemic
59	*N. hauseri* (Mahunka, 1995)						X			endemic
60	*N. ignobilis* sp. nov.	X								endemic
61	*N. lienhardi* (Mahunka, 1996)						X			endemic
62	*N. mirus* sp. nov.	X								endemic
63	*N. orientalis* (Mahunka, 1985)	X								endemic
64	*N. perparvus* Niedbała, 1989			X						endemic
65	*N. planus* (Mahunka, 1985)	X								endemic
66	*N. robertsi* (Sheals, 1965)	X								oriental
67	*N. stenotus* Niedbała et Corpuz-Raros, 1998				X					endemic
68	*N. turgidus* Niedbała, 1991	X								endemic
69	*N. unqus* Niedbała, 1991						X			endemic
70	*Oribotritia aokii* Mahunka, 1982				X	X	X			oriental
71	*O. bulbifer* (Mahunka, 1987)						X			oriental
72	*O. capitanea* Niedbała et Corpuz-Raros, 1998				X					endemic
73	*O. corporaali* (Oudemans, 1926)					X				endemic
74	*O. heterotricha* sp. nov.						X			endemic
75	*O. paraaokii* sp. nov.			X						endemic
76	*O. submolesta* sp. nov.			X						oriental
77	*Phthiracarus abstemius* Niedbała, 1989			X						endemic
78	*P. anonymus* Grandjean,1933	X							X	semicosmopol.
79	*P. crispus* Hammer, 1972			X						oriental
80	*P. invenustus* sp. nov.			X					X	oriental
81	*P. membranifer* Parry, 1979	X								palaearctic
82	*P. obscurus* Niedbała, 1986			X	X	X	X		X	oriental
83	*P. ornatus* Mahunka, 1991						X			endemic
84	*P. paratubulus* Niedbała, 1991	X								endemic
85	*P. paucus* Niedbała, 1981			X						oriental
86	*P. pygmaeus* Balogh, 1958	X		X						pantropical
87	*Plonaphacarus aculeatus* (Mahunka, 1995)						X			endemic
88	*P. dispar* sp. nov.						X			endemic
89	*P. insignitus* Niedbała, 1989			X						endemic
90	*P. kaszabi* (Balogh, 1988)	X								endemic
91	*P. kugohi* (Aoki, 1959)	X		X	X	X	X	X		pantropical
92	*P. loebli* (Mahunka, 1985)	X								endemic
93	*P. rafalski* Niedbała, 1997	X					X			oriental
94	*P. scrupeus* Niedbała, 1989			X						endemic
95	*Prototritia glomerata* Grandjean, 1932				X					pantropical
96	*P. grandjeani* Mahunka 1977								X	endemic
97	*Rhysotritia aokii* sp. nov.			X		X		X		oriental

Tab. 1. Occurence of *Ptyctima* in particular subregions of the Oriental region (with designation of zoogeographical elements) - continuation.

98	*Rhysotritia ardua* (C.L. Koch, 1941)	X		X	X	X				semicosmopol.
99	*R. comteae* Mahunka, 1983	X		X	X		X	X	X	pantropical
100	*R. divida* Mahunka, 1991			X				X	X	oriental
101	*R. hauseri* Mahunka, 1991	X		X						oriental
102	*R. lucida* Niedbała, 1998	X		X	X		X	X	X	pantropical
103	*R. refracta* Niedbała, 1998				X		X			oriental
104	*R. sinensis* (Jacot, 1923)				X					oriental
105	*R. spiculifera* Niedbała, 1998	X		X	X	X				pantropical
106	*R. vestita* (Berlese, 1913)								X	endemic
107	*Sabahtritia hauseri* Mahunka, 1987						X			endemic
108	*S. lienhardi* Mahunka, 1996						X			endemic
109	*S. mirabilis* Mahunka, 1991			X						endemic
110	*S. sarawak* Mahunka, 1996						X			endemic
111	*Sobacarus corneri* Ramsay et Sheals, 1969				X		X			pantropical
112	*Sumatrotritia inusitata* Mahunka, 1989					X				endemic
113	*S. elegans* Mahunka, 1991			X						endemic
114	*Synichotritia foveolata* Hu, Wang et Aoki, 1991		X							endemic
115	*S. furcata* Hu et Wang, 1992		X							endemic
116	*S. tiamuensis* Hu, Wang et Aoki, 1991		X							endemic
117	*Temburongia patoi* Mahunka, 1990						X			endemic
118	*Terratritia askewi* Ramsay et Sheals, 1969						X			endemic
119	*T. seconda* (Mahunka, 1991)						X			endemic
	Total	37	3	48	28	18	41	11	16	

by 3 species, *Protoplophoroidea* by 1. There are 2 (7.1%) semicosmopolitan species. The number of Pantropical and Oriental species is similar: 11 (39.3%) and 10 (35.7%), respectively. There are relatively few endemics 5 (17.8%). Among the Oriental species, 3 are found exclusively in the Orient: *A. tuberculatus, O. aokii and M. flavida*, and 7 are wider distributed in SE A Palaearctic : *I. javensis, R. sinensis*, in SE A Palaearctic and on the Pacific Islands: *A.saraburiensis*, in the Australian region: *P. obscurus, A. robusta*, in the Australian region and on the Pacific Islands: *R. refracta*, in E A Palaearctic , Australian region and on the Pacific Islands: *A. pantotrema*. The number of an endemic species - 5 (17.8%) is relatively low. In general, the results support the thesis proposed by MAYR (1944), namely that the Philippines are faunistically closer to Malaysia than to Sulawesi, and their fauna shows some similarity to that of the Australian region.

Sumatra

The number of species found in 12 samples from Sumatra is 18, including 3 new species. There are 9 species of *Euphthiracaroidea*, and the number of representatives of *Phthiracaroidea* is the same. The species belong to 11 genera. Half of them are of Oriental origin, and 5 of these: *A. sentus, O. aokii, P. obscurus, A. phalerata* and *M. flavida*, occur exclusively in the Orient. Two species reach the SE Palaearctic: *I. javensis* and *R. aokii*, two other: *A. saraburiensis* and *A. pantotrema* have an even wider distribution. The number of widespread species (semicosmopolitan and Pantropical) is similar to that of the endemics: 5 and 4, respectively.

The scarcity of the material makes it impossible to test the thesis that the fauna of Sumatra is close to that of the south-eastern part of the continental Asia (PRÓSZYŃSKI 1961).

Borneo (Timor, Sabah, Brunei, Sarawak)

Of 41 species found on Borneo (including 8 that are new), nearly half belong to *Euphthiracaroidea* (20, 48.8%), while 16 (39%) represent *Phthiracaroidea* and 5 (12.2%) *Mesoplophoroidea*. These species were found in 62 samples, and they represent 18 genera. Nearly half of the species are endemics - 20 (48.8%), and over one third of them (15) are Oriental species, while 5 (12.2%) are pantropical. The range of 9 is limited to the region: *A. pullus, A. tuberculatus, E. klabati, H. stigmosus, O. aokii, O. bulbifer, P. obscurus, P. rafalski*, and *A. spinosa*, whereas 6 other species reach S and E A Palaearctic (*I. javensis, A. heterotrichia, A. saraburiensis, A. pantotrema*), the Australian region (*M. polita, R. refracta, A. pantotrema*) or even the Pacific Islands (*R. refracta, A. pantotrema*). The results support the thesis of PRÓSZYŃSKI (1961) that the fauna of Borneo is rich. Moreover, MAHUNKA (1987) noted that the oribatid fauna of Sabah is not similar to that of Sumatra and Java, or New Guinea.

Sulawesi

The 11 samples collected contained 11 species, including 3 new ones, belonging to 7 genera, over half of them (6) belong to *Euphthiracaroidea*. The Sulawesi ptyctimous fauna is non-specific, none of the species is endemic. Half of them are Pantropical and the other half Oriental. From among the Oriental species: *E. klabati, R. divida* and *A. phalerata* are restricted to the Orient, while the other three: *R. aokii, A. saraburiensis* and *A. pantotrema* reach SE A Palaearctic or the Australian region and the Pacific Islands.

The scarcity of the material does not allow any comparative analysis. Only *E. klabati* is common to Sulawesi and Borneo. Opinions of other authors on the similarity of the fauna are ambiguous. VANE-WEIGHT (1991) points to a great similarity to the fauna of Borneo, while MAYR (1944), MICHAUX (1991) and GEORGE (1987) in particular, draw attention to the floristic similarity and that of the faunas of butterflies and birds, with the corresponding biotain the Philippines.

Java and Bali

The 19 samples collected in Java and Bali contained 17 species, one of them came from Sumbawa Island. Half of them belong to *Euphthiracaroidea*, almost one third (31.2%) to *Phthiracaroidea*, one is new to the science. The species represent 9 genera. Pantropical and Oriental elements are represented by an equal number of 6 (37,5 %) species, only 3 (18.7%) being endemic. The range of three of the oriental species: *R. divida, P. invenustus, P. obscurus* is limited to the Orient, the other three species penetrate SE A Palaearctic (*I. javensis*) or the Australian region and Pacific Islands (*A. saraburiensis, A. pantotrema*).

The *Ptyctima* fauna of Java and Bali does not seems specific, which supports the conclusions of HAMMER (1979, 1982) who has done an extensive work on the fauna of these islands. The results also confirm the poor endemism of island species, in particular the fauna of Java, however, it is difficult to confirm the strong influence of the fauna of Java and Bali on that of the Pacific Islands, as emphasised by HAMMER. Only two species, besides the widespread cosmopolitan and Pantropical ones: *A. pantotrema* and *A. saraburiensis*, were found on the Pacific Islands.

In the course of the study, 119 species of *Ptyctima* were found in the Oriental region (Tab. 1). Particular families are represented by the following number of species: *Phthiracaroidea* 53, *Euphthiracaroidea* 47, *Mesoplophoroidea* 17, *Protoplophoroidea* 2; 27 species are new to science: the *Phthiracaroidea* 16, *Euphthiracaroidea* 8 and *Mesoplophoroidea* 3.

Widespread species (dispersalists) are few: 4 semicosmopolitan (3.4%) and 11 Pantropical (9.2%), belonging mostly to *Phthiracaroidea* (Tab. 5). Only one of the species – *M.* (*M.*) *invisitata* is also found in the Ethiopian region. Among the three probably introduced species: *A.* (*A.*) *striculus* is of Holarctic origin, *M. minima* of Palaearctic origin and *P. membranifer* – of European origin. A large number of the 101 species (84.9%) are of Oriental distribution, and the relative contribution of this zoogeographical element in particular superfamilies is similar. Nearly 2/3 of the species (79) have low mobility (in the sense of dispersal abilities) and are not found outside the Oriental region. A significant percent age (51.2%) of *Ptyctima* of the Oriental region are endemic and this percent age is somewhat higher among *Phthiracaroidea* (60.4%) than among *Euphthiracaroidea* (44.7%). The an endemic species are scattered, occuring in different An Oriental subregions, the majority in Vietnam.

Among the Oriental species only 20% are mobile and penetrate the neighbouring zoogeographical regions, the majority of these species belong to *Euphthiracaroidea* (32%), while 9% represent *Phthiracaroidea*. The Australian region and the Pacific islands are invaded by: *S. corneri, A. lebronneci, R. lucida, R. spiculifera, R. anchistea, P. paucus*. New Caledonia and other Pacific islands are penetrated by *R. refracta*, New Guinea is penetrated by *A. robusta* and *M.*(*P.*) *polita*, North Australia – by *A. pantotrema* and the Pacific islands by *P. crispus*. The South and/or East borders of the A Palaearcticare penetrated by *O. submolesta*, *M. similis, I. javensis, I. propinqua, A. saraburiensis, H. concinuus, N. robertsi and A. heterotricha* (Tab. 2).

Apart from the above mentioned species, three (*P. membranifer, A.* (*A.*) *striculus* and *M. minima*) probably have been accidentally introduced from the A Palaearctic . None of the species from the faunas of the neighbouring regions penetrates the Orient.

In all subregions except India, the species belonging to *Euphthiracaroidea* are better represented than those representing *Phthiracaroidea.* The strongest endemism was found in the fauna of Borneo, a somewhat weaker in the fauna of Indochina and India, still lower in the Philippines, and the fauna of Sulawesi does not include any endemic species. In general, except for the fauna of India, the number of Oriental species is somewhat higher than that of wider distributed pantropical species. On Borneo the majority of Oriental species are restricted to this region. In the other subregions there is a similar proportion of Oriental invasive species to those only found in the Orient.

Euphthiracaroidea in the Oriental region include 14 genera, with 2 subgenera, a number higher than in any other zoogeographical region in the world (Tab. 4). The two phylogenetically distant (MAHUNKA 1990) most abundantly represented genera are: the primitive *Oribotritia* (7 species) and a phylogenetically much younger *Rhysotritia* (10 species).

The phylogenetically distant genera of *Phthiracaroidea* from this region are represented by a relatively high number of species. Each of the genera of *Mesoplophora* and *Apoplophora* belonging to *Mesoplophoroidea* is represented by 8

species (Tab. 4). Interestingly, a particularly strong adaptive radiation of the genus *Apoplophora* unique to this region, is evident.

More numerous species were found in the three northern subregions (India, Indo-China Peninsula and Borneo) than on the southern and eastern islands.

Literature suggestions about moderate penetration of the Oriental and Australian faunas on the Philippines and southern islands of Indonesia have been confirmed.

5.1.3. ASSESSMENT OF THE PTYCTIMOUS FAUNA OF THE BORDER ZONE OF THE ORIENTAL REGION ADJACENT TO PALAEARCTIC

Usually, the first difficulty in biogeographical studies is delimitation of the regions after analysis of the fauna. These are usually different for different groups of animals. As far as the Oriental region is concerned, the problem is not only its southern border with the Australian region, but also the northern border with the Palaearctic . In general, this border can be delimited by the desert area between India, Pakistan and Afganistan or along the river Indus on the west and by the ridges of the Hindukush and Himalaya mountains and the edges of the southern China mountains or the river Yangtzikiang to its mouth, in the north. There are many specific regions, especially along the south coast of Asia, which are the areas of occurrence of numerous Oriental species. For instance, Japan appears to be a meeting point of the Palaearctic and Oriental faunas; 13% of the genera of oribatid mites found there are of Gondwanan origin (HAMMER and WALLWORK 1979). These regions have been treated separately under the name of the border zone of the Oriental region. The specific character of their fauna and its relationship to those of the adjacent regions have been determined. The region of the western and northern outskirts of the Orient includes Pakistan, northern India (Himalah Pradesh, Kashmir), Nepal, Bhutan, Korea, Japan and even the areas at the Pacific coast of Russia, such as the Kuril Islands and Sakhalin. In these areas, lying at the border of the Oriental and Palaearctic regions, the fauna is of mixed character and it is hard to tell which species are Oriental and which a Palaearctic elements. It seems, however, that the *Ptyctima* occurring along the eastern and southern outskirts of the A Palaearctic are closer to the fauna of the Orient than to that of the A Palaearctic.

Pakistan

In this area 8 species representing 5 genera have been recognised; 5 of them belong to *Euphthiracaroidea* and 3 to *Phthiracaroidea*; no representatives of *Mesoplophoroidea* have been found. Despite such a small number of species, the fauna is very specific, as many as 5 (62,5 %) of its members are endemics. Only two show some distant relation to A Palaearctic elements: *O. asiatica* – a Palaearctic species and *P. setosus* – an amphipacific species. No traces of the fauna of the Orient have been found. The only semicosmopolitan species is *P. boresetosus*.

North India (Kashmir, Uttah Pradesh, Himalah Pradesh)

The number of species recognised in the area is 35, of which 5 are new to the science, representatives of *Phthiracaroidea* (20 species – 57.1%) than those of *Euphthiracaroidea* (14 species – 40%) are more numerous. There is only one member of *Mesoplophoroidea*.

The number of genera represented is 13. The fauna of the region is mixed. There southern (14 – 40%), Oriental (9) and Pantropical (5) species are more numerous than northern (12 – 34.3%), Palaearctic (8) and Holarctic (4) ones. Endemism is moderate (6 species – 17.1%). The number of semicosmopolitan species is low (3).

Tab. 2. Occurence of *Ptyctima* in particular subregions of the bordering part of the Oriental region adjacent to Palaearctic (with designation of zoogeographical elements).

	C_1 - Pakistan C_2 - North India (Kashmir, Uttar Pradesh, Himalah Pradesh) C_3 - Nepal, Bhutan C_4 - Russia (Far East) C_5 - Korea C_6 - Japan C_7 - China								
		C_1	C_2	C_3	C_4	C_5	C_6	C_7	
1	*Apoplophora heterotricha* Mahunka, 1987		X	X					oriental
2	*A. pantotrema* (Berlese, 1913)						X		oriental
3	*Archoplophora rostralis* (Willmann, 1930)				X	X	X		semicosmopol
4	*Arphthicarus indicus* (Bayoumi et Mahunka, 1979)		X	X					palaearctic
5	*A. inenarrabilis* (Niedbała, 1982)		X						endemic
6	*A. ineptus* (Niedbała, 1984)		X						oriental
7	*Atropacarus (Atropacarus) clavatus* Aoki, 1980						X		endemic
8	*A. (A.) striculus* (C.L. Koch, 1936)		X	X	X	X	X		holarctic
9	*Atropacarus (Hoplophorella) cucullatus* (Ewing,1909)		X	X		X	X		semicosmopol
10	*A. (H.) floridus* (Jacot, 1933)		X				X		pantropical
11	*A. (H.) vitrinum* (Berlese, 1913)		X	X		X			pantropical
12	*Austrophthiracarus inusitatus* (Niedbała, 1983)				X	X			palaearctic
13	*A. latior* (Niedbała, 1982)		X		X				oriental
14	*A. mitratus* (Aoki, 1980)						X		endemic
15	*A. villosus* (Niedbała, 1982)		X						palaearctic
16	*Austrotritia dentata* Aoki, 1980						X		endemic
17	*A. gibba* Bayoumi et Mahunka, 1979		X						endemic
18	*A. glabrata* sp. nov.			X					endemic
19	*A. saraburiensis* Aoki, 1965		X				X		oriental
20	*A. unicarinata* Aoki, 1980						X		endemic
21	*Dudichoplophora reticulata* Mahunka, 1982					X			endemic
22	*E. (E.) aggenitalis* Aoki, 1984						X		endemic
23	*E. (E.) pakistanensis* Hammer, 1977	X							endemic
24	*E. (E.) shogranensis* Hammer, 1977	X							endemic
25	*E. (E.) cribarius* (Berlese, 1904)					X			palaearctic
26	*E. (E.) foveolatus* Aoki, 1980						X		endemic
27	*E. (E.) inglisi* Sheals, 1965			X					endemic
28	*E. (E.) takahashii* Aoki, 1980						X		endemic
29	*Hoplophthiracarus angustatus* Niedbała, 1989			X					endemic
30	*H. concinuus* Niedbała, 1982			X					oriental
31	*H. cristatus* (Aoki, 1980)						X		endemic
32	*H. foveolatus* Aoki, 1980						X		endemic
33	*H. hamatus* (Hammer, 1973)						X		pantropical
34	*H. nepalensis* Sheals, 1965			X					endemic
35	*H. pakistanensis* (Hammer, 1977)	X	X						palaearctic
36	*H. similis* sp. nov.		X						endemic
37	*H. vanderhammeni* Niedbała, 1991		X		X	X	X		holarctic
38	*Indotritia aspera* sp. nov.			X					endemic
39	*I. javensis* (Sellnick, 1923)		X	X			X		oriental
40	*I. lanceolata* (Aoki, 1988)						X		endemic
41	*I. propinqua* Niedbała, 1991		X						oriental
42	*I. undulata* Bayoumi et Mahunka, 1979		X	X					palaearctic
43	*Maerkelotritia kishidai* (Aoki, 1980)						X		amfipacific

Tab. 2. Occurence of *Ptyctima* in particular subregions of the bordering part of the Oriental region adjacent to Palaearctic (with designation of zoogeographical elements) - continuation.

44	*Mesoplophora* (*Parplophora*) *japonica* Aoki, 1970				X	X	X		palaearctic
45	*Mesotritia clara* Stary, 1992		X						endemic
46	*M. dissimilis* Hammer, 1977	X							endemic
47	*M. markeli* Sheals, 1965			X			X		palaearctic
48	*M. nitida* Hammer, 1977	X							endemic
49	*M. okuyami* Aoki, 1980						X		endemic
50	*M. similis* sp. nov.		X						oriental
51	*Microtritia minima* (Berlese, 1904)					X	X		palaearctic
52	*M. tropica* Markel, 1964						X		pantropical
53	*Notophthiracarus robertsi* (Sheals, 1965)			X					oriental
54	*Oribotritia anceps* sp. nov.			X					endemic
55	*O. angusta* Mahunka, 1982					X			endemic
56	*O. asiatica* Hammer, 1977	X				X			palaearctic
57	*O. bipartita* sp. nov.			X					endemic
58	*O. chichijimensis* Aoki, 1980						X		endemic
59	*O. fennica* Forsslund et Markel, 1963						X		palaearctic
60	*O. gigas* Bayoumi et Mahunka, 1979		X	X					palaearctic
61	*O. nepalensis* sp. nov.			X					endemic
62	*O. submolesta* sp. nov.		X						oriental
63	*O. tokukoae* Aoki, 1973						X		endemic
64	*Phthiracarus australis* (Aoki, 1980)						X		endemic
65	*P. boresetosus* Jacot, 1930	X	X		X	X			semicosmopol
66	*P. bryobius* Jacot, 1930				X		X		holarctic
67	*P. clemens* Aoki, 1963		X	X			X		palaearctic
68	*P. comatus* Niedbała, 1983				X				endemic
69	*P. comosus* (Aoki, 1980)						X		endemic
70	*P. compressus* Jacot, 1930		X						holarctic
71	*P. gibber* (Aoki, 1980)						X		endemic
72	*P. globosus* (C.L. Koch, 1841)		X		X				holarctic
73	*P. japonicus* Aoki, 1958				X		X		palaearctic
74	*P. largus* Niedbała, 1984				X				palaearctic
75	*P. lentulus* (C.L. Koch, 1841)				X	X			palaearctic
76	*P. longulus* (C.L. Koch, 1841)				X				holarctic
77	*P. opacus* Niedbała, 1986					X			palaearctic
78	*P. paraglobosus* Niedbała, 1982		X						endemic
79	*P. parmatus* (Nakatamari, 1985)						X		endemic
80	*P. persimplex* Mahunka, 1982				X	X			palaearctic
81	*P. pygmaeus* Balogh, 1958		X						pantropical
82	*P. setosus* (Banks, 1895)	X			X	X	X		amfipacific
83	*Plonaphacarus ischikawai* (Aoki, 1980)						X		endemic
84	*P. kugohi* (Aoki, 1959)		X	X		X	X		pantropical
85	*Protoribotritia ensifer* Aoki, 1969					X	X		palaearctic
86	*Rhysotritia aoki* sp. nov.		X	X		X	X		oriental
87	*R. ardua* (C.L. Koch, 1941)		X	X		X	X		semicosmopol
88	*R. comteae* Mahunka, 1983		X	X		X			pantropical
89	*R. duplicata* (Grandjean, 1953)					X			palaearctic
90	*R. furcata* Bayoumi et Mahunka, 1979		X	X					palaearctic
91	*R. gracile* sp. nov.		X						endemic
92	*R. pennicillata* Mahunka, 1982					X			endemic
93	*R. rasile* Mahunka, 1982					X			endemic
94	*R. simile* Mahunka, 1982					X			endemic
95	*R. sinensis* (Jacot, 1923)							X	oriental
96	*Sobacarus japonicus* Shimano et Aoki, 1997						X		endemic
97	*Steganacarus* (*Rhacaplacarus*) *spiniger* (Aoki, 1980)						X		endemic
98	*Steganacarus* (*Tropacarus*) *carinatus* (C.L. Koch, 1841)		X						palaearctic
	Total	8	35	25	16	26	43	1	

Nepal, Bhutan

In Nepal and Bhutan 25 species were found, including 3 new to the science, over half of them belonging to *Euphthiracaroidea* (14 species – 56 %), and 10 to *Phthiracaroidea*. Only one represents *Mesoplophoroidea*. The number of genera is 13. The fauna of this region, like that of North India, is mixed. The number of species representing the southern zone – 8 (32%) including 5 Oriental and 3 Pantropical is similar to the number of those representing the northern zone: 7 (28%) including 6 Palaearctic and 1 Holarctic. Almost 1/3 of the species - 8 species (32%) - are endemics, and only 2 are semicosmopolitan.

Far East Russia

The fauna of this region comprises 16 species of 6 genera, the majority (14 species) representing *Phthiracaroidea* and only 2 – *Mesoplophoroidea*. Interestingly, no representatives of *Euphthiracaroidea* were found. The fauna is non-specific, with only 1 endemic, and of Palaearctic character as indicated by the high proportion of Holarctic (5) and Palaearctic species (6) – 70 % and only 1 non-specific Oriental species (which may be semicosmopolitan) - *A. latior*. Among all the species there is one amphipacific and two semicosmopolitan. Th data suggest that this region may not be the border zone of the Oriental and Palaearctic regions.

Korea

The number of species recognised in this region is 26, in 13 genera, two species are new to the science. Almost half of them belong to *Euphthiracaroidea* (12), somewhat fewer to *Phthiracaroidea* (10). The influence of the Palaearctic is more pronounced as there are 13 species representing the northern zone; 2 – Holarctic, 10 Palaearctic and 1 amphipacific, while only five (19.2%) southern species including 4 pantropical and 1 Oriental species – *R. aokii*. The percentage of widespread species is relatively high - 7 (27%), including 4 semicosmopolitan and 3 Pantropical ones. The number of an endemic species is moderate: 5 (19.2%).

Japan

The number of species found in the area of Japan is 43 of 19 genera. The two main families are represented by the same number of 20 species, while *Mesoplophoroidea* only by 3 species. The fauna of Japan is rather specific, because as many as 20 species (46.5%) are endemics. The contribution of the fauna originating from the East – 12 species (28%), including 3 Holarctic, 7 Palaearctic and 2 amphipacific, is more pronounced than that of the fauna from the south – 7 species (16.3%) including 4 Oriental and 3 Pantropical ones. Of all the species 3 are semicosmopolitan.

China

Only one species - *R. sinensis* - was reported by JACOT (1923) from the vicinity of Peking and the Tsingtao Mountains.

At the border of the Palaearctic and Oriental regions, 98 species were found including 49 representatives of *Euphthiracaroidea*, 45 – *Phthiracaroidea* and 4 – *Mesoplophoroidea*; among which were 9 species new to the science: 1 of *Phthiracaro-*

idea and 8 of *Euphthiracaroidea* (Tab. 2). Widespread species constitte a small proportion, however, with that of *Phthiracaroidea* higher than that of *Euphthiracaroidea*. The contribution of southern species (Pantropical and Oriental ones) in this fauna is only slightly higher (19.4%) (that of Oriental *Euphthiracaroidea* species a few times greater than that of *Phthiracaroidea*) than that of the Holarctic and Palaearctic species (16.3%). Although it is a transitory zone, characterised by a mixed fauna of the two bordering regions, the number of an endemic species is surprisingly high, being almost half (43.9%) of all the species found, and for *Euphthiracaroidea* even over half (Tab. 6). The greatest number of an endemic species was found in Japan, northern India and Nepal.

Faunistic analysis of the above mentioned subregions indicates that the proper border zone between the Oriental and Palaearctic regions are the areas of North India and Nepal, where the fauna is of a decidedly mixed character. The fauna of the western part of the zone (Pakistan) is highly specific and shows no connection with those of the neighbouring regions. The fauna of the north-eastern part of the zone (Far East of Russia) is of Palaearctic origin, the fauna of Korea is under great influence of that of the Palaearctic, but the fauna of Japan is significantly related to the Oriental fauna. The presence of the *Notophthiracarus* – a Gondwanan genus commonly found in Australia, Tasmania and in Nepal, supports the suggestion of CRACRAFT (1974) about the association of Tibet with Australia. South Tibet formed a part of Australian Gondwana as late as during the Jurassic.

The number of genera representing *Euphthiracaroidea* in the border zone of the Palaearctic and Oriental regions is much lower than in the main part of the Oriental region. Like in the Oriental region, the genera of *Euphthiracaroidea* are represented by a similar number of species from phylogenetically different lineages (MAHUNKA 1990), the primitive *Oribotritia* and *Mesotritia* on one hand, and phylogenetically distant *Euphthiracarus* and *Rhysotritia* on the other (Tab. 3). The number of genera of *Phthiracaroidea* in the two regions is the same, however, more than 70% of the species belong to primitive genera, and almost half of the species represent the genus *Phthiracarus* (Tab.4).

5.1.4. DESCRIPTIONS, REDESCRIPTIONS AND DIAGNOSES OF SPECIES FROM THE AUSTRALIAN REGION.

5.1.4.1. LIST OF SPECIES

Mesoplophoroidea

Mesoplophora (*Parplophora*) *subtilis* NIEDBAŁA, 1981
Mesoplophora (*Mesoplophora*) *polita* NIEDBAŁA, 1985
Apoplophora pantotrema (BERLESE, 1913)

Euphthiracaroidea

Oribotritia brevis NIEDBAŁA et COLLOFF, 1997
Oribotritia contortula NIEDBAŁA, 1993
Oribotritia contraria NIEDBAŁA, 1993
Oribotritia duplex **sp. nov.**
Oribotritia incognita **sp. nov.**
Oribotritia teretis NIEDBAŁA, 1993
Sobacarus corneri RAMSAY, SHEALS, 1969
Indotritia (*Zeaotritia*) *aotearoana* RAMSAY, 1966
Indotritia (*Z.*) *brevipilosa* sp. nov.
Indotritia (*Z.*) *brevisetosa* NIEDBAŁA et COLLOFF, 1997
Indotritia (*Z.*) *krakatauensis* (SELLNICK, 1923)
Austrotritia bifurca **sp. nov.**
Austrotritia carinata **sp. nov.**
Austrotritia lebronneci (JACOT, 1935)
Austrotritia robusta NIEDBAŁA, 1997
Euphthiracarus monodactylus (WILLMANN, 1920)
Rhysotritia bipartita **sp. nov.**
Rhysotritia comteae MAHUNKA, 1983
Rhysotritia lucida NIEDBAŁA, 1998
Rhysotritia refracta NIEDBAŁA, 1998
Rhysotritia spiculifera MAHUNKA, 1991
Rhysotritia wallworki LEE, 1980
Microtritia contraria NIEDBAŁA, 1993
Microtritia fusa **sp. nov.**
Microtritia glabrata NIEDBAŁA, 1993
Microtritia tropica MARKEL, 1964

Phthiracaroidea

Phthiracarus banksi NIEDBAŁA, 1987
Phthiracarus obscurus NIEDBAŁA, 1986
Phthiracarus paucus NIEDBAŁA, 1991
Phthiracarus pellucidus RAMSAY, 1966
Phthiracarus probus NIEDBAŁA et COLLOFF, 1997
Plonaphacarus aduncus NIEDBAŁA et COLLOFF, 1997
Plonaphacarus berlesei NIEDBAŁA, 1987
Plonaphacarus dikros **sp. nov.**
Plonaphacarus feideri NIEDBAŁA, 1987
Plonaphacarus forsslundi NIEDBAŁA, 1987

Plonaphacarus grandjeani NIEDBAŁA, 1987
Plonaphacaus insolens **sp. nov.**
Plonaphacarus kugohi (AOKI, 1959)
Hoplophthiracarus bisulcus NIEDBAŁA, 1993
Hoplophthiracarus hulli NIEDBAŁA, 1987
Hoplophthiracrus lividus **sp. nov.**
Hoplophthiracarus montigenus NIEDBAŁA 1981
Hoplophthiracarus proximus NIEDBAŁA, 1984
Hoplophthiracarus rafalski NIEDBAŁA, 1996
Steganacarus (*Rhacaplacarus*) *diaphoros* **sp.nov.**
Steganacarus (*R.*) *jacoti* NIEDBAŁA, 1987
Steganacarus (*?*) *tenuiseta* BALOGH, BALOGH, 1986
Austrophthiracarus aculeatus NIEDBAŁA et COLLOFF, 1997
Austrophthiracarus aenus **sp. nov.**
Austrophthiracarus aureus **sp. nov.**
Austrophthiracarus baloghi NIEDBAŁA, 1987
Austrophthiracarus daimonios **sp. nov.**
Austrophthiracarus dissonus NIEDBAŁA et COLLOFF, 1997
Austrophthiracarus egregius NIEDBAŁA et COLLOFF, 1997
Austrophthiracarus facetus NIEDBAŁA et COLLOFF, 1997
Austrophthiracarus fusticulus **sp. nov.**
Austrophthiracarus hallidayi NIEDBAŁA et COLLOFF, 1997
Austrophthiracarus kochi NIEDBAŁA, 1987
Austrophthiracarus lamingtoni **sp. nov.**
Austrophthiracarus largus **sp. nov.**
Austrophthiracarus latior (NIEDBAŁA, 1982)
Austrophthiracarus michaeli NIEDBAŁA, 1987
Austrophthiracrus multisetosus BALOGH, BALOGH, 1983
Austrophthiracarus mutabilis NIEDBAŁA et COLLOFF , 1997
Austrophthiracarus neotrichus (WALWORK, 1966)
Austrophthiracarus nicoleti NIEDBAŁA, 1987
Austrophthiracarus perpropinquus NIEDBAŁA et COLLOFF, 1997
Austrophthiracarus perti NIEDBAŁA, 1987
Austrophthiracarus pilosus NIEDBAŁA et COLLOFF, 1997
Austrophthiracarus pulchellus NIEDBAŁA, 1993
Austrophthiracarus radiatus BALOGH et MAHUNKA, 1978
Austrophthiracarus scopoli NIEDBAŁA, 1987
Austrophthiracarus sellnicki NIEDBAŁA, 1987
Austrophthiracarus tragardhi NIEDBAŁA, 1987
Austrophthiracarus wallworki BALOGH et BALOGH 1983
Austrophthiracarus willmanni NIEDBAŁA, 1987
Arphthicarus aokii NIEDBAŁA, 1987
Arphthicarus heterotrichus **sp. nov.**
Arphthicarus remotus NIEDBAŁA, 1989
Arphthicarus tinctus **sp. nov.**
Phrathicarus inflatus NIEDBAŁA, 1994
Notophthiracarus abstemius NIEDBAŁA et COLLOFF, 1997
Notophthiracarus admirabilis NIEDBAŁA et COLLOFF, 1997
Notophthiracarus alienus NIEDBAŁA 1989
Notophthiracarus aquilus **sp. nov.**
Notophthiracarus ater **sp. nov.**
Notophthiracarus atratus **sp. nov.**

Notophthiracarus australis RAMSAY, 1966
Notophthiracarus caliginosus NIEDBAŁA, 1989
Notophthiracarus calugari NIEDBAŁA, 1987
Notophthiracarus capillatus NIEDBAŁA, 1989
Notophthiracarus claviger NIEDBAŁA, 1993
Notophthiracarus comatus **sp. nov.**
Notophthiracarus comparativus NIEDBAŁA et COLLOFF, 1997
Notophthiracarus consimilis NIEDBAŁA et COLLOFF, 1997
Notophthiracarus conspicuus NIEDBAŁA, 1989
Notophthiracarus distinctus NIEDBAŁA, 1989
Notophthiracarus fatidicus (NIEDBAŁA, 1982)
Notophthiracarus fecundus **sp. nov.**
Notophthiracarus flagrus **sp. nov.**
Notophthiracarus flexiloquus NIEDBAŁA, 1989
Notophthiracarus fulvus (NIEDBAŁA, 1985)
Notophthiracarus hammeni NIEDBAŁA, 1987
Notophthiracarus hammeri NIEDBAŁA, 1987
Notophthiracarus incomparabilis **sp. nov.**
Notophthiracarus indubitatus NIEDBAŁA et COLLOFF, 1997
Notophthiracarus kamilii NIEDBAŁA, 1987
Notophthiracarus lee NIEDBAŁA, 1987
Notophthiracarus lionsi NIEDBAŁA, 1987
Notophthiracarus longisetus **sp. nov.**
Notophthiracarus mahunkai NIEDBAŁA, 1987
Notophthiracarus maurus **sp. nov.**
Notophthiracarus modicus **sp. nov.**
Notophthiracarus paraparvulus **sp. nov.**
Notophthiracarus parvulus NIEDBAŁA, 1998
Notophthiracarus perezinigoi NIEDBAŁA, 1987
Notophthiracarus perlucundus **sp. nov.**
Notophthiracarus quietus NIEDBAŁA, 1989
Notophthiracarus ramsai NIEDBAŁA, 1987
Notophthiracarus repostus NIEDBAŁA, 1989
Notophthiracarus schusteri NIEDBAŁA, 1987
Notophthiracarus shealsi (LEE, 1981)
Notophthiracarus sinuosus (NIEDBAŁA, 1982)
Notophthiracarus solitarius NIEDBAŁA et COLLOFF, 1997
Notophthiracarus sordidus NIEDBAŁA et COLLOFF, 1997
Notophthiracarus spurcus NIEDBAŁA et COLLOFF, 1997
Notophthiracarus tripartitus NIEDBAŁA, 1989
Notophthiracarus uncinatus NIEDBAŁA et COLLOFF, 1997
Notophthiracarus uncinulus **sp. nov.**
Notophthiracarus unicarinatus **sp. nov.**
Notophthiracarus usitatus NIEDBAŁA, 1989
Notophthiracarus weigmanni NIEDBAŁA, 1987
Atropacarus (*Hoplophorella*) *cucullatus* (EWING, 1909)
Atropacarus (*H.*) *diaphoros* **sp. nov.**
A.(H.) floridus (JACOT, 1933)
Atropacarus (*H.*) *singularis* (SELLNICK, 1959)
A.(H.) vitrinum (Berlese, 1913)
Atropacarus (*Atropacarus*) *controversus* **sp. nov.**
Atropacarus (*A.*) *griseus* (NIEDBAŁA, 1984)

Mesoplophora (Parplophora) subtilis NIEDBAŁA, 1981

(Figs 40-43)

Mesoplophora subtilis NIEDBAŁA, 1981
Mesoplophora (Parplophora) subtilis: NIEDBAŁA 1985a

DIAGNOSIS. See p. 42.

MATERIAL. Localities in the Australian region: Papua New Guinea, Mount Misim District, ex. *Labienus ptox* (KAUP.), leg. STEVENS; *M. subtilis* – (11); Marobe District, ex. Labienus inaequalis Gravely, leg. STEVENS –(1) (NIEDBAŁA 1985a).

DISTRIBUTION. Species known from Central America, Sri Lanka and Indonesia, probably Pantropical.

Mesoplophora (Mesoplophora) polita NIEDBAŁA, 1985

(Figs 35-39)

Mesoplophora (Mesoplophora) polita: NIEDBAŁA 1985a
Mesoplophora villosa MAHUNKA, 1987 **syn. nov.**

DIAGNOSIS. See p. 40.

MATERIAL. Localities in the Australian region: Papua New Guinea, Mount Misim District, ex. *Labienus ptox* (KAUP.), leg. STEVENS - (17); Marobe District, ex. *Labienus inaequalis* GRAVELY, leg. STEVENS - (1) (NIEDBAŁA 1985a).

DISTRIBUTION. Probably an Oriental species.

Apoplophora pantotrema (BERLESE, 1913)

(Figs 64-66)

Mesoplophora pantotrema BERLESE, 1913
Mesoplophora discreta BERLESE, 1913
Apoplophora pantotrema: NIEDBAŁA 1984

DIAGNOSIS. See p. 53.

MATERIAL. Localities in the Australian region: Papua New Guinea, 35 km NE of Port Moresby, litter under trees of plantation of rubber trees, dry place, 1 IX 1979, leg. J. BŁOSZYK and J. MICHEJDA – (2); 40 km NE of Port Moresby, litter in mixed forest above stream, 1 IX 1979, leg J. BŁOSZYK – (8); Hummock above Ambunti City, litter under pineapples, 22 IX 1979, leg. J. BŁOSZYK – (2); Mt. Hagen, near Ketanga village, litter under *Notophagus* sp., 16 IX 1979, leg J. BŁOSZYK and J. MICHEJDA – (2); W of Tagoba, at 2400 m, litter in mountain forest, 3 IX 1979, leg. J. BŁOSZYK – (2); W of Tagoba, at 2100 m, litter in mountain forest, 3 IX 1979, leg. J. BŁOSZYK – (1); Mt. Hagen, at upper limit of forest, at 3100 m, litter, 5 IX 1979, leg. J. MICHEJDA – (1); 30 km E of Port Moresby, at 400 m, at the start of the "Kokoda Trail", bushes above river, litter among herbs and ferns, 1 IX 1979, leg. J. BŁOSZYK – (2); Hummock

above Ambunti City, under bamboos, 22 IX 1979, leg. J. BŁOSZYK – (4); Mt. Wilhelm, at 2930 m, dry litter in leafy forest, 10 IX 1979, leg. J. BŁOSZYK – (1) (NIEDBAŁA 1984a). Australia, Cairns, litter of bushes above stream, 28 VIII 1979, leg. J. BŁOSZYK – (2); Cairns, litter among herbs near road, very dry place, 28 VIII 1979, leg. J. BŁOSZYK – (1) (NIEDBAŁA 1984a); Cairns, S of ville, in forest, 28 VIII 1979, leg. J. BŁOSZYK – (2); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (24); QLD Seymour Range, 50 m, 17° 26'S, 146° 00'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (27); QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (5); QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (6); QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (27); QLD, Eachan Nat. Park, 17° 18'S, 145° 37'E, rainforest, at 760 m, 16 II 1973, leg. R.W. TAYLOR – (8); QLD Mc Namee CK, 300 m, 17° 40'S, 145° 49'E, rainforest, 8 VII 1971, leg. R.W. TAYLOR, FEEHAN – (17); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (6); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (11); Queensland, southern part of Cape Tribulation, N Cairns, rain forest, soil and litter, July 1992. Leg. R. SCHUSTER – (9); ca. 200 m from Cape Tribulation, the same forest and date – (2); Queensland, near Ellis Beach, N. Cairns, forest with high humidity, transitional zone to the rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (30).

DISTRIBUTION. An Oriental species distributed south to Queensland..

Oribotritia JACOT, 1924

Oribotritia brevis NIEDBAŁA et COLLOFF, 1997

(Figs 1-5 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Color dark brown. Cuticle finely punctate. Prodorsum with single, long lateral carinae; sensilli short, curved, pointed distally, about 2x as thick as interlamellar setae; setae fine, interlamellars the shortest. Notogaster with fine, moderately long setae c_{1-3} remote from anterior margin. Ventral region: genital plate each with eight setae, aggenital plate each with two setae; one pair of anal and three pairs of adanal setae present; lyrifissures *iad* located between setae ad_2 and ad_3.

MATERIAL. Localities in the Australian region: Tasmania: Savage River, Pipeline Road, 41°30'S, 145°20'E, pyrethrum knock-down, *Nothofagus cunninghamii*, 19 IV 1989, leg. H. MITCHELL – (1); Rivaux Creek, Huon Pine, 43°10'S, 146°11'E, pyrethrum knock-down, 20 XII 1988, leg. P. GREENSLADE – (1); Mount Mangana, litter, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Oribotritia contortula NIEDBAŁA, 1993

(Figs 1-10 in NIEDBAŁA 1993)

DIAGNOSIS. Prodorsum with long, well-developed lateral carinae; sensilli long, acicular, gradually tapering, smooth; setae very fine, smooth, exobothridial setae very long; ex>ro>le>in. Notogaster with short and smooth setae; setae of row c remote from anterior margin. Ventral region: each genital plate with 8 setae (sometimes 7), aggenital plates each with 2 setae, each anal plate with 2 and adanal plate with 3 setae, lyrifissures *iad* posteriad of setae ad_3, oblique continuations of anogenital cleft (trv), typical for *Oribotritia*, absent. Each femur of legs I with narrow dorsal crest, ending with a small spine.

MATERIAL. Localities in the Australian region: New Caledonia, Massif Humboldt, Karangue litter of brookside bush, 13. 10. 1988, leg. P.T. LEHTINEN – (5); New Zealand, Pitanga Scenic Reserve, Takaanu National Park, Melicytus, Kamati, Rimu, Podocarp, bottom E side, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (20); Pitanga Scenic Reserve, Takaanu National Park, Melicytus, Kamati, Rimu, Podocarp, top of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (49); Pitanga Scenic Reserve, Takaanu National Park, Melicytus, Kamati, Rimu, Podocarp, W side of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Lake Waikaremoana Hawkes Bay, litter, 17 I 1972, leg. G.W. RAMSAY – (8); Ohinekuku Regeneration forest, atl. 2000', below Old Orchard, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Manginangina Scenic Reserve, kauri litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (10); Awakiro Gorge, Sav Reserve, Titoki, Tawa Matali, Mahoe, Kawakawa, steep dry grasse, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Mt. Egmont, Dawson Falls, at 3000 (2800?) m, Kamahi forest, 24 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (58); Summit Mangamaka Rd., at 2000 m, *Knightia weinmannia*, 21.I.1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Mt. Tegrost below Dawson Falls, at 500 m, Kamahi, grisilinea, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (34); Waipona Forest, Waipona Stream bridge, near Headquarters, kauri forest, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Lake Waikaremoara – Urewera National Park, Rimu, Kamati – beech forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); West of Urewera National Park. Mainly *Nothofagus* forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (49); Lake Waikaremoara – Urewera National Park, Rimu, Kamati – beech forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Mt. Messorgan, 600' (between Awakino and New Plymouth), Kamahi, tawa, damp steep gully, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (51); Paihia – Opua, mainly taraire, steep slopes, fine damp litter, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Mamaku Hill, W of Rotorua, mainly tawa 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Mt. Egmont, below Davson Falls, alt. 2000 ft, Rata, rimu, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (13); Moerewa – Kawakawa, Tumtable Hill summit. East side. Damp puriri, kohokoho, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Beyond Old Orchard. Tall regeneration Kamati forest with a little rimu, *Melicytus*, *Brachyglottis*, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, Kamati, Rimu, *Podocarp*, crane of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Runanga Deviation, near Waipunga Falls, very recently podocarp forest, rimu-matai. Damp hollow in area rather dry, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Omahuta Forest Kauri Sanctuary, Kauri forest litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Awakiro gorge of Kuriwera Stream. Tawa, Rangiore, *Cyathea*, Kawakawa, rather dry, 23 I

1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Mamaku Hill, W of Rotorua, mainly tawa 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Summit Bulls Road between Puketana and Kerikeri. Tairaire, puriri, Genrost, kohekohe, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Waipona Forest, beyond forest headquarters, rather damp tairaire, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); North of Puketona, on Bulls Road, Scenic Reserve. Tairaire, kohekohe, *Cyathea*, Matai, bush with stream, rather dry litter, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (14); Ngaiotonga Scenic Reserve, Russel-Ke, Kauri, *Cyathea*, *Kanula*, *Matai*, *Melicytus*, tairaire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Waikaremoana Lake, Lake House, at 2300 m, Ngamoko track all *Elaeocarpus dentatus*, 7 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Pitanga Scenic Reserve, Takaanu National Park, Melicytus, Kamati, Rimu, Podocarp, E side (moister), 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Lake Waikaremoana, Lake House, Ngamoko track, alt. 2300 ft., all *Weinmannia racemosa*, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (10); Omahuta Forest Kauri Sanctuary, Kauri forest litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Ulva Is. Stewart Is, 18 XII 1968, leg. I. Sutherland – (2); Jackson Bay, 15 III 1966, leg. R.R. FORSTER – (17); Waituhi, 10 I 1967, leg. R.R. FORSTER – (3); Golden Bay, Stewart Is., 12 IV 1966, leg. I. SUTHERLAND – (40); Cascade Creek, ex moss, 16 II 1966, leg. R.R. FORSTER and C.L. WILTON – (24); South Is., Milford Sound Hotel, 1.1 mi. E., Fiordland National Park, or 74.5 mi. N.W. of Te Anau, alt. about 50 ft., rain forest, very thin litter, mostly moss, 20 II 1965, leg. N.A. WALKER – (7); South Is., Murchison, 11.8. mi. W., in Buller Gorge, red beech, litter, moss, decayed wood, 11 V 1965, leg. N.A. WALKER – (4); South Is., Hokitika, 8.4 mi. S., well and moderately decayed wood only, 7 II 1965, leg. N.A. WALKER – (1); South Is., Te Namu, 13.9 mi. S., rather high on Karamea Bluff, rain forest, litter, decayed wood, 5 II 1965, leg. N.A. WALKER – (2); South Is., Te Anau, 45.2 mi. N., Fiordland National Park, moss on ground, decaying log, wet, 19 II 1965, leg. N.A. WALKER – (2); South Is., Hollyford River Valley, 8.7 mi. N. of Milford Sound Road, Fiordland National Park, thin silver beech, kamahi, fern litter, some moss, wet, tree ferns, 20 II 1965, leg. N.A. WALKER – (1); South Is., Murchison, 10.2 mi. W., in Buller Gorge, red beech, much moss, litter, decayed wood, 11 V 1965, leg. N.A. WALKER – (1); South Is., Te Namu, 3.4 mi. S., under rain forest tree with buttressed trunk, litter and fungused litter, generally not to soil, 5 II 1965, leg. N.A. WALKER – (1); South Is., elorus Bridge Scenic Reserve, 37 mi. E. of Nelson, mixed beech, podocarp forest, decayed wood, 9 III 1965, leg. N.A. WALKER – (8); South Is., Milford Sound Hotel, 15.2 mi. E., Fiordland National Park, or 59.3 mi. N.W. of Te Anau, alt. about 2000 ft., E. of Homer Tunne, silver beech, litter, decayed wood, practically no moss, 20 II 1965, leg. N.A. WALKER – (2); South Is., Mount Roberts, Nelson Lakes National Park, alt. 2800 ft., Paddy's Knob end of trail road, red beech forest, litter, 21 III 1965, leg. N.A. WALKER – (5); South Is., Pelorus Bridge Scenic Reserve, 37 mi. E. of Nelson, mixed beech, podocarp forest, dry litter, moss, little decayed wood, 9 III 1965, leg. N.A. WALKER – (4); South Is., Arthur's Pass National Park Headquarters, 0.8 mi. W., 52.5 mi. W. of Springfield, alt. perhaps 2500 ft., near Daisy Flat, mountain beech, litter, moss, 24 III 1965, leg. N.A. WALKER – (1); South Is., Mount Roberts, Nelson Lakes National Park, alt. 2800 ft., Paddy's Knob end of trail road, red beech forest, decayed reddish wood, 21 III 1965, leg. N.A. WALKER – (1); South Is., Lake Paringa Picnic Ground, 16.8 mi. N., alt. near sea

level, beech tree, damper sides, litter, much moss, 7 II 1965, leg. N.A. WALKER – (1); South Is., Arthur's Pass National Park Headquarters, 1.8 mi. W., 53.5 mi. W. of Springfield, alt. about 2550 ft., at Bealey Chasm Track. Mountain beech. Litter, decayed wood, moss, 24 III 1965, leg. N.A. WALKER – (3); South Is., Lake Rotoiti, Nelson Lakes National Park, alt. perhaps 2000 ft. Red beech litter, decayed wood, 21 III 1965, leg. N.A. WALKER – (8) (NIEDBAŁA 1993); North Is., Otaki Forks, W. of Tararua Range, alt. 500 ft. Rocky bank under *Brachyglottis* sp., *Melicytus ramiflorus*, *Blechnum capense*, *Geniostoma ligustrifolium*. Moss, litter, 6 IX 1965, leg. J.L. TOWNSEND – (1); North Is., Mount Egmont National Park, Stratford Mountain House Road, 0.2 mi. E., down from plateau, alt. 3500 ft, just at tree line, 8 ft. tall at most. Highland podocarp-hardwood bush. Litter, decayed wood, 17 IV 1965, leg. N.A. WALKER – (1); South Is., Te Anau, 56.7 mi. N.W., Fiordland National Park, 6 mi. E. of Homer Tunnel entrance, litter, mostly moss, ferns, 19 II 1965, leg. N.A. WALKER – (3); North Is., Mount Egmont National Park, Stratford Mountain House Road, 1.1 mi. E. down from plateau, alt. 3250 ft., just below tree line. Highland podocarp-hardwood forest, litter, moss, lichen, little decayed wood, 17 IV 1965, leg. N.A. WALKER – (2); South Is., North Is., Waipoua Kauri Forest, 0.4 mi. N. od Waipoua River, two adjacent mature kauri trees, litter, 13 IV 1965, leg. N.A. WALKER – (2); Tasmania, Bruny Island, Mount Mangana, pitfall traps, 43°21'S, 147°13'E, 4-9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (1); Mount Mangana, litter, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (3); Projection Bluff (Pine Lake), 7,5 km NNE of Breona, 41°43'S, 146°43'E, soil cores, 9 III 1989, leg. P. GREENSLADE – (2); Mount Mangana, Bruny Island, 43°21'S, 147°13'E, moss sample, 9 IV 1989, leg. J. DIGGLE – (1)

DISTRIBUTION. Australian islands: New Caledonia, New Zealand, Tasmania.

Oribotritia contraria NIEDBAŁA, 1993

(Figs 11-19 in NIEDBAŁA 1993)

Oribotritia sp.: NIEDBALA & COLLOFF 1997

DIAGNOSIS. Measurements of a specimen from New Caledonia: prodorsum: lenght 615, width 450, height 260, sensillus 141, setae: interlamellar 318, lamellar 106, rostral 192; notogaster: lenght 1150, width 846, height 800, setae: c_1 192, h_1 85.8, ps_1 116; genital and aggenital plates 273x158, anal and adanal plates 621x114. Large species. Prodorsum with long, well developed lateral carinae; sensilli long, robust and smooth; setae thick, robust, finely barbed at distal ends, situated perpendicularly to the surface of prodorsum, *in*> *ro* > *le*, exobothridial setae vestigial. Notogaster with setae, robust, straight, similar in shape terminally, setae of row c remote from anterior border of notogaster. Ventral region, genital plates with 9 pairs of setae, mutual distance between g_2 and g_3 setae longer then between other genital setae, two pairs of aggenital setae, each anal plate with 1, and adanal plate with 3 minute setae; lyrifissures *iad* anterad to setae ad_2.

MATERIAL. Localities in the Australian region: Australia, Lamington Nat. P. S.E.Q., extracted from litter, 21 XI 1965, leg. B. CANTRELL – (4); Lamington Nat. P. S.E.Q., extracted from litter, 6 III 1965, leg. B. CANTRELL – (4). New Caledonia,

Massif Humboldt, Karangue, litter of brookside bush, 13. 10. 1988, leg. P.T. LEHTINEN – (10 sps); New Zealand, near Whanganui Inlet, 2.0 miles (3.2 km) west of Mangarakau, 31 Mar 1965. Mixed podocarp, broad leaf bush, no beech. Litter, decayed wood (7); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, bottom E side, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (30); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, top of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (15); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, W side of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Mataka River, 0.5 mi. to Wairoa, 51 mi. from Napier. Wet ground (*Schefflera*, *Melicytus*, *Alectryon*, *Macropiper*, thea), 16 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Lake Waikaremoana Hawkes Bay, litter, 17 I 1972, leg. G.W. RAMSAY – (5); Ohinekuku Regeneration forest, atl. 2000', below Old Orchard, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Puketi Kauri Forest, Forest Road, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Manginangina Scenic Reserve, kauri litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (11); Awakiro Gorge, Sav Reserve, Titoki, Tawa Matali, Mahoe, Kawakawa, steep dry grasse, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (14); Mt. Egmont, Dawson Falls, at 3000 (2800?) m, Kamahi forest, 24 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Summit Mangamaka Rd., at 2000 m, *Knightia weinmannia*, 21.I.1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Paihia, Kawakawa, Rimu, Taraire, rather dry, step slope, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Lake Waikaremoana, Lake House, damp gully – *Cyathea*, *Melicytus*, *Weinmannia*, *Schefflera*, *Notopanax*, etc., 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Moerewa – Kawakawa, Tumtable Hill summit. Damp forest. Matai, kohokoho, *Cyathea*, taraire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Near Summit of Coromandel Range, on Kopu-Hiknai Road, mixed regrowth kamahi, *Schefflera*, *Nothopanax*, tawa, *Lygopodium*, *Cyathea*, *Brachylottis*, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Togatai Reserve, Tairua River, W of Coromandel peninsula, white pine-matai?, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (34); Paihia, Kawakawa, kohekohe, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Beyond Old Orchard. Tall regeneration Kamati forest with a little rimu, *Melicytus*, *Brachyglottis*, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Ngaiotonga Scenic Reserve, Russel-Ke, Kauri, *Cyathea*, *Kanula*, *Matai*, *Melicytus*, tairaire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Trounson Kauri Park. Kauri forest flatground, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Waipona Forest, Waipona Stream bridge, near Headquarters, kauri forest, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); West of Urewera National Park. Mainly *Nothofagus* forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Ruatahuna – Heipipi, Huiarau Range (NW from Lake), rather dry podocarp-tawa forest, some matai, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Lake Waikaremoara – Urewera National Park, Rimu, Kamati – beech forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Otepe Scenic Reserve 8 mi E of Tanpo, mainly Rimu-Matai forest with *Fuchia*, *Nothopanax*, *Aristotelia*, etc. 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (11); Mt. Messorgan, 600' (between Awakino and New Plymouth), Kamahi, tawa, damp steep gully, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Mamaku Hill, W of Rotorua, mainly tawa 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Manginangina

Scenic Reserve. Tairaire, Matai, miro, rimu, kohekohe, rukan, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Mamaku Range, Fitz Gerald Glade Secenic Reserve, Tawa, podocarp, Titoki, flat forest floor, 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Near Summit of Coromandel Range, on Kopu-Hiknai Road, mixed regrowth kamahi, *Schefflera*, *Nothopanax*, tawa, *Lygopodium*, *Cyathea*, *Brachylottis*, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Near Summit of Coromandel Range, on Kopu-Hiknai Road, mixed regrowth kamahi, *Schefflera*, *Nothopanax*, *tawa*, *Lygopodium*, *Cyathea*, *Brachylottis*, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Near Summit of Coromandel Range, on Kopu-Hiknai Road, mixed regrowth kamahi, *Schefflera*, *Nothopanax*, *Tawa*, *Lygopodium*, *Cyathea*, *Brachylottis*, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Moerewa – Kawakawa, Tumtable Hill summit. East side. Damp puriri, kohokoho, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Kaimai Range, lower West side between Te Poi and Kaimai, Tawa forest, 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Beyond Old Orchard. Tall regeneration Kamati forest with a little rimu, *Melicytus*, *Brachyglottis*, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, crane of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Runanga Deviation, near Waipunga Falls, very recently podocarp forest, rimu-matai. Damp hollow in area rather dry, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Omahuta Forest Kauri Sanctuary, Kauri forest litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Awakiro gorge of Kuriwera Stream. *Tawa*, *Rangiore*, *Cyathea*, *Kawakawa*, rather dry, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Mangirangira Scenic Reserve (center), mixed rimu, *Cyathea*, tairaire, kohekohe, dry, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Trounson Kauri Park. Kauri forest flatground, (lots of undergrowth), 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Mangirangira Scenic Reserve, kohekohe, pitt tairaire, tawa, flat forest floor, rather damp, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Awakiro George Scenic Reserve, *Titoki*, *Cyathea*, vally floor, damper, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Maungatapere, Whangarei Kohekohe, karaka, hikau, flat, rather dry, open, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Ngaiotonga Scenic Reserve, Russel-Ke, Kauri, *Cyathea*, *Kanula*, *Matai*, *Melicytus*, tairaire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Waikaremoana Lake, Lake House, at 2300 m, Ngamoko track all *Elaeocarpus dentatus*, 7 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, E side (moister), 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (13); Otepe Scenic Reserve 8 mi E of Tanpo, mainly Rimu-Matai forest with *Fuchia*, *Nothopanax*, *Aristotelia*, etc. 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (37); Lake Waikaremoana, Lake House, Ngamoko track, alt. 2300 ft., all *Weinmannia racemosa*, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Lake Waikaremoana among large rock blocks, *Melicytus*, *Schefflera*, *Macropiper*, *Elaeocarpus*, 16 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Omahuta Forest Kauri Sanctuary, Kauri forest litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Mites, Mangamuka 7 I 1967, leg. R.R. FORSTER – (4); Mc Kee Domain, Ruby Bay, 12 III 1967, leg. C.L. WILTON – (3); Karamea Coast, 28 IX 1966, leg. R.R. FORSTER and C.L. WILTON – (4); New Zealand, Mites, Apiti, 29 XII 1966, leg. R.R. FORSTER – (1); South Is., Hollyford River Valley,

7.2 mi. N. of Milford Sound Road, Fiordland National Park, silver beech, kamahi, tree ferns, fern litter, some moss, lichen, wet, 20 II 1965, leg. N.A. WALKER – (3); South Is., Brods Bay Shore, Lake Te Anau, Fiordland National Park, silver, mountain beech, dry, litter, fungusy, 21 II 1965, leg. N.A. WALKER – (1); North Is., Waituhi Kuratau Scenic Reserve, 17.7 mi. W. of Turangi, alt. about 1500 ft., podocarp forest, litter under podocarps, 21 IV 1965, leg. N.A. WALKER – (3); North Is., Awakino, 5.7 mi. N.E., Scenic Reserve, podocarp-hardwood forest, beside Kuiwera Stream, litter, 16 IV 1965, leg. N.A. WALKER – (2); North Is., Awakino, 9.1 mi. N.E. if Awakino Scenic Reserve, podocarp-hardwood bush, rocky, small sample, thin litter, well decayed wood, 15 IV 1965, leg. N.A. WALKER – (1); South Is., Upper Takaka, 2 mi. E., or 14 mi. E. of Takaka, alt. about 1800 ft., west slope Takaka Hill, mixed beech forest, litter, decayed wood, 31 III 1965, leg. N.A. WALKER – (2); North Is., Te Whaiti, 2.5 mi. N.W., alt. about 1100 ft., red beech forest, leaf litter, 20 IV 1965, leg. N.A. WALKER – (1); North Is., Waitakere Range, W. of Auchland, on Glen Elder Road 0.7 mi. E. of down Scenic Road, young kauri-podocarp-hardwood forest, litter, no moss or lichen, 19 IV 1965, leg. N.A. WALKER – (1); North Is., Tairua Forest (near), Coromandel Peninsula, Grid Ref. N 36/31/29, alt. 400 ft., litter, 30 IX 1965, leg. A.E. Marsack – (2); North Is., Pohingina Valley, Northern Manawatu. Forest with *Podocarpus totara*, *Alectryon excelsum* (titoki), *Neopanax* sp., *Beilschmiedia tawa* (tawa), *Brachyglottis* (rangiroa) and fern. Moss at bush edge in open grassy hollow, 5 IX 1965, leg. J.L. TOWNSEND – (1); North Is., Waitakere Range, W. of Auckland, 4.3 mi. S. of Glen Elder Road on Scenic Road, alt. about 600 ft. Kauri-podocarp-hardwood forest. Litter under young kauri, tree fern but no moss, lichen or wood, 19 IV 1965, leg. N.A. WALKER – (1); North Is., Lake Okataina, 0.6 mi. N., alt. perhaps 1150 ft. Luxuriant rain forest, towai, podocarp-hardwood type, litter, no wood, 10 IV 1965, leg. N.A. WALKER – (3); North Is., Lake Okataina, 1.3 mi. N., alt. about 1250 ft. Luxuriant podocarp-hardwood forest, much adult lancewood, litter under, between two large podocarps, no wood, 10 IV 1965, leg. N.A. WALKER – (5); North Is., Russell Forest, North Auckland, 12 mi. S.E. of Russell, Virgin bush, mainly taraire, rimu, kauri and tanakaha with thick understory of mixed native shrubs and ferns, litter, 11 XII 1965, leg. J.M. COX – (3); North Is., Awakino, 3.7 mi. N.E., Scenic Reserve, Podocarp-hardwood bush, litter, some decayed wood, 16 IV 1965, leg. N.A. WALKER – (1); North Is., Lake Okataina, 1.3 mi. N., alt. about 1250 ft. Luxuriant podocarp-hardwood forest, much adult lancewood. Litter under, between two large podocarps, no wood, 10 IV 1965, leg. N.A. WALKER – (1); South Is., Pelorus Bridge Scenic Reserve, 37 mi. E of Nelson, mixed beech, podocarp forest, decayed wood, 9 III 1965, leg. N.A. WALKER – (85); North Is. Waitakere Range, W. of Auckland, 1.2 mi. S. of Glen Elder Road on Scenic Road, alt. about 700 ft. Kauri-podocarp-hardwood forest, litter under rimu, nikau palm, tree ferns and hardwoods, little moss, lichen or decayed wood, 19 IV 1965, leg. N.A. WALKER – (21); South Is., Mangarakau, 2.0 mi. W., near West Haven Inlet (or Whanganui Inlet), mixed podocarp, broad leaf bush, no beech, litter, decayed wood, 31 III 1965, leg. N.A. WALKER – (7); North Is., Waipoua Kauri Forest, 0.4 mi. N. od Waipoua River, two adjacent mature kauri trees, litter, 13 IV 1965, leg. N.A. WALKER – (3); North Is., Awakino, 3.7 mi. N.E., Scenic Reserve, podocarp-hardwood type bush, litter, slightly decayed wood, 16 IV 1965, leg. N.A. WALKER – (1); North Is., Awakino, 9.1 mi. N.E. of Awakino Scenic Reserve, podocarp-hardwood bush, rocky. Small sample, thin

litter, well decayed wood, 15 IV 1965, leg. N.A. WALKER – (7); South Is., Mangarakau, 1.4 mi. W. near West Haven Inlet, mixed podocarp, broad leaf forest, no beech, litter, no humus or decayed wood, 31 III 1965, leg. N.A. WALKER – (12); North Is., Waipoua Kauri Forest, 0.4 mi. N. od Waipoua River, two adjacent mature kauri trees, litter, 13 IV 1965, leg. N.A. WALKER – (1); South Is., Karamea, 9.8 mi. N., alt. 50 ft., soil, roots, thin litter, 5 II 1965, leg. N.A. WALKER – (1); Tasmania, Savage River, Pipeline Road, 41°30'S, 145°20'E, pyrethrum knock-down, *Nothofagus cunninghamii*, 19 IV 1989, leg. H. MITCHELL – (1); Mount Mangana, litter, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (7);Mount Mangana, litter, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (3); Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. Smith – (9); Rivaux Creek, Huon Pine litter, 43°11'S, 146°11'E, 20 XII 1988, leg. P. GREENSLADE – (10); Mount Mangana, Bruny Island, litter, 43°22'S, 147°17'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (2).

DISTRIBUTION. Australia (Queensland), New Caledonia, New Zealand and Tasmania.

Oribotritia duplex sp. nov.

(Figs 1123-1129)

DESCRIPTION. Measurements of holotype: prodorsum: length 530, width 424, height 237, sensillus 177, setae: interlamellar 40.4, lamellar 90.9, rostral 136, exobothridial 111; notogaster: length 1104, height 856, setae: c_1 222, h_1 177, ps_1 141; genital and aggenital plates 254x127, anal and adanal plates 482x98.3. Colour brown, cuticle finely punctate. Prodorsum with two pairs of lateral carinae remote from each other, sometimes lower carinae indistinct. Sensilli setiform, pointed. Setae fine, rostral and exobothridial setae longer than other setae. Notogaster with fine, moderately long setae, setae c_3 the shortest, setae c_{1-3} remote from anterior border. Ventral region. Setae *h* of mentum longer than distance between them, infracapitular genua with 3 pairs of setae. Epimeral setal formula: 3-0-3-3. Palp with setal and solenidial formulae: 0-4-0-3-9(1). Genital plate each with 8 setae, aggenital plate each with 2 setae. 2 pair of anal and 3 pairs of adanal setae, lyrifissures *iad* located anterior to ad_3 setae. Leg setal and solenidial formulae (except tarsi) as follows: 1-4-5(2)-5(1), II: 1-4-5(1)-5(1), III: 3-2-3(1)-3(1), 3-2-2(1)-3(1). Anterior part of femora I with short carinae.

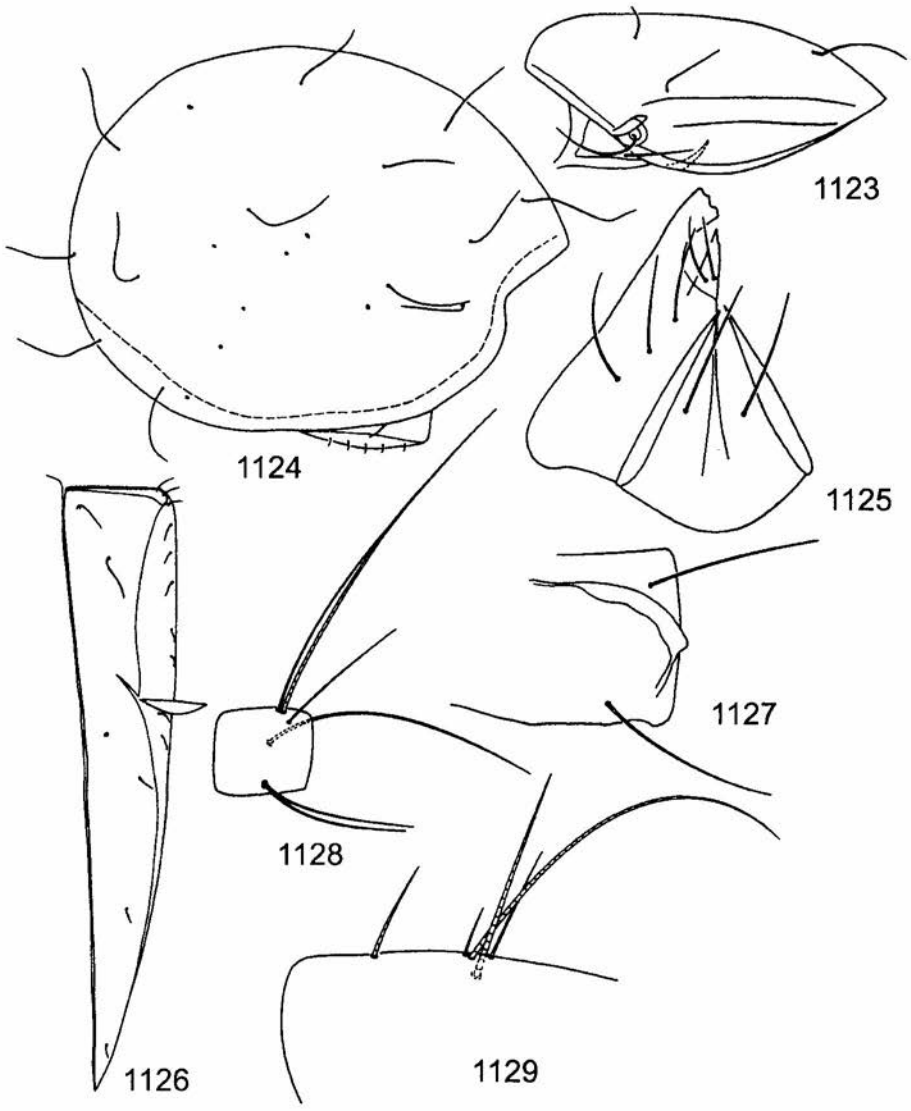
ETYMOLOGY. The name of new species *duplex* is Latin for „double", „two-fold" and refers to the two lateral carinae on each side of prodorsum.

DIAGNOSIS. *Oribotritia duplex* sp. nov. can be distinguished from its congeners by the relation of the length of prodorsal setae, the interlamellar setae are shorter than rostral and exobothridial setae, 3 pairs of setae on infracapitular genua and 4 pairs of setae on palp femora.

MATERIAL. Holotype: Australia, Queensland, Austr. VI ANIC – No 377, QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN; paratype: Queensland, Austr. X ANIC – 361, QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN. Localities in the Australian region: Australia, Quensland, Camington, 1989, leg. HEISS – (1); New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at

800 m, 15 VII 1973, leg. R.J. KOHOUT – (1);VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (1);VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (8); Lamington Nat. P. S.E.Q., extracted from litter, 6 III 1965, leg. B.Cantrell – (3); Mt. Nebo S.E.Q., BERLESEate leaf, 28 III 1967, leg. J.B. WILLIAMS – (1).

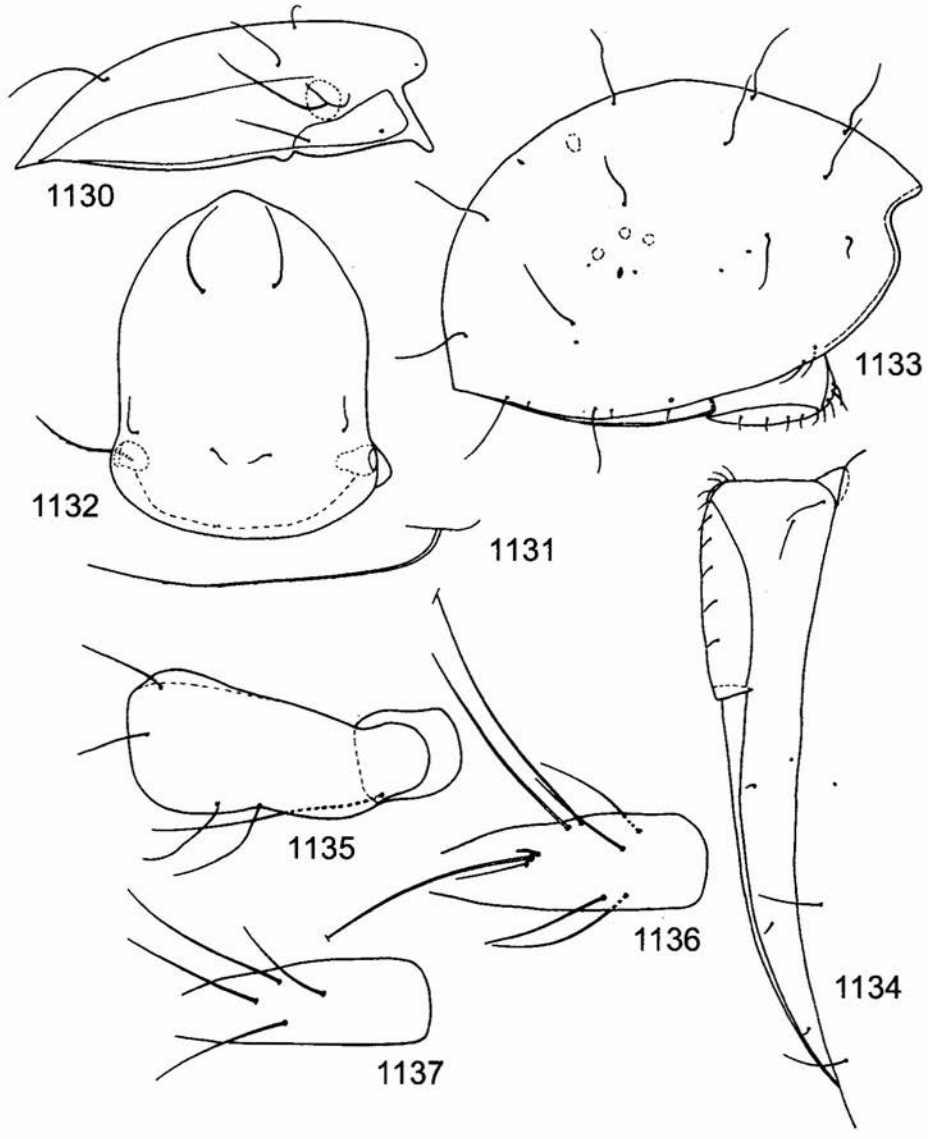
DISTRIBUTION. North and South Australia.



1123-1129. *Oribotritia duplex* sp. nov. (holotype): 1123 - prodorsum, lateral view, 1124 - notogaster, lateral view, 1125 - mentum and right side of infracapitulum, 1126 - right side of ventral region, 1127 - distal part of femur of leg I, 1128 - tibia of leg I, 1129 - fragment of tarsus of leg I

***Oribotritia incognita* sp. nov.**
(Figs 1130-1137)

DESCRIPTION. Measurements of holotype: prodorsum: length 520, width 368, height 165, sensillus 162, setae: interlamellar 37.9, lamellar 75.9, rostral 139, exobothridial 91.1; notogaster: length 958, width 577, height 604, setae: length c_1 131, h_1 and ps_1 146; genital and aggenital plates 222x126, anal and adanal plates 424x90.9. Colour brown, integument finely punctate. Prodorsum with single long lateral carinae. Sensilli moderately long, setiform, sparsely spinose. Intelamellar and



1130-1137. *Oribotritia incognita* sp. nov. (holotype): 1130 - prodorsum, lateral view, 1131 - sensillus, lateral view, 1132 - prodorsum, dorsal view, 1133 - notogaster, lateral view, 1134 - left side of ventral region, 1135 - trochanter and femur of leg I, 1136 - fragment of tarsus I, 1137 - fragment of tarsus II

lamellar setae short, fine, erect, interlamellar bent distally, *le* > *in*; rostral setae robust and longer, *ro* > *ex*. Notogaster with fine setae of medium (c_1/c_1-d_1= 0.64) length; setae c_3 the shortest, setae c_{1-3} remote from anterior margin, setae c_{1-2} more so than c_3. Ventral region. Setae *h* of mentum considerably longer than distance between them. Formula of palps: 0-3-0-3-9(1). Genital plates each with 9 setae, 4 in progenital position. Aggenital plates each with 2 setae. Anal plates lacking setae. Adanal plates with 3 pairs of setae. Lyrifissures *iad* positioned antero-antiaxially from setae ad_3. Chaetotaxy and soleniodiotaxy of legs (without tarsi): I: 1-4-5(2)-5(1); II: 1-4-4(1)-5(1); III: 3-2-3(1)-4(1); IV: 3-2-2(1)-3(1). Anterio-dorsal carina on each femur I weakly developed, without hoked spine.

DIAGNOSIS. The new species shows a high degree of similarity to *Oribotritia contortula* NIEDBAŁA, 1993 but is distinguishable by the size and shape of the interlamellar setae and the absence of the anal setae.

ETYMOLOGY. The specific name *incognita* is Latin for "unexamined", "unknown".

MATERIAL. Holotype: New Zealand, Westland N.P. Franz Josef Glacier, 2 I 1984, leg. L. MASNER.

DISTRIBUTION. New Zealand, Westland, probably an endemic species.

Oribotritia teretis NIEDBAŁA, 1993

(Figs 20-27 in NIEDBAŁA 1993)

DIAGNOSIS. Large species. Prodorsum with single, well-developed carinae; sensilli long, smooth, setiform or acicular, gradually tapering; setae thin, smooth, interlamellar and lamellar setae distinctly shorter than rostral setae, exobothridial setae vestigial. Notogaster; setae of row c far from anterior border. Ventral region; palps with formula: 0-4-0-3-9(1), but in many cases femora with 3 setae only, genital plates each with 9 minute setae, aggenital plates each with 2 long setae, anal plates with one pair, adanal plates with 3 pairs of minute setae (sometimes 2 pairs of adanal setae only), lyrifissures *iad* located anteriad of setae ad_3. Legs; each femur I with narrow dorsodistal spine.

MATERIAL. Localities in the Australian region: New Zealand, Aschley Gorge area, 5.8 miles (9.3 km) north of Oxford, Lees Valley Road, 1 Mar 1965. Altitude c. 1200 ft (365 m). Litter, decayed wood under podocarp (NIEDBAŁA 1993); Manginangina Scenic Reserve, kauri litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Summit Mangamaka Rd., at 2000 m, *Knightia weinmannia*, 21.I.1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Paihia, Kawakawa, Rimu, Taraire, rather dry, step slope, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Moerewa – Kawakawa, Tumtable Hill summit. Damp forest. Matai, kohokoho, *Cyathea*, taraire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Paihia, Kawakawa, kohekohe, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (8); Beyond Old Orchard. Tall regeneration Kamati forest with a little rimu, *Melicytus*, *Brachyglottis*, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (8); Ngaiotonga Scenic Reserve, Russel-Ke, Kauri, *Cyathea*, *Kanula*, *Matai*, *Melicytus*, tairaire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Waipona Forest, Waipona Stream bridge, near Headquarters, kauri forest, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (8); Manginangina Scenic Reserve. *Tairaire*, *Matai*, miro, rimu, kohekohe, rukan, 21 I 1972, leg. G.W. RAMSAY

and N.A. WALKER – (8); Paihia – Opua, mainly taraire, steep slopes, fine damp litter, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (14); Moerewa – Kawakawa, Tumtable Hill summit. East side. Damp puriri, kohokoho, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Summit Bulls Road between Puketana and Kerikeri. Tairaire, puriri, Genrost, kohekohe, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (28); Waipona Forest, beyond forest headquarters, rather damp tairaire, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (8); North of Puketona, on Bulls Road, Scenic Reserve. *Tairaire*, kohekohe, *Cyathea*, *Matai*, bush with stream, rather dry litter, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Mangirangira Scenic Reserve, kohekohe, pitt tairaire, tawa, flat forest floor, rather damp, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (10); Waipona Forest, Waipona Stream bridge, near Headquarters, kauri forest, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Ngaiotonga Scenic Reserve, Russel-Ke, Kauri, *Cyathea*, *Kanula*, *Matai*, *Melicytus*, tairaire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Huiarau Range, alt. 3050 ft., Tanpepe Saddle (N.W. from abowe) mainly *Nothofagus menziesii*, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (8); Omahuta Forest Kauri Sanctuary, Kauri forest litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Sullivans Dam, 7 V 1966, leg. R.R. FORSTER – (44); School Creek, 13 II 1966, leg J. Sutherland – (2); Evansdale Glen, 11 VI 1966, leg. C.L. WILTON – (11); Mites, Waipori Corge, 18 XI 1966, leg. R.R. FORSTER and C.L. WILTON – (3); Mc Graths Creek, ex leaf mould, 3 I 1950, leg. E. DAWSON – (1); Waipona Forest, 6 I 1967, leg. R.R. FORSTER – (12); New Zealand, no 22, Forster – (14); Sullivans Dam, ex leaf mould, 6 I 1963, leg. R.R. FORSTER – (27); Apiti, 29 XII 1966, leg. R.R. FORSTER – (59); South Is., Te Anau, 35 mi. N., Fiordland National Park, beech forest, thin litter, wet, 19 II 1965, leg. N.A. WALKER – (1); South Is., Reefton, 21.7 mi. E., Lewis Pass road, Rahu Scenic Reserve, alt. 18-1900 ft., toward top of Rahu Saddle, thin litter, humus, 10 II 1965, leg. N.A. WALKER – (1); South Is., Springs Junction, 10.6 mi. E., alt. perhaps 2000 ft., W. of one-third way up Lewis Pass, different decayed wood from limb, stump and moss, lichen, 23 III 1965, leg. N.A. WALKER – (1); South Is., Te Anau, 35 mi. N., Fiordland National Park, East Branch, Eglinton River valley, decayed beech wood, wet, 19 II 1965, leg. N.A. WALKER – (1); South Is., Peel Forest Reserve, Agnes Hills Bush, Fern Walk, N. of Arundel, thin litter under Podocarpus dacrydioides, 27 II 1965, leg. N.A. WALKER – (1); South Is., Peel Forest Reserve, Agnes Hills Bush, Fern Walk, N. of Arundel, thin litter under *Podocarpus dacrydioides*, 27 II 1965, leg. N.A. WALKER – (2); North Is., Haurangi, Aorangi Mountains, alt. 200 ft., forest, *Cyathodes fasciculata* (mingimingi) dominant, moss on bank, 2 IX 1965, leg. J.L. TOWNSEND – (2); South Is., Dean's Bush, Riccarton, near Christchurch, general litter under beech, 28 II 1965, leg. N.A. WALKER – (1); South Is., Te Namu, 5.1 mi. S. Rain forest. Litter, lichen, moss, 5 II 1965, leg. N.A. WALKER – (2); South Is., Peel Forest Reserve, Agnes Hills Bush, Fern Walk, N. of Arundel. Podocarp forest. Decaying wood under *Podocarpus totara* and *P. dacrydioides*, 27 II 1965, leg. N.A. WALKER – (2); South Is., Hapuku River Valley, 3.3 mi. N.W. of highway 1, in Hundalee Scenic Reserve, alt. perhaps 300 ft. Mixed forest, fern, general litter, no moss or lichens, 25 III 1965, leg. N.A. WALKER – (9); South Is., Mangarakau, 4.2 mi. E., near West Haven Inlet, hard beech (*N. truncata*), red beech, kamahi, some hinau, second growth bush. Litter, moss, 31 III 1965, leg, N.A. WALKER – (4); North Is., Pohingina Valley, Northern Manawatu. Forest of *Podocarpus totara*, *Alectryon excelsum* (titoki),

Neopanax sp., *Beilschmiedia tawa* (tawa), *Brachyglottis* (rangiroa) and ferns. Litter, 5 IX 1965, leg. J.L. TOWNSEND – (1); South Is., Te Namu, 5.1 mi. S. Rain forest. Decayed wood, lichen, moss, 5 II 1965, leg. N.A. WALKER – (1); North Is., Haurangi, Aorangi Mountains, Litter in forest of *Notofagus fusca*, *N. menziesi*, *Cyathodes fasciculata*, *Griselinia littoralis*, *Melicytus ramiflorus*, *Myrsine salicina*, *Blechnum discolor*, 2 IX 1965, leg. J.L. TOWNSEND – (1); South Is., Peel Forest Reserve, Agnes Hills Bush, Fern Walk, N. of Arundel. Thin litter under *Podocarpus picatus*, 27 II 1965, leg. N.A. WALKER – (3); North Is., Mount Holdsworth Track, East Tararuoa Range, alt. 1000 ft. Litter under *Nothofagus menziesi*, *N. fusca*, *Weinmannia racemosa*, *Neopanax* and *Blechnum discolor*, 3 IX 1965, leg. J.L. TOWNSEND – (2); South Is., Kawai Bush Scenic Reserve near Springfield, off Arthur's Pass Road. Mountain beech forest. Deep litter, 1 III 1965, leg. N.A. WALKER – (7); South Is., Goose Bay, 0.7 mi., S., S. of Kaikoura, alt. near sea level, general litter, 2 III 1965, leg. N.A. WALKER – (1); North Is., Upper Hutt, 5.3 mi. N. on Akatarawa Road, alt. perhaps 250 ft., presumably podocarp-hardwood-beech forest, looked more brushy bush, litter, no moss, 22 IV 1965, leg. N.A. WALKER – (8); South Is., Ashley Gorge area, 5.8 mi. N. of Oxford, LEE Valley Road, alt perhaps 1200 ft. General litter, decayed wood, not under podocarp, 1 III 1965, leg. N.A. WALKER – (4); South Is., Te Namu, 3.4 mi. S., under rain forest tree with buttressed trunk, litter and fungused litter, generally not to soil, 5 II 1965, leg. N.A. WALKER – (1); North Is., Tongariro National Park Headquartere, 1.6 mi. N.W., alt. 3500 ft. Mountain beech forest. Litter, moss, decayed wood, 21 IV 1965, leg. N.A. WALKER – (1); South Is., Hollyford River Valley, 7.2 mi. N. of Milford Sound Road, Fiordland National Park, silver beech, kamahi, tree ferns, fern litter, some moss, lichen, wet, 20 II 1965, leg. N.A. WALKER – (3); South Is., Milford Sound Hotel, 4.3 mi. E., Fiordland National Park, or 70.2 mi. N.W. of Te Anau, alt. about 200 ft., rain forest, very thin litter, decayed wood, moss, 20 II 1965, leg. N.A. WALKER – (1); South Is., Goose Bay, 0.7 mi., S., S. of Kaikoura, alt. near sea level, general litter, 2 III 1965, leg. N.A. WALKER – (1); South Is., Hapuku River Valley, 4.7 mi. N.W. of highway 1, toward Kaipuna Bush, N. of Kaikoura, alt. perhaps 300 ft. Mixed bush, fern. litter, little humus, 25 III 1965, leg. N.A. WALKER – (8); South Is., Dunedin, 7.4 mi. N., or 5.4 mi. S, Waitata, alt. about 1100 ft., at summit. Native bush, beech, ferns. Thin damp litter, decayed wood, 26 II 1965, leg. N.A. WALKER – (5); South Is., Dean's Bush, Riccarton, near Christchurch. Dry litter under podocarp (small dimple in bark), 28 II 1965, leg. N.A. WALKER – (20); South Is., Ashly Gorge area, 5.8 mi. N. of Oxford, LEE Valley Road, alt. perhaps 1200 ft. Litter, decayed wood under podocarp, 1 III 1965, leg. N.A. WALKER – (24) (NIEDBAŁA 1993); South Is., Hapuku River Valley, 5.4 mi. N.W. of highway 1, toward or in Kaipuna Bush, N. of Kaikoura, alt. perhaps 400 ft. Mixed podocarp beech bush. Litter, very little humus, 25 III 1965, leg. N.A. WALKER – (8); North Is., Tongariro National Park Headquarters, 0.3 mi. E., up, alt. about 3800 ft. Short mountain beech forest, near timberline. Litter, moss, lichen, 21 IV 1965, leg. N.A. WALKER – (4); North Is., Mount Egmont National Park, 0.4 mi. E., down of Stratford Mountain House, alt. 2600 ft. Highland podocarp-hardwood forest, litter, little moss, lichen, decayed wood, 17 IV 1965, leg. N.A. WALKER – (1); South Is., Mount Roberts, Nelson Lakes National Park, alt. 2800 ft., Paddy's end of trail road, red beech forest, litter, 21 III 1965, leg. N.A. WALKER – (7); Okuti Valley, 7 km ESE town of Little R. spring moss, 8 V 1990, leg. J.B. HOY – (1)

DISTRIBUTION. New Zealand, probably an endemic species.

Sobacarus Ramsay et Sheals, 1969

Sobacarus corneri Ramsay et Sheals, 1969
(Figs 287-289)

Sobacarus ranokaoensis Hammer, 1970 **syn. nov.**

Diagnosis. See p. 107.

Material. Localities in the Australian region: Australia, New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. Kohout – (8); New Zealand, North Is., Ohura, 19.5 mi. S.W., middle of Tangarakau Gorge Scenic Reserve, alt. perhaps 450 ft. *Podocarp*-hardwood lowland beech forest, litter, considerable moss, little decayed wood, no lichen, 18 IV 1965, leg. N.A. Walker – (5); North Is., Lake Okataina, 0.6 mi. N., alt. perhaps 1150 ft. Luxuriant rain forest, towai, podocarp-hardwood type, litter, no wood, 10 IV 1965, leg. N.A. Walker – (1); South Is., Lake Paringa Picnic Ground, 16.8 mi. N., alt. near sea level, beech tree, damper sides, litter, moss, some "Nidularia-like" lichen, 7 II 1965, leg. N.A. Walker – (1); North Is., Waipoua Kauri Forest, 0.4 mi. N. of Waipoua River, two adjacent mature kauri tees, litter, 13 IV 1965, leg. N.A. Walker – (2); South Is., Lake Paringa Picnic Ground, 16.8 mi. N., alt. near sea level, beech tree, damper sides, litter, much moss, 7 II 1965, leg. N.A. Walker – (5).

Distribution. A Pantropical species. Probably from the Oriental region across Australia and New Zealand distributed towards Pacific islands.

Indotritia (*Zeaotritia*) Mahunka, 1988

Zeaotritia Mahunka, 1988

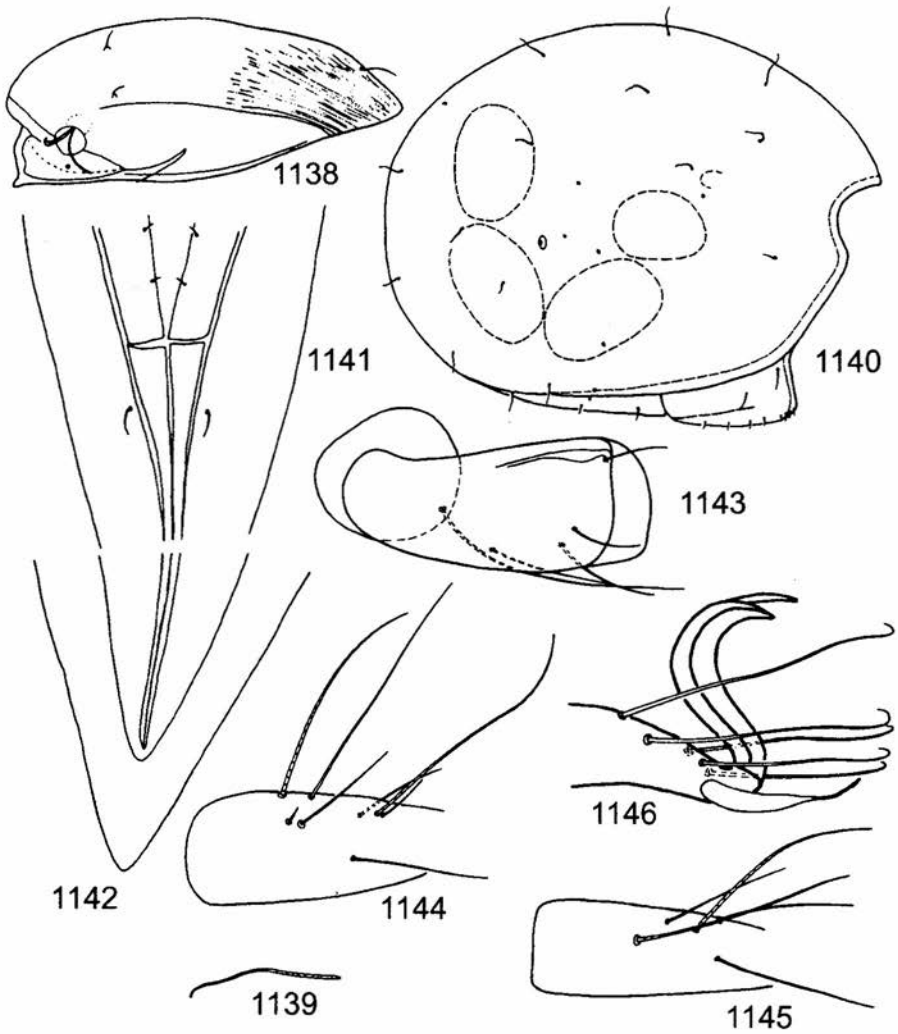
Diagnosis. Prodorsum low, median crista absent, lateral carinae present, bothridial squamae situated above bothridia, posterior median apodeme absent, Sensilli dilated distally, barbed; ano-genital cleft absent, partly developed genitoaggenital and distinct anoadanal suture. Notogaster with 14 pairs of setae, setae ps_1 above ps_{2-3} setae, terminale suture at posterior end. Palps 5 -segmented (in my opinion) suture between trochanter and femur only partly marked. Legs; trochanters of legs III and IV with 3 setae each, genua IV with solenidia, setae *d* of tibiae IV reduced, coupled with the d solenidia, setae u' of tarsi IV thick, spiniform, tarsi heterotridactylous.

Remark. Of three subgenera of the genus *Indotritia*: *Indotritia*, *Pocsia* and *Zeaotritia*, only *Zeaotritia* is represented in the Australian region, distinguished by the absence of anogenital cleft.

Indotritia (*Zeaotritia*) *aotearoana* Ramsay, 1966
(Figs 1138-1146)

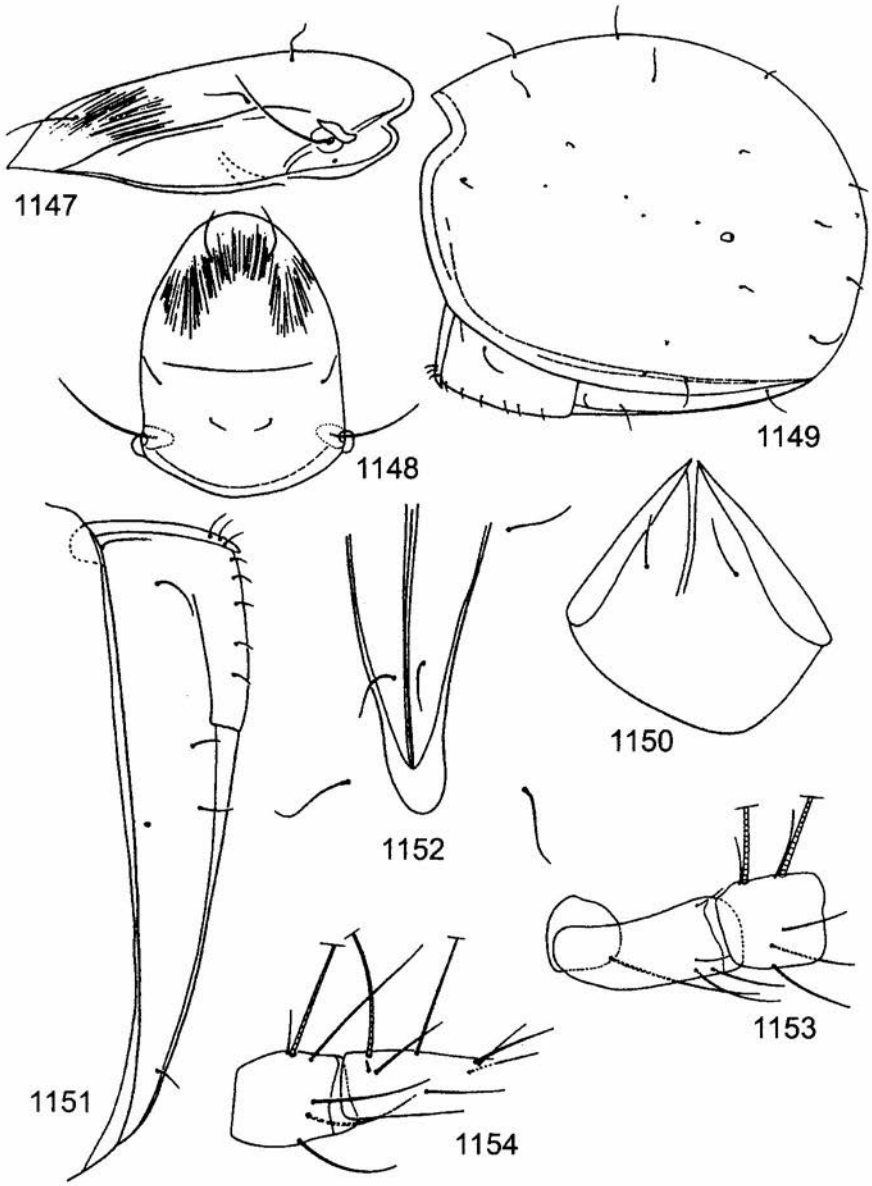
Indotritia aotearoana Ramsay, 1966

DIAGNOSIS. Measurements of holotype: prodorsum: length 480, height 202, sensillus 75.7, setae: interlamellar 40.4, lamellar 35.3, rostral 45.4; notogaster: length 939, height 716, setae: c_1 60.6, h_1 40.4, ps_1 35.3, c_1/c_1-d_1 = 0.28; length of genitoaggenital plate 252, length of anal plate 424. Prodorsum with one pair of lateral carinae, sensilli fairly long, bristle-like with few distal barbs present, setae simple, fine. Notogaster with very short setae, setae of rows c remote from anterior margin, setae c_3 more so than setae c_1; two pairs of vestigial setae present. Ventral region, 8 pairs of genital, 2 pairs of aggenital setae present; anal plates without traces of anal setae, adanal plates each with 3 short setae, lyrifissures *iad* situated anteriad from ad_2 setae. Chaetotaxy and solenidiotaxy of legs (without tarsi): I: 1-4-5(2)-5(1); II: 1-4-4(1)-4(1); III: 3-2-3(1)-3(1); IV: 3-2-2(1)-3(1).



1138-1146. *Indotritia* (*Zeaotritia*) *aotearoana* RAMSAY, 1966 (holotype): 1138 - prodorsum, lateral view, 1139 - sensillus, dorsal view, 1140 - notogaster, lateral view, 1141 - central part of ventral region, 1142 - posterior part of ventral region, 1143 - trochanter and femur of leg I, 1144 - fragment of tarsus of leg I, 1145 - fragment of tarsus of leg II, 1146 - distal part of tarsus of leg IV with seta *u'*

MATERIAL. Holotype female (courtesy Dr. G.W. RAMSAY, Systematics Section, Entomology Division, Auskland) with label: "The Brather Cook Strait 12-19/5/56 G.W. RAMSAY" and 2 paratypes in alcool from British Museum (courtesy Dr. A. BAKER, Department of Entomology, British Museum (Natural History), London) labeled: "*Indotritia aotearoa* RAMSAY Paratypes 1966.10.4.3x4 New Zealand, the Brothers Cook Strait, Collxdet. G.W. RAMSAY 12-19.5.1965". Localities in the



1147-1154. *Indotritia* (*Zeaotritia*) *brevipilosa* sp. nov. (holotype): 1147 - prodorsum, lateral view, 1148 - prodorsum, dorsal view, 1149 - notogaster, lateral view, 1150 - mentum of infracapitulum, 1151 - right side of ventral region, 1152 - posterior part of ventral region, 1153 - trochanter, femur and genu of leg 1, 1154 - tibia and fragment of tarsus of leg I

Australian region: New Zealand, Summit Mangamaka Rd., at 2000 m, *Knightia weinmannia*, 21.I.1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Moerewa – Kawakawa, Tumtable Hill summit. Damp forest. Matai, kohokoho, *Cyathea*, taraire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Maungatapere, Whangarei Kohekohe, karaka, hikau, flat, rather dry, open, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Omahuta Forest Kauri Sanctuary, Kauri forest litter, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); The Brothers, Cook Strait, 12-19.5.56, leg. G.W. RAMSAY - (35) (RAMSAY 1966).

DISTRIBUTION. New Zealand, probably an endemic species

Indotritia (Zeaotritia) brevipilosa sp. nov.

(Figs 1147-1154)

DESCRIPTION. Measurements of holotype: prodorsum: length 444, width 317, height 114, sensillus 152, setae: interlamellar 38, lamellar 44, rostral 89; notogaster: length 727, width and height 561, c_1 90.9, h_1 and ps_1 15.1, ps_2 48.2, genitoaggenital plate 177x121, anal and adanal plates 379x90.9. Colour brown, integument finely porose. Prodorsum with two pairs of lateral carinae near each other, lower carinae feeble, interrupted. Sensilli smooth, long, setiform, gradually tapering. Setae fine, short, exobothridial setae vestigial. Notogaster with very short setae, setae of rows *ps* the longest, setae c_3 near anterior border, setae c_1 and c_2 remote from border. Two vestigial setae present on each side. Ventral region. Setae *h* of mentum shorter than distance between them. Epimeral setal formula: 3-0-2-2. 8 pairs of genital and 2 pairs of aggenital setae, anal plates without setae. 3 pairs of adanal setae, lyrifissures *iad* located slightly posterior to ad_2 setae. Legs. Setal and solenidial formulae (without tarsi): I: 1-4-5(2)-5(1), II:1-4-4(1)-4(1), III: 3-2-3(1)-3(1), IV: 3-2-2(1)-3(1).

ETYMOLOGY. The name of this species, *brevipilosa*, is Latin for „short hair", and refers to the length of notogastral setae.

DIAGNOSIS. The new species is very similar to *Indotritia* (*Z.*) *aotearoana* RAMSAY, 1966 from New Zealand and differs in the shape of sensilli, long, smooth and setiform and in the presence of two pairs of lateral carinae of prodorsum.

MATERIAL. Holotype and two paratypes: Australia, QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN. Other localities in the Australian region: Australia, QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (6);QLD Joalah Nat. Park, at 380 m, 27° 55'S, 153° 12'E, rainforest, 14 III 1973, leg. R.J Kohout – (1); QLD, Seymour Range, 17° 26'S, 146° 00'E rainforest, leg. R.W. TAYLOR and FEEHAN – (4);VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (1);QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (1).

DISTRIBUTION. North and south parts of the Australian continent.

Indotritia (Zeaotritia) brevisetosa NIEDBAŁA et COLLOFF, 1997 nov. nom.

(Figs 6-13 in NIEDBAŁA & COLLOFF 1997)

Indotritia breviseta NIEDBAŁA et COLLOFF, 1997 not *I. breviseta* BERLESE, 1923

DIAGNOSIS. Prodorsum with single, long lateral carinae; sensilli fairly short, attenuate, smooth, setae very fine, exobothridial setae vestigial. Notogaster with minute setae; c_1 and c_2 remote from anterior margin, c_3 nearer margin; tendon attachment point (*t*), two vestigial setae present on each side. Ventral region, genitoaggenitale plates each with nine genital and two aggenital setae; anal plates lacking setae; adanal plates each with three setae. Legs, setal and solenidial formulae (without tarsi): I: 1-4-5(2)-5(1); II: 1-4-4(1)-4(1); III: 3-2-3(1)-3(1); IV: 3-2-2(1)-3(1), anterodorsal spine on each femur I present and moderately developed.

REMARK. Since *Indotritia breviseta* NIEDBAŁA & COLLOFF, 1997 is a younger homonym of *Indotritia breviseta* described earlier by BERLESE in 1923 from oriental Africa, I have changed its name into *brevisetosa*.

MATERIAL. Localities in the Australian region: Australia, Lamington Nat. P. S.E.Q., extracted from litter, 6 III 1965, leg. B. CANTRELL – (2); Mt. Nebo S.E.Q., BERLESEate leaf, 28 III 1967, leg. J.B. WILLIAMS – (2); Bunya Mts, S.E.Q., BERLESEate, 11-12 II 1967, leg. B. CANTRELL – (2); Tasmania, Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (4); Big Sassy Creek, 21 km NNW of Little Swanport, Sassafrass, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV 1989, leg. J. DIGGLE – (17); Big Sassy Creek, 21 km NNW of Little Swanport, Sassafrass, pyrethrum knock-dawn, 42°09'S, 147°55'E, pyrethrum knock-dawn, 12 IV 1989, leg. H. MITCHELL – (2); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, pyrethrum knock-dawn, 12 IV 1989, leg. P. GREENSLADE – (12); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, pyrethrum knock-dawn, 12 IV 1989, leg. P. GREENSLADE and D. ROUNSEVELL – (1); Sandpit River, litter, forestry reserve, 42°42'S, 147°52'E, 22 V 1989, leg. P. GREENSLADE – (1); Sandpit River, Sassafras, pyrethrum knock-down, forestry reserve, 42°42'S, 147°52'E, 2 VI 1989, leg. J. DIGGLE and H. MITCHELL – (9); Mount Wellington, Old Farm Road, litter, *Eucalyptus* forest, 42°54'S, 147°14'E, 20 VI 1989, leg. P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, moss on ground, 42°09'S, 147°55'E, 17 V 1989, leg. H. MITCHELL – (1); Big Sassy Creek, 21 km NNW of Little Swanport, moss on tree, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE and H. MITCHELL – (1); Big Sassy Creek, 21 km NNW of Little Swanport, moss on tree, 42°09'S, 147°55'E, 17 V 1989, leg. H. MITCHELL – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Queensland in Australia and Tasmania.

Indotritia (Zeaotritia) krakatauensis (SELLNICK, 1923)

(Figs 325-328)

Tritia krakatauensis SELLNICK, 1923
Indotritia krakatauensis (SELLNICK, 1923): NIEDBAŁA 1998
Indotritia acanthophora MARKEL, 1964
Indotritia sellnicki AOKI, 1965

DIAGNOSIS. See p. 114.

MATERIAL. Localities in the Australian region: Papua New Guinea, Port Moresby, litter under old tree near University, 17 XI 1981, leg. J. KOLASA – (1); Port Moresby,

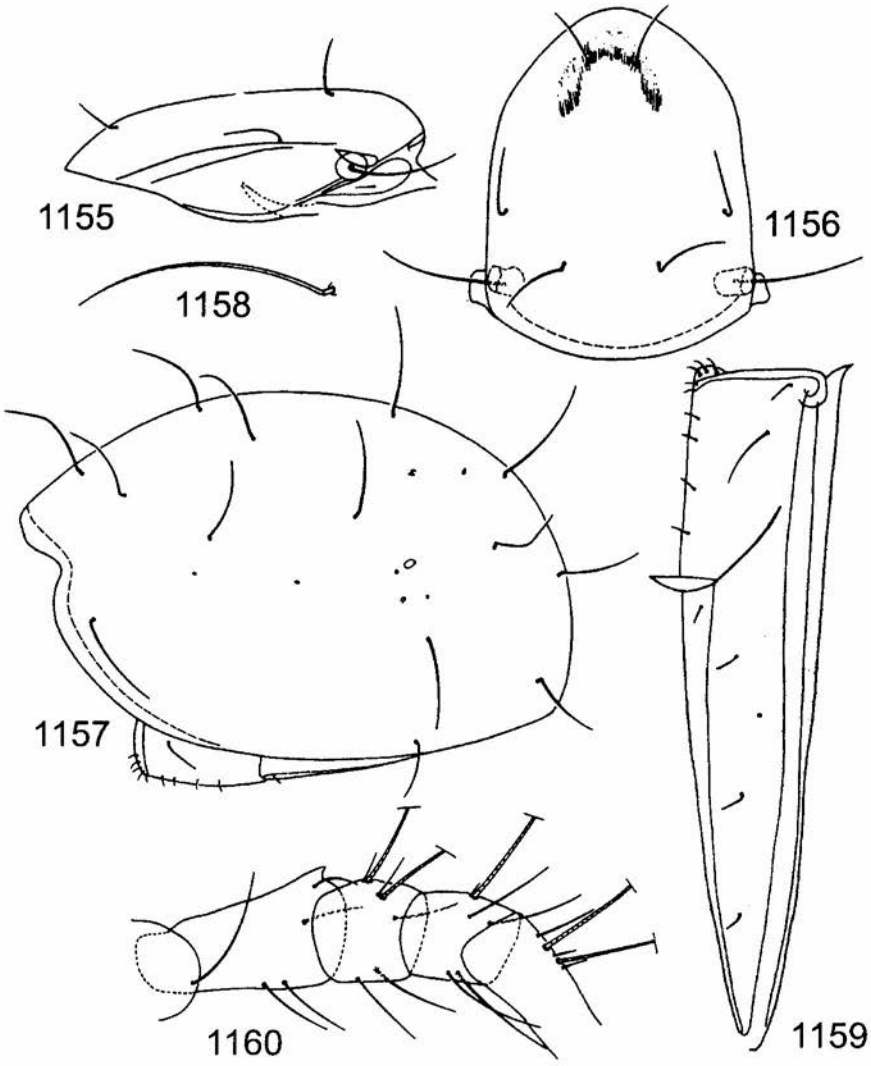
Botanical Garden, humus, 13 XI 1981, J. KOLASA – (4); Port Moresby, Botanical Garden, litter, 13 XI 1981, leg. J. KOLASA – (12)

DISTRIBUTION. A Pantropical species.

Austrotritia bifurca sp. nov.

(Figs 1155-1160)

DESCRIPTION. Measurements of holotype: prodorsum: length 465, width 353, height 156, sensillus 177, setae: interlamellar 90.9, lamellar 65.6, rostral 85.8, exobothridial 20.2; notogaster: length 727, width and height 469, setae: c_1 136, c_3



1155-1160. *Austrotritia bifurca* sp. nov. (holotype): 1155 - prodorsum, lateral view, 1156 - prodorsum, dorsal view, 1157 - notogaster, lateral view, 1158 - seta ps_1, 1159 - left side of ventral region, 1160 - trochanter, femur, genu, tibia and fragment of tarsus of leg I

111, h_1 136, ps_1 131; genitoaggenital plate 515x121, anal and adanal plate 232x136. Colour light brown, cuticle punctate. Prodorsum with two pairs of carinae, lower carinae start from insertion point of lamellar setae and run obliquely to the distal end of rostrum, sensilli long, smooth, setiform, tapering gradually, setae moderately long, interlamellar and rostral setae rough, lamellar and exobothridial setae smooth. Notogaster with moderately long setae, setae c_3 and ps_3 smooth, setae c_3 the longest, other setae sparsely covered with small spines at distal end, setae c_3 near anterior border, setae c_1 and c_2 far from border. Ventral region. Infracapitulum typically euphthiracaroid, setae *h* of mentum very long, considerably longer than distance between them, epimeral setal formula: 3-0-2-2, five segmented palps with formula: 0-2-0-2-9(1), 9 pairs of genital setae, 2 pairs of aggenital setae, setae ag_1 very long, 1 pair of anal setae, 3 pairs of adanal setae, lyrifissures *iad* located between setae ad_2 and ad_3. Leg setal and solenidial formula: I: 1-4-5(2)-5(1)-22(3), II: 1-4-4(1)-3(1)-19(2), III: 3-2-3(1)-3(1)-14(0), IV: 3-2-3(1)-3(1)-10(0), small dorsoanterior tooth on each femur I present.

ETYMOLOGY. The specific epithet *bifurcus* is Latin for "having two prongs or forks" and refers to the shape of lateral carinae of prodorsum.

DIAGNOSIS. The forked shape of lateral carinae of prodorsum, long ag_1 setae and presence of 4 setae on femora I separate this species from all other members of the genus *Austrotritia*.

MATERIAL. Holotype and 16 paratypes: Australia, QLD, Eachan Nat. Park, 17° 18'S, 145° 37'E, rainforest, at 760 m, 16 II 1973, leg. R.W. TAYLOR. Localities in the Australian region: Papua New Guinea, Central d. Goilala subd., Tuvala leaf litter (TF), 20 II 1974, leg. P.T. LEHTINEN – (3); Australia, QLD. Mc Namee Creek , 17° 40'S, 145° 49', alt. 300 m, rainforest, 8.VII.1971, leg. R.W. TAYLOR, FEEHAN – (25);QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (8);QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (13);QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (31);QLD. Mc Namee Creek, 17° 40'S, 145° 49'E, alt. c. 300 m, rainforest, 8.VII.1971, leg. R.W. TAYLOR and FEEHAN – (7);QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1); Queensland, near Ellis Beach, N. Cairns, forest with high humidity, transitional zone to the rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (13).

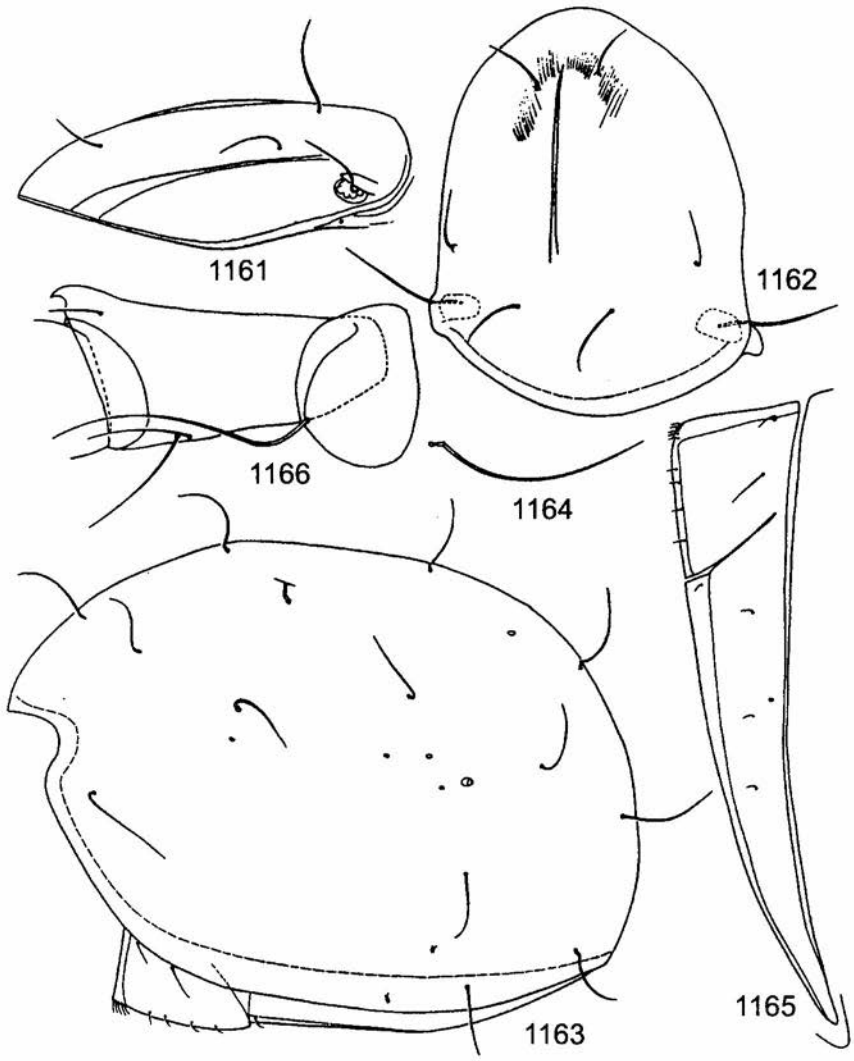
DISTRIBUTION: New Guinea and north Australia (Queensland).

Austrotritia carinata sp. nov.

(Figs 1161-1166)

DESCRIPTION. Measurements of holotype: prodorsum: length 465, width 347, height 155, sensillus 112, setae: interlamellar 105, lamellar 52.7, rostral 55.8; notogaster: length 926, width 659, height 667, setae: c_1 155, c_3, h_1 and ps_1 143; genitoaggenital plate 186x130, anal and adanal plates 471x99.2. Colour, yellow or light brown, integument with fine puncturation. Prodorsum with distinct median carina, double lateral carinae present, distance between them large at distal end, sensilli moderately short, smooth, tapering, interlamellar and rostral setae rough, lamellar setae smooth, exobothridial

setae vestigial. Notogaster with setae moderately short and smooth (setae of specimens from sample from Mt. Wilhelm much shorter), setae c_3 the longest and situated near anterior border, setae c_1 and c_2 far from border, openings of opisthosomal glands, five pairs of lyrifissures and 2 pairs of vestigial setae present. Ventral region, setae *h* of mentum longer than distance between them, epimeral setal formula: 3-0-2-2, five segmented palps with formula: 0-2-0-2-9(1), 9 pairs of genital setae, 2 pairs of aggenital setae, ag_1 setae longer than ag_2 setae, one pair of anal and 3 pairs of adanal setae present, lyrifissures *iad* situated slightly anterior to ad_2 setae. Legs, formulae of setae and solenidia: I: 1-3-5(2)-5(1)-22(3), II: 1-4-4(1)-3(1)-19(2), III: 3-2-3(1)-3(1)-14(0), IV: 3-2-2(1)-3(1)-10(0), tooth on dorsoanterior part of each femur I is present.



1161-1166. *Austrotritia carinata* sp. nov. (holotype): 1161 - prodorsum, lateral view, 1162 - prodorsum, dorsal view, 1163 - notogaster, lateral view, 1164 - seta h_1, 1165 - left side of ventral region, 1166 - trochanter and femur of leg I

DIAGNOSIS. This species differs from other members of the genus *Austrotritia* in the presence of median carina of prodorsum, vestigial exobothridial setae, ag_1 setae longer than ag_2.

MATERIAL. Holotype and one paratype: Australia, Cairns, litter of bushes above stream, 28 VIII 1979, leg. J. BŁOSZYK. Other localities in the Australian region: Australia, Cairns, S of ville, in forest, 28 VIII 1979, leg. J. BŁOSZYK – (2). Papua New Guinea, Mt. Wilhelm, alt. 2930 m, mixed mountain forest, from litter, leaves and moss, dry, 10 IX 1979, leg. J. BŁOSZYK – (5).

DISTRIBUTION. New Guinea and north Australia (Cairns).

Austrotritia lebronneci (JACOT, 1935)

(Figs 383-387)

Indotritia lebronneci JACOT, 1935

DIAGNOSIS. See page 126.

MATERIAL. Localities in the Australian region: New Caledonia, Mont Panié, at 1300-1500 m, 7-8 X 1977, leg. J. BALOGH – (1).

DISTRIBUTION. A Pantropical species.

Austrotritia robusta NIEDBAŁA, 1998

(Figs 392-403)

DIAGNOSIS. See p. 130.

MATERIAL. Localities in the Australian region: Papua New Guinea, Mt. Hagen, alt. 3100 m, litter under bamboo, wet, 5 IX 1979, leg. J. MICHEJDA – (1); Hill on Ambunti, litter under old tree, 22 IX 1979, leg. J. BŁOSZYK – (1); Thicket on the river, 30 km E of Port Moresby, alt. 400 m, Motel Kokode Trail, grass and fern, litter, 1 IX 1979, leg. J. BŁOSZYK – (1);Mt. Hagen, alt. 3400-3500 m, moss forest, litter, 5 IX 1979, leg. J. MICHEJDA – (6); Mt. Wilhelm, alt. 2930 m, mixed mountain forest, from litter, leaves and moss, dry, 10 IX 1979, leg. J. BŁOSZYK – (2); Mt. Hagen, alt. 3300 m, moss forest, litter, 5 IX 1979, leg. J. MICHEJDA – (?); Mt. Hagen, alt. 3100 m, litter under bamboo, wet, 5 IX 1979, leg. J. MICHEJDA – (1).

DISTRIBUTION. An Oriental species introduced in New Guinea.

Euphthiracarus monodactylus (WILLMANN, 1920)

(Figs 1167-1173)

DIAGNOSIS. Surface of body covered with small pits. Prodorsum with two lateral carinae, upper carinae stronger, sensilli long with short fusiform head, interlamellar and lamellar setae robust, erect, covered with small spines in distal half, rostral setae bent inward. Notogaster with fairly short setae, covered with small spines in distal half. Ventral region with 8 or 9 pairs of genital and 2 pairs of aggenital setae and 3 pairs of anal and 3 pairs of adanal setae. Tarsi monodactylous.

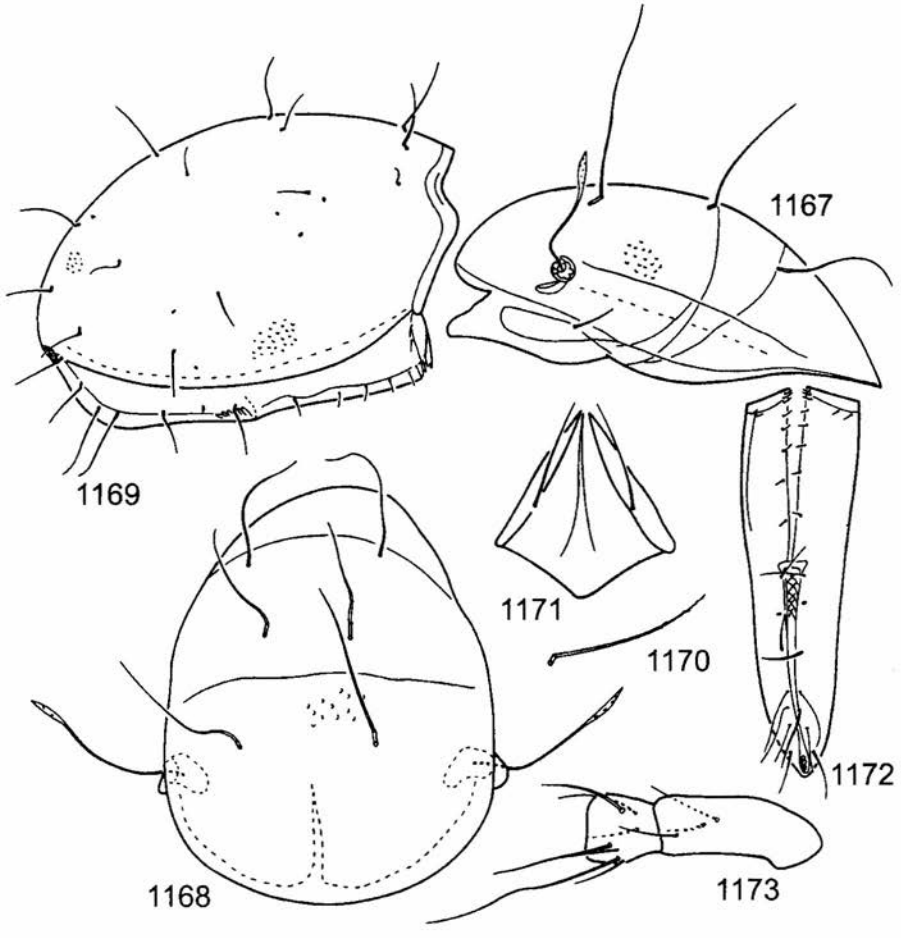
MATERIAL. Locality in the Australian region: Papua New Guinea, Thicket on the river, 30 km E of Port Moresby, alt. 400 m, Motel Kokode Trail, under bamboo, wet, 1 IX 1979, leg. J. BŁOSZYK – (1)

DISTRIBUTION. A Palaearctic species, probably introduced.

Rhysotritia bipartita sp. nov.

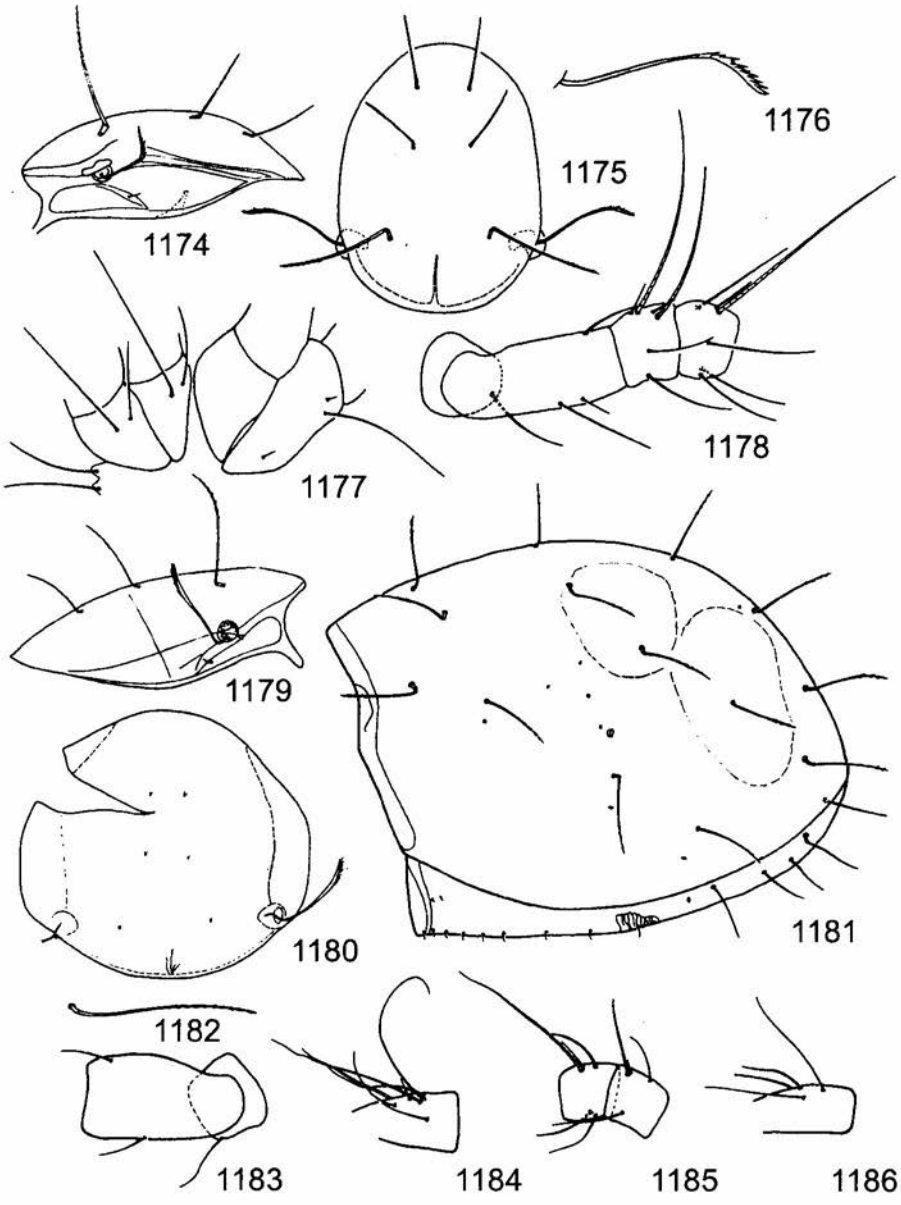
(Figs 1174-1178)

DESCRIPTION. Measurements of holotype: prodorsum: length 230, height 86, sensillus 65.8, setae: interlamellar 114, lamellar 75.9, rostral 63.2, exobothridial 7.6. Colour yellow, integument finely punctate. Prodorsum with two long and large lateral carinae running parallelly. Sensilli with narrow stalk and slightly fusiform head covered with robust spines. Setae rigid, covered with small spines in distal half



1167-1173. *Euphthiracarus monodactylus* (WILLMANN, 1920) (specimen from Poland): 1167 - prodorsum, lateral view, 1168 - prodorsum, dorsal view, 1169 - notogaster, lateral view, 1170 - seta h_1, 1171 - mentum of infracapitulum, 1172 - ventral region, 1173 - femur and genu I

(except minute exobothridial setae). Notogaster with setae rigid, moderately long covered with small spines in distal part. Arrangement of setae, openings of opisthosomal glands, lyrifissures and vestigial setae typical for *Rhysotritia*. Ventral region typical for the genus, epimeral formula: 3-0-2-2, 9 pairs of genital setae and 2



1174-1178. *Rhysotritia bipartita* sp. nov. (holotype): 1174 - prodorsum, lateral view, 1175 - prodorsum, dorsal view, 1176 - sensillus, dorsal view, 1177 - epimeral region, 1178 - trochanter, femur, genu and tibia of leg I; 1179-1186. *Rhysotritia wallworki* Lee, 1980 (paratype): 1179 - prodorsum, lateral view, 1180 - prodorsum, dorsal view, 1181 - notogaster, lateral view, 1182 - seta h_1, 1183 - trochanter and femur of leg I, 1184 - fragment of tarsus of leg I, 1185 - genu and tibia of leg II, 1186 - fragment of tarsus of leg II

pairs of aggenital setae present. Leg chaetotaxy and solenidiotaxy: I: 1-3-4(2)-4(1)-17(3), II: 1-3-3(1)-4(1)-13(2), III: 2-2-2(1)-3(1)-11(0), IV: 2-1-2(0)-2(1)-10(0), all tarsi monodactulous.

ETYMOLOGY. The specific epithet *bipartitus* is Latin meaning „divided in two" and alludes to the shape of the lateral carinae of prodorsum.

DIAGNOSIS. The new species is easily distinguishable from its congeners by the shape of two large pairs of lateral carinae of prodorsum and monodactylous tarsi.

MATERIAL. Holotype and 29 paratypes: Australia, QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN; Localities in the Australian region: Australia,QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (10);QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1);QLD, Koombooloomba, , 17° 50'S, 145° 36'E alt. 750 m, wet, 4 VII 1971, leg. R.W. TAYLOR and FEEHAN – (15).

DISTRIBUTION. Australia, Queensland, probably an endemic species.

Rhysotritia comteae MAHUNKA, 1983
(Figs 492-495)

Rhysotritia bifurcata NIEDBAŁA, 1993 **syn. nov.**
Rhysotritia anchistea NIEDBAŁA, 1998 **syn. nov.**

DIAGNOSIS. See p. 156.

MATERIAL. Localities in the Australian region: Papua New Guinea, Port Moresby, Botanical Garden, humus, 13 XI 1981, J. KOLASA – (1); Thicket on the river, 30 km E of Port Moresby, alt. 400 m, Motel Kokode Trail, under bamboo, wet, 1 IX 1979, leg. J. BŁOSZYK – (1); W of Toboga, alt. 2000 m, dense forest on the rocks, moss and litter, 3 IX 1979, leg. J. BŁOSZYK – (1); Port Moresby, garden on the center, under *Theretia peruwiana*, leaves and litter, 31 VIII 1979, leg. J. BŁOSZYK – (5). Australia, Mossman Gorge, at 30 m, 23 II 1984, leg. L. MASNER – (4); Cairns, litter of bushes above stream, 28 VIII 1979, leg. J. BŁOSZYK – (1).; Lamington Nat. P. S.E.Q., extracted from litter, 21 XI 1965, leg. B.CANTRELL – (2); Queensland, southern part of Cape Tribulation, N. Cairn, rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (12). sub *R. bifurcata*: New Zealand, Waiorio Bush, 1 mile (1,6 km) south of Kawakawa, Northland, 3 Sep 1965. J.M. COX coll. Low *Podocarpus* (totara) bush, in litter (NIEDBAŁA 1993). New Zealand, Awakiro Gorge, Sav Reserve, Titoki, Tawa Matali, Mahoe, Kawakawa, steep dry grasse, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Awakiro George Scenic Reserve, Titoki, *Cyathea*, valle floor, damper, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Te Paki, 7 I 1967, leg. R.R. FORSTER – (6); South Is., Brods Bay Shore, Lake Te Anau, Fiordland National Park, silver, mountain beech, dry, litter, fungusy, 21 II 1965, leg. N.A. WALKER – (2); North Is., Awakino, 9.1 mi. N.E. of Awakino Scenic Reserve, podocarp-hardwood bush, rocky. Small sample, thin litter, well decayed wood, 15 IV 1965, leg. N.A. WALKER – (3); South Is., Onamalutu Domain, near 10 mi. N.W. of Renwick, Marlborough Count. Podocarp-rimu forest, litter, including fern fronds, 12 V 1965, leg. N.A. WALKER – (1); North Is., Lake Okataina, 0.6 mi. N., alt. perhaps 1150 ft. Luxuriant

rain forest, towai, podocarp-hardwood type, litter, no wood, 10 IV 1965, leg. N.A. WALKER – (1); North Is., Awakino, 3.7 mi. N.E., Scenic Reserve, Podocarp-hardwood bush, litter, some decayed wood, 16 IV 1965, leg. N.A. WALKER – (4); North Is., Waiorio Bush, 1 mi. S. of Kawakawa, Northland, low *Podocarpus totara*, litter, 3 IX 1965, leg. J.M. COX – (26); New Caledonia, Mont Panié, at 1300-1500 m, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, soil and roots under fern trees, 7-8 X 1977, leg. J. BALOGH – (2); Massif Humboldt, Karangue, litter of brookside bush, 13. 10. 1988, leg. P.T. LEHTINEN – (13).

DISTRIBUTION. A Pantropical species.

Rhysotritia lucida NIEDBAŁA, 1998

(Fig. 515)

DIAGNOSIS. See p. 163.

MATERIAL. Localities in the Australian region: Australia,QLD. near Kenilworth, 26° 36'S, 152° 43'E, c. 150 m, rainforest, 17.III.1973, leg. R.W. TAYLOR – (8). New Caledonia, Massif Humboldt, Karangue, litter of brookside bush, 13. 10. 1988, leg. P.T. LEHTINEN - (1).

DISTRIBUTION. A Pantropical species.

Rhysotritia refracta NIEDBAŁA, 1998

(Figs 526-529)

DIAGNOSIS. See p. 168.

MATERIAL. Locality in the Australian region: New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (1).

DISTRIBUTION. A Pantropical species.

Rhysotritia spiculifera MAHUNKA, 1991

(Figs 538-540)

Rhysotritia clavata spiculifera MAHUNKA, 1991

DIAGNOSIS. See p. 170.

MATERIAL. Localities in the Australian region: Papua New Guinea, Hill on Ambunti, litter under pine-apple, 22 IX 1979, leg. J. BŁOSZYK – (1); Port Moresby, Botanical Garden, humus, 13 XI 1981, J. KOLASA – (3); Thicket on the river, 30 km E of Port Moresby, alt. 400 m, Motel Kokode Trail, grass and fern, litter, 1 IX 1979, leg. J. BŁOSZYK – (2); Port Moresby, garden on the center, under *Theretia peruwiana*, leaves and litter, 31 VIII 1979, leg. J. BŁOSZYK – (1); Port Moresby, Botanical Garden, litter, 13 XI 1981, leg. J. KOLASA – (7); Port Moresby, in leafy forest near University, 17 XI 1981, leg. J. KOLASA – (3). Australia,QLD. Mc Namee Creek , 17° 40'S, 145° 49', alt. 300 m, rainforest, 8.VII.1971, leg. R.W. TAYLOR and FEEHAN – (45);QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1);QLD. ca 12 km SE Millae Millae, 17° 31'S, 145°

37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (13);QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (3);QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (5);QLD. Mc Namee Creek, 17° 40'S, 145° 49'E, alt. c. 300 m, rainforest, 8.VII.1971, leg. R.W. TAYLOR and FEEHAN – (11);QLD, Koombooloomba, , 17° 50'S, 145° 36'E alt. 750 m, wet, 4 VII 1971, leg. R.W. TAYLOR and FEEHAN – (1); Cairns, S of ville, in forest, 28 VIII 1979, leg. J. BŁOSZYK – (4); Cairns, litter among herbs near road, very dry place, 28 VIII 1979, leg. J. BŁOSZYK – (1); Cairns, litter of bushes above stream, 28 VIII 1979, leg. J. BŁOSZYK – (2); Queensland, near Ellis Beach, N. Cairns, forest with high humidity, transitional zone to the rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (4); Queensland, southern part of Cape Tribulation, N. Cairns, rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (1). New Caledonia, Massif Humboldt, Karangue, litter of borookside bush, 13. 10. 1988, leg. P.T. LEHTINEN – (1).

DISTRIBUTION. A Pantropical species.

Rhysotritia wallworki LEE, 1980

(Figs 1179-1186)

DIAGNOSIS. Prodorsum with a single pair of lateral carinae; sensilli with fusiform head covered with small spines. Notogaster with fairly short setae, slightly ciliate and tapered. All tarsi monodactylous.

MATERIAL. Localities in the Australian region: South Australia, Piccaninnie Ponds Reserve, coastal shrubland, litter under *Acacia sophorae*, 3.7.1974, leg. D.C. LEE - 3 specimens; Chambers Gully, savannah woodland, litter and grass under *Eucalyptus viminalis*, 12.6.1974, leg. D.C. LEE - 2 specimens.

DISTRIBUTION. South Australia, probably an endemic species.

Microtritia contraria NIEDBAŁA, 1993

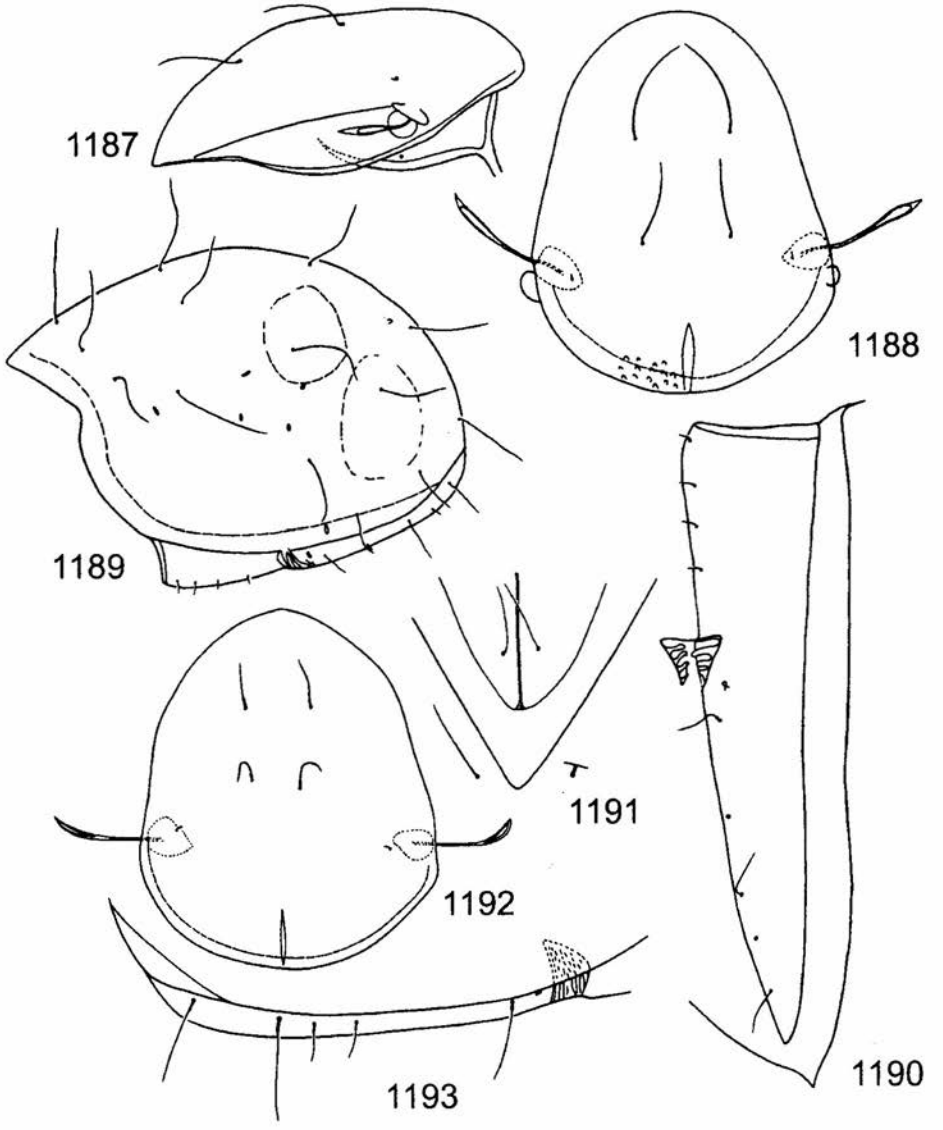
(Figs 35-39 in NIEDBAŁA 1993)

DIAGNOSIS. Colour light yellow, integument punctate. Prodorsum with a single lateral carina on each side; interlamellar and rostral setae long, thin, mutual distance between rostral setae slightly shorter than between interlamellar setae, lamellar setae minute, exobothridial setae vestigial; in > ro > le; sensilli long, with a narrow stalk and broad head, tapered and covered with fine barbs on the distal tip. Notogaster with long setae, setae of row c removed from anterior margin of notogaster, vestigial setae f_1 slightly dorsad of setae h_1; Ventral region, epimeral setal formula: 3-0-1-1, infracapitular mentum with setae *h* very long (*h*>*h*-*h*); three segmented palp with formula 2-2-7(1); 5 pairs of minute genital setae, 3 pairs of anal setae; lyrifissures *iad* located between setae ad_3 and an_3 . Leg setal and solenidial formula (without tarsi) as follows: I: 1-2-3(2)-5(1), II: 1-2-3(1)-2(1), III: 1-2-2(1)-2(1), IV: 1-1-1-2(1), setae d on femur I minute.

MATERIAL. Localities in the Australian region: New Zealand, South Is., Mangarakau, 1,4 mi. W near West Haven Inlet, mixed, podocarp, broad leaf forest,

no beech, decayed wood, lichen, 31 III 1965, leg. N.A. WALKER – (86) (NIEDBAŁA 1993). Tasmania, Spero River, litter, 42°38'S, 145°22'E, 23 II 1989, leg. J. MARSDEN-SMEDLY – (1) (NIEDBAŁA & COLLOFF 1993).

DISTRIBUTION: New Zealand and Tasmania.



1187-1191. *Microtritia fusa* sp. nov. (holotype): 1187 - prodorsum, lateral view, 1188 - prodorsum, dorsal view, 1189 - notogaster, lateral view, 1190 - left side of ventral region, 1191 - posterior part of ventral region; 1192, 1193. *Microtritia fusa* sp. nov. (specimen from Australia): 1192 - prodorsum, dorsal view, 1193 - anoadanal region, lateral view

Microtritia fusa sp. nov
(Figs 1187-1193)

DESCRIPTION. Measurements of holotype: prodorsum: length 217, width 164, height 81, sensillus 63.2, setae: interlamellar 53.1, rostral 60.7; notogaster: length 348, width 227, height 232, setae c_1 70.8, h_1 and ps_1 65.8; genitoaggenital plate 86x40.5, anoadanal plate 157x50.6. Colour light brown, integument with fine puncturation, only posterior part of prodorsum pitted. Prodorsum with single lateral carinae, sensilli fusiform with pointed distal end, lamellar setae minute, exobothridial setae vestigial, rostral setae longer than interlamellar setae, distance between rostral setae greater than between interlamellar setae. Notogaster with fine, moderately long setae, setae of row c_{1-3} slightly remote from anterior border. Ventral region typical for genus, 4 pairs of genital setae, among setae on anoadanal plates, setae an_1 ad_2 vestigial. Legs not examined.

ETYMOLOGY. The specific name *fusus* is Latin for „spindle" and refers to the fusiform shape of sensilli.

DIAGNOSIS. The new species resembles two South American species: *Microtritia schusteri* MARKEL, 1964 and *Microtritia incisa* MARKEL, 1964 in the fusiform shape of sensilli and minute lamellar setae. The Australian species differs in the arrangement of rostral and interlamellar setae (distance between rostral setae greater than between interlamellar setae), longer notogastral setae and vestigial an_1 and ad_2 setae.

MATERIAL. Holotype and 4 paratypes: Australia, QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN. Localities in the Australian region: Australia, New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. KOHOUT – (3);VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (1);QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1). New Zealand, Foot of Mt. Heldsworth, 3 VIII 1966, leg. R.R. FORSTER and C.L. WILTON – (1)

DISTRIBUTION. Australia and New Zealand.

Microtritia glabrata NIEDBAŁA, 1993
(Figs 40-50 in NIEDBAŁA 1993)

DIAGNOSIS. Large species, colour yellow, integument finely porose. Prodorsum with long, distinct lateral carinae; sensilli long, slightly broader in middle, gradually tapering, and slightly rough; setae very fine, short (exobothridial setae vestigial), mutual distance between rostral setae shorter than between interlamellar setae. Notogaster with short, very fine setae, setae of row c situated far from anterior border, vestigial setae f_1 dorsad of setae h_1; Ventral region, infracapitulum, palps, and chelicerae typical for the family; epimeral setation: 3-0-1-1; palps 3 segmented, with setal formula 2-1-7, and 1 solenidion on tarsus; five pairs of genital (rarely 6 pairs), 3 pairs of anal, and 3 pairs of minute adanal setae; adanal fissure *iad* located anterad of seta ad_3. Setation of legs (solenidia included, without tarsi): I: 1-2-3(2)-5(2), II: 1-2-3(1)-2(1), III: 1-2-2(1)-2(1), IV: 1-1-1-2(1). Associated setae shorter than solenidia and removed from them, having distinctly separate alveoli.

MATERIAL. Localities in the Australian region: Papua New Guinea, Forest on the stream 40 km E of Port Moresby, leaves and litter, 1 IX 1979, leg. J. BŁOSZYK – (2); Papua New Guinea, Hill on Ambunti, litter under old tree, 22 IX 1979, leg. J. BŁOSZYK – (1); Papua New Guinea, Caoutchouc plantation 35 km E of Port Moresby, litter and leaves, dry, 1 IX 1979, leg. J. BŁOSZYK – (1). New Zealand, Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, bottom E side, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, W side of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Mataka River, 0.5 mi. to Wairoa, 51 mi. from Napier. Wet ground (*Schefflera*, *Melicytus*, *Alectryon*, *Macropiper*, thea), 16 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (16); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, top of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (16); Lake Waikaremoana Hawkes Bay, litter, 17 I 1972, leg. G.W. RAMSAY – (1); Ohinekuku Regeneration forest, atl. 2000', below Old Orchard, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Puketi Kauri Forest, Forest Road, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Awakiro Gorge, Sav Reserve, Titoki, Tawa Matali, Mahoe, Kawakawa, steep dry grasse, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Mt. Egmont, Dawson Falls, at 3000 (2800?) m, Kamahi forest, 24 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (11); Summit Mangamaka Rd., at 2000 m, *Knightia weinmannia*, 21.I.1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Lake Waikaremoana, Lake House, damp gully – *Cyathea*, *Melicytus*, *Weinmannia*, *Schefflera*, *Notopanax*, etc., 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Moerewa – Kawakawa, Tumtable Hill summit. Damp forest. Matai, kohokoho, *Cyathea*, taraire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Kaimai Range summit, betwen Kaimai and lower Kaimai, Tawa regrowth, 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Togatai Reserve, Tairua River, W of Coromandel peninsula, white pine-matai?, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Mt. Tegrost below Dawson Falls, at 500 m, Kamahi, grisilinea, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (11); Paihia, Kawakawa, kohekohe, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Beyond Old Orchard. Tall regeneration Kamati forest with a little rimu, *Melicytus*, *Brachyglottis*, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (9); Ngaiotonga Scenic Reserve, Russel-Ke, Kauri, *Cyathea*, *Kanula*, *Matai*, *Melicytus*, tairaire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Waipona Forest, Waipona Stream bridge, near Headquarters, kauri forest, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Lake Waikaremoara – Urewera National Park, *Rimu*, *Kamati* – beech forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); West of Urewera National Park. Mainly *Nothofagus* forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (17); Lake Waikaremoara – Urewera National Park, *Rimu*, *Kamati* – beech forest, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (45); Otepe Scenic Reserve 8 mi E of Tanpo, mainly *Rimu-Matai* forest with *Fuchia*, *Nothopanax*, *Aristotelia*, etc. 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Mt. Messorgan, 600' (between Awakino and New Plymouth), Kamahi, tawa, damp steep gully, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (56); Mamaku Hill, W of Rotorua, mainly tawa 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Mamaku Range, Fitz Gerald Glade Secenic Reserve, *Tawa*, podocarp, *Titoki*, flat forest floor, 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (9); Near Summit of Coromandel Range, on

Kopu-Hiknai Road, mixed regrowth kamahi, *Schefflera*, *Nothopanax*, *Tawa*, *Lygopodium*, *Cyathea*, *Brachylottis*, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (5); Mt. Egmont, below Davson Falls, alt. 2000 ft, *Rata*, rimu, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (21); Kaimai Range, lower West side between Te Poi and Kaimai, *Tawa* forest, 18 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Beyond Old Orchard. Tall regeneration *Kamati* forest with a little rimu, *Melicytus*, *Brachyglottis*, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (6); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, crane of saddle, 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); Runanga Deviation, near Waipunga Falls, very recently podocarp forest, rimu-matai. Damp hollow in area rather dry, 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (18); Awakiro gorge of Kuriwera Stream. *Tawa*, *Rangiore*, *Cyathea*, *Kawakawa*, rather dry, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Mangirangira Scenic Reserve (center), mixed rimu, *Cyathea*, tairaire, kohekohe, dry, 21 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (4); North of Puketona, on Bulls Road, Scenic Reserve. *Tairaire*, kohekohe, *Cyathea*, *Matai*, bush with stream, rather dry litter, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Awakiro George Scenic Reserve, *Titoki*, *Cyathea*, vally floor, damper, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Waipona Forest, Waipona Stream bridge, near Headquarters, kauri forest, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (8); Ngaiotonga Scenic Reserve, Russel-Ke, *Kauri*, *Cyathea*, *Kanula*, *Matai*, *Melicytus*, tairaire, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Waikaremoana Lake, Lake House, at 2300 m, Ngamoko track all *Elaeocarpus dentatus*, 7 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (14); Pitanga Scenic Reserve, Takaanu National Park, *Melicytus*, *Kamati*, *Rimu*, *Podocarp*, E side (moister), 13 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Otepe Scenic Reserve 8 mi E of Tanpo, mainly *Rimu-Matai* forest with *Fuchia*, *Nothopanax*, *Aristotelia*, etc. 14 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Lake Waikaremoana among large rock blocks, *Melicytus*, *Schefflera*, *Macropiper*, *Elaeocarpus*, 16 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (3); Huiarau Range, alt. 3050 ft., Tanpepe Saddle (N.W. from abowe) mainly *Nothofagus menziesii*, 17 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (7); Brods Bay Shore, Lake Te Anau, Fiordland National Park, silver, mountain beech, dry, litter, fungusy, 21 III 1965, leg. N.A. WALKER – (1); Ulva Is. Stewart Is, 18 XII 1968, leg. I. SUTHERLAND – (9); Te Wharan E. Wairarapa, 5 III 1967, leg. C.L. WILTON – (1); Jackson Bay, 15 III 1966, leg. R.R. FORSTER – (3); Mc Graths Creek, ex leaf mould, 3 I 1950, leg. E. DAWSON – (1); Ross Creek, 29 I 1966, leg. J.SUTHERLAND – (30); Waipona Forest, 6 I 1967, leg. R.R. FORSTER – (5); Jackson Bay, 15 III 1966, leg. R.R. FORSTER – (1); Waituhi, 10 I 1967, leg. R.R. FORSTER – (2); near Whakapohai R. N. of Haast, 13 II 1966, leg. D.A. McHugh – (3); Mc Kee Domain, Ruby Bay, 12 III 1967, leg. C.L. WILTON – (3); Cascade Creek, ex moss, 16 II 1966, leg. R.R. FORSTER and C.L. WILTON – (3); South Is., Springs Junction, 9.6 mi. E., 0.1 mi. E. of Maruia Hot Springs, alt. perhaps 1800 ft. Red beech forest, luxuriant, litter, 23 III 1965, leg. N.A. WALKER – (2); South Is., Lake Manapouri, West Arm, Spey River mouth, Fiordland National Park. Mountain, silver beech forest. Dry, thin litter, moss, 22 II 1965, leg. N.A. WALKER – (1); North Is., Rotorua, 11.8 mi. N.W. Podocarp-hardwood forest, tawa, towai leaves, litter, no wood, 10 IV 1965, leg. N.A. WALKER – (1); North Is., Ohura, 46.9 mi. S.W., on highway 43, alt. about 800 ft., just E. of summit of Pohokura Saddle. Podocarp-

hardwood lowland beech forest. Litter, decayed wood, no moss or lichen, 18 IV 1965, leg. N.A. WALKER – (1); North Is., Lake Okataina, 1.3 mi. N., alt. about 1250 ft. Luxuriant podocarp-hardwood forest, much adult lancewood. Litter under, between two large podocarps, no wood, 10 IV 1965, leg. N.A. WALKER – (9); South Is., Brods Bay Shore, Lake Te Anau, Fiordland National Park. Silver and mountain beech forest. Mostly wet, decayed wood, 21 II 1965, leg. N.A. WALKER – (57); South Is., Hapuku River Valley, 4.7 mi. N.W. of highway 1, toward Kaipuna Bush, N. of Kaikoura, alt. perhaps 300 ft. Mixed bush, fern. litter, little humus, 25 III 1965, leg. N.A. WALKER – (84); North Is., Ohura, 41.8 mi. S.W., Whangamomona Scenic Reserve, on highland 43, alt. perhaps 650 ft., at W. end of Whangamomona Saddle. Podocarp-hardwood lowland beech forest, including rimu, kauri. Litter, decayed wood, no moss or lichen, 18 IV 1965, leg. N.A. WALKER – (1); South Is., Te Anau, 53.5 mi. N., Fiordland National Park, alt. 1740 ft., summit of divide. Litter, much fern (different vegetation), 19 II 1965, leg. N.A. WALKER – (11); North Is., Mount Egmont National Park, 1.6 mi. E., down from Stratford Mountain House, alt. 2150 ft. Highland podocarp-hardwood forest. Litter, moss, lichen, decayed wood, 17 IV 1965, leg. N.A. WALKER – (26); North Is., Tairua Forest (near), Coromandel Peninsula, Grid Ref. N 36/31/28, alt. 400 ft. Uncutover area of large, old *Vitex lucens* (puriri), *Dysoxylum spectabile* (kohekohe), *Metrosideros* sp., *Rhopalostylis* (nikau) and *Cyathea delbata*, 30 IX 1965, leg. A.E. MARSACK – (3); South Is., Franz Josef (town), 5.5. mi. N., South end Lake Mapourika. Beech forest. Thick litter, some decayed wood, limbs, 8 II 1965, leg. N.A. WALKER – (11); North Is., Ohura, 23.1 mi. S.W., W. edge of Tangarakau Gorge Scenic Reserve. Podocarp-hardwood lowland beech forest, considerable tree fern cover. Litter, decayed wood, 18 IV 1965, leg. N.A. WALKER – (4); North Is., Lake Wairarapa, N.W. side. Litter under *Nothofagus cliffortoides*, *Melicytus* sp., *Pittosporum tenuifolium*, tree ferns, *Carpedetus serratus*, *Rhopalostylis sapida* (nikau palm), *Saphora* (kowhai), *Macropiper excelsum* (kawakawa), 1 IX 1965, leg. J.L. TOWNSEND – (2); South Is., Springfield, 47.7 mi. W., 2.8 mi. W. of Bealey, Arthur's Pass National Park. Mountain beech, general litter, moss, decayed wood, 24 III 1965, leg. N.A. WALKER – (6); North Is., Mount Egmont National Park, 1.6 mi. E. down from Stratford Mountain House, alt. 2150 ft. Highland podocarp-hardwood forest. Litter, moss, lichen, decayed wood, 17 IV 1965, leg. N.A. WALKER – (4); North Is., Otaki Forks, W. of Tararua Range, alt. 500 ft. Rocky bank under *Brachyglottis* sp., *Melicytus ramiflorus*, *Blechnum capense*, *Geniostoma ligustrifolium*. Moss, litter, 6 IX 1965, leg. J.L. TOWNSEND – (1); North Is., Ohura, 21.1 mi. S.W., toward center of Tangarakau Gorge Scenic Reserve, alt. 500 ft. Podocarp-hardwood lowland beech forest, much tree fern. General litter, little decayed wood, no moss or lichen, 18 IV 1965, leg. N.A. WALKER – (4); South Is., Milford Sound Hotel, 15.2 mi. E., Fiordland National Park, or 59.3 mi. N.W. of Te Anau, alt. about 2000 ft., E. of Homer Tunne, silver beech, litter, decayed wood, practically no moss, 20 II 1965, leg. N.A. WALKER – (11); South Is., Springs Junction, 2.3 mi. E., toward Lewis Pass, alt. perhaps 1500 ft. Silver, red beech. Litter, decayed wood, 23 III 1965, leg. N.A. WALKER – (30); South Is., Fox Glacier, 2.7 mi. N. of Westlands National Park Headquarters, South view Fox Glacier road. Beech, litter, much moss, wet (not here-rotted), 8 II 1965, leg. N.A. WALKER – (1); North Is., Mount Egmont National Park, Stratford Mountain House Road, 0.2 mi. E., down from plateau, alt. 3500 ft, just at tree line, 8 ft. tall at most. Highland podocarp-

hardwood bush. Litter, decayed wood, 17 IV 1965, leg. N.A. WALKER – (6); South Is., Pleasant Flat Bridge, Haast River, Grid Ref. S 34/13/95, alt. 350 ft., at beginning of N. rise to pass. Open silver beech, litter, humus, 25 V 1965, leg. D.J. Kershaw – (31); North Is., Waituhi Kuratau Scenic Reserve, just W. of Waituhi Saddle, 23.2 mi. W. of Turangi, alt. about 2750 ft. Podocarp type forest, few podocarps in collection area, litter, 21 IV 1965, leg. N.A. WALKER – (5);North Is., Waituhi Kuratau Scenic Reserve, E. edge, or 17.5 mi. W. of Turangi, alt. perhaps 1500 ft. Podocarp forest, litter, moss, little decayed wood, not taken under podocarps, 21 IV 1965, leg. N.A. WALKER – (2);South Is., Te Anau, 45.2 mi. N., Fiordland National Park. Red beech. Deep litter, wet, 19 II 1965, leg. N.A. WALKER – (76); South Is., Kaituna Valley Scenic Reserve, Banks Peninsula. Litter, decayed wood, 28 II 1965, leg. N.A. WALKER – (64);South Is., Milford Sound Hotel, 1.1 mi. E., Fiordland National Park, or 74.5 mi. N.W. of Te Anau, alt. about 50 ft., rain forest, very thin litter, mostly moss, 20 II 1965, leg. N.A. WALKER – (45); South Is., Te Anau, 40 mi. N., Fiordland National Park, Eglinton River valley. Well and moderately decayed beech wood, wet, 19 II 1965, leg. N.A. WALKER – (1); South Is., Lake Rotoiti, Nelson Lakes National Park, alt. perhaps 2000 ft. Red beech litter, decayed wood, 21 III 1965, leg. N.A. WALKER – (22); South Is., Mangarakau, 2.0 mi. W., near West Haven Inlet (or Whanganui Inlet), mixed podocarp, broad leaf bush, no beech, litter, decayed wood, 31 III 1965, leg. N.A. WALKER – (8); South Is., Springs Junction, 2.3 mi. E., toward Lewis Pass, alt. perhaps 1500 ft. Silver, red beech. Litter, decayed wood, 23 III 1965, leg. N.A. WALKER – (13); North Is., Mount Holdsworth Track, East Tararuoa Range, alt. 1000 ft. Litter under *Nothofagus menziesi*, *N. fusca*, *Weinmannia racemosa*, *Neopanax* and *Blechnum discolor*, 3 IX 1965, leg. J.L. TOWNSEND – (4); South Is., Hollyford River Valley, 8.7 mi. N. of Milford Sound Road, Fiordland National Park, thin silver beech, kamahi, fern litter, some moss, wet, tree ferns, 20 II 1965, leg. N.A. WALKER – (41); South Is., Lake Paringa Picnic Ground, South of Fox Glacier. Beech forest. Mosses, old stump decayed wood, decayed tree, fern stump, 7 II 1965, leg. N.A. WALKER – (3); North Is., Ohura, 19.5 mi. S.W., middle of Tangarakau Gorge Scenic Reserve, alt. perhaps 450 ft. Podocarp-hardwood lowland beech forest, litter, considerable moss, little decayed wood, no lichen, 18 IV 1965, leg. N.A. WALKER – (1); South Is., Makarora River Gorge, opposite, Haast Area, Grif Ref. S 24/10/82, alt. 1500 ft., halfway up S. side of pass, very steep country. Silver beech. Deep litter, humus, 26 V 1965, leg. D.J. Kershaw – (5); South Is., Springs Junction, 14.6 mi. E., alt. about 2700 ft., E. of Lewis Pass. Mountain, silver beech, litter, 23 III 1965, leg. N.A. WALKER – (7); South Is., Te Anau, 45.2 mi. N., Fiordland National Park, moss on ground, decaying log, wet, 19 II 1965, leg. N.A. WALKER – (3); South Is., Te Anau, 56.7 mi. N.W., Fiordland National Park, 6 mi. E. of Homer Tunnel entrance, litter, mostly moss, ferns, 19 II 1965, leg. N.A. WALKER – (13); South Is., Murchison, 10.2 mi. W., in Buller Gorge, red beech, much moss, litter, decayed wood, 11 V 1965, leg. N.A. WALKER – (1); South Is., Te Anau, 40 mi. N., Fiordland National Park, Eglinton River Valley. Beech forest, deep litter, wet, 19 II 1965, leg. N.A. WALKER – (6); South Is., Te Anau, 35 mi. N., Fiordland National Park, beech forest, thin litter, wet, 19 II 1965, leg. N.A. WALKER – (3); South Is., Hollyford River Valley, 7.2 mi. N. of Milford Sound Road, Fiordland National Park, silver beech, kamahi, tree ferns, fern litter, some moss, lichen, wet, 20 II 1965, leg. N.A. WALKER – (4); South Is., Lake Paringa Picnic Ground, 16.8 mi. N., alt. near sea level, beech tree,

damper sides, litter, moss, some "Nidularia-like" lichen, 7 II 1965, leg. N.A. WALKER – (1); South Is., Hapuku River Valley, 3.3 mi. N.W. of highway 1, in Hundalee Scenic Reserve, alt. perhaps 300 ft. Mixed forest, fern, general litter, no moss or lichens, 25 III 1965, leg. N.A. WALKER – (4); South Is., Ikamatura, 12.6 mi. N.E., alt. about 600 ft. Beech forest. Litter, humus, 9 II 1965, leg. N.K. Walker – (1); South Is., Springs Junction, 10.6 mi. E., alt. perhaps 2000 ft., W. of one-third way up Lewis Pass. Some silver beech in forest, litter, 23 III 1965, leg. N.A. WALKER – (7); South Is., Lake Rotoroa, Nelson Lakes National Park, alt. perhaps 1500 ft., (?) Beech forest. Thick litter, humus, 2 IV 1965, leg. N.A. WALKER – (17); South Is., Kaituna Valley Scenic Reserve, Banks Peninsula, general litter, 28 II 1965, leg. N.A. WALKER – (21); South Is., Takaka Hill Summit, Nelson Province, alt. 2600 ft. Silver, red beech dominants. Litter, 2 IV 1965, leg. N.A. WALKER – (19); South Is., Te Anau, 29.6 mi. N., near entrance of Fiordland National Park. Beech forest, moss, humus, 19 II 1965, leg. N.A. WALKER – (4); South Is., Murchison, 11.8. mi. W., in Buller Gorge, red beech, litter, moss, decayed wood, 11 V 1965, leg. N.A. WALKER – (4); North Is., Mount Egmont National Park, Stratford Mountain House Road, 1.1 mi. E. down from plateau, alt. 3250 ft., just below tree line. Highland podocarp-hardwood forest, litter, moss, lichen, little decayed wood, 17 IV 1965, leg. N.A. WALKER – (16); South Is., Arthur's Pass National Park Headquarters, 0.8 mi. W., 52.5 mi. W. of Springfield, alt. perhaps 2500 ft., near Daisy Flat, mountain beecg, litter, moss, 24 III 1965, leg. N.A. WALKER – (1); South Is., Brods Bay Shore, Lake Te Anau, Fiordland National Park. Silver, mountain beech, dry. Litter, fungusy, 21 II 1965, leg. N.A. WALKER – (3); South Is., Bluff, above reservoir reserve, alt. perhaps 700 ft. Low, 10-12 ft., windswept scrubby trees. Litter, 23 II 1965, leg. N.A. WALKER – (2); South Is., Te Anau, 29.6 mi. N., near entrance of Fiordland National Park. Beech forest. Deep litter, some decayed wood, 19 II 1965, leg. N.A. WALKER – (28); South Is., Te Namu, 5.1 mi. S. Rain forest. Decayed wood, lichen, moss, 5 II 1965, leg. N.A. WALKER – (1); South Is., Brods Bay Shore, Lake Te Anau, Fiordland National Park. Silver beech forest. Rather wet moss, humus beneath tussock, mountain beech nearby, 21 II 1965, leg. N.A. WALKER – (1); South Is., Milford Sound Hotel, 12.4 mi. E., Fiordland National Park, or 62.1 mi. N.W. of Te Anau, alt. about 3000 ft. E. of Homer Tunne, just below timberline. Beech litter, decayed wood, 20 II 1965, leg. N.A. WALKER – (8); South Is., Otira, 0.2 mi. W., Arthur's Pass National Park. Very thin litter, mostly lichen, moss, 24 III 1965, leg. N.A. WALKER – (3); South Is., Milford Sound Hotel, 9.1 mi. E., Fiordland National Park, or 65.4 mi. N.W. of Te Anau, alt. about 1800 ft. W. of Homer Tunne. Thin beech litter, fern, moss, decayed wood, 20 II 1965, leg. N.A. WALKER – (7); South Is., Pleasant Flat Bridge, Haast River, Grid Ref. S 34/13/95, alt. 350 ft., at beginning of N. rise to pass. Open silver beech, litter, humus, 25 V 1965, leg. D.J. KERSHAW – (9); South Is., Springs Junction, 14.6 mi. E., alt. about 2700 ft., E. of Lewis Pass. Mountain, silver beech, litter, 23 III 1965, leg. N.A. WALKER – (4); South Is., Hapuku River Valley, 3.3 mi. N.W. of highway 1, in Hundalee Scenic Reserve, alt. perhaps 300 ft. Mixed forest, fern, general litter, no moss or lichens, 25 III 1965, leg. N.A. WALKER – (101); South Is., Franz Josef (town), 9.5 mi. S., Westland National Park. Beech forest, litter, not under stump, 7 II 1965, leg. N.A. WALKER – (6); South Is., Reefton, 8.2 mi. E., Lewis Pass road. Beech litter, humus to soil line, 10 II 1965, leg. N.A. WALKER – (12); South Is., Glenhope, 10.2 mi. S., on road to Murchison. Beech forest, litter, humus, decayed wood, 2 IV

1965, leg. N.A. WALKER – (6); South Is., Makarora River at Camerons Creek, Haast Area, Grid Ref. S 24/08/78, alt. 1200 ft., bottom flat area at start of S. rise to pass. *Nothofagus menziesi*, silver beech, litter, humus, 26 V 1965, leg. D.J. KERSHAW – (26); South Is., Te Anau, 35 mi. N., Fiordland National Park, East Branch, Eglinton River valley, decayed beech wood, wet, 19 II 1965, leg. N.A. WALKER – (1); South Is., Hapuku River Valley, 5.4 mi. N.W. of highway 1, toward or in Kaipuna Bush, N. of Kaikoura, alt. perhaps 400 ft. Mixed podocarp beech bush. Litter, very little humus, 25 III 1965, leg. N.A. WALKER – (9); South Is., Dean's Bush, Riccarton, near Christchurch. Dry litter under podocarp (small dimple in bark), 28 II 1965, leg. N.A. WALKER – (56); South Is., Springs Junction, 10.6 mi. E., alt. perhaps 2000 ft., W. of one-third way up Lewis Pass, different decayed wood from limb, stump and moss, lichen, 23 III 1965, leg. N.A. WALKER – (28); South Is., Lake Manapouri, West Arm, Spey River mouth, Fiordland National Park. Mountain, silver beech forest, moss, decayed wood, 22 II 1965, leg. N.A. WALKER – (3); North Is., Mount Egmont National Park, Stratford Mountain House ground, alt. 2770 ft., highland podocarp-hardwood bush, litter, little moss, decayed wood, 17 IV 1965, leg. N.A. WALKER – (26); South Is., Springs Junction, 7.2 mi. E., toward Lewis Pass, alt. perhaps 1700 ft., red beech litter, 23 III 1965, leg. N.A. WALKER – (64); South Is., Haast, 15 mi. E., Cache Creek at Haast River, Grid Ref. S 35/00/00, alt. 200 ft., lowland, swampy, cut-over podocarp forest, litter, humus, 25 V 1965, leg. D.J. KERSHAW – (17); North Is., Mount Egmont National Park, 0.7 mi. E., down, from Stratford Mountain House, alt. 2550 ft., one of uppermost large, halfdead rimu, deep litter, little wood, moss, lichen, 17 IV 1965, leg. N.A. WALKER – (9); South Is., Milford Sound Hotel, 12.4 mi. E., Fiordland National Park, or 62.1 mi. N.W. of Te Anau, alt. about 3000 ft., E. of Homer Tunnel, just below timberline, moss tussock, inderlying humus, 20 II 1965, leg. N.A. WALKER – (21); South Is., Franz Josef (town), 9.5 mi. S., Westlands National Park, beech forest, moss on stump with soil, wet, 7 II 1965, leg. N.A. WALKER – (2); South Is., Springs Junction, 3.4 mi. N. of Shenandoah Saddle, thin beech litter, humus, drier, 10 II 1965, leg. N.A. WALKER – (26); North Is., Upper Hutt, 5.3 mi. N. on Akatarawa Road, alt. perhaps 250 ft., presumably podocarp-hardwood-beech forest, looked more brushy bush, litter, no moss, 22 IV 1965, leg. N.A. WALKER – (12); South Is., Pelorus Bridge Scenic Reserve, 37 mi. E of Nelson, mixed beech, podocarp forest, decayed wood, 9 III 1965, leg. N.A. WALKER – (2); South Is., Milford Sound Hotel, 4.3 mi. E., Fiordland National Park, or 70.2 mi. N.W. of Te Anau, alt. about 200 ft., rain forest, very thin litter, decayed wood, moss, 20 II 1965, leg. N.A. WALKER – (9); South Is., Brods Bay Shore, Lake Te Anau, Fiordland National Park, dry mountain beech litter, greenish fungus, silver beech nearby, 21 II 1965, leg. N.A. WALKER – (13); South Is., Bluff, beside reservoir reserve, alt. perhaps 350 ft., evergreen tree litter, decayed wood, possible an exotic pine, 23 II 1965, leg. N.A. WALKER – (86); South Is., Fox Glacier, 0.3 mi. S. od Westlands National Park Headquarters, Minnehaha Track, beech, tree ferns, rather thick (2") litter, wet, 8 II 1965, leg. N.A. WALKER – (12); South Is., Lake Paringa Picnic Ground, South of Fox Glacier, under beech, tree ferns, litter, roots, soil, wet, 7 II 1965, leg. N.A. WALKER – (12); South Is., Te Anau, 11 mi. N., mountain beech forest, dry, deep litter, 19 II 1965, leg. N.A. WALKER – (10); South Is., Pelorus Bridge Scenic Reserve, 37 mi. E. od Nelson, mixed beech podocarp forest, dry litter, moss, little decayed wood, 9 III 1965, leg. N.A. WALKER – (5); South Is., Kaituna Valley

Scenic Reserve, Banks Peninsula, well decayed wood, insect frass, 28 II 1965, leg. N.A. WALKER – (8); North Is., Waitakere Range, W. of Auckland, 4.3 mi. S. of Glen Elder Road on Scenic Road, alt. about 600 ft., Kauri-podocarp-hardwood forest, litter under yound kauri, tree fern but no moss, lichen or wood, 19 IV 1965, leg. N.A. WALKER – (2); South Is., Ross, 5.6 mi. S., Mikonui Scenic Reserve, beech, ferns, litter, soil, 7 II 1965, leg. N.A. WALKER – (1); South Is., Karamea, 4.5 mi. S., alt. 50 ft., beach-type rain forest near Tasman Sea, soil, roots, thin litter, 5 II 1965, leg. N.A. WALKER – (5); South Is., Lake Paringa Picnic Ground, 16.8 mi. N., alt. near sea level, beech tree, damper sides, litter, much moss, 7 II 1965, leg. N.A. WALKER – (3); South Is., Franz Josef (town), 9.5 mi. S., Westland National Park, beech forest, thin litter, soil under stump, wet, 7 II 1965, leg. N.A. WALKER – (7 sp); South Is., Karamea, 9.8 mi. N., alt. 50 ft., soil, roots, thin litter, 5 II 1965, leg. N.A. WALKER – (29); South Is., Dean's Bush, Riccarton, near Christchurch, general litter under beech, 28 II 1965, leg. N.A. WALKER – (112); South Is., Springs Junction, 13.0 mi. E., Lewis Pass, alt. 2840 ft., summit, mountain, silver beech forest, litter (no wood available), 23 III 1965, leg. N.A. WALKER – (1); South Is., Torrent Bay, Tasman Bay, Nelson Province, Tasman National Park, alt. near sea level. Tree ferns, Coprosma sp., litter, 9 IV 1965, leg. N.A. WALKER – (6); North Is., Mount Egmont National Park, 0.4 mi. E., down of Stratford Mountain House, alt. 2600 ft. Highland podocarp-hardwood forest, litter, little moss, lichen, decayed wood, 17 IV 1965, leg. N.A. WALKER – (15); South Is., Haast Pass Summit, Grid Ref. S 34/12/84, alt. 1850 ft. *Nothofagus menziesi*, silver beech. Deep litter, humus, 24 V 1965, leg. D.J. KERSHAW – (74); South Is., Harihari, 29.6 mi. S., under rimu and ferns, litter, roots, soil, 7 II 1965, leg. N.A. WALKER – (4); South Is., Mount Roberts, Nelson Lakes National Park, alt. 2800 ft., Paddy's end of trail road, red beech forest, litter, 21 III 1965, leg. N.A. WALKER – (1); South Is., Dyers Pass. S.E. of Christchurch, at 1100 ft., dry litter in bush up from road, 28 II 1965, leg. N.A. WALKER – (5) (NIEDBAŁA 1993); North Is., Waipoua Kauri Forest, 0,4 mi. N of Waipona River, Kauri forest, samples under Kauri trees, 13 IV 1965, leg. N.A. WALKER – (1); South Is., Ross. 5,6 mi. S. Mikonni Scenic Reserve, moss, small ferns growing on tilted trunk of tree, mostly moss and roots, 7 II 1965, leg. N.A. WALKER – (2); South Is., Goose Bay, 0.7 mi. S., S. of Kaikoura, alt. near sea level, decayed log, 2 III 1965, leg. N.A. WALKER – (4); Kilpatrick, alt. 600 m near W. Queenstown, bark 1-2 m off ground, 8 V 1990, leg. J.B. HOY – (1); Kaituna Valley Rd., 12 km from Hwy 78, leaf litter, 8 V 1990, leg. J.B. HOY – (4); Tasmania, Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. SMITH – (6); Mount Stronach, litter, 41°10'S, 147°34'E, XII 1988, leg. M. NEYLAND – (6); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, moss on ground, 41°50'S, 145°37'E, 21 IV 1989, leg. H. MITCHELL – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Australian islands: New Guinea, New Zealand and Tasmania.

Microtritia tropica MARKEL, 1964

(Figs 565-568)

DIAGNOSIS. See p. 175.

MATERIAL. Localities in the Australian region: Australia,ACT. Black Mt. E slope 750 m., 35° 16' S, 149° 06' E, dry, 26.V.1970, leg. SIMMONS – (1);QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1);QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1);QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR and FEEHAN – (1);QLD, Koombooloomba, , 17° 50'S, 145° 36'E alt. 750 m, wet, 4 VII 1971, leg. R.W. TAYLOR and FEEHAN – (1).

DISTRIBUTION. A Pantropical species.

Phthiracarus banksi NIEDBAŁA, 1987

(Figs I, II in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with median field longer than lateral, lateral carinae extending as far as sinus; sensilli long, narrow and smooth; setae fine, rostral setae close to each other, *in* > *le* = *ro* > *ex*. Notogaster with 15 pairs of short setae, vestigial setae f_1 posteriad of h_1; all lyrifissures *ia, im, ip, ips* present. Ventral region, setae *h* of mentum shorter than distance between them; genitoaggenital plates with 9 pairs of setae with formula: 6(4+2):3, anoadanal plates with 5 pairs of fine setae. Legs, formulae of setae and solenidia of complete type, setae *d* of femora I bifurcate.

MATERIAL. Locality in the Australian region: Australia, New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. KOHOUT – (20) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Phthiracarus obscurus NIEDBAŁA, 1986

(Figs 684-688)

Phthiracarus obscurus: NIEDBAŁA 1992

DIAGNOSIS. See p. 204.

MATERIAL. Locality in the Australian region: Australia, Queensland, QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (2)

DISTRIBUTION. An Oriental species.

Phthiracarus paucus NIEDBAŁA, 1991

(Figs 714-720)

DIAGNOSIS. See p. 213.

MATERIAL. Localities in the Australian region: Papua New Guinea, NG 018 Kuruk, 10 km from Hagen, alt. 1900 m, leaf and litter under *Notophagus* near Mission, dry, 12 IX 1979. leg. J. BŁOSZYK – (1); Australia, QLD-c, 5 km W of Paluma, 950 m., 13.07.1971, rainforest, 19°00 S 146°12'E, leg. R.W. TAYLOR,

FEEHAN (NIEDBAŁA 1991a); RS 1583 – (1); Australia, RS 1584A – (1); Lamington Nat. Park, S.E.Q., extracted from litter, 21 XI 1965, leg. B. CANTRELL – (3).

DISTRIBUTION. An Oriental species.

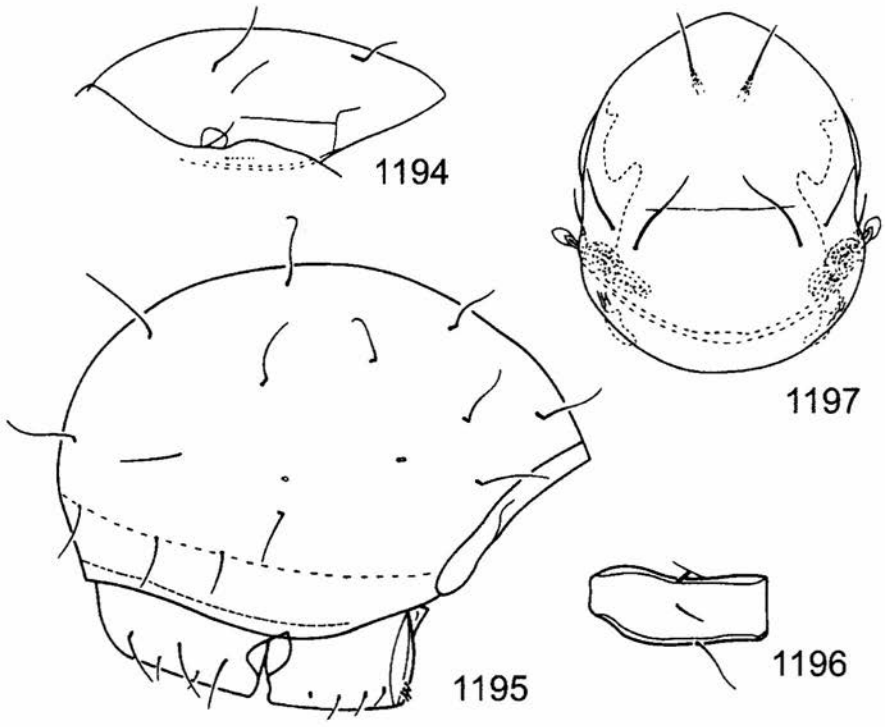
Phthiracarus pellucidus RAMSAY, 1966
(Figs 1194-1196)

Phthiracarus pellucidus: SPAIN and LUXTON 1971, LUXTON 1985, NIEDBAŁA 1992

DIAGNOSIS. Prodorsum with invisible fields, lateral carinae of medium length; sensilli with globular head, *in* > *ro* > *le* > *ex*. Notogaster with short setae, $c_1 < c_1\text{-}d_1$, vestigial setae absent; one pair of lyrifissures *ia* present. Ventral region, setae *h* of mentum as long as distance between them; 7 pairs of genital setae with formula: 4: 3, anoadanal plates each with 5 well developed setae, adanal setae longer than anal setae. Chaetotaxy of legs reduced, setae *v'* on femora I and *l'* on genua IV absent.

MATERIAL. Locality in the Australian region: New Zealand, Little Brother, off the coast of Arapawa Island at the entrance to Queen Charlotte Sound, halophytic scrub and mat plants, 12-19 V 1956, leg. G.W. RAMSAY – 50 specimens (RAMSAY 1966).

DISTRIBUTION. New Zealand, perhaps an endemic species.



1194-1196. *Phthiracarus pellucidus* RAMSAY, 1966 (paratype): 1194 - prodorsum, lateral view, 1195 - notogaster, lateral view, 1196 - femur of leg I; 1197. *P. pellucidus* RAMSAY, 1966 (after RAMSAY 1966): prodorsum, dorsal view

Phthiracarus probus NIEDBAŁA et COLLOFF, 1997

(Figs 14-22 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with lateral fields weakly developed, narrow; median region longer than lateral, lateral carinae lacking, sensilli short, fusiform, smooth, setae short, fine and smooth; *le* > *in* >*ro* >*ex*. Notogaster neotrichous with 19 pairs of fine, rather short setae (c_1/c_1-d_1=1.0) smooth, finely attenuate; c_1 longer than c_3, both situated some what posterior to anterior margin; c_2 positioned considerably further posterior to c_1 and c_3, additional setae present in *h* and *ps* series, vestigial setae f_1 inserted ventral of h_1, two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plate each with nine setae, formula: 9(4+5): 0; Anal and adanal setae subequal in lenght; formula 4:2 or 5:2. Legs, formula of setae and solenidia of complete type: seta *d* on femora I remote from distal end.

MATERIAL. Localities in the Australian region: Tasmania, Rivaux Creek, Huon Pine litter, 43°11'S, 146°11'E, 20 XII 1988, leg. P. GREENSLADE – (4); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, litter, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (12); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, moss on ground, 41°50'S, 145°37'E, 21 IV 1989, leg. H. MITCHELL – (3); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, litter, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE – (2); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, litter, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE – (39); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, sweeping and beating, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (2) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Plonaphacarus aduncus NIEDBAŁA et COLLOFF, 1997

(Figs 23-28 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with median and lateral fields weakly developed; lateral carinae distinct; sensilli short, with narrow stalk and smooth, rounded head, interlamellar setae long, erect, curled distally, with minute bulbous top, lamellar and rostral setae spiniform, exobothridial setae minute, *in* > *ro* > *le* >*ex*. 15 pairs of gastronotic setae with spinose ornamentation distally, short, except much longer c_2, c_3, and *cp*, shaped like interlamellar setae (c_1/c_1-d_1 = 0.59), setae $c_{1\text{-}3}$ situated close to anterior margin; vestigial seta f_1 inserted dorsally of h_1; tendon attachment point (t) and 2 lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plate each with nine setae, formula: 9(4+5): 0; anoadanal plate with five setae: two anal, three adanal; setae ad_1 and ad_2 longer than ad_3 and anal setae, each with minute bulbous tip. Legs, formula of setae and solenidia of complete type, setae *d* on femora I situated medially.

MATERIAL. Localities in the Australian region: Tasmania, Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, sweeping and beating, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (2); Leatherwood, Mount Mangana, Bruny Island, pyrethrum knock-dawn, 43°21'S, 147°13'E, 4 IV

1989, leg. J. DIGGLE and P. GREENSLADE – (2 sp); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, suction, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (2); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, yellow pan traps, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (1); Mount Victoria, pyrethrum knock-dawn, 41°20'S, 147°50'E, tree, 25 XI 1989, leg. R. COY – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, suction sample, 41°50'S, 145°37'E, 21 IV 1989, leg. B. BROWN and L. ROBERTSON – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, sweeping and beating, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Plonaphacarus berlesei NIEDBAŁA, 1987

(Figs III-V in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with long and narrow median field, longer than lateral, lateral carinae and posterior furrows absent; sensilli fusiform with undulating margin; interlamellar setae very long, erect, covered with small, sparse spines, other setae smooth, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of long and rigid setae, like interlamellar setae sparsely covered with spines, only setae ps_2-ps_4 shorter; vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im,* ip, *ips* present. Ventral region, setae *h* of mentum longer than distance between them, genitoaggenital plate each with 9 genital setae, formula: 9(4+5): 0; anoadanal plate with 5 setae, $ad_2 > ad_1 > ad_3 =$ an. Leg chaetotaxy of complete type.

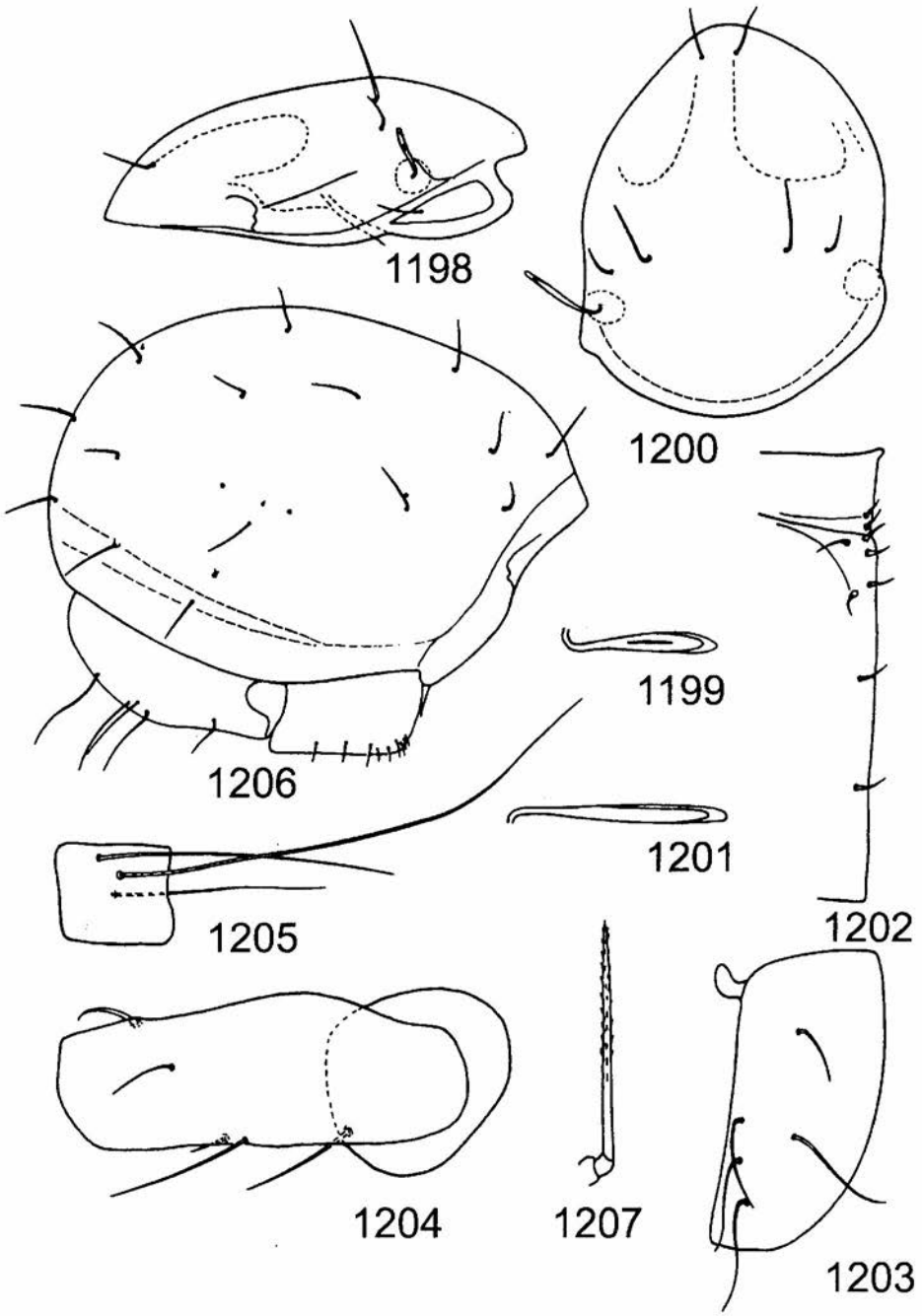
MATERIAL. Locality in the Australian region: Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (4) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Plonaphacarus dikros sp. nov.

(Figs 1198-1207)

DESCRIPTION. Measurements of holotype: prodorsum: length 387, width 285, height 139, sensillus 43.0, setae: interlamellar 73.4, lamellar 32.9, rostral 45.5, exobothridial 40.5; notogaster: length 718, width 506, height 497, setae: c_1 83.5, h_1 78.4, ps_1 65.8; genitoaggenital plate 192x131, anoadanal plate 252x111. Colour brown. Microsculpture of integument densely porose. Prodorsum with well-developed fields, median longer than lateral. Lateral carinae short but distinct. Sensilli short, clublike, smooth. Interlamellar setae short, erect, robust, covered with small spines. Lamellar and rostral setae spiniform, coarse, comparative lengths: *in* > *ro* > *ex* > *le*. Notogaster with 15 paires of robust, erect, short (c_1/c_1-d_1=0.5) setae covered with short spines. Setae c_1 and c_3 remote from anterior border but setae c_2 further from border than setae c_1 and c_3. Four paires of lyrifissures *ia, im,* ip, *ips* present. Vestigial setae f_1 located dorsally of setae h_1. Position of vestigial setae f_2 is unusual between lyrifissures *im* and ip. Ventral region. Formula of genital setae: 6(4+2): 3. All five setae on each anoadanal plate well developed. Setae ad_1 the longest and the



1198-1207. *Plonaphacarus dikros* sp. nov. (holotype): 1198 - prodorsum, lateral view, 1199 - sensillus, lateral view, 1200 - prodorsum, dorsal view, 1201 - sensillus, dorsal view, 1202 - fragment of genitoaggenital plate, 1203 - anoadanal plate, 1204 - trochanter and femur of leg I, 1205 - tibia of leg IV, 1206 - notogaster, lateral view, 1207 - seta c_1

thickest, $ad_1 > an > ad_2 > ad_3$. Legs. Formulae of setae and solenidia of complete type. Setae *d* on femora I forked distally and remote from distal end of article. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II straight distally.

DIAGNOSIS: This species is easily distingushable from the congeners by the following features: the club-like shape of sensilli of the prodorsum, the shape of the notogastral setae and the distally forked setae d on femora I.

ETYMOLOGY. The name *dikros* is latinized Greek for "forked" and alludes to the shape of d setae on femora I.

MATERIAL. Holotype and 6 paratypes: New Zealand, Karamea Coast, 28 IX 1966, leg. R.R. FORSTER and C.L.W. – (7).

DISTRIBUTION. New Zealand, probably an endemic species.

Plonaphacarus feideri NIEDBAŁA, 1987

(Figs VI-IX in NIEDBALA 1987)

DIAGNOSIS. Prodorsum with weak fields and without lateral carinae and posterior furrows; sensilli fusiform; setae smooth, interlamellar and lamellar remote, rostral very short *in* > *le* > *ro* = *ex*. Notogaster with 19 pairs of fine, even vestigial setae, vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im, ip, ips* present. Ventral region, setae *h* of mentum very short; arrangement of genital setae unusual: 8(3+5):0; anoadanal plate with 9 fine setae, with formula: 2:7. Leg chaetotaxy of complete type.

MATERIAL. Localities in the Australian region: Australia, Western Australia, 34° 59'S, 116° 44'E, Kari Forest, 4 ml N of Walpole, at 150 m, leafmould, 22.10.1969, leg. R.W. TAYLOR – (5) (NIEDBAŁA 1987); WA. 7 ml N of Walpole, 34° 59'S, 116° 44'E, at 180 m, Karri Forest Leafmould, 23 X 1969, leg. R.W. TAYLOR – (78)

DISTRIBUTION. Western Australia, probably an endemic species.

Plonaphacarus forsslundi NIEDBAŁA, 1987

(Figs X, XI in NIEDBAŁA 1987)

DIAGNOSIS. Median and lateral fields of prodorsum short but distinct; lateral carinae and posterior furrows absent; sensilli short, clublike; setae short and fine. Notogaster with 15 pairs of short ($c_1 < 0.5\ c_1$-d_1) setae, vestigial setae f_1 at the level of setae h_1; two pairs of lyrifissures *ia* and *im* present. Ventral region, formula of genital setae 6(4+2): 3; noadanal plate with 5 well-developed setae. Leg chaetotaxy reduced; setae *l'* on gena IV absent.

MATERIAL. Localities in the Australian region: Australia, QLD Seymour Range, 50 m, 17° 26'S, 146° 00'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1); ANIC – No 283 ACT. Black Mt. E slope, 35° 16'S, 149° 06'E alt. 750 m, dry, 26 V 1970, leg. J. BŁOSZYK – (32); QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (20); ANIC – No 360, QLD. Koombooloomba, alt. 750 m, wet, 4 VII 1971, leg. R.W. TAYLOR, FEEHAN – (4); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1) (NIEDBAŁA 1987).

DISTRIBUTION. North and South Australia.

Plonaphacarus grandjeani NIEDBAŁA, 1987

(Figs XII, XIII in NIEDBAŁA 1987)

DIAGNOSIS. Body surface covered with mosaic concavities. Median and lateral fields of prodorsum short and indistinct; lateral carinae and posterior furrows absent; sensilli with long and narrow pedicel and clublike, rough head; interlamellar and rostral setae robust. covered with small spines in distal half, lamellar and exobothridial setae vestigial. Notogaster with 18 pairs of robust, fairly short ($c_1 < c_1$-d_1) setae, covered with small spines in distal half; vestigial setae and lyrifissures invisible beaucause strong sculpture; setae *h* of mentum shorter than distance between them. Ventral region, formula of genital setae: 9(4+5): 0; anoadanal plate with 5 well-developed, rough setae. Leg chaetotaxy reduced, setae *a'* of tarsi I and *l'* on genua IV are absent.

MATERIAL. Localities in the Australian region: Australia, QLD Crawford's Look-out, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1); QLD Mc Namee CK, 300 m, 17° 40'S, 145° 49'E, rainforest, 8 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1) (NIEDBAŁA 1987).

DISTRIBUTION. A North Australian species distributed on the Pacific islands.

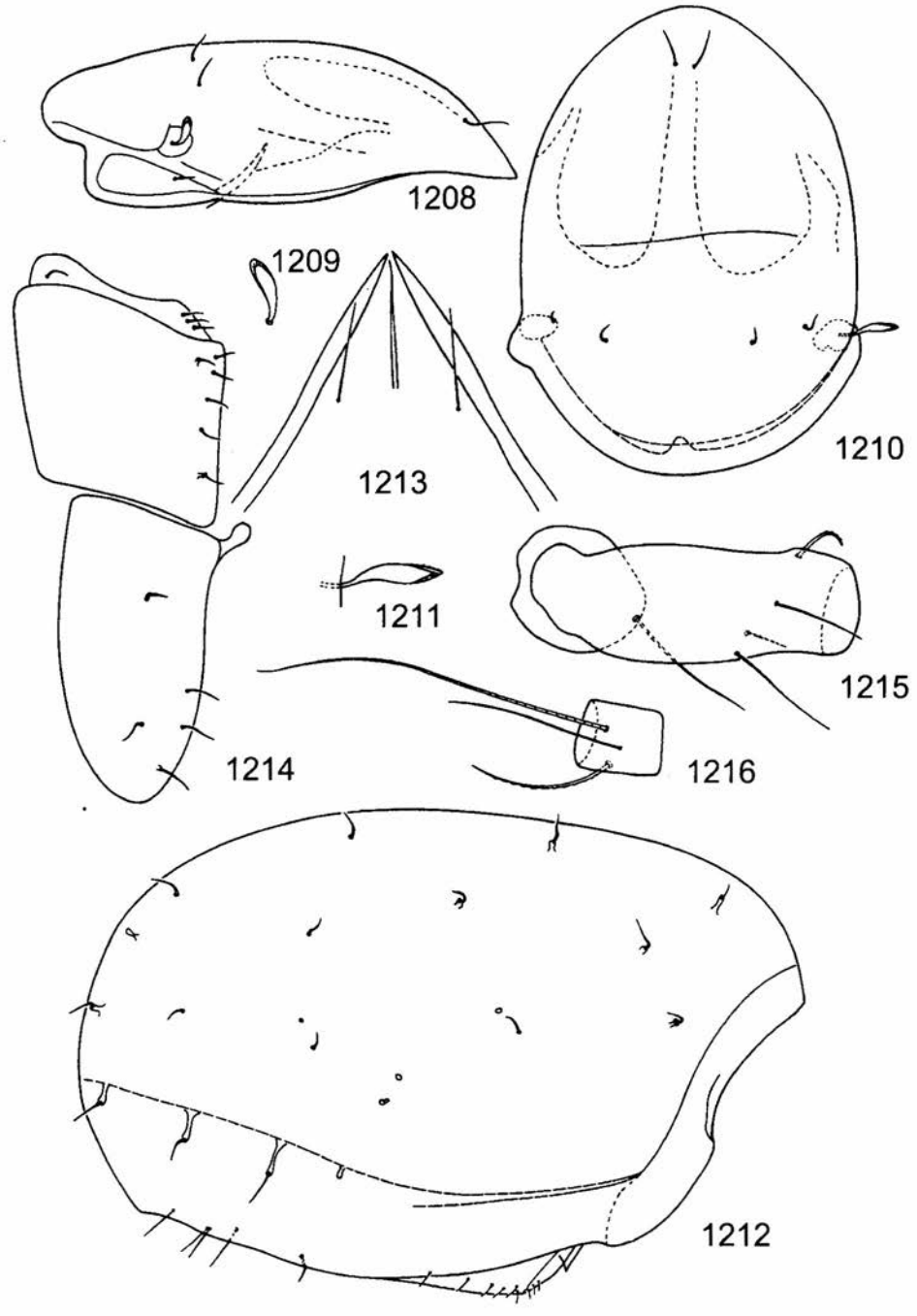
Plonaphacaus insolens sp. nov.

(Figs 1208-1216)

DESCRIPTION. Measurements of holotype: prodorsum: length 384, width 273, height 146, sensillus 30.4, setae: interlamellar 25.3, lamellar and rostral 22.8, exobothridial 17.7; notogaster: length 729, width 431, height 482, setae: c_1 35.4, h_1 30.4, ps_1 27.8; genitoaggenital plate 202x162, anoadanal plate 257x126. Colour brown. Integument with very fine puncturation, setae smooth. Prodorsum with median and lateral fields long and narrow, dorsal longer than lateral. Lateral carinae weakly developed and short. Sensilli short, spindle-shaped, weakly spinose distally. Setae minute, fairly equal in length. Notogaster with 16 paires of setae, thin, very short (c_1/c_1-d_1=0.2). Additional seate are h_3'. Setae c_{1-3} remote from anterior border, setae c_2 more so than setae c_1 and c_2. Three pairs of lyrifissures *ia, im, ips* present. In holotype lyrifissure *ips* is positioned anterior to seta ps_4 on the right side and between setae ps_3 and ps_4 on the left. Vestigial setae f_1 inserted ventrad of setae h_1. Ventral region. Infracapitular setae *h* slightly shorter than distance between them. Genital setal formula: 6(4+2): 3. Five pairs of setae on anoadanal plate similar in shape to gastronotic setae. Legs. Chaetotaxy of complete type. Seta d on femora I slightly remote from distal end. Setae *a"* on tarsi I and II curved distally, setae *ft"* on tarsi II straight distally.

DIAGNOSIS. The new species is well characterized by the number, length and shape of the prodorsal and gastronotic setae. The most similar species is *Steganacarus tenuiseta* BALOGH and BALOGH, 1986 from Queensland, which has a different shape of sensilli of the prodorsum and a different arrangement of setae on the anoadanale plate.

ETYMOLOGY. The specific name *insolens* is Latin for "different", "unusual" and refers to the atypical number of the gastronotic setae.



1208-1216. *Plonaphacaus insolens* sp. nov. (holotype): 1208 - prodorsum, lateral view, 1209 - sensillus, lateral view, 1210 - prodorsum, dorsal view, 1211 - sensillus, dorsal view, 1212 - notogaster, lateral view, 1213 - fragment ofmentum ofinfracapitulum, 1214 - genitoaggenital and anoadanal plates, 1215 - trochanter and femur of leg I, 1216 - tibia of leg IV

MATERIAL. Holotype and 8 paratypes: New Zealand, South Is., Hollyford River Valley, 7.2 mi. N of Milford Sound Road, Fiordland National Park, Silver Beech, kamahi tree ferns, fern litter, some moss, lichen, wet, 20 II 1965, leg. N.A. WALKER.

DISTRIBUTION. New Zealand, probably an endemic species.

Plonaphacarus kugohi (AOKI, 1959)

(Figs 758-767)

Hoplophthiracarus kugohi AOKI, 1959
Hoplophthiracarus kugohi: AOKI 1980
Plonaphacarus kugohi: NIEDBAŁA 1986, 1992
Hoplophthiracarus siamensis AOKI, 1965
Hoplophthiracarus kugohi siamensis AOKI, 1980
Hoplophthiracarus wittmeri Bayoumi, MAHUNKA, 1979
Hoplophthiracarus wittmeri: MAHUNKA 1982
Hoplophthiracarus rimosus MAHUNKA, 1985 **syn. nov.**
Hoplophthiracarus minor MAHUNKA, 1991 **syn. nov.**
Hoplophthiracarus (*Plonaphacarus*) *yoshii* MAHUNKA,1991 **syn.nov.**

DIAGNOSIS. See p. 221.

MATERIAL. Localities in the Australian region: Papua New Guinea, 30 km E of Port Moresby, at 400 m, at the start of the "Kokoda Trail", bushes above river, litter under bamboos, 1 IX 1979, leg. J. BŁOSZYK – (1); Hummock above Ambunti City, under bamboos, 22 IX 1979, leg. J. BŁOSZYK – (5); Port Moresby, Botanical Garden, litter, 13 XI 1981, leg. J. KOLASA – (12); Port Moresby, litter under old tree near University, 17 XI 1981, leg. J. KOLASA – (9); Port Moresby, Botanical Garden, humus, 13 XI 1981, leg. J. KOLASA – (51); New Caledonia, Massif Humboldt, karangue litter of brookside bush, 13. 10. 1988, leg. P.T. LEHTINEN – (3); Mont Panié, at 1300-1500 m, 7-8 X 1977, leg. J. BALOGH – (3); Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (6); Mont Panié, at 1300-1500 m, soil and roots under farntrees, 7-8 X 1977, leg. J. BALOGH – (7); Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (4); Australia, Cairns, S of ville, in forest, 28 VIII 1979, leg. J. BŁOSZYK – (4); Cairns, litter of bushes above stream, 28 VIII 1979, leg. J. BŁOSZYK – (2); ANIC – No 360, QLD. Koombooloomba, alt. 750 m, wet, 4 VII 1971, leg. R.W. TAYLOR, FEEHAN – (4); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (5); QLD Seymour Range, 50 m, 17° 26'S, 146° 00'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (19); Queensland, near Ellis Beach, N. Cairns, forest with high humidity, transitional zone to the rain forest, soil and litter, Julu 1992, leg. R. SCHUSTER – (20); Queensland, southern part of Cape Tribulation, N. Cairns, rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (5); Queensland, ca. 200 m far grom Cape Tribulation, the same forest and date – (2).

DISTRIBUTION. A Pantropical species.

Hoplophthiracarus bisulcus NIEDBAŁA, 1993

(Figs 51-61 in NIEDBAŁA 1993)

DIAGNOSIS. Surface of notogaster covered with concentrations of radially arranged "commas". Prodorsum without lateral carinae, fields narrow, median longer than lateral; sensilli smooth, short, lanceolate; setae smooth, interlamellar and lamellar flagellate, rostral robust, spiniform, *in* > *ro* > *le* > *ex*. Notogaster with rather long setae, two pairs of vestigial setae f_1 and f_2 present, on the left side of body of holotype 4 pairs of lyrifissures (*ia*, *im*, ip, ips), on the right side 3 pairs (lyrifissure *ip* absent). Ventral region, setae *h* of mentum shorter than distance between them; genital plates with formula of setae: 7(4+3): 2; anoadanal plates with 5 setae each, $ad_2 > ad_1 > an > ad_3$. Leg setal and solenidial formulae of complete type, setae *d* on femora I bifurcate distally.

MATERIAL. Localities in the Australian region: New Zealand, Upper Hutt, 5.3 mi. N, on Akatarawa Road, at 250 ft, presumably podocarp-hardwood-beech forest, looked more brush bush, litter, no moss, 22 IV 1965, leg. N.A. WALKER – (1) (NIEDBAŁA 1993);Waituhi, Tanmarunui, 10 I 1967, leg. R.R. FORSTER – (2); Norsewood, Motor Camp, 14 III 1966, leg. C.L.W. – (1); Awakiro Gorge, Sav Reserve, Titoki, Tawa Matali, Mahoe, Kawakawa, steep dry grasse, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1).

DISTRIBUTION. New Zealand, probably an endemic species.

Hoplophthiracarus hulli NIEDBAŁA, 1987

(Figs XIV, XV in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with weak dorsal carina, lateral carinae reach sinus, median and lateral fields well developed; posterior furrows weak; sensilli smooth, sickle-shaped; setae (with exception of exobothridial) robust, large, rostral setae inclined inward, *in*>*ro*>*le*>*ex*. Notogaster with robust setae covered with small but distinct spines; vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im,* ip, *ips* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital plates: 6(4+2): 3; anoadanal plate each with 5 setae, setae ad_3 similar to gastronotic setae, other setae robust and rough; $ad_2 > ad_1 > an > ad_3$. Leg chaetotaxy of complete type, setae *d* on femora I bifurcate at distal end.

MATERIAL. Locality in the Australian region: Australia, New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. KOHOUT – (62) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Hoplophthiracrus lividus sp. nov.

(Figs 1217-1226)

DESCRIPTION. Measurements of holotype: prodorsum: length 571, width 418, height 222, sensillus 76.1, setae: interlamellar 31.7, lamellar 34.9, rostral 22.2, exobothridial 63.4; notogaster: length 1209, height 911, setae: c_1 82.4, h_1 63.4, ps_1 57.1; genitoaggenital plate 304x203, anoadanal plate 380x190. Big species. Colour dark brown. Microsculpture of integument very strong and densely punctate. Prodorsum with weak dorsal carina, lateral carinae absent. Fields well developed,

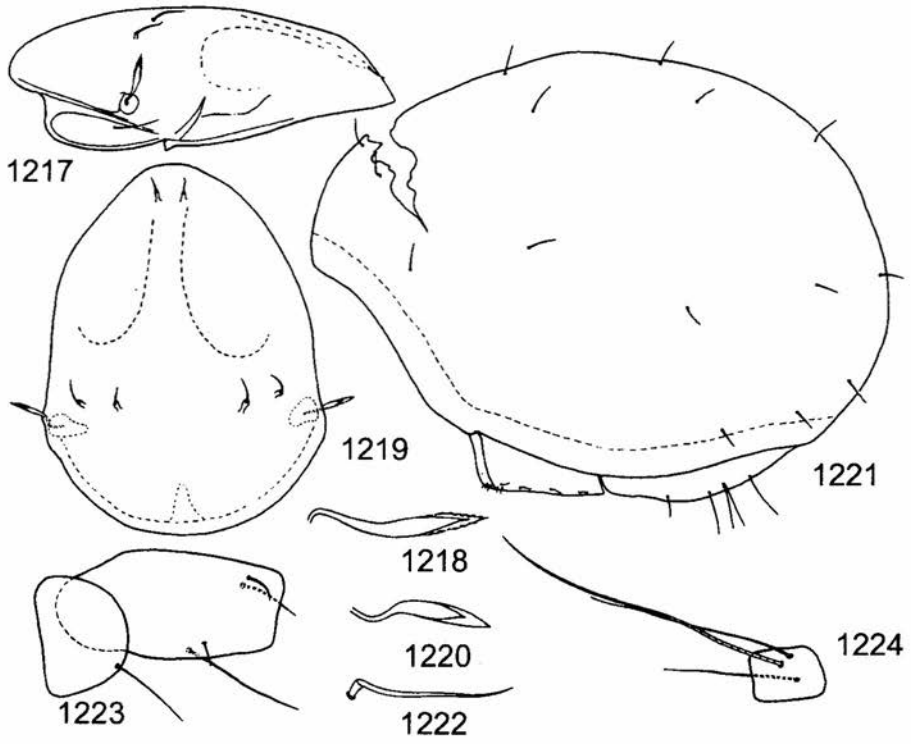
median very long and narrow. Sensilli short, spindle-shaped, spinose in distal half. Setae spiniform, smooth, comparative lengths: *ex* > *in* > *le* > *ro*. Notogaster with setae very short (c_1/c_1-d_1=0.24), spiniform, smooth. Setae c_{1-3} remote from anterior margin, setae c_{1-2} more so than setae c_3. Lyrifissures and vestigial setae not discernible, obscured by strong integument. Ventral region. Genitoaggenital plate with formula of setae: 6(4+2): 3. Anoadanal plates with 5 pairs of setae, thin and smooth, comparative lengths: $ad_1 = ad_2 > an > ad_3$. Legs. Chaetotaxy of complete type. Setae *d* on femora I small and remote from distal end. Setae *a"* on tarsi I and II curved distally, seta *ft"* on tarsi II straight distally.

DIAGNOSIS. This species is readily distinguishable from its congeners by the shape of sensilli and the shape and length of prodorsal and notogastral setae.

ETYMOLOGY. The name of this species, *lividus*, is Latin for "bluish" or "leaden colour" and alludes to the very dark colour of body.

MATERIAL. Holotype: New Zealand, Paihia-Opua, mainly taraire, steep slopes, fine damp litter, 20 I 1972, leg. G.W. RAMSAY and N.A. WALKER.

DISTRIBUTION. New Zealand, probably an endemic species.



1217-1224. *Hoplophthiracrus lividus* sp. nov. (holotype): 1217 - prodorsum, lateral view, 1218 - sensillus, lateral view, 1219 - prodorsum, dorsal view, 1220 - sensillus, dorsal view, 1221 - notogaster, lateral view, 1222 - seta ps_2, 1223 - trochanter and femur of leg I, 1224 - tibia of leg IV

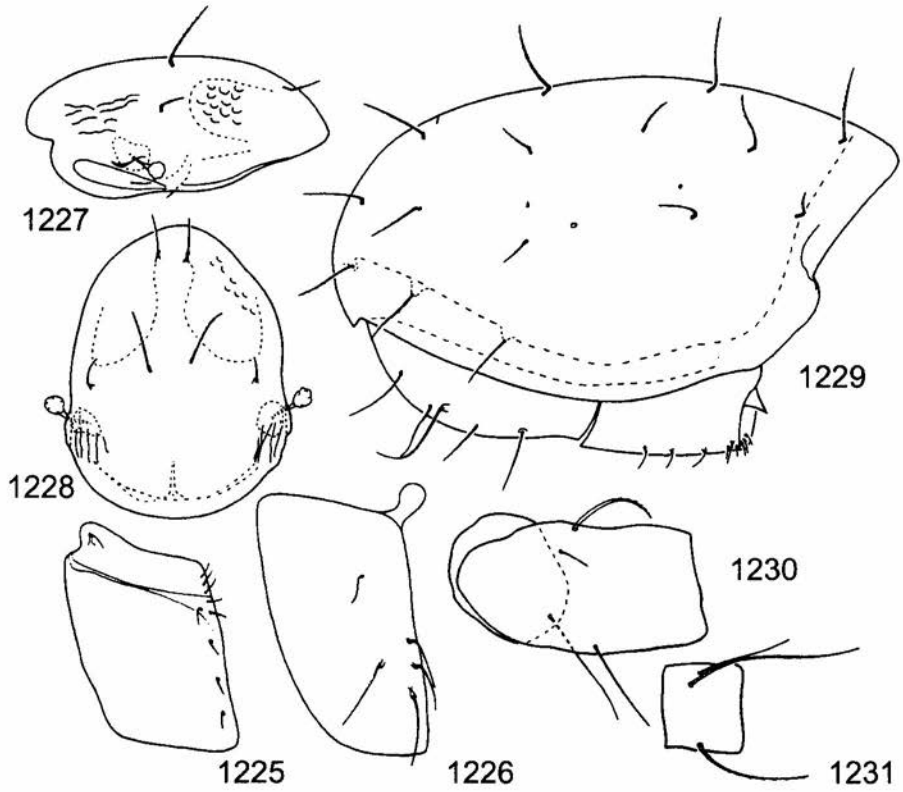
Hoplophthiracarus montigenus NIEDBAŁA, 1981

(Figs 1227-1231)

Hoplophthiracarus montigenus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median and lateral fields of prodorsum distinct, lateral carinae absent, posterior furrows present; sensilli short with narrow pedicel and round head; interlamellar setae robust, erect covered with small spines in distal half, lamellar and rostral setae spiniform, smooth, *in* > *ro* > *ex* > *le*. Notogaster with setae short ($c_1 < c_1$-d_1), robust covered with thin spines in distal half, vestigial setae f_1 anterior to h_1 setae;two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum with equal distances between them; formula of genital setae: 8(4+4): 1; anoadanal plates with 5 pairs of rough setae, anal setae shorter than adanal setae. Chaetotaxy of legs reduced, setae *v'* on femora I, *a'* on tarsi I, *l'* on genua IV absent.

MATERIAL. Localities in the Australian region: Papua New Guinea, Mt. Wilhelm, at 3000 m, thick litter and rich mosses in mixed forest, 10 IX 1979, leg. J. MICHEJDA – (7); Mt. Hagen, at upper limit of forest, at 3100 m, litter, 5 IX 1979, leg. J. MICHEJDA – (5) (NIEDBAŁA 1981, 1992); New Caledonia, Mont Panié, at 1300-1500



1225, 1226. *Hoplophthiracarus lividus* sp. nov. (holotype): 1225 - genitoaggenital plate, 1226 - anoadanal plate; 1227-1231. *Hoplophthiracarus montigenus* NIEDBAŁA 1981 (specimen from Solomon Islands): 1227 - prodorsum, lateral view, 1228 - prodorsum, dorsal view, 1229 - notogaster, lateral view, 1230 - trochanter and femur of leg 1, 1231 - tibia of leg IV

m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (2); Mont Panié, at 1300-1500 m, Agathis, litter, 7-8 X 1977, leg. J. BALOGH – (3); Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (1). Tasmania, Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. SMITH – (3).

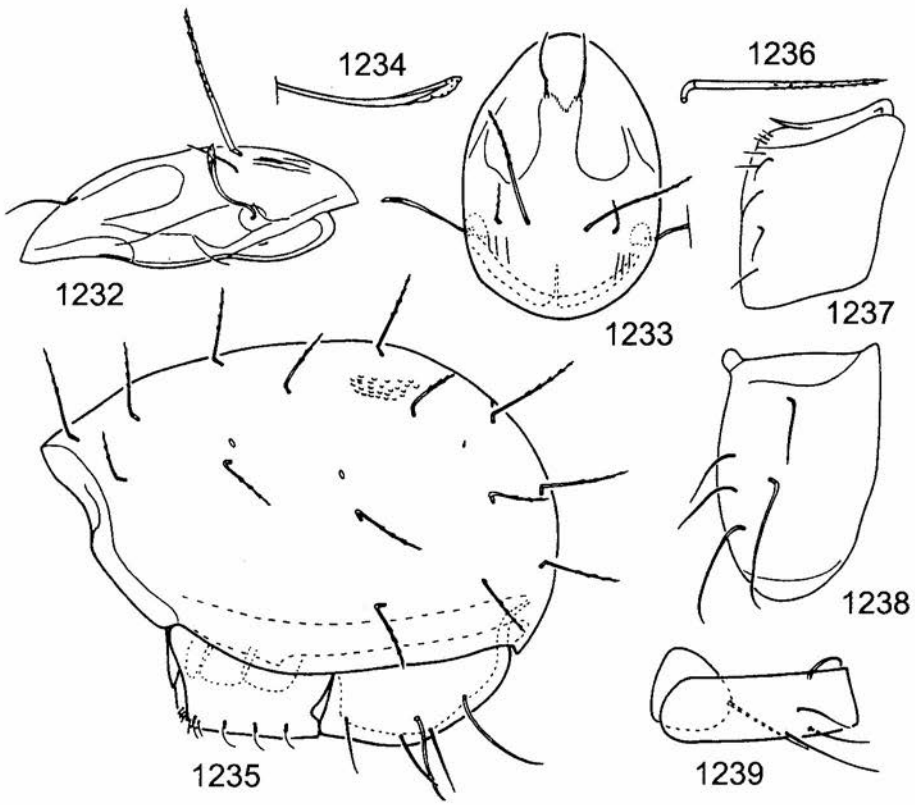
DISTRIBUTION. Australian islands (Papua, New Caledonia and Tasmania).

Hoplophthiracarus proximus NIEDBAŁA, 1984

(Figs 1232-1239)

Hoplophthiracarus proximus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum bifurcate between rostral setae, lateral regions distinct, lateral carinae reach sinus; posterior furrows present; sensilli long, narrow, dilated at distal end and ending in a point, covered with small spines; interlamellar setae long, thick, erect, covered with small spines, lamellar and rostral setae spiniform, *in* > *ro* > *le* > *ex*. Notogaster with setae short ($c_1 < c_1$-d_1), thick coveredwithspines in distal half; vestigial setae f_1 anterior to h_1 setae; two pairs of



1232-1239. *Hoplophthiracarus proximus* NIEDBAŁA, 1984 (holotype): 1232 - prodorsum, lateral view, 1233 - prodorsum, dorsal view, 1234 - sensillus, dorsal view, 1235 - notogaster, lateral view, 1236 - seta h_1, 1237 - genitoaggenital plate, 1238 - anoadanal plate, 1239 - trochanter and femur of leg I

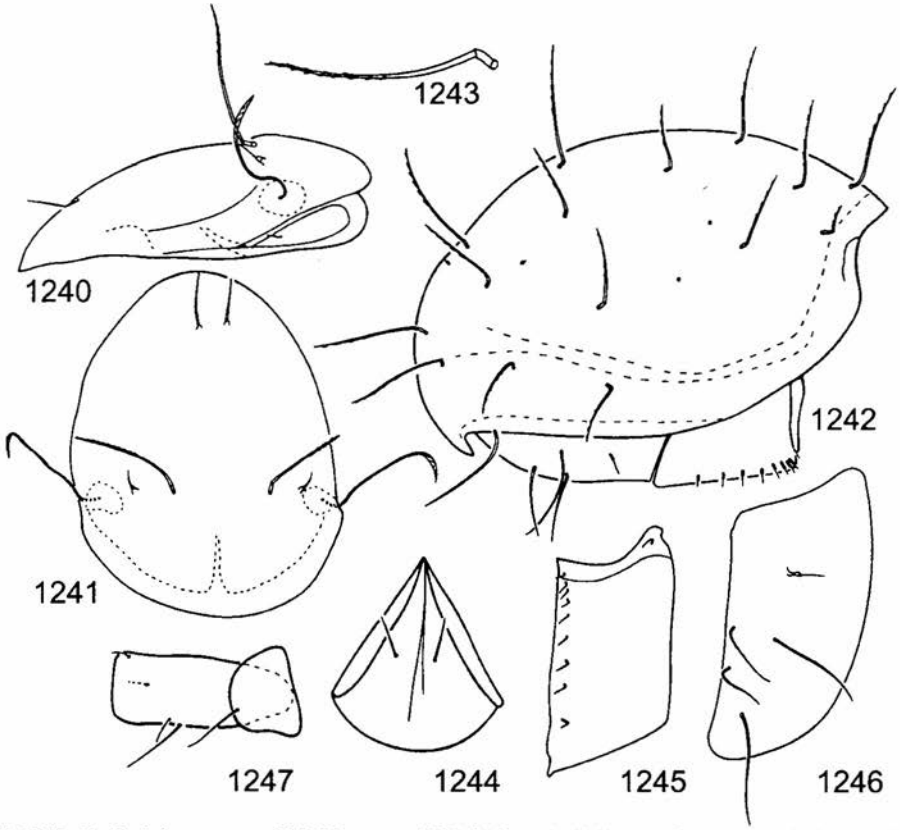
lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum minute; formula of genital setae: 6(4+2): 3, ano-adanal plates with 5 pairs of setae, setae ad_1 and ad_2 longer and thicker than other setae. Leg chaetotaxy of complete type.

MATERIAL. Localities in the Australian region: Papua New Guinea, 35 km NE of Port Moresby, litter under trees of plantation of rubber trees, dr place, 1 IX 1979, leg. J. BŁOSZYK and J. MICHEJDA – (2); Near Telefomin, in gallery forest above Sepik River, 18 IX 1979, leg. J. BŁOSZYK – (1); 40 km NE of Port Moresby, litter in mixed forest above stream, 1 IX 1979, leg J. BŁOSZYK – (2); Mt. Hagen, at upper limit of forest, at 3500 m, litter, 5 IX 1979, leg. J. MICHEJDA – (2) (NIEDBAŁA 1984a, 1992); Hummock above Ambunti City, humus, 22 IX 1979, leg. J. BŁOSZYK – (1); Sepik river, litter from tropical forest, 10 km from Ambunti, wet, 21 IX 1979, leg. J. BŁOSZYK – (2); Ambunti, litter from tropical forest, 22 IX 1979, leg. J. BŁOSZYK – (5); Ambunti, litter under pineapples, 22 IX 1979, leg. J. BŁOSZYK – (1)

DISTRIBUTION. A Pantropical species.

Hoplophthiracarus rafalski NIEDBAŁA, 1997

(Figs 124047)



1240-1247. *Hoplophthiracarus rafalski* NIEDBAŁA, 1996 (holotype): 1240 - prodorsum, lateral view, 1241 - prodorsum, dorsal view, 1242 - notogaster, lateral view, 1243 - seta h_1, 1244 - mentum ofinfracapitulum, 1245 - genitoaggenital plate, 1246 - anoadanal plate, 1247 - trochanter and femur of leg I

DIAGNOSIS. Integument weakly pitted; prodorsum without fields and posterior furrows; lateral carinae reach sinus; sensilli long, with narrow pedicel and narrow spindle-shaped head covered with small spines; interlamellar setae stout, erect, covered with small spines in distal half; lamellar and rostral setae, spiniform, comparative length: *in* > *ro* > *le* > *ex*. Notogaster with setae robust covered with small spines in distal half; dorsal setae longer (c_1/c_1-d_1=0.91) than lateral; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum of equal distances between them; formula of genital setae 8(4+4): 1; anoadanal plate each with 5 rough setae, setae ad_1 and ad_2 long, setae ad_3 minute, comparative length: $ad_1 > ad_2 > an > ad_3$. Leg, setal and solenidial chaetotaxy of incomplete type. Setae *a'* of tarsi I are absent. Setae d on femora I short and situated at distal ends of articles.

MATERIAL. Localities in the Australian region: New Caledonia, Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (25) (NIEDBAŁA 1997);Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (11).

DISTRIBUTION. New Caledonia, probably an endemic species.

Steganacarus (*Rhacaplacarus*) *diaphoros* sp. nov.

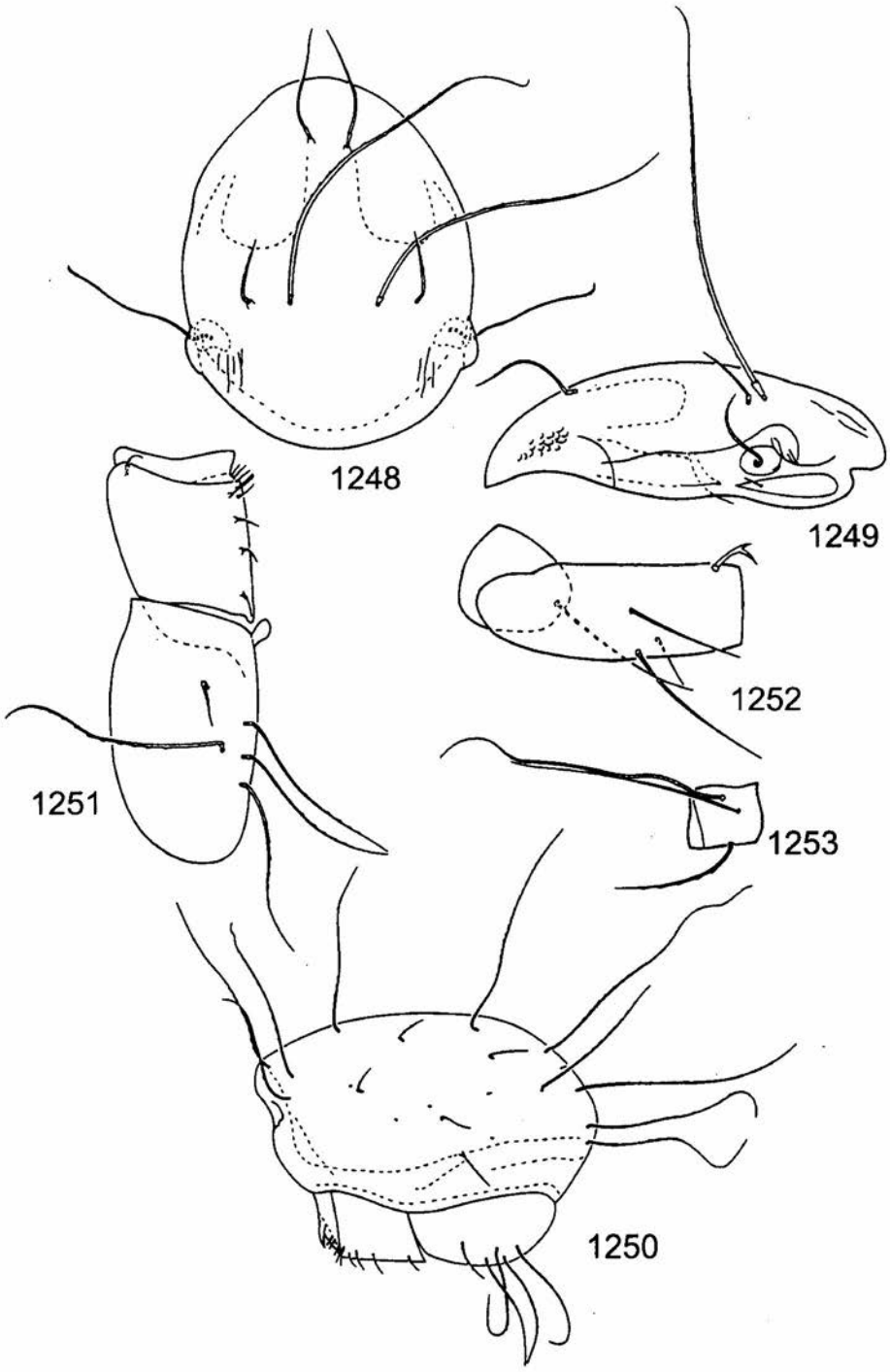
(Figs 1248-1253)

DESCRIPTION. Measurements of holotype: prodorsum: length 364, width 278, height 141, sensillus 101, setae: interlamellar 414, lamellar 70.8, rostral 119, exobothridial 27.8; notogaster: length 717, width 465, height 404, setae: c_1 353, h_1 364, ps_1 348; genitoaggenital plate 177x156, anoadanal plate 288x167. Colour from light to dark brown, cuticle finely punctate and weakly foveate along body margins. Prodorsum with short fields and long lateral carinae, posterior furrows weak, sensilli long, setiform, covered with small spines at distal end, interlamellar setae long, erect, flagelliform and covered with small spines, rostral setae long, curved inward, rough, lamellar setae spiniform, rough. Notogaster with 15 pairs of setae, of different length and shape, setae *cp*, e_2, h_3 and ps_4 short, spiniform covered with small spines, other setae are long, flagelliform, covered with small spines, setae c_1 and c_3 situated near anterior margin, setae c_2 slightly remote from margin, vestigial setae f_1 situated posterior to h_1 setae, all lyrifissures *ia, im,* ip, *ips* present. Ventral region, setae *h* of mentum longer than distance between them, formula of genital setae: 6(4+2): 3, anoadanal plate each with 5 setae covered with small spines, anal setae, ad_1 and ad_2 setae long and flagelliform, ad_3 setae short and spiniform. Legs, formula of setae and solenidia of complete type, setae *d* on femora I forked distally.

DIAGNOSIS. The new species can be distinguished from its congeners by the many caracters described above, as e. g. setiform shape of sensilli, length and shape of interlamellar setae, different length and shape of notogastral and adanal setae.

ETYMOLOGY. The specific epithet *diaphoros* is Greek for "different" and refers to the great morphological difference between this species and its congeneric.

MATERIAL. Holotype and 5 paratypes: Australia, Lamington National Park, S.E.Q., extracted from litter, 06.03 1965, leg. B. CANTRELL; one paratype: as above: 21. 11.



1248-1253. *Steganacarus* (*Rhacaplacarus*) *diaphoros* sp.nov. (holotype): 1248 - prodorsum, dorsal view, 1249 - prodorsum, lateral view, 1250 - notogaster, lateral view, 1251 - genitoaggenital and anoadanal plates, 1252 - trochanter and femur of leg 1, 1253 - tibia of leg IV

1965. Other locality in the Australian region: Australia, Bunya Mts., S.E.Q., BERLESEata, 11-12 II 1967, leg. B. CANTRELL (15).

DISTRIBUTION. North Australia, probably an endemic species.

Steganacarus (Rhacaplacarus) jacoti NIEDBAŁA, 1987

(Figs XVI, XVII in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with median field longer than lateral, median carina distinct, lateral carinae reach sinus; posterior furrows weak; sensilli long, sickle-shaped, rough;rostral setae swollen, covered with small spines, interlamellar and lamellar setae near each other, very narrow and covered with small spines, exobothridial setae vestigial, *in* > *ro* > *le*. Notogaster with 15 pairs of short, swollen setae covered with small spines, vestigial setae f_1 posterior to h_1 setae; only one pair of lyrifissures *im* visible. Ventral region, setae *h* of mentum shorter than distance between them; genitoaggenital plates each with 9 genital setae with formula: 6(4+2): 3; anoadanal plates each with 5 very fine setae. Leg chaetotaxy of complete type, setae *d* of femora I bifurcate at distal end.

MATERIAL. Localities in the Australian region: Australia, QLD Joalah Nat. Park, at 380 m, 27° 55'S, 153° 12'E, rainforest, 14 III 1973, leg. R.J. KOHOUT – (1) (NIEDBAŁA 1987); Lamington Nat. Park, S.E.Q., extracted from litter, 21 XI 1965, leg. B. CANTRELL – (2) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. North Australia, probably an endemic species.

Steganacarus (?) *tenuiseta* BALOGH et BALOGH, 1986

Steganacarus tenuiseta: NIEDBAŁA 1992

DIAGNOSIS. Prodorsum with short sensilli with fusiform head, setae short, thin, fine, interlamellar and exobothridial longer than lamellar and rostral. Notogaster with 15 pairs of very short, fine setae, vestigial setae f_1 posterior to h_1 setae, two pairs of lyrifissures *ia* and *im* present. Ventralregion, genitoaggenital plates not described, anoadanal plates with 5 pairs of very short, fine, hardly visible setae, two pairs of anal and three pairs of adanal, setae ad_1 and ad_2 situated near anal setae, ad_3 setae located far in anterior part of plates.

REMARK. This species certainly does not belong to the genus *Steganacarus*. It is probably a representative of *Notophthiracarus* or *Austrophthiracarus*. Unfortunately, as there is no illustration or description available, it is difficult to draw definite conclusions regarding its generic placement.

MATERIAL. Locality in the the Australian region: Papua New Guinea, Mt. Wilhelm, moss forest near Kambugomambuno, alt. 3200 m, leg. J. BALOGH – (2) (BALOGH, BALOGH 1986).

DISTRIBUTION. Papua New Guinea, perhaps an endemic species

Austrophthiracarus aculeatus NIEDBAŁA et COLLOFF, 1997

(Figs 29-35 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with median and lateral fields well developed, lateral carinae extending as far as sinus. Sensilli short, club-shaped, with sparsely distributed spines on head; setae short, spiniform, rough; *ro* > *in* > *le* > = *ex*. Notogaster neotrichous, with 19 pairs of setae, short (c_1/c_1- d_1=0.65), spiniform, covered with a few small spines distally, vestigial seta f_1 inserted ventrally of h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum shorter than distance between them; formula of genital setae: 9(4+5): 0. Setae on adanal plate similar in morphology to gastronotic setae, neotrichous, with formula: 6:2, anal setae somewhat longer then adanal. Legs. Formulae of setae and solenidia of complete type: setae *d* on femora I situated medially.

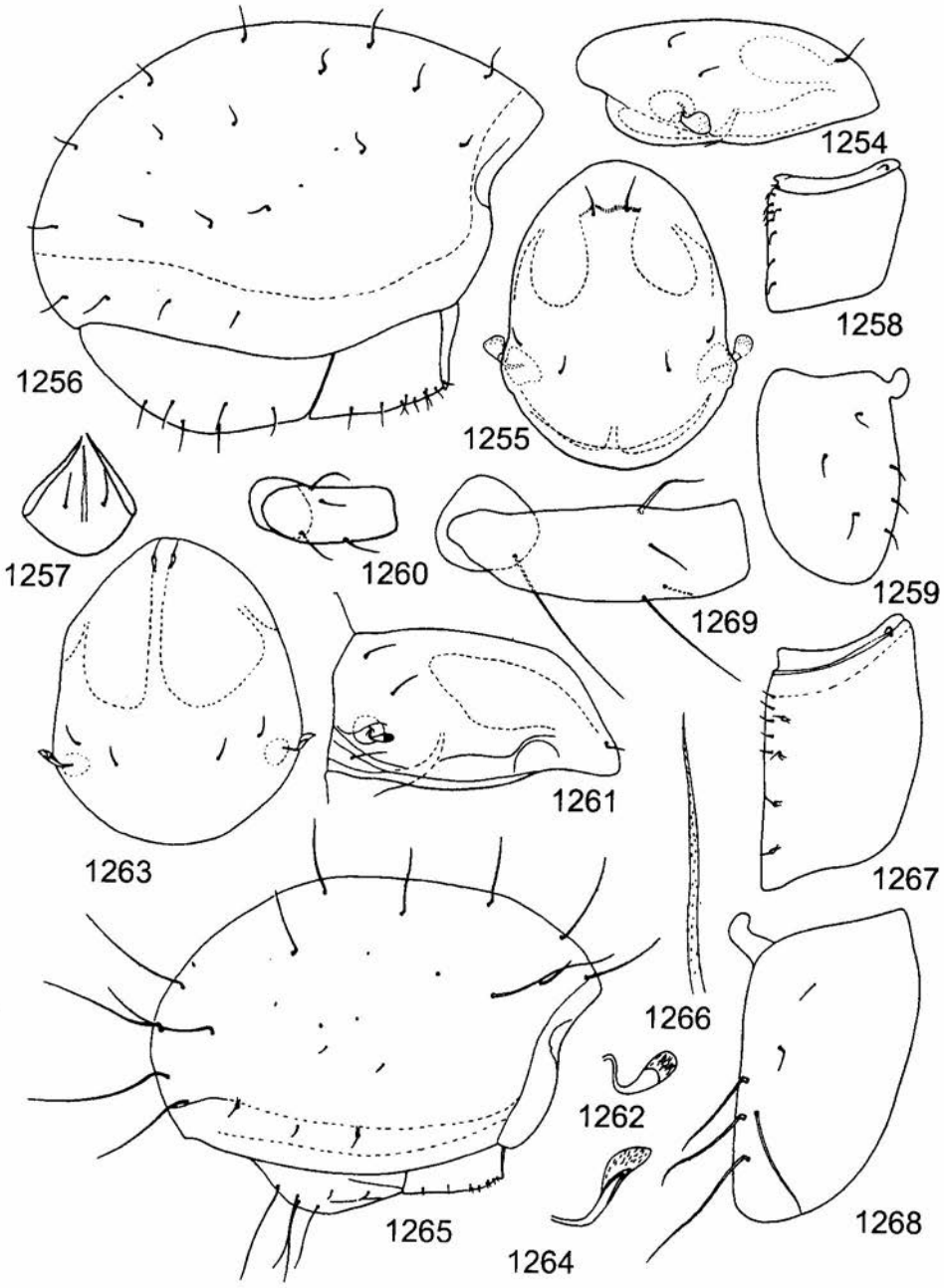
MATERIAL. Localities in the Australian region: Tasmania, Savage River, Pipeline Road, 41°30'S, 145°20'E, pyrethrum knock-down, *Nothofagus cunninghamii*, 19 IV 1989, leg. H. MITCHELL – (14); Big Sassy Creek, 21 km NNW of Little Swanport, yellow pan traps, 42°09'S, 147°55'E, 17 V 1989, leg. P. GREENSLADE – (1); Mount Mangana, Bruny Island, litter, 43°21'S, 147°13'E, 10 IV 1989, leg. P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, moss on tree, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE and H. MITCHELL – (1); Mount Mangana, Bruny Island, 43°21'S, 147°13'E, moss sample, 9 IV 1989, leg. J. DIGGLE – (8); Mount Mangana, Bruny Island, 43°21'S, 147°13'E, moss sample, 9 IV 1989, leg. J. DIGGLE – (3); Mount Mangana, Bruny Island, litter, 43°22'S, 147°17'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (7); Mount Mangana, Bruny Island, litter, 43°22'S, 147°17'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (7); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, soil cores, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (1); Frodshams Pass, implicate rainforest, litter, 42°49'S, 146°13'E, 18 XI 1988, leg. P. GREENSLADE – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus aenus sp. nov.

(Figs 1254-1260)

DESCRIPTION. Measurements of holotype: prodorsum: length 180, width 137, sensillus 20.2, setae: interlamellar 7.6, lamellar 10.1, rostral 17.7; notogaster: length 323, width 103, height 98.7, setae: c_1 25.3, h_1 and ps_1 15.2; genitoaggenital plate 80.9x73.4, anoadanal plate 111x86.0. Colour dark yellow. Integument densely porose. Prodorsum with distinct fields, dorsal one expanded distally at the level of rostral setae. Lateral carinae absent. Sensilli short, with small, narrow stalk and rounded head, sparsely spinose. Setae short, spiniform, rough, comparative lengths: ro>le>in, exobotridial setae vestigial. Notogaster with 19 pairs of short (c_1/c_1-d_1=0.43), spiniform, rough setae. Additional setae in *h* and *ps* rows. Setae c_3 somewhat remote from anterior margin, setae c_1 more so than setae c_3, setae c_2 rather far from anterior margin. Two lyrifissures *ia* and *im* present. Vestigial setae f_1 located ventral of setae h_1. Ventral region. Setae *h* of mentum as long as distance between them. Genital formula: 8(4+4): 1. Six pairs of spiniform, short and rough setae on anoadanal plate. Legs. Formulae of setae and solenidia of reduced type. Setae *v'* on femora I and *a'* on tarsi I absent. Seta *d* on femora



1254-1260. *Austrophthiracarus aenus* sp. nov. (holotype): 1254 - prodorsum, lateral view, 1255 - prodorsum, dorsal view, 1256 - notogaster, lateral view, 1257 - mentum of infracapitulum, 1258 - genitoaggenital plate, 1259 - anoadanal plate, 1260 - trochanter and femur of leg I; 1261-1269. *Austrophthiracarus aureus* sp. nov. (holotype): 1261 - prodorsum, lateral view, 1262 - sensillus, lateral view, 1263 - prodorsum, dorsal view, 1264 - sensillus, dorsal view, 1265 - notogaster, lateral view, 1266 - distal part of seta *hi*, 1267 - genitoaggenital plate, 1268 - anoadanal plate, 1269 - trochanter and femur of leg I

I long and displaced towards proximal end of article. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II straight distally.

DIAGNOSIS. *Austrophthiracarus aenus* sp. nov. is similar to some species from Australia (*A. aoki* NIEDBAŁA, 1987 and *A. sellnicki* NIEDBAŁA, 1987) and from South Africa - *A. equisetosa* MAHUNKA, 1980 and *A. phaleratus* (NIEDBAŁA, 1982) - but differs in the following characters: shape of dorsal field of prodorsum, shape of sensilli, vestigial exobotridial setae, presence of 19 pairs of gastronotic setae, length of setae *h* of mentum, arrangement of genital setae, absence of *v'* setae on femora I.

ETYMOLOGY. the specific name *aenus* is Latin for "of bronze" or "brass" and refers to the colour of the body.

MATERIAL. Holotype and 4 paratypes: New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH. Other localities in the Australian region: New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (4); Mont Panié, at 1300-1500 m, Agathis, litter, 7-8 X 1977, leg. J. BALOGH – (5); Mont Panié, at 1300-1500 m, 7-8 X 1977, leg. J. BALOGH – (3); Mont Panié, at 1300-1500 m, soil and roots under farntrees, 7-8 X 1977, leg. J. BALOGH – (9).

DISTRIBUTION. New Caledonia, probably an endemic species.

Austrophthiracarus aureus sp. nov.

(Figs 1261-1269)

DESCRIPTION. Measurements of holotype: prodorsum: length 444, height 165, sensillus 32.9, setae: interlamellar and lamellar 35.4, rostral 20.2, exobothridial 25.3; notogaster: length 994, height 672, setae: c_1 308, h_1 273, ps_1 298; genitoaggenital plate: length 203, anoadanal plate: length 387. Colour brown. Integument finely punctate and weakly foveolate, especially on margins of body. Prodorsum with well marked fields, dorsal field narrow and long, longer than lateral. Lateral carinae absent. Sensilli short, club-like with head weakly spinose in distal half. Setae spiniform, coarse; comparative lengths: *in* = *le* > *ex* > *ro*. Notogaster with 18 pairs of setae of unequal size. Additional setae in rows *h* and *ps*. Setae c_1, c_2, *cp*, h_1, h_2, ps_1, ps_1, ps_2 the longest (c_1/c_1-d_1=1.1), rigid, coarse; setae d_1, d_2, e_1, e_2 shorter, but of the same shape; setae c_3 the shortest, of the same shape. Remaining setae minute, smooth. Setae c_1 close to anterior margin, setae c_2 and c_3 remote from margin. Three pairs of lyrifissures *ia, im, ip* present. Vestigial setae f_1 dorsally of h_1 setae. Ventral region. Setae *h* of infracapitulum longer than distance between them. Formula of genital setae: 9(4+5): 0. Anoadanal plates with neotrichy (4 pairs of adanal setae) and heterotrichy of adanal setae. Setae ad_1, ad_2 nad anal setae long, thick, coarse, ad_1<ad_2>*an*. Setae ad_2', ad_3 minute, smooth.. Legs. Formula of setae of complete type. Seta *d* on femora I robust, remote from distal end of article and lying at the level of *l'* and *v"* setae. Setae *a"* on tarsi I and II curved distally, setae *ft"* on tarsi II straight distally.

DIAGNOSIS. This species is related to *Austrophthiracarus admirabilis* (NIEDBAŁA, 1982) from Costa Rica but differs from the latter in the shape, number and arrangement of gastronotic, anal and adanal setae.

ETYMOLOGY. The specific name *aureus* is Latin for "golden", "splendid" and alludes to its splendid appearance.

REMARKS. In the sample from Golden Bay the specimens have all notogastral setae of the same shape; long, thick, erect and coarse. They have also slightly longer rostral setae and seta *l'* on femora I is somewhat removed from the middle of the article. It is possible they are two different population morphs of the same species.

MATERIAL. Holotype and 64 paratypes: New Zealand, L. Monk, beech, litter, 28 I 1960, leg. A. CHAPMAN. Other localities in the Australian region: New Zealand, Golden Bay, Stewart Is, 12 IV 1966, leg. J. SUTHERLAND – (49); Cascade Ck (Creek?), moss, 16 II 1966, leg. R.R. FORSTER and C.L. WILTON – (50); Mc Graths Creek, leaf mould, 3 I 1950, leg. E. DAWSON – (2); Jackson Bay, 15 III 1966, leg. R.R. FORSTER – (15); New Whakapohai R.N. of Haast, 13 II 1966, leg. D.A. MCHUGH – (1); Ulva Is., Stewart Is., 18 XII 1968, leg. I. SUTHERLAND – (15)

DISTRIBUTION. New Zealand, probably an endemic species.

Austrophthiracarus baloghi NIEDBAŁA, 1987

(Figs XXXVI-XXXIX in NIEDBAŁA 1987)

DIAGNOSIS. Surface of body covered with concavities and irregular proturberences. Prodorsum with median and lateral fields long and narrow; median carina remarkable, lateral carina absent; posterior furrows distinct; sensilli short, club-like, setae short, spiniform and rough, *in* > *ro* > *le*. Notogaster with 17 pairs of short, obtuse and rough setae, vestigial setae not visible; two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of mentum considerably longer than distance between them; Ventral region, genitoaggenital plates each with 10 genital setae with formula: 10(5+5):0; anoadanal plates each with 2 anal and 5 adanal setae. Leg chaetotaxy of reduced type, setae *v'* of femora I absent.

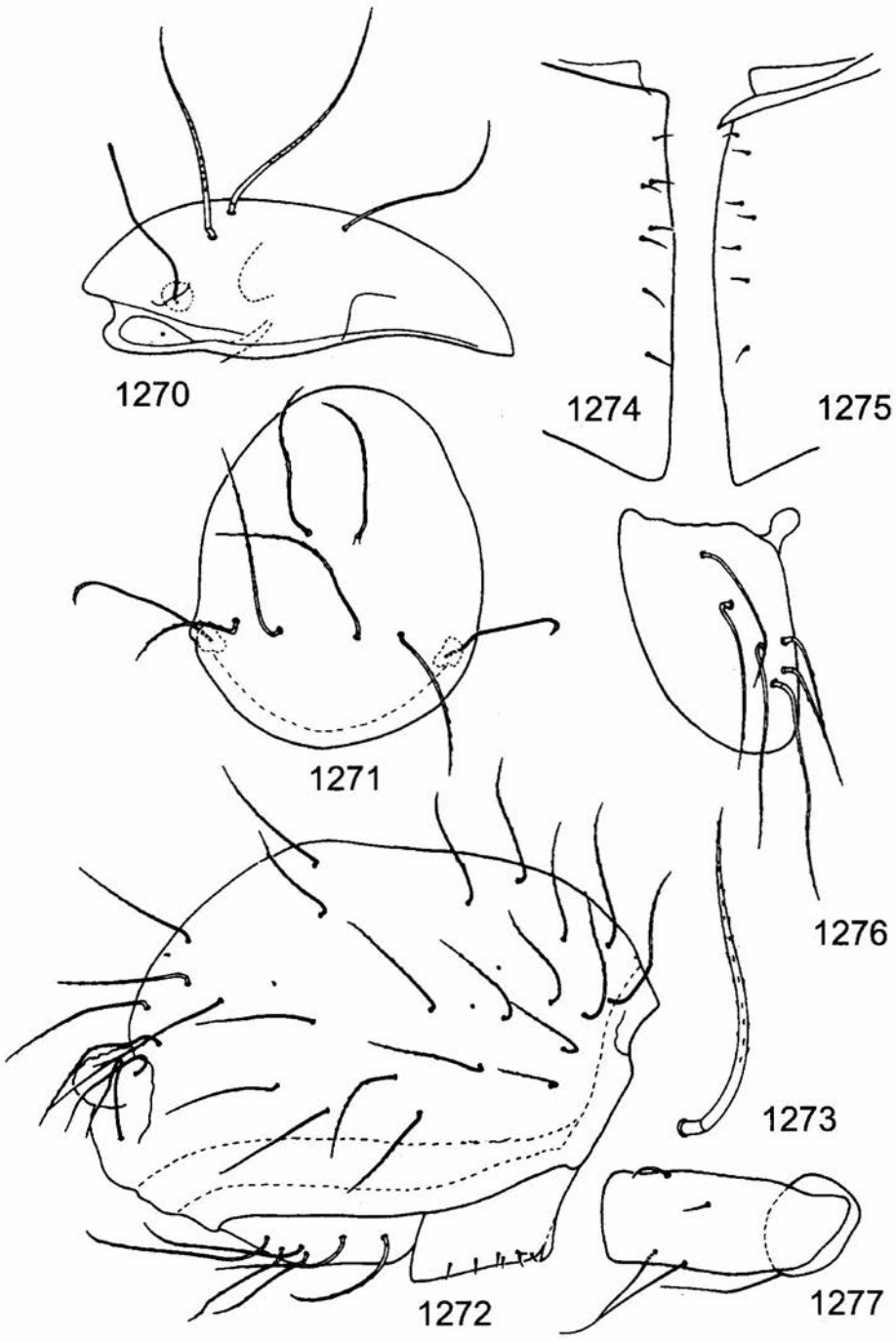
MATERIAL. Locality in the Australian region: Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (11) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Austrophthiracarus daimonios sp. nov.

(Figs 1270-1277)

DESCRIPTION. Measurements of holotype: prodorsum: length 283, width 212, height 90.9, sensillus 106, setae: interlamellar 167, lamellar 146, rostral 141; notogaster: length 505, width 389, height 353, setae: c_1 156, h_1 126, ps_1 162; genitoaggenital plate 146x90.9, anoadanal plate: 172x101. Colour light brown. Microsculpture of integument finelly porose. Prodorsum without fields and carinae. Sensilli long, of even width, with distal tips samewhat swollen and spinose. Setae long, thick, erect but flexible and spinose almost along whole length; comparative lengths: *in*>*le*>*ro*. Exobothridial setae vestigial. Notogaster with 26 pairs of setae similar to prodorsal ones, long (c_1/c_1-d_1=1.4), thick and spinose. Additional setae in rows c, *h* and *ps*. Peculiar structure of protuberance on posterior part disrupts arrangement of setae *ps*. Setae c_2 close to anterior margin, setae c_1 and c_3 remote from



1270-1277. *Austrophthiracarus daimonios* sp. nov. (holotype): 1270 - prodorsum, lateral view, 1271 - prodorsum, dorsal view, 1272 - notogaster, lateral view, 1273 - seta c_3, 1274 - fragment of right side of genitoaggenital plate, 1275 - fragment of left side of genitoaggenital plate, 1276 - anoadanal plate, 1277 - trochanter and femur of leg I

margin. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 ventrally of h_1 setae. Ventral region. Setae *h* of mentum shorter than distance between them. Genitoaggenital plates only with 7 pairs of genital setae, formula: 7(4+3): 0. Arrangement of setae on both plates of holotype is somewhat different (Figs 1263, 1264). Anoadanal plates with 6 pairs of long, similar to gastronotic setae. Additional pair in adanal row. Legs. Formula of setae of reduced type. Setae *a'* on tarsi I and setae *l'* on gena IV absent. Setae *d* on femora I remote from distal end. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II straight distally.

DIAGNOSIS. This species is readily distingushable from its congeners by the neotrichy, shape and arrangement of gastronotic, anal and adanal setae as well as by the presence of the strange structure at the posterior end of notogaster and the presence of only 7 pairs of genital setae.

ETYMOLOGY. The specific name *daimonios* is latinized Greek for "marvellous", "strange" and alludes to the presence of the strange structure at the posterior end of notogaster as well as to the large number of gastronotic setae and their shape.

MATERIAL. Holotype: New Zealand, Lake Waikaremoana Hawkes Bay, litter, 17 I 1972, leg. G.W. RAMSAY.

DISTRIBUTION. New Zealand, probably an endemic species.

Austrophthiracarus dissonus NIEDBAŁA et COLLOFF, 1997

(Figs 36-42 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with short, truncated prodorsal fields; lateral carinae absent; sensilli long, setiform, alternately spinose; Setae, except exobothridial, very long, lamellar and interlamellar spinose, rostral smooth, curved, bases set far apart; *in>le>ro>ex*. Notogaster neotrichous with 18 pairs of long setae (c_1/c_1-d_1=0.93), spinose distally; anterior and posterior setae longer than others, additional setae in rows *h* and p; vestigial seta f_1 inserted ventrally of h_1, two pairs of lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of infracapitular mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 9(4+5): 0; anoadanal plates with long, flagelliform adanal setae, anal shorter and thinner than adanal; neotrichus: setal formula of holotype 5:2 for right plate, 6:2 for left; for paratype, 5:2 for both plates. Legs with formulae of setae and solenidia of complete type, setae *d* on femora I positioned distally.

MATERIAL. Localities in the Australian region: Tasmania, Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. SMITH – (6); Mount Stronach, litter, 41°10'S, 147°34'E, XII 1988, leg. M. NEYLAND – (11) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus egregius NIEDBAŁA et COLLOFF, 1997

(Figs 43-46 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with very short fields, median wide; lateral carinae distinct; sensilli long, setiform, with small, sparsely distributed spines; setae long,

setiform, slightly thinner than sensilli, interlamellar and lamellar setae emerging vertically from prodorsal cuticle, sparsely spinose, rostral setae bent anteriorly, rough; comparative lengths *in>ro>le*. Notogaster neotrichous with 16 pairs of moderately short setae (c_1/c_1-d_1=0.78), each bearing 3-4 small spines, additional setae in position ps_3, setae h_3 positioned toward anterior end of notogaster; vestigial setae f_1 inserted ventrad to setae h_1; two lyrifissures *ia* and *im* present on each side. Ventral region, setae *h* of mentum slightly longer than distance between them; genitoaggenital plates with formula of genital setae: 9(4+5): 0; setae g_{1-5} minute, situated along paraxial border, setae g_{6-9} very long, some distance from border, arranged in a crescent; g_6 slightly anteriolateral of g_4; anoadanal region neotrichous, setal formula: 6:2, adanal setae arranged in a crescent. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I positioned distally.

MATERIAL. Localities in the Australian region: Tasmania, Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (3); Mount Michael, *Nothofagus cunninghamii*, suction samples, 41°11'S, 148°01'E, 28 XI 1989, leg. R. COY – (3) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus facetus NIEDBAŁA et COLLOFF, 1997

(Figs 47-54 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with distinct fields; lateral carinae absent; sensilli short, club-shaped, with spinulose microsculpture on head; setae spiniform, with slightly rough ornamentation; *ro* > *in* > *le* >*ex*. Notogaster neotrichous with 18 pairs of setae (MATERIAL. Holotype) or 19 pairs (paratype), setae moderately short (c_1/c_1-d_1=0.73), fine, bent anteriorly and spinose distally, additional setae present in *h* and p series; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum slightly longer than distance between them; genitoaggenital plates each with nine setae, formula: 9(4+5): 0, setae arranged out of linear sequence, typical of the genus *Austrophthiracarus*, with g_6 situated slightly anterior to g_5; anal and adanal setae spinose, formula 4:2; anterior adanal setae shorter than posterior ones. Legs, formulae of setae and solenidia of reduced type, setae *v'* on femora I and *a'* on tarsi I absent. Seta *d* on femora I just distal of middle of article.

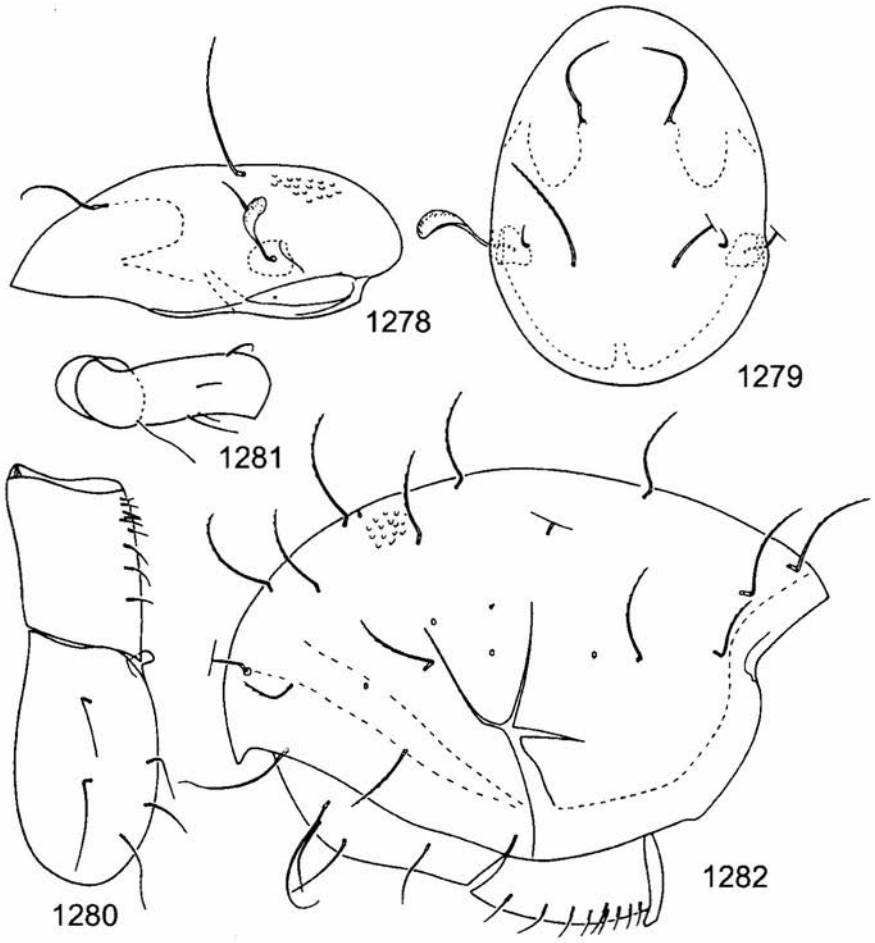
MATERIAL. Localities in the Australian region: Tasmania, Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (1); Savage River, Pipeline Road, sweeping, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii* and *Sassafras*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (1); Bruny Island, Mount Mangana, litter, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (2); Rivaux Creek, Huon Pine litter, 43°11'S, 146°11'E, 20 XII 1988, leg. P. GREENSLADE – (4); Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (3); Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (10); Mount Mangana, litter, 43°21'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus fusticulus sp. nov.

(Figs 1278-1282)

DESCRIPTION. Colour brown, microsculpture of integument finely foveate, pits more marked along prodorsal and notogastral margins. Measurements: Holotype: prodorsum: length 223, width 152, height 88.5, sensillus 48.1, setae: interlamellar 96.1, lamellar 17.7, rostral 58.2; notogaster: length 404, width 252, height 232, setae: c_1 and h_1 73.4, ps_1 70.8; genitoaggenital plate 192x136, anoadanal plate 252x146. Prodorsum with broad median field, lateral carinae absent. Sensilli club-like, head covered with thin spines. Interlamellar setae erect, covered with small spines in distal half, lamellar setae spiniform, rough, rostral setae bent inward and rough, exobothridial setae vestigial. Notogaster with 15 pairs of robust setae covered with small spines in distal half, setae c_{1-3} situated near anterior margin. Vestigial setae f_1 located dorsally of h_1 setae. All lyrifissures *ia, im,* ip, *ips* present. Ventral



1278-1282. *Austrophthiracarus fusticulus* sp. nov. (holotype): 1278 - prodorsum, lateral view, 1279 - prodorsum, dorsal view, 1280 - genitoaggenital plate, 1281 - trochanter and femur of leg I, 1282 - notogaster, lateral view

region. Setae *h* of mentum shorter than distance between them, formula of genital setae: 9(4+5): 0. Anoadanal plates each with 5 pairs of attenuate setae. Legs. Formula of setae and solenidia of complete type.

DIAGNOSIS. The new species is similar to *A. perti* NIEDBAŁA, 1987 but differs in the broad median region of prodorsum, shorter interlamellar setae and presence of 4 pairs of lyrifissures.

ETYMOLOGY. The specific epithet *fusticulus* is Latin for " a knobbed stick, club" and alludes to the shape of sensilli.

MATERIAL. Holotype and one paratype: Australia, Bunya Mts. S.E.Q., 11.12 February 1967, leg. B. CANTRELL (Brit. Mus. Nat. Hist.)

DISTRIBUTION: North Australia, probably an endemic species.

Austrophthiracarus hallidayi NIEDBAŁA et COLLOFF, 1997

(Figs 55-61 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with narrow fields, median longer than lateral; lateral carinae absent; sensilli short, with narrow stalk expanded distally into rounded head with spinulose microsculpture; setae short, spiniform; ro > le > in. Notogaster neotrichous with 19 pairs of robust setae, moderately long (c_1/c_1-d_1= 1.27), anterior and posterior setae longer than others, additional setae present in *h* and p series; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 9(4+5): 0; anoadanal plates with two anal and 3-5 adanal setae covered with a few small spines on their distal half; formulae of holotype 3:2 for right plate, 4:2 for left; of paratype 5:2 and 4:2 respectively; adanal setae diminishing in size towards anterior end of plate, $ad_1 > ad_2 > an > ad_3$. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I remote from middle of article.

MATERIAL. Localities in the Australian region: Tasmania, Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (17); Mount Michael, *Nothofagus cunninghamii*, suction samples, 41°11'S, 148°01'E, 28 XI 1989, leg. R. COY – (2); Savage River, Pipeline Road, sweeping, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (5) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus kochi (NIEDBAŁA, 1987)

(Figs XVIII, XIX after NIEDBAŁA 1987)

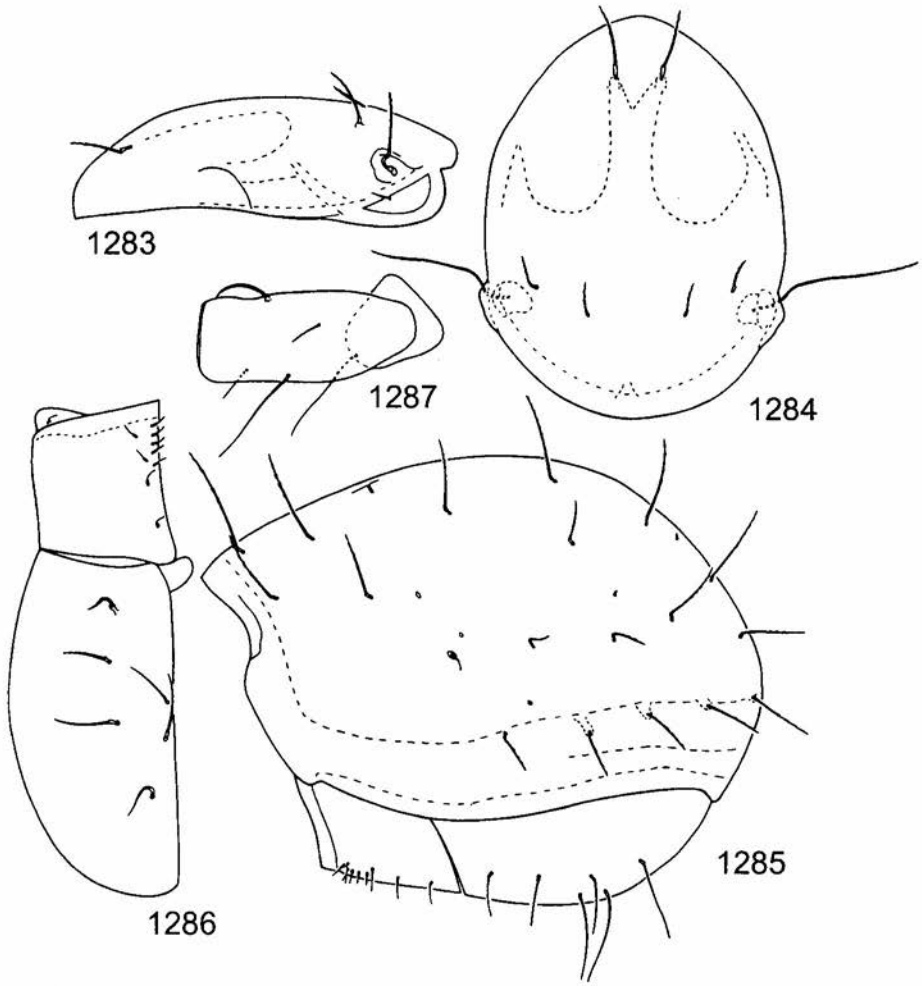
Calyptophthiracarus kochi NIEDBAŁA, 1987

DIAGNOSIS. Prodorsum with median and lateral fields well developed; median carina very weak, lateral carinae reach sinus; sensilli narrowly spindle-shaped, setae short, robust, rough, ro > ex > le >in. Notogaster neotrichous with 23 pairs of unequal setae, setae c_1, c_2, c_3, h_1, h_1', h_1'', ps_1, ps_1', ps_2, ps_2', ps_3 long and rough,12 pairs of

other setae rough but considerably shorter; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 9(4+5): 0; anoadanal plates each with 8 setae, with formula: 2:6, all setae rough; anal setae slightly shorter than two first adanal setae, other adanal setae very short. Leg chaetotaxy of complete type.

MATERIAL. Locality in the Australian region: Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (2) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.



1283-1287. *Austrophthiracarus lamingtoni* sp. nov. (holotype): 1283 - prodorsum, lateral view, 1284 - prodorsum, dorsal view, 1285 - notogaster, lateral view, 1286 - genitoaggenital and anoadanal plates, 1287 - trochanter and femur of leg I

Austrophthiracarus lamingtoni sp. nov.

(Figs 1283-1287)

DESCRIPTION. Measurements: Holotype: prodorsum: length 353, width 288, height 126, sensillus 95.9, setae: interlamellar 90.5, lamellar 65.6, rostral 60.6, exobothridial 25.2; notogaster: length 692, width 465, height 444, setae: c_1 151, h_1 106, ps_1 95.9; genitoaggenital setae 151x126, anoadanal setae 318x151. Colour light brown, cuticle finely punctate. Prodorsum with distinct fields, median field with small incision between rostral setae. Lateral carinae absent. Sensilli long, setiform, covered with small spicules in distal half. Interlamellar, lamellar and rostral setae spiniform, covered with small spines in distal half, interlamellar setae shorter than lamellar setae. Notogaster neotrichous with 20 pairs of moderately short, attenuate setae covered with small spines in distal half, setae c_1 and c_3 near anterior border, setae c_2 remote from border. Vestigial setae f_1 posterior to h_1 setae. Three pairs of lyrifissures *ia, im, ips* present. Ventral region. Setae *h* of mentum shorter than distance between them. Formula of genital setae: 9(4+5): 0. Anoadanal plates each with two anal and four adanal setae, all setae attenuate and rough. Legs, formulae of setae and solenidia of complete type.

DIAGNOSIS. The new species is slightly similar to *A.pilosus* NIEDBAŁA & COLLOFF, 1997 from Tasmania but differs from the latter in the shape of sensillus not swollen proximally, shorter lamellar and notogastral setae, presence of three pairs of lyrifissures and setae *h* of mentum shorter than distance between them.

ETYMOLOGY. The specific name is derived from the name locus typicus.

MATERIAL. Holotype and one paratype: Australia, Lamington National Park S.E.Q., extracted from litter, 06.03.1965, leg. B. CANTRELL (Brit. Mus., Nat. Hist.).

DISTRIBUTION. North Australia, probably an endemic species.

Austrophthiracarus largus sp. nov.

(Figs 1288-1295)

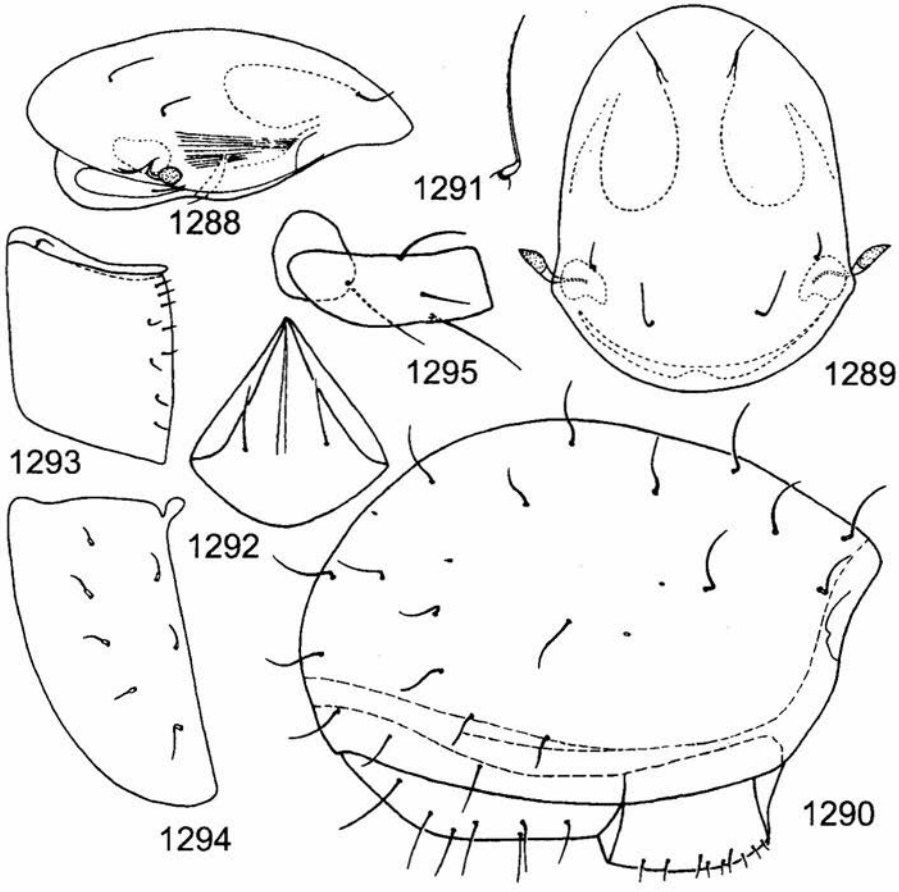
DESCRIPTION. Measurements: Holotype: prodorsum: length 243, width 192, height 114, sensillus 30.4, setae: interlamellar 32.9, lamellar 20.2, rostral 30.4, exobotridial 15.2; notogaster: length 459, width 338, height 308, setae: 58.2, h_1 and ps_1 50.6; genitoaggenital plate 108x80.8, anoadanal plate 107x103. Colour dark yellow. Microsculpture of integument densely porose. Prodorsum with fields well marked. Lateral carinae absent, replaced in this area of prodorsum by striations. Sensilli short, with small, narrow stalk and spindle-shaped, spinose head. Setae short, spiniform, rough, lamellar setae thicker than interlamellar and rostral setae, comparative lengths: *in* > *ro* > *le* >*ex*. Notogaster. Twenty pairs (two paratypes have 21 setae on the right side), of short (c_1/c_1-d_1=0.56), spiniform setae sparsely spinose in their distal half. Additional setae in rows *h* and *ps*. Setae c_1 and c_3 somewhat remote from anterior margin, seta c_2 much more so than setae c_1 and c_3. Lyrifissures very variable in number. Holotype with two lyrifissures *ia* and *im* on the right, and only *im* on the left side. Paratype I with only one lyrifissure *ia* on the left side, paratype II with only one lyrifissures *im* on the right side and paratype III without lyrifissures on the right side. Vestigial setae f_1 ventrad to h_1 setae. Ventral region. Setae *h* of mentum

shorter than distance between them. Formula of genital setae: 9(4+5): 0. Anoadanal plates with 2 pairs of anal and 5 pairs (paratype I with 4 adanal setae on the left side) of adanal setae, short, spiniform, rough. Anal setae some distance from each other, adanal setae diminising in size towards anterior end of plate. Legs. Chaetotaxy and solenidiotaxy of reduced type. Setae *v'* on femora I absent. Setae *d* on femora I long and positioned in the middle od article. Setae *a"* on tarsi I and II and seta *ft"* on tarsi II straight distally.

DIAGNOSIS. The new species is similar to *Austrophthiracarus espeletiae* (BALOGH, 1984) from Columbia but differs from the latter in the following charaters: a larger distance between rostral setae, different arrangement of setae *h* and *ps* on the notogaster, and the absence of setae *v'* on femora I.

ETYMOLOGY. The name of this species, *largus* is Latin for "large" or "abundant" and alludes to the neotrichy of the gastronotic and adanal setae.

MATERIAL. Holotype and 6 paratypes: New Caledonia, Mont Panié, at 1300-1500 m, black soil with roots under the very thick moss under trees, 7-8 X 1977, leg. J.



1288-1295. *Austrophthiracarus largus* sp. nov. (holotype): 1288 - prodorsum, lateral view, 1289 - prodorsum, dorsal view, 1290 - notogaster, lateral view, 1291 - seta c_1, 1292 - mentum of infracapitulum, 1293 - genito-aggenital plate, 1294 - anoadanal plate, 1295 - trochanter and femur of leg I

BALOGH. Other material. Localities in the Australian region: New Caledonia, Mont Panié, at 1300-1500 m, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, black soil with roots under the very thick moss under trees, 7-8 X 1977, leg. J. BALOGH – (6); Mont Panié, at 1300-1500 m, soil and roots under fern trees, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, very thick moss under trees, 7-8 X 1977, leg. J. BALOGH – (1).

DISTRIBUTION. New Caledonia, probably an endemic species.

Austrophthiracarus latior (NIEDBAŁA, 1982)

(Figs 903-908)

Hoplophthiracarus latior NIEDBAŁA, 1982
Calyptophthiracarus latior: NIEDBAŁA 1986, 1992

DIAGNOSIS. See p. 251.

MATERIAL. Locality in the Australian region: New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (1)

DISTRIBUTION. Species known from northern India, Far East of Russia and Hawaii. It is either and old element, a relict of once widespread distribution or an Oriental species introduced in northern Palaearctic, New Caledonia and Pacific islands.

Austrophthiracarus michaeli (NIEDBAŁA, 1987)

(Figs XX, XXI in NIEDBAŁA 1987)

Calyptophthiracarus michaeli NIEDBAŁA, 1987

DIAGNOSIS. Prodorsum with median and lateral fields well developed; lateral carinae and posterior furrows absent; sensilli long, narrow, spinose; interlamellar and rostral setae erect, rostral setae covered with small spines, lamellar setae spiniform, *in>ro>ex>le*. Notogaster with 15 pairs of very long setae, sparsely covered with spines; vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im,* ip, *ips* present. Ventral region, setae *h* of mentum shorter than distance between them; genitoaggenital plates with formula of genital setae: 5(4+1): 4, setae g_5-g_9 long et covered with spines; anoadanal plates each with 5 setae, $ad_1 > ad_2 > ad_3 > an$. Leg chaetotaxy of complete type, setae *d* of femora I bifurcate at distal end.

MATERIAL. Localities in the Australian region: Australia, QLD Joalah Nat. Park, at 380 m, 27° 55'S, 153° 12'E, rainforest, 14 III 1973, leg. R.J KOHOUT – (14) (NIEDBAŁA 1987); Lamington N.P. 1989 – (2)

DISTRIBUTION. North Australia, probably an endemic species.

Austrophthiracarus multisetosus BALOGH et BALOGH, 1983

(Figs 130, 131 in NIEDBAŁA 1994)

Austrophthiracarus multisetosus: NIEDBAŁA 1986,1992,1994

DIAGNOSIS. Prodorsum with long median and lateral fields; sensilli short with rounded head, setae short, spiniform. Notogaster with 30-34 pairs of very short and fine setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, arrangement of genital setae 4+5: 0, 11 or 12 pairs of setae on anoadanal plates.

MATERIAL. Locality in the Australian region: Australia, Point Lookout, 5000 feet, via Ebor, N.S.W., temperate rainforest, *Nothofagus moorei* litter, 23 IV1973, leg. I. NAUMANN - 3 specimens (BALOGH and BALOGH 1983).

DISTRIBUTION. South Australia, perhaps an endemic species.

Austrophthiracarus mutabilis NIEDBAŁA et COLLOFF, 1997

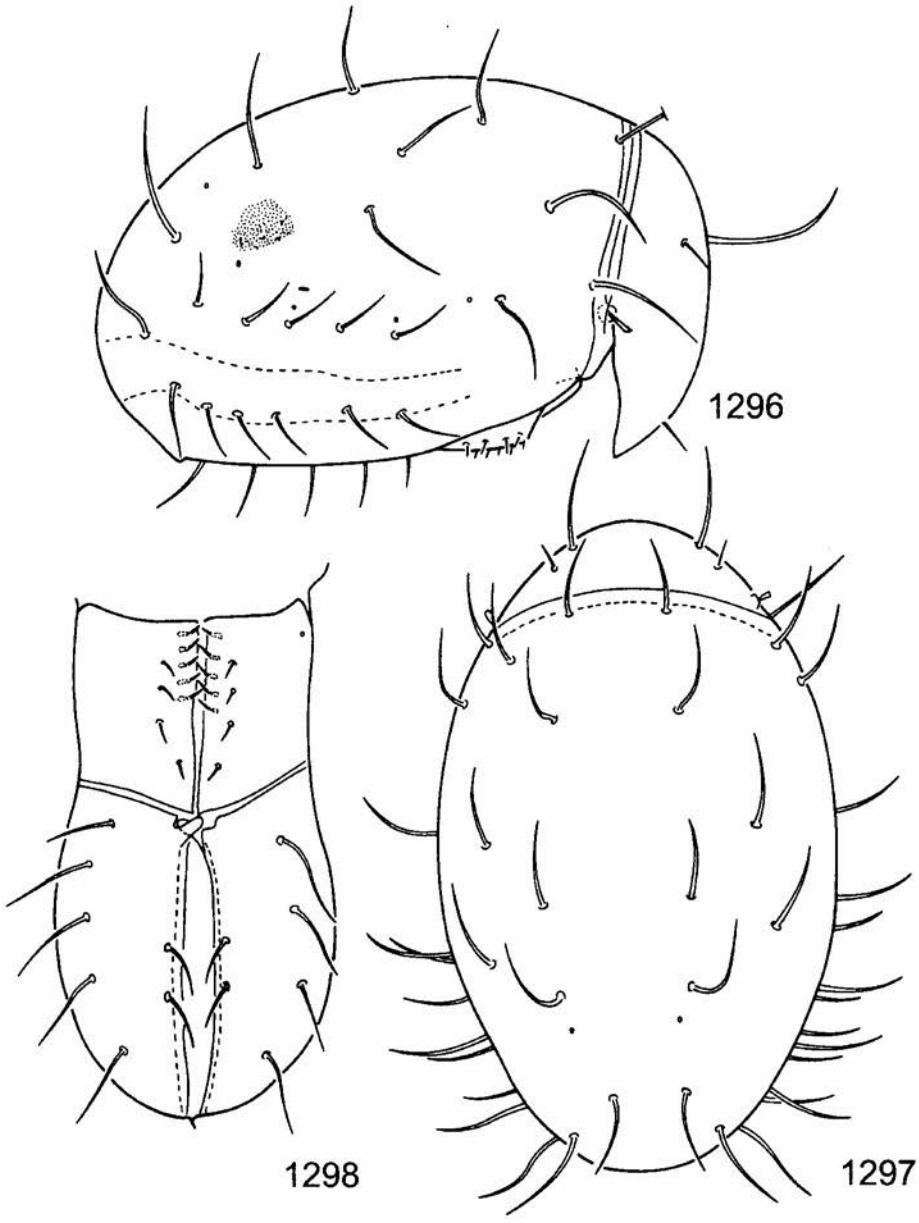
(Figs 62-73 in NIEDBALA and COLLOFF 1997)

DIAGNOSIS. Colour brown. Integument with very variable microsculpture: some specimens with fine puncturation, some with irregular lines and puncturation, some with irregular patches on dark background. Prodorsum with short fields; dorsal field anterior to seta *ro* with shallow sinus; lateral carinae absent; sensilli short, club-like, with spinulose head; setae short, rough; *in* > *le* = *ro* > *ex*. Notogaster neotrichous with 21 pairs of setae, short (c_1/c_1-d_1=0.75), spiniform with spinose ornamentation distally, additional setae present in *h* and p series; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side; rarely *ips* also present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 9(4+5): 0; anoadanal plates each with two long, rough anal setae and four shorter adanal setae similar in morphology to gastronotic setae. Legs, formulae of setae and solenidia of complete type: seta *d* on femur I situated medially.

MATERIAL. Localities in the Australian region: Tasmania, Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, litter, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (1); Mount Victoria, pyrethrum knock-dawn, 41°20'S, 147°50'E, tree, 25 XI 1989, leg. R. COY – (6); Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. Smith – (7); Savage River, Pipeline Road, 41°30'S, 145°20'E, pyrethrum knock-down, *Nothofagus cunninghamii*, 19 IV 1989, leg. H. MITCHELL – (3); Mount Mangana, Bruny Island, litter, 43°21'S, 147°13'E, 10 IV 1989, leg. P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, moss on tree, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE and H. MITCHELL – (2); Frodshams Pass, implicate rainforest, litter, 42°49'S, 146°13'E, 18 XI 1988, leg. P. GREENSLADE – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (30); Mount Michael, *Nothofagus cunninghamii*, suction samples, 41°11'S, 148°01'E, 28 XI 1989, leg. R. Coy – (1); Savage River, Pipeline Road, sweeping, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (11); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii* and *Sassafras*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (2); Mount Mangana, litter, 43°21'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. L. ROBERTSON – (6); Savage River, Pipeline Road, pyrethrum knock-down, Sassafras, 41°30'S, 145°20'E, 19 IV 1989, leg. H. MITCHELL – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg.

J. DIGGLE – (13); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. B. BROWN – (162); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. H. MITCHELL – (32); Savage River, Pipeline Road, hand collection in logs , 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (9); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (4); Savage River, Pipeline Road, pyrethrum knock-down, Leatherwood, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. L. ROBERTSON – (3); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (56); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii* (edge), 41°30'S, 145°20'E, 20 IV 1989, leg. J. DIGGLE – (12); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. H. MITCHELL – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – open, 41°50'S, 145°37'E, 18 IV 1989, leg. L. ROBERTSON – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. P. GREENSLADE – (2); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. J. DIGGLE – (1); Bruny Island, Mount Mangana, *Nothofagus cunninghamii*, suction, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (1); Bruny Island, Mount Mangana, Celery Top Pine, pyrethrum knock-down, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (1); Bruny Island, Mount Mangana, pitfall traps, 43°21'S, 147°13'E, 4-9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (2); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, suction, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (2); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, moss at base of myrtle trunk, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (1); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. P. GREENSLADE and J. DIGGLE – (2); Spero River, litter, 42°38'S, 145°22'E, 23 II 1989, leg. J. MARSDEN-SMEDLY – (13); Frodshams Pass, 42°49'S, 146°13'E, sweeping, thamnic rainforest, 18 XI 1989, leg. P. GREENSLADE – (1); Liffey Falls, soil cores, second waterfall, 41°42'S, 146°46'E, 9 III 1989, leg. P. GREENSLADE – (1); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE – (10); Savage River, Pipeline Road, moss on log, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (5); Savage River, Pipeline Road, moss on *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE – (4); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pitfall traps, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, moss on dead log, 41°50'S, 145°37'E, 18 IV 1989, leg. H. MITCHELL – (1); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV 1989, leg. P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV

1989, leg. P. GREENSLADE and D. ROUNSEVELL – (2); Projection Bluff (Pine Lake), 7,5 km NNE of Breona, suction, open montane rainforest, 41°43'S, 146°43'E, 9 III 1989, leg. P. Geenslade – (1); Big Sassy Creek, 21 km NNW of Little Swanport, rotten log, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE – (26); Big Sassy Creek, 21 km NNW of Little Swanport, rotten log, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE – (7); Big Sassy Creek, 21 km NNW of Little Swanport, fungi, 42°09'S, 147°55'E, 12 V



1296-1298. *Austrophthiracarus neotrichus* (WALLWORK, 1966) (after WALLWORK 1966): 1296 - lateral view of body, 1297 - dorsal view of body, 1298 - ventral region

1989, leg. D. ROUNSEVELL – (1); Sandpit River, Sassafras, pyrethrum knock-down, forestry reserve, 42°42'S, 147°52'E, 2 VI 1989, leg. J. DIGGLE and P. GREENSLADE – (1); Mount Mangana, litter, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (2); Mount Mangana, dead wood, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (3);TAS-144 Projection Bluff (Pine Lake), 7,5 km NNE of Breona, 41°43'S, 146°43'E, soil cores, 9 III 1989, leg. P. GREENSLADE – (20); Mount Field, below Lake Fenton, litter, *Nothofagus gunnii*, 42°41'S, 146°38'E, 25 VIII 1989, leg. H. MITCHELL – (5); Mount Mangana, Bruny Island, moss on live tree, 43°21'S, 147°13'E, 4 IV 1989, leg. J. DIGGLE – (1); Simons Road, litter, 41°21'S, 147°31'E, 8 III 1989, leg. P. GREENSLADE – (29); TAS-183 Mount Wellington, Old Farm Road, litter, *Eucalyptus* forest, 42°54'S, 147°14'E, 20 VI 1989, leg. P. GREENSLADE – (8); Big Sassy Creek, 21 km NNW of Little Swanport, moss on tree, 42°09'S, 147°55'E, 17 V 1989, leg. H. MITCHELL – (8); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE – (2); Big Sassy Creek, 21 km NNW of Little Swanport, moss on tree, 42°09'S, 147°55'E, 17 V 1989, leg. H. MITCHELL – (41); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE – (2); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, moss on dead log, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus neotrichus (WALLWORK, 1966)

(Figs 1296-1298)

Neophthiracarus neotrichus WALLWORK, 1966
Neophthiracarus neotrichus: SPAIN and LUXTON 1971, LUXTON 1985, NIEDBAŁA 1986, 1992

DIAGNOSIS. Prodorsum with sensilli short, fusiform, interlamellar setae long, robust, erect, lamellar and rostral setae short, spiniform. Notogaster with neotrichy of setae, 20 setae on the left side and 22 setae on the right side, setae fairly short, $c_1 < c_1$-d_1, covered with small spines, vestigial setae f_1 posterior to h_1 setae, three pairs of lyrifissures *ia, im, ip* present. Ventral region, formula of genital setae: 9(4+5): 0; anoadanal plates with two pairs of anal setae and neotrichy of adanal setae, five setae on right plate and four setae on left plate, anal setae shorter than adanal setae.

MATERIAL. Locality in the Australian region: Campbell Island, Beeman Hill, 2.6 XII 1961, leg. J.L. GRESSITT - 1 specimen (WALLWORK 1966).

DISTRIBUTION. Campbell Island, perhaps an endemic species.

Austrophthiracarus nicoleti (NIEDBAŁA, 1987)

(Figs XXII, XXIII in NIEDBAŁA 1987)

Calyptophthiracarus nicoleti NIEDBAŁA, 1987

DIAGNOSIS. Prodorsum with fields well developed, lateral carinae absent; sensilli club-like with long pedicel and rounded head; interlamellar and rostral setae robust, covered with small spines, interlamellar setae erect; lamellar steae vestigial, *in* > *ro*

> *ex*. Notogaster with 15 pairs of robust setae covered with small spines, setae ps_3 et ps_4 far from each other; vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im,* ip, *ips* present. Ventral region, setae *h* of mentum shorter than distance between them; genitoaggenital plates with formula of genital setae: 5(4+1): 4, setae g_5, g_7, g_9 sont long and rough; anoadanal plates with 5 pairs of robust and rough setae, $ad_2 > ad_3 > ad_1 > an$. Leg chaetotaxy of complete type, setae *d* on femora I bifurcate at distal end.

MATERIAL. Localities in the Australian region: Australia, QLD Joalah Nat. Park, at 380 m, 27° 55'S, 153° 12'E, rainforest, 14 III 1973, leg. R.J. KOHOUT – (2) (NIEDBAŁA 1987); QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (5); Australia, QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (4); QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (3); QLD Mc Namee CK, 300 m, 17° 40'S, 145° 49'E, rainforest, 8 VII 1971, leg. R.W. TAYLOR, FEEHAN – (6); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (11).

DISTRIBUTION. North Australia, probably an endemic species.

Austrophthiracarus perpropinquus NIEDBAŁA et COLLOFF, 1997

(Figs 74-81 in NIEDBALA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with narrow fields; lateral carinae absent; sensilli short, spindle-shaped, with spinulose head; setae short, spiniform, rough; *le* = *ro* > *in* > *ex*. Notogaster with 21 pairs of setae, moderately short (c_1/c_1-d_1=0.64), spiniform, with rough ornamentation distally; dorsal setae somewhat longer than lateral; additional setae present in *h* and p series; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum considerably longer than distance between them; genitoaggenital plates with formula of genital setae: 9(4+5): 0; setae on anoadanal plates similar in shape to gastronotic setae, formula 4:2, adanal setae toward anterior end of plate progressively shorter and thinner. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I remote from distal end.

MATERIAL. Localities in the Australian region: Tasmania, Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, litter, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE – (23); Mount Mangana, Bruny Island, litter, 43°21'S, 147°13'E, 10 IV 1989, leg. P. GREENSLADE – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (84); Savage River, Pipeline Road, sweeping, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (5); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii* and *Sassafras*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (1); Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (22); Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (30); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. H. MITCHELL – (22); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (52); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, moss at base of myrtle trunk, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (25);

Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. P. GREENSLADE and J. DIGGLE – (8); Liffey Falls, soil cores, second waterfall, 41°42'S, 146°46'E, 9 III 1989, leg. P. GREENSLADE – (7); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE – (2); Savage River, Pipeline Road, moss on log, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (10); Mount Field, below Lake Fenton, litter, *Nothofagus gunnii*, 42°41'S, 146°38'E, 25 VIII 1989, leg. H. MITCHELL – (21); Simons Road, litter, 41°21'S, 147°31'E, 8 III 1989, leg. P. GREENSLADE – (6); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (2); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, moss on fallen log, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (12); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, moss on ground, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (1); Frodshams Pass. litter, thamnic rainforest, 42°49'S, 146°13'E, 18 XI 1988, leg. P. GREENSLADE – (1); Sandspit River, forestry reserve, litter, 42°42'S, 147°52'E, 9 XII 1988, leg. P. GREENSLADE – (8); Sandspit River, forestry reserve, soil cores, 42°42'S, 147°52'E, 22 V 1989, leg. J. DIGGLE – (2); Sandpit River, litter, forestry reserve, 42°42'S, 147°52'E, 22 V 1989, leg. P. GREENSLADE – (32); Mount Field, below Lake Fenton, moss on log, *Nothofagus gunnii*, 42°41'S, 146°38'E, 25 VIII 1989, leg. H. MITCHELL – (1); Simons Road, soil cores, 41°21'S, 147°31'E, 5 VI 1989, leg. J. DIGGLE – (2); Sandpit River, litter, forestry reserve, 42°42'S, 147°52'E, 22 V 1989, leg. P. GREENSLADE – (2); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 17 V 1989, leg. P. GREENSLADE – (73) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus perti (NIEDBAŁA, 1987)

(Figs XXIV, XXV in NIEDBAŁA 1987)

Calyptophthiracarus perti NIEDBAŁA, 1987

DIAGNOSIS. Prodorsum with median field large but weak, leterals well developed; lateral carinae reach sinus; posterior furrows absent; sensilli club-like with narrow pedicel and head covered with small spines; setae robust, covered with small spines but exobothridial setae vestigial, *in* > *ro* > *le*. Notogaster with 15 pairs of robust setae covered with small spines, vestigial setae f_1 posterior to h_1 setae; only two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 9(4+5): 0; anoadanal plates each with 5 rough setae, $ad_2 > ad_1 > ad_3 > an$. Leg chaetotaxy incomplete, setae *s* on tarsi I et II, *v'* on femora I and *l'* on genua IV absent.

MATERIAL. Locality in the Australian region: Australia, QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (5) (NIEDBAŁA 1987).

DISTRIBUTION. North Australia, probably an endemic species.

Austrophthiracarus pilosus NIEDBAŁA et COLLOFF, 1997

(Figs 82-88 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with narrow fields, dorsal longer than lateral; lateral carinae absent; sensilli long, narrow, slightly swollen proximally, rough; interlamellar and rostral setae spiniform, lamellar long and rough; le > ro > in. Notogaster neotrichous with 20 pairs of moderately long, robust setae (c_1/c_1-d_1=0.88), weakly spinose distally, dorsal longer than lateral, additional setae in rows *h* nad *ps*; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side, but right *im* absent in HOLOTYPE. Ventral region, setae *h* of mentum slightly longer than distance between them; genitoaggenital plates each with 9 setae, formula: 9(4+5): 0; anoadanal plates each with 6 spinose setae, formula 4:2, adanal setae becoming shorter and thinner towards anterior end of plate. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I remote from distal end.

MATERIAL. Localities in the Australian region: Tasmania, Sandpit River, litter, forestry reserve, 42°42'S, 147°52'E, 22 V 1989, leg. P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 17 V 1989, leg. P. GREENSLADE – (7); Big Sassy Creek, 21 km NNW of Little Swanport, soil cores, 42°09'S, 147°55'E, 12 V 1989, leg. J. DIGGLE and H. MITCHELL – (1); Big Sassy Creek, 21 km NNW of Little Swanport, soil cores, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE and D. ROUNDSVELL – (1); Mount Mangana, moss on dead tree on ground, 43°22'S, 147°17'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (2); Mount Mangana, Bruny Island, moss on log, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (2); Savage River, Pipeline Road, 41°30'S, 145°20'E, pyrethrum knock-down, *Nothofagus cunninghamii*, 19 IV 1989, leg. H. MITCHELL – (3); Mount Mangana, litter, 43°21'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (1); Mount Wellington, Old Farm Road, litter, Eucalyptus forest, 42°54'S, 147°14'E, 20 VI 1989, leg. P. GREENSLADE – (9); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE – (5); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE – (21) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Austrophthiracarus pulchellus NIEDBAŁA, 1993

(Figs 62-68 after NIEDBAŁA 1993)

DIAGNOSIS. Prodorsum with distinct fields; lateral carinae absent; sensilli with a narrow stalk and a rounded head covered with minute spines; interlamellar and exobothridial setae vestigial, lamellar setae minute, rostral setae robust, distinctly roughened. Notogaster with 18 pairs of slightly recurved setae; setae covered with short spines in their distal half; vestigial setae f_1 inserted ventrad of setae h_1; only 2 pairs of lyrifissures *ia* and *im* present. Ventral region, infracapitular mentum with vestigial setae h; genitoaggenital plates withformula of genital setae: 9(4+5): 0; anoadanal plates each with 5 long and flagellate setae, $ad_1 > ad_2 > ad_3 = ad_3$.= an. Leg chaetotaxy of reduced type; setae *v"* on femora I absent.

MATERIAL. Localities in the Australian region: New Zealand, Bluff, beside reservoir reserve, at 350 ft, evergreen tree litter, decayed wood, possibly an exotic pine,

23 II 1965, leg. N.A. WALKER – (1) (NIEDBAŁA 1993); Monk, beech, litter, 28 I 1960, leg. A. CHAPMAN – (2); Waituhi, Tanmarunui, 10 I 1967, leg. R.R. FORSTER – (1); School Creek, 13 II 1966, leg. J. SUTHERLAND – (6); New Zealand, Forster – (1); Mt. Tegrost below Dawson Falls, at 500 m, Kamahi, grisilinea, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1).

DISTRIBUTION: New Zealand, probably an endemic species.

Austrophthiracarus radiatus BALOGH et MAHUNKA, 1978

(Figs 139-157 after NIEDBAŁA 1994)

Austrophthiracarus radiatus: NIEDBAŁA, 1986, 1992, 1994
Austrophthiracarus similis BALOGH and BALOGH, 1983; NIEDBAŁA 1992
Steganacarus similis: NIEDBAŁA 1986

DIAGNOSIS.Median and lateral regions of prodorsum long, lateral carinae absent; sensilli short, with fusiform head; setae short, spiniform, *ro* > *in* = *le* > *ex*. Notogaster with 27-31 pairs of short, spiniform and rough setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum variable in length, formula of genital setae:9(4+5): 0, anoadanal plates each with 2 anal and 4-7 adanal setae. Leg chaetotaxy complete.

MATERIAL. Localities in the Australian region: Australia, north Queensland, Sherrard Is., 13oS 143o36' E, leaf mould on clay, E.N. MARKS coll. - 7 specimens (BALOGH and MAHUNKA 1978); Queensland, black rock, dry sclerophyllous country, about 18 km N of Lyndhurst Station on the Hughenden, leg. C. PLOWMANN – (3); Plowm. 46, leg. BALOGH and BALOGH – (3); Plowm. 39, 1978, leg. BALOGH and MAHUNKA – (6); VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (11); New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. KOHOUT – (7); Queensland, wet sclerophyllous rain forest, Mt. Glorious 48,27 km NW of Brisbane, leg. C. PLOWMANN – 3; Barriongton Tops, atlt. 5000 ft, via Salisbury N.S.W., temperature forest, 10 II 1965, leg. G.B. MONTEITH (sub. *Aust. similis* – 2) (BALOGH and BALOGH 1983).

DISTRIBUTION. North and South Australia.

Austrophthiracarus scopoli (NIEDBAŁA, 1987)

(Figs XXVI, XXVII in NIEDBAŁA 1987)

Calyptophthiracarus scopoli NIEDBAŁA, 1987
Austrophthiracarus scopoli: NIEDBAŁA & COLLOFF 1997

DIAGNOSIS. Prodorsum with median field longer than lateral; lateral carinae and posterior furrows absent; sensilli long, swollen in proximal part and very narrow distally; setae short, setiform, smoth, *ro* > *le* > *in*, exobothridial setae vestigial. Notogaster neotrichous, with 19 pairs of short and fine setae, vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula

of genital setae: 9(4+5): 0; anoadanal plates each with 2 anal setae and 4 or 5 adanal setae, all setae are short and fine. Leg chaetotaxy incomplete, setae *v'* on femora I absent.

MATERIAL. Localities in the Australian region: Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (164) (NIEDBAŁA 1987); Tasmania, Mount Horror, litter, 41°04'S, 147°44'E, XII 1988, leg. M. NEYLAND – (3) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. South Australia and Tasmania.

Austrophthiracarus sellnicki (NIEDBAŁA, 1987)

(Figs XXVIII, XXIX in NIEDBAŁA 1987)

Calyptophthiracarus sellnicki NIEDBAŁA, 1987
Austrophthiracarus sellnicki: NIEDBAŁA & COLLOFF 1997

DIAGNOSIS. Prodorsum with fields long and narrow;lateral carinae and posterior furrows absent; sensilli very short, fusiform, smooth; setae short, spiniform and rough, *ro>in>le>ex*. Notogaster neotrichous with 23 pairs of spiniform and rough setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates each with 9 or 10 genital setae with formula: 9(4+5): 0 or 10(5+5): 0; anoadanal plates each with 2 anal and 4 adanal setae. Leg chaetotaxy complete.

MATERIAL. Localities in the Australian region: Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (18) (NIEDBAŁA 1987). Tasmania, Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, litter, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (2); Savage River, Pipeline Road, 41°30'S, 145°20'E, pyrethrum knock-down, *Nothofagus cunninghamii*, 19 IV 189, leg. H. MITCHELL – (18); Mount Mangana, Bruny Island, litter, 43°22'S, 147°17'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (54); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, soil cores, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (1); Bruny Island, Mount Mangana, litter, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (28); Rivaux Creek, Huon Pine litter, 43°11'S, 146°11'E, 20 XII 1988, leg. P. GREENSLADE – (24); Mount Mangana, litter, 43°21'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (50); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. J. DIGGLE – (3); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (89); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii* (edge), 41°30'S, 145°20'E, 20 IV 1989, leg. J. DIGGLE – (67); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. P. GREENSLADE – (4); Bruny Island, Mount Mangana, *Nothofagus cunninghamii*, suction, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (1); Mount Mangana, litter, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (22); Mount Mangana, dead wood, 43°22'S, 147°17'E, 9 IV 1989, leg. P. GREENSLADE – (6); Projection Bluff (Pine Lake), 7,5 km NNE of Breona, 41°43'S, 146°43'E, soil

cores, 9 III 1989, leg. P. GREENSLADE – (14); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE – (1); Frodshams Pass. litter, thamnic rainforest, 42°49'S, 146°13'E, 18 XI 1988, leg. P. GREENSLADE – (2); Mount Mangana, moss on dead tree on ground, 43°22'S, 147°17'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (53); Mount Mangana, Bruny Island, moss on log, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (3); Savage River, Pipeline Road, pyrethrum knock-down, horyzontal dead tree, 41°30'S, 145°20'E, 20 IV 1989, leg. J. DIGGLE – (1); Tasmania, Mount Field, below Lake Fenton, litter, *Nothofagus gunnii*, 42°41'S, 146°38'E, 9 IX 1989, leg. R. COY – (4); Mount Field, below Lake Fenton, suction sample, *Nothofagus gunnii*, 42°41'S, 146°38'E, 9 IX 1989, leg. R. COY – (6); Mount Field, below Lake Fenton, soil cores, *Nothofagus gunnii*, 42°41'S, 146°38'E, 25 VIII 1989, leg. R. COY – (3); Mount Mangana, Bruny Island, litter, 43°21'S, 147°13'E, 4-9 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (9); Liffey Falls, pitfall trap no. 4, 41°42'S, 146°46'E, 9 III 1989, leg. P. GREENSLADE – (2); Mount Wellington, Old Farm Road, *Eucalyptus* forest, litter, 42°54'S, 147°14'E, 9 III 1989, leg. P. GREENSLADE – (2); Mount Mangana, Bruny Island, moss sample, 43°21'S, 147°13'E, 9 IV 1989, leg. J. DIGGLE – (10); Mount Mangana, Bruny Island, moss on tree, 43°21'S, 147°13'E, 9 IV 1989, leg. J. DIGGLE – (4) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. South Australia and Tasmania.

Austrophthiracarus tragardhi (NIEDBAŁA, 1987)

(Figs XXX, XXXI in NIEDBAŁA 1987)

Calyptophthiracarus tragardhi NIEDBAŁA, 1987

DIAGNOSIS. Prodorsum with weak fields; lateral carinae and posterior furrows absent; Sensilli long with narrow pedicel and fusiform head; interlamellar setae erect, covered with small spines, lamellar setae small, spiniform, rostral setae fairly long, smooth, exobothridial setae vestigial, *in* > *ro* > *le*. Notogaster with 15 pairs of robust setae covered with small, sparse spines; vestigial setae f_1 posterior to h_1 setae; only two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 9(4+5): 0, g_8 and g_9 setae located in proximal margin; anoadanal plates each with 2 anal and 4 adanal setae, all rough. Leg chaetotaxy incomplete, setae *v'* on femora I absent.

MATERIAL. Locality in the Australian region: Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (14) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Austrophthiracarus wallworki BALOGH et BALOGH, 1983

(Figs 158-166 in NIEDBAŁA 1994)

Austrophthiracarus wallworki: NIEDBAŁA 1986,1992,1994

DIAGNOSIS.Medianandlateralregions of prodorsum distinct and narrow; lateral carinae absent; sensilli short with rounded head; setae relatively long, barbed in

distal half, lamellar setae inserted in unusual position, between interlamellar and rostral setae, *in* > *le* > *ro* > *ex*. Notogaster neotrichous with 22 pairs of moderately long ($c_1 < c_1$-d_1) setae, barbed in distal half; vestigial setae f_1 posterior to setae h_1 on the right side, on the left side absent; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum very short; arrangement of genital setae: 9(4+5): 0; anoadanal plates each with 2 anal and 5 adanal setae. Leg chaetotaxy complete.

MATERIAL. Localities in the Australian region: Australia, Point Lookout, 5000 feet, via Ebor, N.S.W., temperate rainforest, *Nothofagus moorei* , litter, 23 IV1973, leg. I. NAUMANN - 3 specimens (BALOGH and BALOGH 1983); PLOWMAN 2, Australia, Queensland, black rock, dry sclerophyllous country, about 18 km N of Lyndhurst Station on the Hughenden, leg. C. PLOWMANN – (1).

DISTRIBUTION. North Australia, probably an endemic species.

Austrophthiracarus willmanni NIEDBAŁA, 1987

(Figs XXXII, XXXIII in NIEDBALA 1987)

DIAGNOSIS. Surface of body covered with concavities. Prodorsum with median carina remarkable and well visible, long fields; lateral carinae absent; posterior furrows present; sensilli small, club-like; setae short, spiniform and rough, *in* > *ro* > *le* > *ex*. Notogaster neotrichous with 20 or 21 pairs of thick setae covered with small spines in distal half, dorsal setae and setae of row c longer than other setae, $c_1 < c_1$-d_1; vestigial setae f_1 posterior to h_1 setae; only two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 9 (4+5): 0; anoadanal plates each with 2 anal and 5, occasionally 4 or 6 adanal setae, adanal setae longer towards posterior end of plates, all these setae rough. Leg chaetotaxy incomplete, setae *v'* on femora I absent.

MATERIAL. Localities in the Australian region:Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (25) (NIEDBAŁA 1987); VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (2)

DISTRIBUTION. South Australia, probably an endemic species.

Arphthicarus aokii (NIEDBAŁA, 1987)

(Figs XXXIV, XXXV in NIEDBAŁA 1987)

Austrophthiracarus aokii NIEDBAŁA, 1987

DIAGNOSIS. Prodorsum with distinct fields, median field with incision between rostral setae; lateral carinae and posterior furrows absent, sensilli short, club-like with short pedicel; setae short, spiniform and rough, exobothridial setae vestigial, *ro* > *in* > *le*. Notogaster neotrichous with 20 pairs of short, spiniform and rough setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of mentum almost equal in length with distance between them; genitoaggenital plates each with 8 genital setae with formula: 8(3+5): 0; anoadanal plates each with 2 anal and 4 adana setae; Leg chaetotaxy incomplete, setae *v'* on femora I absent.

MATERIAL. Localities in the Australian region: Australia, QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (15) (NIEDBAŁA 1987); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (73).

DISTRIBUTION. North Australia, probably an endemic species.

Arphthicarus heterotrichus sp. nov.

(Figs 1299-1307)

DESCRIPTION. Measurements: Holotype: prodorsum: length 431, width 279, height 234, sensillus 73.4, setae: interlamellar 190, lamellar 22.8, rostral 17.7; notogaster: length 809, width 539, height 567, setae: c_1 139, h_1 163; genitoaggenital plate 203x165, anoadanal plate 285x152. Colour grey to brown. Integument deeply foveolate. Body covered with strong cerotegument. Prodorsum with powerful dorsal carina. Lateral carinae absent. Fields barely discernible. Posterior furrows well marked. Sensilli short, bent posteriorly, with narrow stalks, shorter than head in some specimens. Head spindle-shaped, spinose on anterior part. Interlamellar setae very long, thick, covered with distinct spines along whole lenght. Lamellar and rostral setae very short and thick with small spines, *in* > *le* > *ro*. Exobothridial setae regressed, only alveolar vestiges present. Notogaster with 15 pairs of heteromorphic setae present. Dorsal setae erect, thick, densely spinose, fairly short (c_1/c_1-d_1=0.71). Setae d_2, e_2, h_2, ps_2 thicker, shorter, spinose. Other setae phylliform, sparsely spinose. Setae c_1 and c_3 inserted close to anterior border, setae c_2 considerably remote from margin. Lyrifissures and vestigial setae not visible, obscured by strong cerotegument. Ventral region. Setae *h* of mentum longer than their mutual distance. Nine pairs of genital setae, sharply pointed, formula: 6(4+2): 3, 5 pairs of minute anal and adanal setae present. 3 pairs of adanal setae positioned close to paraxial margin of anoadanal plates. Legs. Setal formula of complete type. Setae *d* on femora I robust and remote from distal end of article. Setae *a"* on tarsi I and II curved distally, setae *ft"* on tarsi II straight distally.

DIAGNOSIS. The most distinct feature of this species compared to its congeners is the heterotrichy of gastronotic setae. The specific epithet is derived from this character.

MATERIAL. Holotype: New Zealand, Mt. Tegrost below Dawson Falls, at 500 m, Kamahi, grisilinea, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER. Other material. Localities in the Australian region: New Zealand, Summit Mangamaka Rd., at 2000 m, *Knightia weinmannia*, 21.I.1972, leg. G.W. RAMSAY and N.A. WALKER – (1); Mt. Egmont, Dawson Falls, at 3000 (2800?) m, Kamahi forest, 24 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (2); Waikaremoana Lake, Lake House, at 2300 m, Ngamoko track all *Elaeocarpus dentatus*, 7 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1)

DISTRIBUTION. New Zealand, probably an endemic species.

Atropacarus (*Hoplophorella*) *floridus* (JACOT, 1933)

(Figs 1064-1085)

Hoplophorella cucullata floridae JACOT, 1933
Hoplophorella floridae: AOKI 1980
Atropacarus (*Hoplophorella*) *floridae*: NIEDBAŁA 1986,1992
Atropacarus (*Hoplophorella*) *floridus*: NIEDBAŁA 1994a
Hoplophorella glauca HAMMER, 1972 **syn. nov.**
Atropacarus (*Hoplophorella*) *glaucus*: NIEDBAŁA 1986,1992
Hoplophorella schauenbergi MAHUNKA, 1978 **syn. nov.**
Atropacarus (*Hoplophorella*) *schauenbergi*: NIEDBAŁA, 1992
Hoplophorella spatulata PARRY, 1980 **syn. nov.**
Hoplophorella perisi SUBIAS et SARKAR, 1984 **syn. nov.**
Hoplophorella cuneiseta MAHUNKA, 1988 **syn. nov.**
Hoplophorella cuneiseta: NIEDBAŁA 1992
Atropacarus (*Hoplophorella*) *cuneisetus*: NIEDBAŁA 1994a

DIAGNOSIS. See p. 284.

MATERIAL. Localities in the Australian region: Australia, Cairns, S of ville, in forest, 28 VIII 1979, leg. J. BŁOSZYK – (1); Cairns, litter of bushes above stream, 28 VIII 1979, leg. J. BŁOSZYK – (3); Queensland, southern part of Cape Tribulation, N. Cairns, rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (2).

DISTRIBUTION. A Pantropical species.

Atropacarus (*Hoplophorella*) *singularis* (SELLNICK, 1959)

(Figs 1088-1093)

Hoplophorella singularis SELLNICK, 1959
Atropacarus (*Hoplophorella*) *singularis*: NIEDBAŁA 1986,1992
Hoplophorella queenslandica BALOGH et MAHUNKA, 1978
Hoplophorella regalis MAHUNKA, 1978

DIAGNOSIS. See p. 288.

MATERIAL. Locality in the Australian region: sub *H. queenslandica*: Australia, north Quennsland, Sherrard Is., 13o S 143o36' E, leaf mould on clay, 9 VI 1956,E.N. MARKS coll. - 7 specimens (BALOGH & MAHUNKA 1978).

DISTRIBUTION. A Pantropical, common species.

Atropacarus (*Hoplophorella*) *vitrinus* (Berlese,1913)

(Figs 1100-1111)

Hoplophorella vitrinum: MAHUNKA 1994
Atropacarus (*Hoplophorella*) *vitrinum*: NIEDBAŁA 1994b
Steganacarus andrei BALOGH, 1958 **syn. nov.**
Hoplophorella scapellata AOKI, 1965 **syn. nov.**
Atropacarus (*Hoplophorella*) *scapellatus*: NIEDBAŁA 1986,1992
Hoplophorella africana WALLWORK, 1967**syn. nov.**
Hoplophorella raychaudhurii SUBIAS et SARKAR, 1984 **syn. nov.**
Hoplophorella lienhardi MAHUNKA, 1987 **syn. nov.**

DIAGNOSIS. See p. 290.

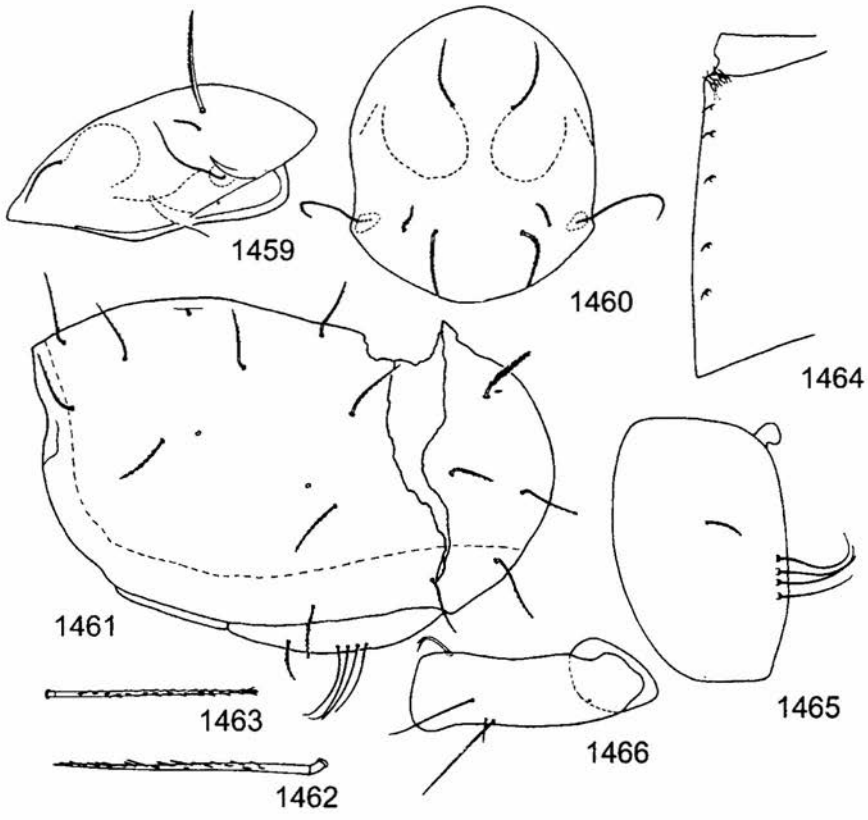
MATERIAL. Localities in the Australian region: Papua New Guinea, Port Moresby, Botanical Garden, litter, 13 xi 1981, leg. J. KOLASA - (2); as above, humus - (5); Port Moresby, litter in leafy forest, 13 XI 1981, leg. J. KOLASA - (1) (NIEDBAŁA 1992); Ambunti, litter from tropical forest, 22 IX 1979, leg. J. BŁOSZYK – (1). Australia, Cairns, S of ville, in forest, 28 VIII1979, leg. J. Błoszyk - (6) (NIEDBAŁA 1992); Queensland, near Ellis Beach, N. Cairns, forest with high humidity, transitional zone to the rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (1); Queensland, southern part of Cape Tribulation, N. Cairns, rain forest, soil and litter, July 1992, leg. R. SCHUSTER – (1).

DISTRIBUTION. A Pantropical, common species.

Atropacarus (Atropacarus) controvertus sp. nov.

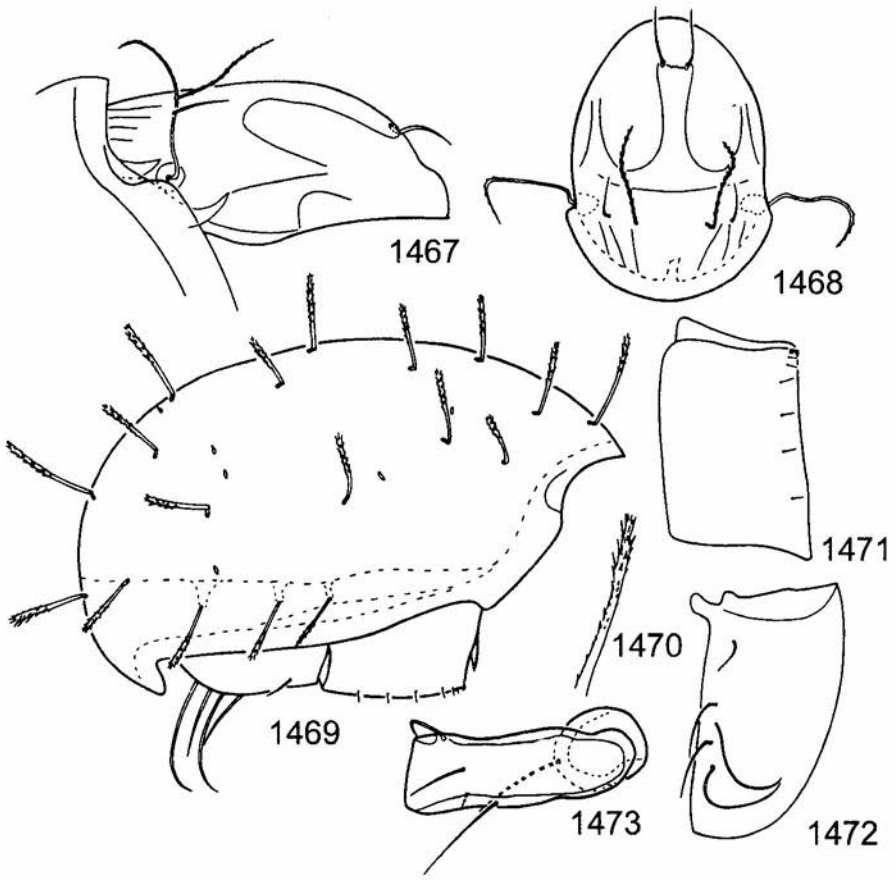
(Figs 1459-1466)

DESCRIPTION. Measurements of holotype: prodorsum: length 404, width 313, height 167, sensillsus 126, setae: interlamellar 134, lamellar 35.4, rostral 75.9;



1459-1466. *Atropacarus* (*Atropacarus*) *controversus* sp. nov (holotype): 1459 - prodorsum, lateral view, 1460 - prodorsum, dorsal view, 1461 - notogaster, lateral view, 1462 - seta c_1, 1463 - seta ps_4, 1464 - fragment of genitoaggenital plate, 1465 - anoadanal plate, 1466 - trochanter and femur of leg I

notogaster: length 883, width 651, height 521, setae: c_1 124, h_1 and ps_1 86.0; genitoaggenital plate 207x172, anoadanal plate 328x217. Colour grey-brown. Integument finely punctate. Body covered with strong cerotegument. Prodorsum with short fields. Median region widened towards roastral setae. Lateral carinae absent. Sensilli long, narrow, gradually tapering, covered with small spines. Interlamellar setae long, stout, set perpendicularly to surface, lamellar and rostral setae shorter, also stout and all heavily spinose, comparative length: *in>ro>le*. Exobothridial setae vestigial. Notogaster with setae fairly short (c_1/c_1-d_1=0.58), stout. Some setae heavily spinose on both sides, some only on one side (Figs.). Setae c_3 close to anterior margin, setae c_1 somewhat remote from margin, setae c_2 much more so than setae c_1 and c_3. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 situated at the level of h_1 setae. Lyrifissures *im* placed somewhat dorsally of line of setae *cp*-h_3. Ventral region. Infracapitular setae *h* longer than their mutual distance. Genital setae with formula: 5: 4. Anoadanal plate each with 5 setae, 4 less or more smooth in inner margin and setae ad_3 heavily spinose. Posterior setae of inner margin are the shortest. Legs. Chaetotaxy of "complete type". Setae d on femora I situated almost distally

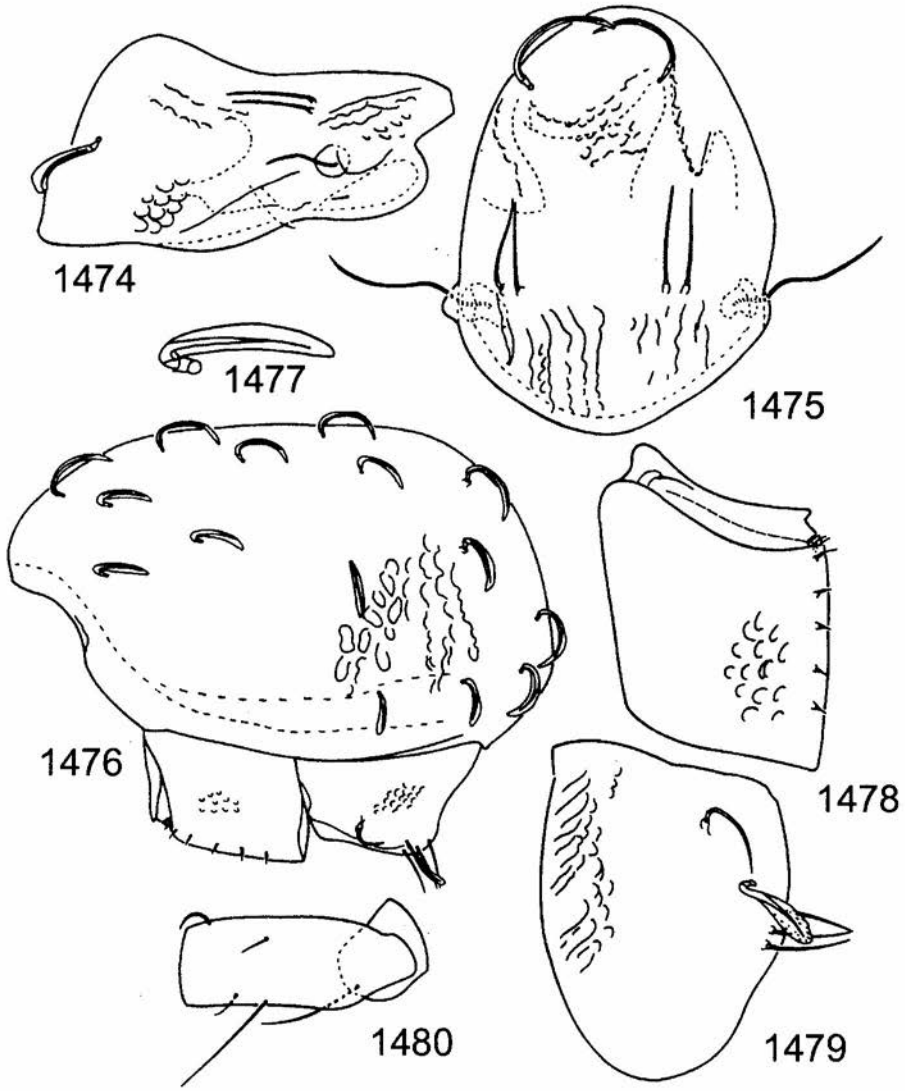


1467-1473. *Atropacarus* (*Atropacarus*) *griseus* (Niedbała, 1984) (holotype): 1467 - prodorsum, lateral view, 1468 - prodorsum, dorsal view, 1469 - notogaster, lateral view, 1470 - distal end of seta c_1, 1471 - genitoaggenital plate, 1472 - anoadanal plate, 1473 - trochanter and femur of leg I

and ended with fork; tibiae IV with setae *d* short, coupled with solenidia; setae *a"* on tarsi I and II curved distally, seta *ft"* on tarsi II straight distally; setae *ft'* on tarsi I long, normal.

ETYMOLOGY. The specific name is derived from Latin *controversus*, meaning "somewhat intricate", controversial, that is a subject of debate, referring to the debatable taxonomic status of the species.

REMARK. *Atropacarus* (*Atropacarus*) *controvertus* sp. nov., considering the presence of fundamental characters: the arrangement of genital setae 5:4, the arrangement of anoadanal setae (4 pairs along the inner bord) and the presence of setae *d* on



1474-1480. *Atropacarus* (*Hoplophorella*) *diaphoros* sp. nov. (holotype): 1474 - prodorsum, lateral view, 1475 - prodorsum, dorsal view, 1476 - notogaster, lateral view, 1477 - seta c_2, 1478 - genitoaggenital plate, 1479 - anoadanal plate, 1480 - trochanter and femur of leg I

tibia IV short and coupled with solenidia, belongs to the subgenus *Atropacarus*. However some, seemingly secondary characters such as: the presence of 15 pairs of gastronotic setae only, the dorsal position of lyrifissures *im*, in relation to the line between setae *cp-h*$_3$, the presence the setae *a"* on tarsi I and II curved distally and the presence of setae *ft'* on tarsi I long, normal, make it an unusual species.

DIAGNOSIS. Considering the above characters the new species is unusual and incomparable with other members of *Atropacarus* (*Atropacarus*).

MATERIAL. Holotype: New Zealand, Togatai Reserve, Tairua River, W of Coromandel peninsula, white pine-matai?, 19 I 1972, leg. G.W. RAMSAY and N.A. WALKER.

DISTRIBUTION. New Zealand, probably an endemic species

Atropacarus (*Atropacarus*) *griseus* (NIEDBAŁA, 1984)

(Figs 1467-1473)

Steganacarus (*Atropacarus*) *griseus* NIEDBAŁA, 1984
Atropacarus (*Atropacarus*) *griseus*: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum narrow, longer than lateral fields; lateral carinae absent; posterior furrows well developed; sensilli long, narrow, sickle-shaped, covered with thin spines in distal half; interlamellar setae fairly long, thick, covered with thin spines, rostral and lamellar setae spiniform, smooth, *in* > *ro* > *le* > *ex*. Notogaster neotrichous with 18 pairs of fairly short ($c_1 < c_1$-d_1), thick setae covered with dense and robust spines in distal half; vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia,im*, *ip*, *ips* present. Ventral region, setae *h* of mentum shorter than distance between them, formula of genital setae: 6: 3; anoadanal plates with 5 pairs of setae, setae ad_1 and ad_2 situated in one proximal row with anal setae and longer than anal setae, setae ad_3 the shortest. Leg chaetotaxy reduced, setae *a'* on tarsi I absent.

MATERIAL. Locality in the Australian region: Papua New Guinea, Port Moresby, botanical garden, litter under trees and bushes, 13 XI 1981, leg. J. KOLASA - (8) (NIEDBAŁA 1984a).

DISTRIBUTION. Papuan and west Polynesian element. Probably it is an Oriental species introduced to Australia and Polynesian islands.

5.1.4.3. KEY FOR DETERMINATION OF GENERA, SUBGENERA AND SPECIES

Oribotritiidae

1. Genitoaggenital sutures absent, two plates completely fused ..... *Austrotritia*
-. Genitoaggenital sutures present or at least partly present, two plates at least posteriorly well separated from each other 2
2. Genitoaggenital suture incomplete ..... *Indotritia*
-. Genitoaggenital suture complete 3

3. Bothridial scales situated above bothridia, sutures between genital and anal plates present ..... *Oribotritia*
-. Bothridial scales situated below bothridia, sutures between genital and anal plates absent ..... *Sobacarus corneri*

Euphthiracaridae

2. Two triangles, one median and one posterior, situated in longitudinal suture separating ventral plates ..... *Euphthiracarus monodactylus*
-. Only one median triangle in longitudinal suture 2
3. Genitoaggenital plates with 4-5 genital setae, trochanters III and IV with one seta each ..... *Microtritia*
-. Genitoaggenital plates with 7-9 genital setae, trochanters III and IV with two setae each ..... *Rhysotritia*

Oribotritia

1. Sensilli longer than lamellar setae ..... *brevis*
-. Sensilli shorter than lamellar setae 2
2. Prodorsum with double lateral carinae ..... *duplex*
-. Prodorsum with single lateral carinae 3
3. Sensilli spinose, anal plates without setae ..... *incognita*
-. Sensilli smooth, anal plates with setae 4
4. Two pairs of anal setae present, lyrifissures *iad* posterior to setae *ad* ..... *contortula*
-. One pair of anal setae present, lyrifissures *iad* anterior to setae *ad* [3] 5
5. Rostral setae slightly longer than lamellar and interlamellar setae [3] ..... *teretis*

Indotritia

1. Sensilli fairly short, thick, barbed ..... *aotearoana*
-. Sensilli fairly long, narrow, smooth 2
2. One pair of lateral carinae present ..... *brevisetosa*
-. Two pairs of lateral carinae present 3
3. Two pairs of anal setae present ..... *krakatauensis*
-. Anal setae absent ..... *brevipilosa*

Austrotritia

1. One pair of lateral carinae of prodorsum present ..... *lebronneci*
-. Two pairs of lateral carinae present 2
2. Exobothridial setae vestigial, femora I with 3 setae ..... *carinata*
-. Exobothridial setae well-developed, femora I with 4 setae 3
3. Prodorsum with "forked" shape of lateral carinae, setae ag_1 long, considerably longer than distance between genital setae ..... *bifurca*
-. Prodorsum with "parallel" shape of lateral carinae, setae ag_1 short, shorter than distance between genital setae of row g_{6-9} ..... *robusta*

Rhysotritia

1. Prodorsum with 2 pairs of long and large, parallel lateral carinae ..... *bipartita*
-. One pair of lateral carinae simple or forked present 2
2. Lateral carinae of prodorsum simple 3
-. Lateral carinae of prodorsum forked distally 5
3. Head of sensilli elongated, fusiform and spinose ..... *wallworki*
-. Head of sensilli spinose but short, not fusiform 4
4. Plum-stone shaped head of sensilli with spinose distal end ..... *spiculifera*
-. Head of sensilli almost globular ..... *lucida*
5. Tarsi monodactylous ..... *refracta*
-. Tarsi I - bidactylous, tarsi II-IV - tridactylous ..... *comteae*

Microtritia

1. Sensilli long, narrow without head 2
-. Sensilli short, with distinct fusiform head 3
2. Distance *in-in>ro-ro* ..... *glabrata*
-. Distance *in-in<ro-ro* ..... *tropica*
3. Distance *in-in>ro-ro*, 5 pairs of genital setae present ..... *contraria*
-. Distance *in-in<ro-ro*, 4 pairs of genital setae present ..... *fusa*

Phthiracaroidea

1. Four setae (ad_1, an_1, an_2, ad_2) in row near paraxial margin of anoadanal plates 2
-. Fewer setae near paraxial margin 4
2. Setae d on tibiae IV long, independent of solenidia ..... *Steganacarus* (*Rhacaplacarus*)
-. Setae d on tibiae IV short, coupled with solenidia 3
3. All genital setae located in row or nearly so, near paraxial margin of plate .... *Atropacarus* (*Atropacarus*)
-. Setae g_6 and rarely g_8 remote from paraxial margin of genitoaggenital plate .... *Phrathicarus inflatus*
4. Three setae (ad_1, an_1, an_2) in row near paraxial margin of anoadanal plates .... *Atropacarus* (*Hoplophorella*)
-. Two setae (an_1 and an_2) near paraxial margin of anoadanal plate 5
5. Setae d on tibiae IV long and independent of solenidia 6
-. Setae d on tibiae IV short, coupled with solenidia 7
6. Genital setae arranged in two rows; g_{6-9} always in some distance from paraxial margin ..... *Plonaphacarus*
-. Genital setae situated in one row or only setae g_{1-5} situated with setae g_{7-9} in one paraxial row, setae g_6 remote from paraxial margin ..... *Hoplophthiracarus*
7. Genital setae arranged in two rows, setae g_{6-9} remote from paraxial margin or at least setae g_6 and g_7 remote distinctly 8
-. Genital setae displaced towards paraxial margin and arranged in row or nearly so or setae g_{7-9} displaced towards margin, setae g_6 remote from margin 9

8. Setae on notogaster smooth and thin, tapering to a point at distal end ..... *Phthiracarus*
- . Setae on notogaster covered with spines, if smooth then short and spiniform or long and flagellate ..... *Austrophthiracarus*
9. Genital setae arranged in row near paraxial margin of plates ..... *Notophthiracarus*
-. Genital setae g_{7-9} displaced towards paraxial margin and forming row with setae g_{1-5} ..... *Arphthicarus*

Phthiracarus

1. Sensilli long, their length exceeds half height of prodorsum ..... *banksi*
-. Sensilli short, their length not exceeding half height of prodorsum 2
2. 4 or 5 pairs of adanal setae present ..... *probus*
-. 3 pairs of adanal setae present 3
3. 3 pairs of lyrifissurses present ..... *obscurus*
-. 1 or 2 pairs of lyrifissures present 4
4. 7 pairs of genital setae present, setae ps_1 above row of setae ps_{2-4} ..... *pellucidus*
-. 9 pairs of genital setae present, all setae *ps* in one row ..... *paucus*

Plonaphacarus

1. 15 pairs of notogastral setae present 2
-. More than 15 pairs of notogastral setae present 6
2. Setae in, c_2, c_3, *cp*, ad_1, ad_2 curled distally ..... *adunctus*
-. Setae not curled distally 3
3. Notogastral setae very long ($c_1 > c_1$-d_1) ..... *berlesei*
-. Notogastral setae considerably shorter ($c_1 < c_1$-d_1) 4
4. Notogastral setae smooth ..... *forsslundi*
-. Notogastral setae spinose 5
5. Lateral carinae of prodorsum long, extend beyond the sinus ..... *kugohi*
-. Lateral carinae shorter ..... *dikros*
6. 19 pairs of notogastral setae, 7 pairs of adanal setae present ..... *feideri*
-. Less than 19 pairs of notogastral setae, 3 pairs of adanal setae present 7
7. 18 pairs of spinose, notogastral setae present ..... *grandjeani*
-. 16 pairs of smooth notogastral setae present ..... *insolens*

Hoplophthiracarus

1. Notogastral setae smooth 2
-. Notogastral setae spinose 3
2. Setae of notogaster shorter than 1/2 c_1-d_1 ..... *lividus*
-. Setae of notogaster long ($c_1 = c_1$-d_1) ..... *bisulcus*
3. Lamellar and ad_3 setae covered with spines, four pairs of lyrifissures present ..... *hulli*
-. Lamellar and ad_3 setae smooth, two pairs of lyrifissures present 4
4. Head of sensilli rounded ..... *montigenus*
-. Head of sensilli fusiform 5
5. Fields of prodorsum invisible, vestigial setae f_1 posterior to setae h_1 ..... *rafalski*
-. Fields of prodorsum distinct, vestigial setae f_1 anterior to setae h_1 ..... *proximus*

Steganacarus (*Rhacaplacarus*)

1. All notogastral setae short, swollen in aspergillum ..... *jacoti*
-. Heterotrichy of notogastral setae, most setae very long, spinose ..... *diaphoros*

Austrophthiracarus

1. 15 pairs of notogastral setae 2
-. More tham 15 pairs of notogastral setae 7
2. Lamellar setae vestigial or minuscule 3
-. Lamellar setae well developed 5
3. Femora of legs I with 3 setae ..... *tragardhi*
-. Femora of legs I with 4 setae 4
4. Chaetotaxy of genital setae: 4+1: 4, setae d of femora of legs I bifurcate ..... *nicoleti*
-. Chaetotaxy of genital setae: 4+5: 0, setae d of femora of legs I simple ..... *latior*
5. Sensilli narrow without head ..... *michaeli*
-. Sensilli with distinct head 6
6. Femora of legs I with 4 setae, *h*<*h*-*h*, 4 pairs of lyrifissures present ..... *fusticulus*
-. Femora of legs I with 3 setae, *h*>*h*-*h*, 2 pairs of lyrifissures present ..... *perti*
7. 16-19 pairs of notogastral setae 8
-. 20 or more pairs of notogastral setae 17
8. Surface of body foveolate 9
-. Surface of body punctate 10
9. All notogastral setae very short, minuscule ..... *baloghi*
-. Heterotrichy of notogastral setae present, most of them long (c_1>c_1-d_1) ..... *aureus*
10. Sensilli swollen proximally ..... *scopoli*
-. Sensilli not swollen proximally 11
11. Sensilli long, narrow, without head 12
-. Sensilli short with distinct head 13
12. Setae *ro* extend beyond end of rostrum, setae in and *le* positioned anterior to the bothridia, setae $g_{6\text{-}9}$ shorter than distance between them ..... *dissonus*
-. Setae *ro* not extending beyond rostrum, setae *in* and *le* positioned at the level of bothridia, setae $g_{6\text{-}9}$ longer than distance between them ..... *egregius*
13. Sensilli pointed distally, interlamellar setae vestigial ..... *pulchellus*
-. Sensilli rounded distally, interlamellar setae well developed 14
14. Formula of genital setae: 4+4: 1 ..... *aenus*
-. Formula of genital setae: 4+5: 0 15
15. Femora of legs I with 3 setae, setae g_6 located at the level of setae g_5 ..... *facetus*
-. Femora of legs I with 4 setae, setae g_6 located anterior to setae g_5 16
16. 6 pairs of adanal setae present, all notogastral setae more or less similar ..... *aculeatus*
-. 3-5 pairs of adanal setae present, anterior and posterior notogastral setae longer than other ..... *hollidayi*
17. Peculiar structure of protuberance at posterior part of notogaster present ..... *daimonios*
-. Peculiar structure absent 18
18. Sensilli long, narrow without head 19
-. Sensilli short with distinct head 20

19. Sensilli not swollen proximally, 3 pairs of lyrifissures present ..... *lamingtoni*
-. Sensilli slightly swollen proximally, 2 pairs of lyrifissures present ..... *pilosus*
20. Heterotrichy of notogastral setae present, anterior and posterior setae considerably longer than other ..... *kochi*
-. Notogastral setae more or less similar in length 21
21. Lamellar setae in unusual position between interlamellar and rostral setae ..... *wallworki*
-. Lamellar setae in usual position, laterally of interlamellar setae 22
22. Interlamellar setae long, at least 3 times longer than lamellar setae ..... *neotrichus*
-. Interlamellar setae at most 2 times longer than lamellar setae 23
23. Number of notogastral setae exceeds 27 pairs 24
-. Number of notogastral setae not exceeding 23 pairs 25
24. Head of sensilli rounded, 9-11 pairs of adanal setae not arranged along row ..... *multisetosus*
-. Head of sensilli fusiform, 4-7 pairs of adanal setae at one row ..... *radiatus*
25. Interlamellar setae shorter than lamellar setae ..... *perpropinquus*
-. Interlamellar setae longer than lamellar setae 26
26. Femora of legs I with 4 setae 27
-. Femora of legs I with 3 setae 28
27. Prodorsum with distinct median carina, sensilli with rounded head, notogastral setae thick and obtuse distally ..... *willmani*
-. Prodorsum without median carina, sensilli with fusiform head, notogastral setae narrow and pointed distally ..... *largus*
28. 21 pairs of notogastral setae, three pairs of lyrifissures present ..... *mutabilis*
-. 23 pairs of notogastral setae, two pairs of lyrifissures present ..... *sellnicki*

Arphthicarus

1. Heterotrichy of notogastral setae (bacilliform and phylliform) present ..... *heterotrichus*
-. All notogastral setae more or less similar in shape 2
2. 20 pairs of notogastral setae present ..... *aokii*
-. 15 pairs of notogastral setae present 3
3. Interlamellar rigid setae distinctly longer than minute lamellar setae, femora I with 4 setae ..... *remotus*
-. Interlamellar and lamellar setae similar in length and shape, femora I with 3 setae ..... *tinctus*

Notophthiracarus

1. 16 pairs of notogastral setae present 2
-. 15 pairs of notogatral setae present 3
2. Interlamellar and lamellar setae longer than sensilli, notogastral setae long ($c_1 > c_1\text{-}d_1$) ..... *comatus*
-. Interlamellar and lamellar setae shorter than sensilli, notogastral setae short ($c_1 < c_1\text{-}d_1$) ..... *kamilli*
3. Sensilli long, narrow without distinct head 4
-. Sensilli shorter with distinct head 12

4. Notogastral setae phylliform ..... *perlucundus*
-. Notogastral setae not phylliform 5
5. Interlamellar setae two times longer than lamellar ..... *weigmani*
-. Interlamellar setae at least three times longer than lamellar setae 6
6. Notogastral setae long, c_1 considerably longer than distance between c_1-d_1 ..... *longisetosus*
-. Notogastral setae shorter, c_1 shorter than or as long as distance between c_1-d_1 7
7. Rostral setae large, larger than interlamellar setae ..... *fulvus*
-. Rostral setae narrower than interlamellar setae 8
8. Setae c_1 situated on anterior notogastral margin ..... *sordidus*
-. Setae c_1 remote from anterior margin 9
9. Lamellar setae minuscule, considerably shorter than exobothridial setae 10
-. Lamellar setae not minuscule, longer than exobothridial setae 11
10. Sensilli, anal and adanal setae flagelliform ..... *flagrus*
-. Sensilli, anal and adanal setae not flagelliform ..... *ramsai*
11. Prodorsum with distinct fields, sensilli slightly dilated distally ..... *shealsi*
-. Fields of prodorsum absent, sensilli pointed distally ..... *lee*
12. Notogaster with anterior cowl and two dorsal longitudinal carinae ..... *tripartitus*
-. Notogaster without cowl and carinae 13
13. All setae of anoadanal plates minuscule 14
-. Anoadanal plates with different length of setae or not all setae minuscule 20
14. Notogastral setae considerably larger than anal and adanal setae 15
-. Notogastral setae minuscule, like anal and adanal setae 16
15. Interlamellar setae considerably longer (more than 4 times) than lamellar setae ..... *unicarinatus*
-. Interlamellar setae slightly longer than lamellar setae ..... *paraparvulus*
16. Prodorsum without median carina 17
-. Prodorsum with robust median carina 18
17. Posterior setae of notogaster thicker than other, *in>le* ..... *schusteri*
-. All notogastral setae similar in shape, *in=le* ..... *atratus*
18. Head of sensilli rounded distally, femora I with 3 setae ..... *hammeri*
-. Head of sensilli pointed distally, femora I with 4 setae 19
19. Notogastral setae fine, flagelliform distally ..... *admirabilis*
-. Notogastral setae acumineate or acute ..... *parvulus*
20. At least two vestigial adanal setae 21
-. Adanal setae not vestigial 26
21. Setae ad_2 and ad_3 vestigial ..... *australis*
-. Setae ad_1 and ad_2 vestigial 22
22. Notogastral setae with hooked distal end ..... *uncinatus*
-. Notogastral setae not hooked distally 23
23. Notogastral setae smooth, femora I with 3 setae ..... *distinctus*
-. Notogastral setae spinose, femora I with 4 setae 24
24. Interlamellar setae more than 3 times longer than lamellar setae, four pairs of lyrifissures present ..... *sinuosus*
-. Interlamellar setae slightly shorter or longer than lamellar setae, one or two pairs of lyrifissures present 25

25. Lamellar setae longer than interlamellar setae, one pair of lyrifissures present, setae ad_3 minuscule ..... *solitarius*
-. Lamellar setae shorter than interlamellar setae, two pairs of lyrifissures present, setae ad_3 longer than 1/2 length of anal setae ..... *calliginosus*
26. Setae ad_3 spinose ..... *perezinigoi*
-. Setae ad_3 smooth 27
27. Setae ad_3 minuscule, similar to genital setae 28
-. Setae ad_3 long, longer than genital setae 35
28. Femora I with 3 setae 29
-. Femora I with 4 setae 30
29. Interlamellar setae spinose considerably (more than 5 times) longer than minuscule, smooth lamellar setae ..... *mahunkai*
-. Interlamellar setae slightly longer than lamellar setae and similar in shape to them ..... *calugari*
30. Setae *in* and c_1 swollen distally ..... *spurcus*
-. Setae *in* and c_1 not swollen distally 31
31. Lamellar and exobothridial setae vestigial ..... *usitatus*
-. Lamellar setae minuscule, exobothridial setae well developed 32
32. Pedicel of sensilli shorter than head, setae ps_4 situated posterior to setae ad_1 ..... *incomparabilis*
-. Pedicel of sensilli longer than head, setae ps_4 situated anterior to setae ad_1 33
33. Femora I with setae d forked distally ..... *consimilis*
-. Setae d on femora I not forked distally 34
34. Posterior furrows and lateral carinae on prodorsum present, setae d on femora I situated at distal end of article ..... *fatidicus*
-. Posterior furrows and lateral carinae on prodorsum absent, setae d on femora I situated in midle of article ..... *claviger*
35. More than two pairs of lyrifissures present 36
-. Two pairs of lyrifissures present 39
36. Notogastral setae long ($c_1 > c_1$-d_1) ..... *capillatus*
-. Notogastral setae shorter ($c_1 < c_1$-d_1) 37
37. Interlamellar setae long, extending beyond insertion of rostral setae ..... *modicus*
-. Interlamellar setae shorter, not extending beyond insertion of rostral setae 38
38. Lamellar setae minuscule, setae *d* on femora I forked distally, notogastral setae obtuse distally ..... *lionsi*
-. Lamellar setae not minuscule, setae *d* on femora I not forked, notogastral setae pointed distally ..... *flexiloquus*
39. Heterotrichy in length of notogastral setae, dorsal setae longer than lateral 40
-. Notogastral setae more or less similar in length 43
40. Interlamellar setae short, not reaching insertion of rostral setae ..... *indubitatus*
-. Interlamellar setae long, exceed insertion of rostral setae 41
41. Lamellar setae short, shorter than height of prodorsum, setae *d* on femora I located in middle of article ..... *alienus*
-. Lamellar setae longer than height of prodorsum, setae *d* on femora I located at distal end of article 42
42. Sensilli with globular head, setae *ex* vestigial ..... *ater*
-. Sensilli with fusiform head, setae *ex* well developed ..... *fecundus*

43. All setae of prodorsum and notogaster smooth ..... *conspicuus*
-. At least notogastral setae rough or spinose 44
44. Lamellar setae shorter than sensilli 45
-. Lamellar setae longer than sensilli 49
45. Vestigial setae f_1 anterior to h_1 ..... *abstemius*
-. Vestigial setae f_1 posterior to h_1 46
46. Setae ad_2 hooked distally, considerably longer (2 times) than anal setae 47
-. Setae ad_3 not hooked distally end only slightly longer than anal setae 48
47. Setae *le* and *ex* vestigial ..... *repostus*
-. Setae *le* and *ex* not vestigial ..... *quietus*
48. Rostral setae thick similar to interlamellar setae, setae *ex* vestigial, setae *d* on femora I not forked distally ..... *comparativus*
-. Rostral setae setiform, narrow, not similar to interlamellar setae, setae *ex* not vestigial, setae *d* on femora I forked distally ..... *hammeni*
49. Notogastral setae long ($c_1 > c_1$-d_1), robust, spinose ..... *uncinulus*
-. Notogastral setae spiniform, short ($c_1 < c_1$-d_1), rough 50
50. Interlamellar setae long, almost 4 times longer than lamellar setae ..... *aquilus*
-. Interlamellar setae not so long, slightly longer than lamellar setae ..... *maurus*

Atropacarus (*Hoplophorella*)

1. Notogaster with distinct anterior cowl ..... *cucullatus*
-. Notogaster without cowl 2
2. Notogastral setae simple, spinose, setae ad_3 similar to notogastral setae ..... *singularis*
-. Notogastral setae phylliform, ad_3 setae different from notogastral setae 3
3. Rostral setae directed towards end of rostrum ..... *floridus*
-. Rostral setae directed inwards 4
4. Sensilli setiform, interlamellar setae rigid, rough, setae ad_3 lanceolate ..... *diaphoros*
-. Sensilli inflated in middle, interlamellar setae lanceolate, setae ad_3 spiniform ..... *vitrinus*

Atropacarus (*Atropacarus*)

1. 15 pairs of notogastral setae, 2 pairs of lyrifissures present ..... *controversus*
-. 18 pairs of notogastral setae, 4 pairs of lyrifissures present ..... *griseus*

5.1.5. ASSESSMENT OF THE PTYCTIMOUS FAUNA OF THE AUSTRALIAN REGION

The continent of Australia

In 43 samples from the region, 71 species were found, including 57 of *Phthiracaroidea*, 11 of *Euphthiracaroidea* and one *Apoplophora pantotrema* of *Mesoplophoroidea*. 47 species were found in 26 samples from Queensland, 4 in 4 samples from western Australia and 28 in 10 samples from south-eastern Australia. From among 16 widespread species found in the Australian region, 11 occur on the continent, of which only *S. corneri* reaches South Australia, while a semicosmolpolitan *A.*(*H.*) *cucullatus* and 9 pantropical species: *A.*(*H.*) *floridus, A.*(*H.*) *singularis, A.*(*H.*)

vitrinus, M. tropica, P. kugohi, R. comteae, R. lucida, R. spiculifera do not surpass Queensland, and the only three Oriental species: *A. pantotrema, P. obscurus* and *P. paucus* reach only Queensland. Ten of the species occur in some parts of the continent

Tab. 3. Occurence of *Ptyctima* in particular subregions of the Australian region (with designation of zoogeographical elements).

B_1 - Papua New Guinea
B_2 – Northen Australia (Queensland)
B_3 - Australia Western
B_4 - South-Eastern Australia
B_5 - Tasmania
B_6 - New Caledonia
B_7 - New Zealand

		B_1	B_2	B_3	B_4	B_5	B_6	B_7	
1	*Apoplophora pantotrema* (Berlese, 1913)	X	X						oriental
2	*Arphthicarus aoki* Niedbała, 1987		X						endemic
3	*A. heterotrichus* sp. nov.							X	endemic
4	*A. remotus* Niedbała, 1989		X						endemic
5	*A. tinctus* sp. nov.						X		endemic
6	*Atropacarus* (*Atropacarus*) *contorversus* sp. nov.							X	endemic
7	*A.* (*A.*) *griseus* Niedbała, 1984	X							austral
8	*Atropacarus* (*Hoplophorella*) *cucullatus* (Ewing, 1909)	X	X				X		semicosmopol
9	*A.* (*H.*) *diaphoros* sp.nov.		X						endemic
10	*A.* (*H.*) *foridus* (Jacot, 1933)		X						pantropical
11	*A.* (*H.*) *singularis* (Sellnick, 1959)		X						pantropical
12	*A.* (*H.*) *vitrinus* (Berlese, 1913)	X	X						pantropical
13	*Austrophthiracarus aculeatus* Niedbała et Colloff, 1997					X			endemic
14	*A. aenus* sp. nov.						X		endemic
15	*A. aureus* sp. nov.							X	endemic
16	*A. baloghi* Niedbała, 1987				X				endemic
17	*A. daimonos* sp. nov.							X	endemic
18	*A. dissonus* Niedbała et Colloff, 1997					X			endemic
19	*A. egregius* Niedbała et Colloff, 1997					X			endemic
20	*A. facetus* Niedbała et Colloff, 1997					X			endemic
21	*A. fusticulus* sp. nov.		X						endemic
22	*A. mutabilis* Niedbała et Colloff, 1997					X			endemic
23	*A. kochi* Niedbała, 1987				X				endemic
24	*A. lamingtoni* sp. nov.		X						endemic
25	*A. largus* sp. nov.						X		endemic
26	*A. latior* (Niedbała, 1982)						X		oriental
27	*A. michaeli* Niedbała, 1987		X						endemic
28	*A. multisetosus* Balogh et Balogh, 1983				X				endemic
29	*A. mutabilis* Niedbała et Colloff, 1997					X			endemic
30	*A. neotrichus* (Wallwork, 1966)							X	endemic
31	*A. nicoleti* Niedbała, 1987		X						endemic
32	*A. perpropinquus* Niedbała et Colloff, 1997					X			endemic
33	*A. perti* Niedbała, 1987		X						endemic
34	*A. pilosus* Niedbała et Colloff, 1997					X			endemic
35	*A. pulchellus* Niedbała, 1993							X	endemic
36	*A. radiatus* Balogh et Mahunka, 1978		X		X				austral
37	*A. scopoli* Niedbała, 1987				X	X			austral
38	*A. sellnicki* Niedbała, 1987				X	X			austral
39	*A. tragardhi* Niedbała, 1987				X				endemic
40	*A. wallworki* Balogh et Balogh, 1983		X						endemic
41	*A. willmanni* Niedbała, 1987				X				endemic
42	*Austrotritia bifurca* sp. nov.	X	X						austral

Tab. 3. Occurence of *Ptyctima* in particular subregions of the Australian region (with designation of zoogeographical elements) - continuation.

43	*Austrotritia carinata* sp. nov.	X	X						austral
44	*A. lebronneci* (Jacot,1935)						X		pantropical
45	*A. robusta* Niedbała, 1987	X							oriental
46	*Euphthiracarus monodactylus* Willmann, 1919	X							palaearctic
47	*Hoplophthiracarus bisulcus* Niedbała, 1993							X	endemic
48	*H. hulli* Niedbała, 1987				X				endemic
49	*H. lividus* sp. nov.							X	endemic
50	*H. montigenus* Niedbala, 1981	X				X	X		austral
51	*H. proximus* Niedbała, 1984	X							pantropical
52	*H. rafalski* Niedbała, 1997						X		endemic
53	*Indotritia* (*Z.*) *aoteoroana* Ramsay, 1966							X	endemic
54	*I.* (*Z.*) *brevipilosa* sp. nov.		X		X				austral
55	*I.* (*Z.*) *brevisetosa* Niedbała et Colloff, 1997		X			X			austral
56	*I. krakatauensis* (Sellnick, 1923)	X							pantropical
57	*Mesoplophora* (*Parplophora*) *polita* Niedbała, 1985	X							oriental
58	*M.* (*P.*) *subtilis* Niedbała, 1981	X							pantropical
59	*Microtritia contraria* Niedbała, 1993					X		X	pantropical
60	*M. fusa* sp. nov.		X		X			X	austral
61	*M. glabrata* Niedbała, 1993	X				X		X	austral
62	*M. tropica* Märkel, 1964		X						pantropical
63	*Notophthiracarus abstemius* Niedbała et Colloff, 1997					X			endemic
64	*N. admirabilis* Niedbała et Colloff, 1997					X			endemic
65	*N. alienus* Niedbała, 1989				X	X			austral
66	*N. aquilus* sp. nov.							X	endemic
67	*N. ater* sp. nov.							X	endemic
68	*N. atratus* sp. nov.							X	endemic
69	*N. australis* Ramsay, 1966							X	endemic
70	*N. caliginosus* Niedbała, 1989							X	endemic
71	*N. calugari* Niedbała, 1987				X				endemic
72	*N. capillatus* Niedbała, 1989				X				endemic
73	*N. claviger* Niedbała, 1993							X	endemic
74	*N. comatus* sp. nov.							X	endemic
75	*N. comparativus* Niedbała et Colloff, 1997					X			endemic
76	*N. consimilis* Niedbała et Colloff, 1997		X			X			austral
77	*N. conspicuus* Niedbała, 1989							X	endemic
78	*N. distinctus* Niedbała, 1989		X						endemic
79	*N. fatidicus* Niedbała, 1982	X	X		X				austral
80	*N. fecundus* sp. nov.							X	endemic
81	*N. flagrus* sp. nov.		X						endemic
82	*N. flexiloquus* Niedbała, 1989					X			endemic
83	*N. fulvus* (Niedbała, 1985)	X							endemic
84	*N. hammeni* Niedbała, 1987				X				endemic
85	*N. hammeri* Niedbała, 1987				X				endemic
86	*N. incomparabilis* sp. nov.							X	endemic
87	*N. indubitatus* Niedbała et Colloff, 1997					X			endemic
88	*N. kamilli* Niedbała, 1987		X						endemic
89	*N. lee* Niedbała, 1987			X	X				austral
90	*N. lionsi* Niedbała, 1987		X						endemic
91	*N. longisetosus* sp. nov.		X						endemic
92	*N. mahunkai* Niedbała, 1987		X	X					austral
93	*N. maurus* sp. nov.							X	endemic
94	*N. modicus* sp. nov.		X						endemic
95	*N. paraparvulus* sp. nov.						X		endemic
96	*N. parvulus* Niedbała, 1998						X		endemic

Tab. 1. Occurence of *Ptyctima* in particular subregions of the Australian region (with designation of zoogeographical elements) - continuation.

97	*Notophthiracarus perezinigoi* Niedbała, 1987		X						endemic
98	*N. perlucundus* sp. nov.							X	endemic
99	*N. quietus* Niedbała, 1989				X			X	austral
100	*N. ramsai* Niedbała, 1987		X						endemic
101	*N. repostus* Niedbała, 1989				X				endemic
102	*N. schusteri* Niedbała, 1987		X			X			austral
103	*N. shealsi* (Lee, 1981)		X	X	X				austral
104	*N. sinuosus* (Niedbała, 1982)	X							endemic
105	*N. solitarius* Niedbała et Colloff, 1997					X			endemic
106	*N. sordidus* Niedbała et Colloff, 1997					X			endemic
107	*N. spurcus* Niedbała, 1997					X			endemic
108	*N. tripartitus* Niedbała, 1989							X	endemic
109	*N. uncinatus* Niedbała et Colloff, 1997				X	X			austral
110	*N. uncinulus* sp. nov.							X	endemic
111	*N. unicarinatus* sp. nov.							X	endemic
112	*N. usitatus* Niedbała, 1989		X		X	X			austral
113	*N. weigmani* Niedbała, 1987		X						endemic
114	*Oribotritia brevis* Niedbała, 1997					X			endemic
115	*O. contortula* Niedbała, 1993					X	X	X	austral
116	*O. contraria* Niedbała, 1993		X			X	X	X	austral
117	*O. duplex* sp. nov.		X		X				austral
118	*O. incognita* sp. nov.							X	endemic
119	*O. teretis* Niedbała, 1993							X	endemic
120	*Phthiracarus banksi* Niedbała, 1987				X				endemic
121	*P. inflatus* Niedbała, 1994							X	endemic
122	*P. obscurus* Niedbała, 1986		X						oriental
123	*P. paucus* Niedbała,1991	X	X						oriental
124	*P. pellucidus* Ramsay, 1966							X	endemic
125	*P. probus* Niedbała et Colloff, 1997					X			endemic
126	*Plonaphacarus aduncus* Niedbała et Colloff, 1997					X			endemic
127	*P. berlesei* Niedbała, 1987				X				endemic
128	*P. dikros* sp. nov.							X	endemic
129	*P. feideri* Niedbała, 1987			X					endemic
130	*P. forsslundi* Niedbała, 1987		X		X				austral
131	*P. grandjeani* Niedbała, 1987		X						austral
132	*P. insolens* sp. nov.							X	endemic
133	*P. kugohi* (Aoki, 1959)	X	X				X		pantropical
134	*Rhysotritia bipartita* sp. nov.		X						endemic
135	*R. comteae* Mahunka, 1983	X	X				X	X	pantropical
136	*R. lucida* Niedbała, 1998		X				X		pantropical
137	*R. refracta* Niedbała, 1998						X		pantropical
138	*R. spiculifera* Mahunka, 1991	X	X				X		pantropical
139	*R. wallworki* Lee 1980				X				endemic
140	*Sobacarus corneri* Ramsay et Sheals, 1969				X			X	pantropical
141	*Steganacarus (Rhacaplacarus) diaphoros* sp. nov.		X						endemic
142	*S. (R.) jacoti* Niedbała et 1987		X						endemic
143	*S. (?) tenuiseta* Balogh et Balogh, 1986	X							endemic
	Total	22	49	4	29	32	17	38	

and on the islands, the majority of them in South Australia and on Tasmania; 8 are widespread over the continent. Most of 35 endemics, almost all representing *Phthiracaroidea*, occur in Queensland and South Australia.

The continental fauna of Australia is characterised by a high endemism of ptyctimous mites; the widespread species including semicosmopolitan, Pantropical and Oriental species reach only northern Australia.

New Guinea

In 37 samples from the, region 22 species are found, among them 3, 8 and 11 representing *Mesoplophoroidea*, *Euphthiracaroidea* and *Phthiracaroidea*, respectively. Of the two semicosmopolitan species, *P. kugohi* reaches the Australian continent and New Caledonia, while *A.(H.) cucullatus* only reaches New Caledonia. Four species are pantropical: *M.(P.) subtilis, I. krakatauensis, H. proximus* and *A.(H.) andrei* and only the latter is found on the continent and New Caledonia. Of the 5 Oriental species: *M.(M.) polita* and *A. robusta* occur only in New Guinea, *A. pantotrema* and *P. paucus* reaches Queensland and *R. spiculifera* reach Queensland and New Caledonia. Only 4 of the species are Australian, two of them - *A. carinata* and *A. bifurcata* - reach Queensland, *N. fatidicus* is found in the northern and southern parts of Australia, while *R. bifurcata* reaches as far as New Zealand, through Qeensland. Three species are characteristic of islands, two of them reach Tasmania: *H. montigenus* through New Caledonia and *M. glabrata* through New Zealand. *A.(A.) griseus* is found from New Guinea through the Bismarck Islands to the Solomon Islands. Only 3 species, all belonging to *Phthiracaroidea,* seem to be endemic: *N. fulvus, N. sinosus and S(?) tenuiseta*. The ptyctimous fauna of New Guinea is of mixed character and includes: 6 widespread species (2 semicosmopolitan and 4 pantropical), 5 species of Oriental origin of which 2 were found only in New Guinea and 3 also in Australia, 4 Australian species, 3 found also on large islands, 1 species introduced from the Palaearctic and 3 endemic species.

Analysis of the faunas of other invertebrates leads to contradictory conclusions. HAMMER (1979) postulated a much hogher endemism (27%) of all the *Oribatida* species. The New Guinean fauna is younger than that of New Caledonia (MUONA 1991) and very similar to that of Australia (PECK 1985), although BELL (1985) maintains that the Australian fauna as a whole is very different from that of New Guinea.

New Guinea is a transition zone, although its fauna is of Oriental rather than Australian character, which is supported by the results of my study and the studies on *Carabidae* of New Guinea (DARLINGTON 1971). None of the species reaches the Polynesian Islands, which confirms the data of HAMMER (1972) on the *Oribatida*; he found only one species originating from New Guinea among 102 species collected in Tahiti. According to EDMUNDS (1972), New Guinea has been colonised from the Orient, however, migration of fauna from the Orient to Australia led through the Lesser Sunda Islands rather than New Guinea.

Tasmania

In 135 samples collected in Tasmania, *Ptyctima* were represented by 32 species including 6 of *Euphthiracaroidea* and 26 of *Phthiracaroidea*. None of the species is widespread. The species with the widest distribution seems to be *O. vernacula* found in North Australia and New Caledonia. Seven of the species are also found on the continent: *N. usitatus* in N and S Australia, *N. schusteri* and *I. breviseta* in N Australia, *A. scopoli, A. sellnicki, N. alienus* and *N. uncinatus* in S Australia. Four of the species are found only on the islands: *H. montigenus* in New Caledonia and New Zealand, *M. glabrata* in New Guinea and New Zealand, *O. concortula* in New Caledonia and New Zealand, and *M. contraria* in New Zealand. As many as 19 species are endemics, constituting 73% of *Phthiracaroidea.*

The isolation of Tasmania and a significant diversity of its environment are responsible for the endemic character of its fauna, while the proportion of introduced elements is low. Perhaps the primaeval character of the rain forests in Tasmania favoured preservation of some of the Gondwanan relicts. Such elements should be sought among species which are not represented on the continent, including many endemics. Certain faunistic similarity can be noticed to the fauna in the southern part of the continent.

New Caledonia

The 15 samples collected in this area contained 17 species including 10 of *Phthiracaroidea* and 7 of *Euphthiracaroidea*. Two of them are semicosmopolitan: *P. kugohi* found also in Australia and New Guinea, and *A.(H.) cucullatus* in New Guinea. The three pantropical species: *N. parvulus, A. lebronneci* and *R. refracta* occur on the Pacific Islands. Four species are of Oriental origin, and of these *R. spiculifera* occurs in Australia and New Guinea, *R. anchistea* and *R. lucida* in Australia and on the Pacific Islands, *O. vernacula* in Australia and Tasmania. The distribution of two species - *H. montigenus* and *O. concortula* - is particularly interesting: the former is found on New Guinea, New Caledonia and Tasmania, while the latter occurs on New Caledonia, New Zealand and Tasmania, which is a result of particular migration routes through islands, excluding the Australian continent. Also, the distribution of *A. latior* is unusual: outside New Caledonia it was found at single sites in Himalah Pradesh, East Orient and Hawaii. It may be an old element and a relict of a more widespread distribution in Pangea or an Oriental species introduced in North Palaearctic and Pacific Islands, and also to New Caledonia. Five (28 %) of the species: *A. tinctus, A. aenus, A. largus, H. rafalskii* and *N. paraparvulus* are most probably endemics (about 28% of endemism).

The fauna of New Caledonia is found to be both endemic and more related to that of Australia than the fauna of New Guinea. A possible reason for this is that the New Caledonian fauna is older than that of New Guinea (MUONA 1991). The influence of the Oriental fauna is well pronounced.

New Zealand

The 248 samples collected in the area contained 38 species including 10 of *Euphthiracaroidea* and 28 of *Phthiracaroidea*. The only pantropical species occurring also in Australia and on the Pacific Islands is *S. corneri*. Six species are classified as Australian; 3 of them - *M. contraria, N. quietus* (only in the South) and *R. bifurcata* (only in the North) - occur on the Australian continent, and the latter also on New Guinea. Three other species occur only on large islands: *M. glabrata* on New Guinea and Tasmania, *O.concortula* on New Caledonia and Tasmania and *M.contraria* on Tasmania. As many as 31 (81 %) species are endemics, including 4 of *Euphthiracaroidea* and 27 (96 %) of *Phthiracaroidea*. New Zealand is the place of occurrence of the only endemic genus *Phrathicarus*.

These results confirm a very strong regionalism of the fauna of New Zealand manifested by a high percent of endemism and the presence of only one widespread species. The fauna shows some relation to that of Australia, but no traces of a relation to the faunas of the Orient or Pacific Islands have been noted. There is no significant faunistic difference between the North and South Islands – few species are markedly

associated with either of them. These results confirm the data reported by HAMMER (1968, 1979) and HAMMER and WALLWORK (1979) on the distribution of *Oribatida*. As much as 82% of endemism of the genera in New Zealand (even 82% species-level endemism) is a very high value when compared to 27% endemism of *Oribatida* of New Guinea and 10% of the fauna of Java. As far as *Oribatida* are concerned, 250 (75%) of 330 species have been described for the first time. It is expected that some of the presumably endemic species of New Zealand will probably appear to be common with Australia, especially south-eastern Australia, however, poor recognition of the Australian fauna prevents accurate determination of the similarity. The presence of a few species from Tasmania suggests a connection between the oribatid fauna of Tasmania and New Zealand but only two, *M. glabrata* and *O. concortula*, belong to ptyctimous mites.

Certain faunistic data point to a weak connection with Australia (WILLIAMS 1973), although on the other hand, the New Zealand fauna has strong old connections with that of south-eastern Australia (BRUNDIN 1966). The results presented confirm the low similarity of the oribatid fauna of New Zealand and Indonesia – only 10 common species, excluding the widespread and introduced ones. According TO HAMMER and WALLWORK (1979) New Zealand seems to be a less important source area for the South Pacific oribatids than Indonesia. However, the lack of influence of the fauna of New Zealand on that of the Pacific Islands is not confirmed. New Zealand, with its situation in the Pacific, must to some degree be expected to have been influenced by the fauna of the surrounding islands. Indeed, HAMMER (1968) names 10 genera of *Oribatida* which are common to New Zealand and Pacific Islands. The Fiji Islands have no more than 12 species of 83 *Oribatida* found, so ca. 14%, is common with New Zealand, which is the largest area of land nearest to the Fiji Islands (HAMMER 1971). It is especially surprising that none of the many new genera from New Zealand has been found on the Fiji Islands (HAMMER 1971). However, 14 of 102 species found on Tahiti (almost 14%) are also known from New Zealand (HAMMER 1972). From among 124 species found on Tongatapu, Eua and Upolu Islands, 18 have been recorded from New Zealand (14.5%) and it cannot be excluded that they reach far beyond the Pacific Ocean area and are not truly native to New Zealand.

The number of the known species of *Ptyctima* in the Australian region is 143 which represents 40% (!) of all named species from Australia, with a greater representation of *Phthiracaroidea* (114) than *Euphthiracaroidea* (26) and only 3 species of *Mesoplophoroidea*. Almost half of the species found were collected on the continent (71) (56 *Phthiracaroidea* and 14 *Euphthiracaroidea*) while the rest were found on nearby large islands. Thirty five species, including 28 *Phthiracaroidea* and 7 *Euphthiracaroidea*, were new to science (Tab. 3).

Among *Euphthiracaroidea* and *Phthiracaroidea* the number of widespread species is similar, 8 and 6, respectively, however, among a relatively small number of the *Euphthiracaroidea*, pantropical species constitute one third of the fauna. Only 1 species *E.monodactylus*, seems to have been introduced from the Palaearctic . Only six species are of Oriental origin, as much as 84% of the species are Australian, including almost 65% endemics. Apart from these, the greatest number of widespread species has been found on the continent (Tab. 7). Endemism is the most pronounced among *Phthiracaroidea* (almost 77%) on the continent as well as New Zealand and Tasmania. The endemism of *Euphthiracaroidea* is relatively low (23%) (Tab. 7).

The fauna of ptyctimous mites of New Guinea is mixed and is considered to be characteristic of a transition zone, although it is closer to the Oriental than to

Australian fauna. The fauna of the continent of Australia is characterised by a strong endemism of ptyctimous mites. The widespread species: semicosmopolitan, pantropical as well as Oriental ones, reach only North Australia.

The fauna of Tasmania is highly endemic, especially as far as *Phthiracaroidea* are concerned, characterised by a lack of widespread species and a low proportion of extraneous elements, and shows some connections with to that of the South Australia.

Tab. 4. The number of ptyctimous genera in selected geographical regions.

genera	ORIENTAL	S and E border of Palaearctic	AUSTRALIAN	ETIOPIAN	Pacific islands
Prototritia	2				
	2				
Archoplophora	1	1			
Dudichoplophora		1			
Mesoplophora					
Mesoplophora	3		1	2	
Parplophora	5	1	1	2	1
Apoplophora	8	2	1		2
	17	**5**	**3**	**4**	**3**
Oribotritia	7	10	6	5	2
Mesotritia	1	6		2	
Maerkelotritia		1			
Protoribotritia		1			
Indotritia					
Indotritia	3	5	4	5	1
Afrotritia				1	
Sobacarus	1	1	1		1
Terratritia	2				
Austrotritia	5	5	4	1	3
Euphthiracarus					
Euphthiracarus	4	7	1		
Pocsia	1			8	
Rhysotritia	10	10	6	5	6
Bukitritia	1				
Sumatrotritia	2				
Microtritia	2	2	4	2	2
Synichotritia	3				
Sabahtritia	4				
Temburongia	1				
	47	**51**	**26**	**29**	**15**
Phthiracarus	10	19	5	19	8
Plonaphacarus	8	2	8	9	3
Hoplophthiracarus	6	9	6	3	2
Steganacarus					
Steganacarus			1	9	
Rhacaplacarus		1	2	7	
Tropacarus		1			
Austrophthiracarus	3	4	29	2	
Arphthicarus	5	3	4	8	1
Protophthiracarus				5	
Phrathicarus			1		
Notophthiracarus	13	1	51	15	8
Atropacarus					
Hoplophorella	7	3	5	28	7
Atropacarus	1	2	2		2
	53	**45**	**114**	**105**	**31**
Total	**119**	**98**	**143**	**138**	**49**

The ptyctimous fauna of New Caledonia is more endemic and shows stronger relations to the fauna of Australia than that of New Guinea, however, the influence of the Oriental fauna is significant.

The ptyctimous fauna of New Zealand confirms a very strong regionalism manifested as a high degree of endemism and the presence of only one widespread species. It shows some connection to that of Australia but no traces of any relation to the faunas of the Oriental region or Pacific Islands could be found.

In the Australian region Euphthiracaroid genera are much less abundant than in the Oriental region, however, like in the other regions, phylogenetically distant genera are represented by a proportional number of species (Tab. 4).

Phthiracaroidea are represented by a high number of genera and subgenera, higher than in any other zoogeographical region of the world. Moreover, the most speciose are the two relatively phylogenetically young genera: *Austrophthiracarus* and *Notophthiracarus*. The latter seems particularly plastic as the process of its speciation is well pronounced. Almost half of the species of the fauna of the region belong to these genera (Tab. 4).

5.2. A COMPARISON OF THE PTYCTIMOUS FAUNAS OF THE REGIONS

The ptyctimous mites of all the regions and subregions investigated are abundant, individual in character, and the similarity among them is statistically insignificant (χ^2 test). Moreover, their common species are widespread (semicosmopolitan and pantropical), so that they cannot be treated as a measure of similarity between the faunas of the regions.

5.2.1. A COMPARISON OF THE PTYCTIMOUS FAUNAS OF THE ORIENT AND THE BORDER ZONE OF THE ORIENTAL REGION

From among 119 ptyctimous species found in the Orient and 98 species from the bordering zone of the Oriental region, only 18 are common, and the majority of them (10) belong to *Euphthiracoidea*. Almost half of these are widespread: 3 semicosmopolitan: *A. rostralis, A.(H.) cucullatus, R. ardua,* and 5 pantropical: *A.(H.) floridus, A.(H.) vitrinus, M. tropica, P. kugohi, R. comteae*. Eight species are of the Oriental origin (*A. pantorema, A. saraburiensis, I. javensis, I. propinqua, M. similis, N. robertsi, O. submolesta, R. aokii* and only 2 come from the North: the Holarctic *A.(A.) striculus* and the Palaearctic *M. minima*. The above numbers indicate a stronger penetration of Oriental species into the northern and eastern bordering zones of the region.

5.2.2. A COMPARISON OF THE PTYCTIMOUS FAUNAS OF THE ORIENTAL AND AUSTRALIAN REGIONS

The species common to the Oriental (119 species) and Australian regions (143 species found) include only those belonging to the widespread group; among them only one is semicosmopolitan *A.(H.) cucullatus* and 10 pantropical: *S. corneri, I. krakatauensis, A. lebronneci, P. kugohi, R. comteae, R. lucida, R. spiculifera, M.*

tropica, A.(H.) vitrinus, A.(H.) floridus (s=0.04). Only 4 Oriental species reach the Australian region (*A. pantotrema, A. robusta, P. obscurus, P. paucus*). No species shared exclusively by these two zoogeographical regions have been identified.

The faunas of many taxa from the Orient and Australian region show significant similarity, for instance the faunistic similarity among the faunas of earthworms, birds, reptiles and land snails is 83%, 74%, 64% and 60% (GEORGE 1987), respectively the Oriental fauna of vertebrates is the most similar to that of the Australian region.

5.2.3. A COMPARISON OF THE PTYCTIMOUS FAUNAS OF THE ORIENTAL AND THE ETHIOPIAN REGIONS

In the Oriental region there are many more species of *Euphthiracaroidea* and *Mesoplophoroidea* whereas in the Ethiopian Region there are more representatives of *Phthiracaroidea*. Among 119 species found in the Oriental region and 145 species from the Ethiopian region (NIEDBAŁA 1998 and unpublished data) there are only 3-4 common semicosmopolitan species (from among *Euphthiracaroidea* and *Phthiracaroidea*): *R. ardua, P. anonymus, A. (H.) cucullatus*, (*P. lentulus* is regarded as a Palaearctic species introduced in the Orient and Ethiopian regions, however, it may be cosmopolitan) and 9 pantropical species: *P. kugohi, R. comteae, R. spiculifera, M. tropica, P. pygmaeus, A. (H.) vitrinus, A. (H.) singularis, A. (H.) stilifer* (s = 0.05). No other species is found to occur exclusively in these two regions. There are no common species among *Mesoplophoroidea*. The faunistic distinctness of these two regions is clear.

5.2.4. A COMPARISON OF THE PTYCTIMOUS FAUNAS OF THE AUSTRALIAN AND ETHIOPIAN REGIONS

From among 143 species from the Australian region and 145 species from the Ethiopian region only one is common semicosmopolitan species - *A. (H.) cucullatus* and 7 are common pantropical: *I. krakatauensis, P. kugohi, R. comteae, R. spiculifera, M. tropica, A. (H.) vitrinus* and *A. (H.) singularis*. No species occurs exclusively in these two regions and there are no common species of *Mesoplophoroidea*, which testifies to the separateness of the faunas of these regions.

5.2.5. A COMPARISON OF THE PTYCTIMOUS FAUNAS OF THE PACIFIC ISLANDS AND ORIENTAL AND AUSTRALIAN REGIONS

Among 49 species found on the Pacific Islands (NIEDBAŁA 1998a) as many as 20 are known from the Orient, but only 6 of them are of Oriental origin (*M. (P.) leviseta, A. pantotrema, A. saraburiensis, R. refracta, P. crispus* and *P. paucus*). The other 14 are widespread semicosmopolitan (*R. ardua* and *A. (H.) cucullatus* and pantropical species *S. corneri, I. krakatauensis, A. lebronneci, R. comteae, R. lucida, M. tropica, P. pygmaeus, P. kugohi, A. (H.) vitrinus, A. (H.) floridus, A. (H.) singularis, A. (H.) stilifer*).

From among the species found in the Australian region, 19 occur also on the Pacific Islands. Only three Australian species have been introduced to the Pacific Islands, one from New Guinea (*A. (A.) griseus*), two from Queensland (*P. forsslundi, P. grandjeani*). No species originating from: New Caledonia, New Zealand, Tasmania or southern Australia spread to the Pacific Islands. The faunas of Australia and Pacific Islands share 15 widespread species including one semicosmopolitan species: *A. (H.) cucullatus*, 12 pantropical ones: (*S. corneri, I. krakatauensis, A. lebronneci, R. comteae, R. lucida, R. refracta, M. tropica, P. kugohi, H. proximus, A. (H.) vitrinus, A. (H.) floridus, A. (H.) singularis*) and two species of Oriental origin (*A. pantotrema, P. paucus*).

Thus, the conclusion is that the ptyctimous fauna of the Pacific Islands is under greater influence of the Oriental fauna than the Australian fauna (s =0.108).

Therefore, the data of HAMMER and WALLWORK 1979) for all *Oribatida*, seem to confirm that there appears to be a clear relationship between the fauna of Indonesia, Malayasia and that of the islands of the south Pacific. Nearly 27 % of the species

Tab. 5. Proportion of different zoogeographical elements of *Ptyctima* in the Oriental region.

	Euphthiracaroidea	*Phthiracaroidea*	*Mesoplophoroidea*	*Protoplophoroidea*	Σ
Semicosmopolitan	1	2	1		4
Pantropical	2	6	2	1	11
Holarctic and Palaearctic	1	2			3
Oriental:	22	11	7	0	40
Oriental (exclusively)	8	7	3		18
Mobile to Australian, Palaearctic and Pacific island	7	2	2		11
Mobile to S and E border Palaearctic	7	2	1		10
Mobile to Etiopian			1		1
Endemites	21	32	7	1	61
Total	**47**	**53**	**17**	**2**	**119**

Tab. 6. Proportion of different zoogeographical elements of *Ptyctima* in the bordering part of the Oriental and the Palearctic regions.

	Euphthiracaroidea	*Phthiracaroidea*	*Mesoplophoroidea*	Σ
Semicosmopotitan	1	2	1	4
Holarctic		6		6
Amphipacific	1	1		2
Palaearctic	4	4		8
Pantropical	2	5		7
Oriental	6	4	2	12
S and/or E border of Palaearctic	7	8	1	16
Endemites	27	15	1	43
Total	**48**	**45**	**5**	**98**

found in the Pacific Islands: Tongatapu, Eua, Upolu are of Oriental origin (HAMMER 1973), and 23.5 % of the species found in Tahiti (HAMMER 1972) are of Oriental origin.

5.3. ENDEMISM

It is usually assumed that enhanced endemism is related to the occurrence of natural geographical barriers determing a degree of isolation of a given territory, degree of differentiation of environmental conditions, manifested as incontinuity of habitats in this territory. Diversity of habitats is usually a consequence of climatic, topographic and floristic differentiation. High endemism can also result from of intense speciation on a geologically young area due to a limited dispersal ability, which indicates rapid evolution in geographical isolation. Provided that the age of a locality is well-determined, endemism can be a measure of speciation rate (ĆABKA 1997).

All the zoogeographical regions analysed meet these conditions. Continental drift which shaped Australia and southeast Asia, and the islands in particular, had ended hundred million years ago. Moreover, all these regions are highly diverse, and show sometimes radically different environments. Given the limited dispersal abilities of mites, the effective oceanic barrier is also of importance.

The ptyctimous mite faunas of the neighbouring zoogeographical regions: Oriental, Palaearctic, Ethiopian and Australian, are clearly distinct compared to other groups of invertebrates.

Tab. 7. Proportion of different zoogeographical elements of *Ptyctima* in the Australian region.

	Euphthiracaroidea	*Phthiracaroidea*	*Mesoplophoroidea*	Σ
Semicosmopolitan		1		1
Pantropical	8	5	1	14
Palaearctic	1			1
Oriental	1	3	2	6
Australian:	10	17		27
Wide distributed	5	8		13
North	2	2		4
South		1		1
South + TAS		4		4
Islands: NG NC NZ TAS	3	2		5
Endemites:	6	88		94
Queensland	1	20		21
South Australia	1	13		14
NG		3		3
NC		6		6
NZ	3	27		30
TAS	1	19		20
Total	**26**	**114**	**3**	**143**

Faunas with a significant proportion of endemic taxa (particularly species) developed through million-year evolution in various climatic and biotic conditions, remaining in isolation. The values characterising similarity of the faunas (which are very low) indicate the common presence of only widespread: cosmopolitan and pantropical, species. All the genera originated probably in the Pangea (NIEDBAŁA 1991b), but not all of them evolved at the same rate in different parts of the world, whereas the endemic species appeared, of course, after the break of Gondwanaland. Strongly pronounced endemism testifies to the evolutionary activity and intensity of speciation processes in particular regions. In general, these species are neoendemics (progressive endemics) - young taxa not easily distinguished systematically. Examples of such species are: *A. sentus, A. parasentus, O. aokii and O. paraaoki* in Vietnam, or *O. asiatica, O. nepalensis* and *O. subsolana* in Nepal or *I. aspera, I. javensis* and *I. propinqua* from Nepal. Some of them have very local distributions. These species probably appeared as a result of very rapid evolutionary change. JACOT (1934) suggests that a few hundred years is enough for formation of a new species, other authors indicate a much longer period of speciation of 6-7 mln years (BERNINI 1990).

Such a strongly pronounced endemism was also found for a few other groups of animals, e.g. for herperofauna of New Caledonia (SADLIER and BAUER 1997).

5.4. AN ATTEMPT AT DELINEATION OF FAUNISTIC REGIONS: ORIENTAL AND AUSTRALIAN

The southern border of the Oriental zoogeographic region is problematic and so far no attempts have been made at estimating its limits for soil fauna (MAHUNKA 1987b). Wallace's line or Weber's line is the line of balance between interacting south-eastern Asian and Australian faunas, and presumably the line varies in position depending on which groups of animals are considered (KEAST 1981). There is no sharp distinction between the Asian and Australian biota, as Wallace originally tried to demonstrate (VANE-WRIGHT 1991). In view of the substantial diversification of the ptyctimous fauna in particular subregions of the Orient, of the border between the Oriental and Australian regions can be easily drawn between the Sundae islands and New Guinea, like those established for other groups of animals.

According to WALLACE's conception, the border between the Oriental and Australian Regions would run between Borneo and Sulawesi and farther between Java and Lombok islands. However, the *Ptyctima* faunas of e.g. Sumatra and Borneo lying within the Oriental region are less similar than those of Borneo and Sulawesi, lying in two different zoogeographical regions. Moreover, one of the species *E. (E.) klabathi* sp. nov., occurs only on the latter two islands, similarly *P. grandjeani* (MAHUNKA 1977) occurs only on Java and Sumbawa, also in two different subregions. Analysis of the faunas of New Guinea and Queensland in the Australian region and their comparison to that of Borneo or Java from the Oriental region or Sulawesi from the Australian region does not reveal significant differences, and a somewhat more pronounced similarity with the fauna of Sulawesi is a result of close neighbourhood of the islands. A more important similarity of the faunas of neighbouring areas is found within the Australian region, e.g. the fauna of New Caledonia is more similar to that of New Guinea and Queensland than to that of

South Australia or Tasmania. However the degree of similarity of the faunas is mainly influenced by widespread, cosmopolitan or pantropical species. In general, the material analysed is so small and the ptyctimous fauna so rich in endemics that it is very difficult to find any correlations or explain the special position of the ptyctimous fauna of the centrally located Sulawesi, or the particular similarity between the faunas of Sulawesi and the Philippines (MICHAUX 1991), or the stronger similarity between the faunas of Sulawesi and New Guinea or Philippines and New Guinea than that of South Australia as suggested by MOLLER ANDERSON (1991) and MUONA (1991). In conclusion, determination of the faunistic border on the basis of the available ptyctimous mites material is at present impossible.

5.5. THE CENTRE OF SPECIATION AND ORIGIN OF THE *PTYCTIMA* FAUNA

Identification of the centre of speciation and origin of *Ptyctima* is difficult and because of the lack of fossil record the conclusion is based on indirect evidence. Most often it is assumed that the centre of origin of a given fauna is determined by the presence of the greatest species diversity or the presence of a large number of plesiomorphous taxa (GEORGE 1987).

According to literature data, evolution and radiation occurred mostly in biotically rich Old World tropics (THAYLER 1985). The greatest diversity of the species of angiosperms in the south-eastern Asia suggests that it is the centre of origin of this group of plants (GEORGE 1987). According to TAKHTAJAN (1969) the original distribution centre is today's south-eastern Asia, which is indicated by a higher percentage of primitive families and other taxa. However, according to other authors, it is a centre of survival rather than a centre of origin (SCHUSTER 1972).

The analysis of the material of ptyctimous mites from the view point of centres of origin and speciation of the ptyctimous mites leads to a hypothesis that such a centre is the Oriental region. The arguments supporting this thesis are:

1. Greater diversity of the ptyctimous mites in this region and, in particular, greater diversity of genera and species of *Euphthiracaroidea* and species of *Mesoplophoroidea*. In many cases these data indicate speciation and adaptative radiation.

2. Equalised and harmonious number of species of *Phthiracaroidea* in the Orient, in contrast to the disharmonious fauna of the Australian Region, in which only two genera - *Notophthiracarus* and *Austrophthiracarus* - undergo a strong adaptative radiation and are represented by a large number of species, all probably derived from a common ancestral species.

3. Harmonious fauna of *Euphthiracaroidea* represented by a great number of genera (14) when compared to that of the Australian Region (7 genera).

4. A large number of mobile species especially among *Euphthiracaroidea* in the Orient, which have spread to Australia, SE Palaearctic and on to the Pacific Islands. The penetration of Oriental species into the Australian Region is stronger than that in the opposite direction. The influence of the Oriental fauna on that of the Pacific Islands is greater than the effect of the Australian fauna.

5. The ptyctimous species of the neighbouring regions, despite distinct separateness, reveal a great similarity to those of the Orient than to any other region.

6. From among the species common to the Oriental fauna and that of the border zone, over half (8) are species of Oriental origin and only 2 of Holarctic and Palaearctic origin.

7. The Orient is the centre of speciation of many other invertebrates. In general they show expansion to the west and south. A greater expansion of Oriental species towards Australia than in the opposite direction has been frequently reported.

Among the Oriental species of *Ptyctima* about 20% have dispersed and penetrated the neighbouring geographical regions, and they include more representatives of *Euphthiracaroidea* (31%) than *Phthiracaroidea* (9%). The Oriental species penetrating the Australian region and Pacific Islands are: *S. corneri, A. lebronneci, R. lucida, R. spiculifera, R. comteae, P. paucus;* the one penetrating New Caledonia and other Pacific Islands is *R. refracta*; those penetrating New Guinea are: *A. robusta, M. (P.) polita*; the one penetrating northern Australia - *A. pantotrema*; the one penetrating the Pacific Islands - *P. crispus*. The only species common with the Ethiopian Region is *M. (M.) invisitata*. The southern and eastern borders of the Palaearctic region are penetrated by *O. submolesta, M. similis, I. javensis, I. propinqua, A. saraburiensis, H. concinuus, N. robertsi* and *A. heterotricha*.

The above evidence supports the hypothesis of NIEDBAŁA (1991), that all the genera of *Phthiracaroidea* originated before the break-up of Pangea, and that in some regions certain genera radiated adaptively, e.g *Notophthiracarus* and *Austrophthiracarus* in the Australian Region. This thesis is also probable as far as *Euphthiracaroidea* are concerned. It is supposed that all the fundamental genera of different phylogenetic age occurred before breaking up of continents. The strong adaptative radiation of ptyctimous mites in the Oriental region contributed to the increase in specific diversity. This distinct differentiation of species considered, especially with respect to infraspecific taxa hiatus enables a definition of new generic taxa.

5.6. THE ORIGIN OF THE *PTYCTIMA* FAUNA IN THE LIGHT OF ZOOGEOGRAPHICAL CONCEPTS

Contemporary distribution of *Ptyctima* should be considered on the basis of two zoogeographical concepts: of vicariance and panbiogeography, in other words assuming the continental drift and plate tectonics theory and the process of dispersal. It has been shown that similarity of the *Ptyctima* faunas in the regions analysed is very weak and limited to individual widespread, semicosmopolitan or pantropical species. The question is whether the presence of these species in neighbouring zoogeographical regions is the evidence for age of the fauna – originated before the break-up of Pangea (over 200 mln years ago), or for dispersal of the species. Also strongly marked separateness of the ptyctimous fauna in the regions analysed, manifested as a large number of endemic species, does not make it easier to answer the above question, although we are able to discern between the old and new introductions by estimating the degree of divergence.

The concept of ptyctimous mite dispersal is contradicted by the fact that they are relatively sedentary invertebrates unable to disperse readily. The phenomena of strong speciation over some areas, e.g. some species of *Oribotritia* in Nepal or

Vietnam, indicate evolutionary activity and intensity of speciation processes but also strong ties to certain habitats. Another example supporting this thesis is the strong adaptative radiation of the genera *Austrophthiracarus* and *Notophthiracarus* in the Australian Region. Significant differences between the faunas of the two regions: Oriental and Australian, may be indicative of a fast evolution of species in the post-Gondwanan period. Development of new vegetational formations might have created conditions for appearance of younger taxa of *Ptyctima*. An argument in favour of this scenario is the that the faunas of Australia, New Zealand and Tasmania are completely different. Despite their relatively recent separation – especially Tasmania from Australia, and common origin of their genera, the adaptative radiation in these areas had a different character. Moreover, disjunct distribution within genera, e.g. *Austrophthiracarus*, but first of all *Notophthiracarus*, supports the continental drift hypothesis and indicates very low evolution rates. The radiation is relatively strong, hovewer, it does not involve morphological transformations, which would be significant enough to group species into separate genera. The presence of *Notophthiracarus* – a Gondwanan genus common in Australia and Tasmania – in Nepal, supports CRACRAFT's hypothesis (1974) of association of Tibet with Australia. According to that author southern Tibet formed a part of the Australian Gondwana as late as during the Jurassic. However, apart from the widespread species, there are no species common for two or three neighbouring zoogeographical regions. Therefore, there is no indication as to the possible disjunct distribution which would set the origin of the fauna as earlier than the break-up of the continents.

One of the arguments in support of the dispersal hypothesis, is the origin of the ptyctima fauna of the oceanic volcanic islands, on which widespread species (*P. kugohi, A. (H.) floridus, A. (H.) vitrinus*) (NIEDBAŁA 1998) are found in large numbers.

There are the following factors facilitating passive dispersal of ptyctimous mites:

1. Representatives of *Mesoplophoroidea* can be phoretically transported by wood-associated beetles (NORTON 1980).

2. *Euptyctima* eggs are laid inside pieces of wood and their immature stages (larvae and three nymphal stages), boring in wood, are protected from dehydration and damage (BERNINI 1990).

3. A feature favouring colonisation is the high frequency of thelytokous parthenogenesis (NORTON and PALMER 1991) among ptyctimous mites, especially among *Euphthiracaroidea* (*Rhysotritia*). A single non-fertilised female can produce a large number of progeny.

4. Very resistant robust sclerotisation of the adults and the ability to fold aspidosoma under notogaster to protect legs and ventral part of body, which prevent damage and fast dehydration.

A large body of data suggest that both: dispersal and vicariance are responsible for the present distribution of *Ptyctima* over the continents, as has been found in case of several insect taxa. Contemporary distribution of many invertebrates is probably a result of a complex effect of dispersal across limited gaps and the episodes of vicariance. Explanation of the ways of distribution requires further studies and will probably be possible after recognition of the faunas of the other regions, first of all the Ethiopian and Neotropical ones.

6. CONCLUSIONS

1. Descriptons, redescriptons, additional descriptons or diagnoses of all 319 species of *Ptyctima* found in the Oriental region, bordering zone of the Oriental and Palaearctic regions and Australian region are given. Keys for determination of species as well as higher taxa, genera and families are given separately for each fauna.

2. 64 new species have been described; among them 2 species of *Apoplophora* from Oriental region, 39 species of *Phthiracaroidea* (13 from the Oriental region and the bordering zone of the Oriental and Palaearctic regions and 28 from the Australian region), 24 species of *Euphthiracaroidea* (14 from the Oriental region and the bordering zone, 7 from the Australian region). From among 114 *Phthiracaroidea* species known from the Australian region I described about 90. Moreover, 32 new synonyms have been proposed: 14 for the species of *Phthiracaroidea* from the Oriental region, 9 for the species of *Euphthiracaroidea* (8 from the Oriental region and the bordering zone of the Oriental and Australian regions and 1 from the Australian region). The southern limit of the range of the Oriental genus *Apoplophora* has been established (Queensland). The range of occurrence of a rare Neotropical species *Prototritia glomerata* GRANDJEAN (1932) has been extended to Pantropical.

3. In the Oriental region the number of known *Ptyctima* species is 119, including 53 *Phthiracaroidea* and 47 *Euphthiracaroidea*, 17 *Mesoplophoroidea* and 2 *Protoplophoroidea*. The number of species new to the science is 27, including 16 *Phthiracaroidea*, 8 *Euphthiracaroidea* and 3 *Mesoplophoroidea* (Tab. 1).

4. In the Australian region the number of known *Ptyctima* species is 143, *Phthiracaroidea* being much more numerous (114) than *Euphthiracaroidea* (26). Only 3 species of *Mesoplophoroidea* were found. There are no ptyctimous *Enarthronota* in the continental Australia. The number of species new to science is 35, including 28 *Phthiracaroidea* and 7 *Euphthiracaroidea* (Tab. 3).

5. In the Oriental region, there is a greater number of species of *Euphthiracaroidea* and *Mesoplophoroidea*, while in the Australian region – of *Phthiracaroidea*. In the Oriental region *Euphthiracaroidea* are represented by 14 genera, while in the Australian region – by 7, in both regions the most abundantly represented are the genera *Rhysotritia* and *Oribotritia*. From among *Mesoplophoroidae* the most abundantly represented in the Oriental region is *Apoplophora*. In the Australian region, the representatives of *Notophthiracarus* and *Austrophthiracarus* belonging to *Phthiracaroidea*, comprise nearly 70% of the species found, whereas in the Oriental region, the number of species representing particular genera is similar. The *Ptyctima* fauna of the Oriental region is harmonious as indicated by a relatively large number of genera of *Euphthiracaroidea* and a similar number of species representing the genera of *Phthiracaroidea*. The fauna of the Australian region can be described as disharmonious because of a small number of the euphthiracaroid genera, strong speciation of only two genera of *Phthiracaroidea* and the fact that 84% of the species have exclusively Australian distribution. In this region the degree of endemism is very hogh (almost 65% of the species), and higher among *Phthiracaroidea* (77%) than among *Euphthiracaroidea* (23%). The endemism at the generic level is very low – the only endemic genus is *Phrathicarus* on New Zealand. Only 6 species of Oriental distribution have reached the Australian region; no species occurring exclusively in either of the two zoogeographical regions have been identified.

6. The characteristic traits of the *Ptyctima* fauna in particular subregions of the Australian region are:

· The fauna of New Guinea is mixed and transitional, although with a prevalence of Oriental elements.

· The fauna of the continent of Australia is characterised by a very high endemism of ptyctimous mites. Widespread species (semicosmopolitan and pantropical) as well as Oriental species reach only North Australia (Tab. 7).

· The fauna of Tasmania is characterised by a strong endemism, especially among *Phthiracaroidea*, the absence of widespread species and a small proportion of introduced species. There is some faunistic resemblance with the fauna of the southern part of Australian continent.

· The fauna of New Caledonia is characterised by a stronger endemism and shows more resemblance to that of Australia, than that of New Guinea, however, it is also under greater influence of the Oriental region.

· The *Ptyctima* fauna of New Zealand confirms the very strong separateness of this subregion with a high degree of endemism and the presence of only one widespread species. There is some connection with the fauna of the continental Australia, however, no connection was found with the faunas of the Oriental region or Pacific Islands.

7. In the Oriental region only single species are widespread. The Oriental species constitute 95.7%, 81% and 82% among *Euphthiracaroidea*, *Phthiracaroidea* and *Mesoplophoroidea*, respectively, while endemic species of the respective families constitute 44.7%. 60% and 41% (Tab. 5). *Euphthiracaroidea* of the Oriental origin are relatively mobile and introduced into the neighbouring regions: the Australian region, Pacific Islands and SE border of the Palaearctic region. The mobile species make 31% while those restricted to Oriental region – 18%. Among the *Phthiracaroidea*, the species bound to the Oriental region make 16% and the mobile ones 9.3%.

8. In the Oriental region, *Euphthiracaroidea* are more abundantly represented than *Phthiracaroidea* in all subregions except for India. The endemism is the highest on Borneo, less pronounced in Indochina and India, even weaker on the Philippines and no endemic species were found on Sulawesi. In general, apart from the fauna of India, the number of Oriental species is somewhat higher than that of the widespread, pantropical species. On Borneo, most of the Oriental species are restricted to this region. In the other subregions, the proportion of the restricted to invasive Oriental species is similar. More numerous species were found in the northern subregions (India, Indochina Peninsula and Borneo) than on the southern and eastern islands. The results of this study confirm literature data on moderate penetration of the Oriental and Australian fauna on the Philippines and southern Indonesia islands.

9. The number of species found in the bordering zone of the Palaearctic and Oriental regions - is 98, including 49 *Euphthiracaroidea*, 45 *Phthiracaroidea* and 4 *Mesoplophoroidea*; 9 of them are new to the science: 1 of *Phthiracaroidea* and 8 of *Euphthiracaroidea* (Tab. 2). The number of Holarctic and Palaearctic species is higher (mainly *Phthiracaroidea* 22.2%) than that of Oriental species (mainly *Euphthiracaroidea* 12.5%). The proportion of southern species in this fauna (pantropical and Oriental ones) is only slightly higher – 19.4% (that of Oriental *Euphthiracaroidea* a few times greater

than that of *Phthiracaroidea*) than that of Holarctic and Palaearctic species – 16.3%. The number of endemic species exceedsw 56%, these are mostly *Euphthiracaroidea*, while the proportion of widespread semicosmopolitan (11%) and pantropical (11%) ones is relatively low (Tab. 6).

10. Faunistic analysis of the subregions suggests that the actual border zone between the Oriental and Palaearctic regions are northern India and Nepal, where *Ptyctima* fauna is of distinctly mixed character. The fauna of the western part of the zone (Pakistan) is very specific and not connected with those of the neighbouring regions. The fauna of north-eastern part of the bordering zone (Far East of Russia) has a definitely Palaearctic character, then the fauna of Korea is under great influence of Palaearctic , and the fauna of Japan is greatly affected by that of the Orient. The presence of the *Notophthiracarus* – a Gondwanan genus common in Australia and Tasmania – in Nepal, confirms the hypothesis of CRACRAFT (1974) about the associations between Tibet and Australia; the southern Tibet formed part of Australian Gondwana even as late as during the Jurassic.

11. As follows from a comparison of the faunas, from among 119 Ptyctimous species found in the Orient and 98 species found in the bordering zone between the Palaearctic and Oriental regions, only 18 are common and most of them – 10 – belong to *Euphthiracaroidea*. Almost half of these are widespread, semicosmopolitan and pantropical species, eight are of Oriental origin and only 2 come from the north (Holarctic and Palaearctic). The above numbers indicate a stronger penetration of Oriental species into the northern and eastern bordering zones of the regions.

12. From among 119 species occurring in the Oriental region, 143 species found in the Australian region and 145 species known from the Ethiopian region, only 3-4 semicosmopolitan and 9 pantropical species are common for the Oriental and Ethiopian regions and 1 semicosmopolitan and 7 pantropical species are common for the Australian and Ethiopian regions. No species are found exclusively in these three regions. There are no common species of *Mesoplophoroidea*. The faunistic distinctness of these three regions is clearly evident.

13. From among 49 species found on the Pacific Islands, as many as 20 occur also in the Oriental region, however, only 6 of them are Oriental species, while the other 14 are widespread, semicosmopolitan and pantropical. The influence of the fauna of the Australian region is weaker, only three Australian species were introduced on the islands, and the same number of species widespread. Thus, the conclusion is that the ptyctimous fauna of the Pacific Islands is under greater influence of the Oriental fauna than the Australian fauna (s=0.108). Hence, these results indicate that the Ptyctimous fauna of the Pacific Islands is under greater influence of that of the Oriental than Australian region.

14. Analysis of the data aimed at identifying the centres of origin and speciation of the fauna of *Ptyctima*, allows to formulate a hypothesis that such a centre is the Oriental region. The arguments supporting this thesis are: greater diversity of the Ptyctimous mites of the region, equalised and harmonious number of specis of *Phthiracaroidea* in the Oriental region against the disharmonious fauna in the Australian region, harmonious fauna of *Euphthiracaroidea* represented by a great number of genera (14) when compared to that present in the Australian region (7 genera); a large number of mobile species, especially among *Euphthiracaroidea*, in the Oriental region, which spread to Australia, SE Palaearctic and the Pacific Islands; the fauna of neighbouring regions, despite their distinct separateness, reveals greater similarity to that of the Oriental region

than to those of any other regions; from among the species common to Oriental fauna and that of the bordering zone over half (8) are of Oriental origin and only 2 of the Holarctic and Palaearctic origin (Tab. 4).

15. The results support the thesis put forward by NIEDBAŁA (1991) that all genera of *Phthiracaroidea* appeared before the break-up of Pangea, however, in some regions certain genera have undergone an intense speciation and adaptive radiation, e.g. in the Australian region the genera *Notophthiracarus* and *Austrophthiracarus*. This thesis is also probable for the genera of *Euphthiracaroidea*. All the fundamental genera of this family occurred before the break-up of the continents, but in the Oriental region not only the species have undergone strong adaptive radiation, but also favourable conditions allowed formation of new genera.

16. The hypothesis about the Oriental origin of the Australian fauna does not exclude the thesis on the dispersal and vicariance of *Ptyctima* between the Australian and Oriental regions, which remains still open. Explanation of the distribution of the Ptyctima fauna requires further studies and is expected to be closer after recognition of the faunas of the other regions, especially Ethiopian and Neotropical.

17. An attempt at determination of the faunistic border on the basis of the available material failed; the faunas of the regions are separate and their weak similarity is determined almost only by widespread cosmopolitan and pantropical species.

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9. ANNEX

Having submitted my paper to the publisher I realised I had omitted three important works.

AOKI (1994) described two new species: one of them *Hoplophthiracarus inoueae* from Central Japan is easily distinguishable from the other species of *Hoplophthiracarus* by rostral margin ornamented by sculpture of short vertical concavities, while the other - *Hoplophthiracarus marianus* from Micronesia is a synonym of *Atropacarus* (*Hoplophorella*) *singularis* (SELLNICK, 1959) as indicated by e.g. the shape of ad_3 setae.

BALOGH and MAHUNKA (1997) described two new species from Papua New Guinea, however they both are synonyms: one, *Notophthiracarus alpinus*, is a synonym of *Notophthiracarus sinuosus* (NIEDBAŁA, 1982). None of the characters mentioned in the description of BALOGH and MAHUNKA justifies a distinction of *Notophthiracarus alpinus*. The majority of the morphological characters (only lamellar setae are slightly longer and setae ad_3 are slightly shorter) indicates that the second species, *Notophthiracarus gressitti*, is a synonym of *Notophthiracrus quietus* NIEDBAŁA, 1989.

Therefore, these two species should be included in Chapter 5.1.1:

Hoplophthiracarus inoueae AOKI, 1994
Atropacarus (*Hoplophorella*) *singularis* (SELLNICK, 1959)
Hoplophthiracarus marianus AOKI, 1994 **syn. nov.**

and the other two should be included in Chapter 5.1.4:

Notophthiracarus sinuosus (NIEDBAŁA, 1982)
Notophthiracarus alpinus BALOGH et MAHUNKA, 1997 **syn. nov.**
Notophthiracarus quietus NIEDBAŁA, 1989
Notophthiracarus gressitti BALOGH et MAHUNKA, 1997 **syn. nov.**

LIONS and NORTON (1998) transferred three Oriental species of the genus *Synichotritia*: *S. foveolata* HU, WANG et AOKI, 1991, *S. furcata* HU et WANG, 1992 and *S. tianmuensis* HU, WANG et AOKI, 1991 to the genus *Sabahtritia* and slightly broadened its diagnosis. According to their proposal these three species belong to the genus *Sabahtritia* and the family *Sabahtritiidae*.

AOKI, J. 1994. New Species of Oribatid Mites from a Moor in Hakone, Central Japan. Proc. Jap. Soc. Syst. Zool., **51**: 35-41.

BALOGH, J., MAHUNKA, S. 1997. Two new *Notophthiracarus* species from Papua New Guinea (*Acari*: *Oribatida*). Folia ent. Hung., **58**: 19-24.

LIONS, J.C., NORTON, R.A. 1998. North American *Synichotritiidae* (*Acari*: *Oribatida*) 2. *Synichotritia spinulosa* and *S. caroli*. Acarologia, **39** (3): 265-284.

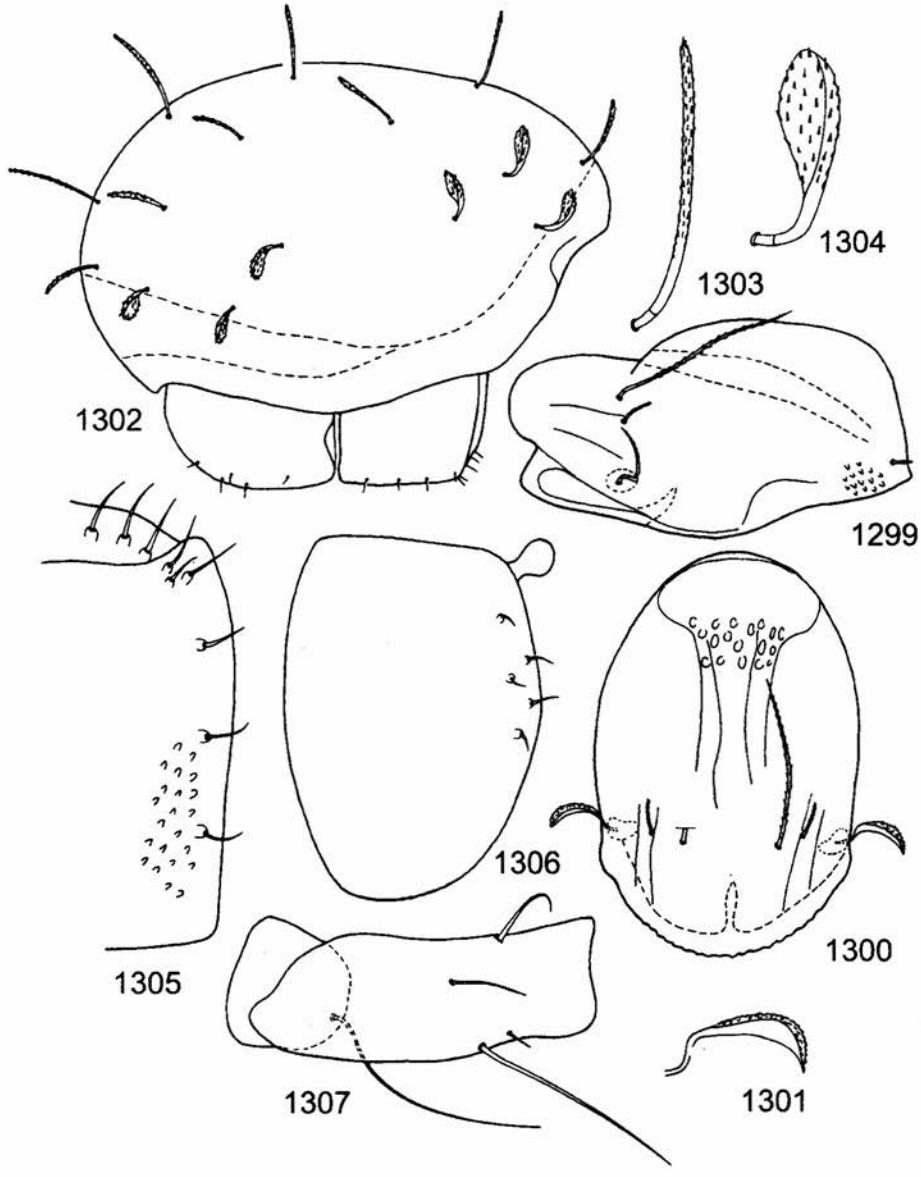
10. INDEX OF LATIN NAMES

(valid names in normal, synonyms in *italics*, pages with description in **bold**, pages with placement in an identification key in ***bold italics***)

Arphthicarus remotus NIEDBAŁA, 1989

(Figs 1-8 in NIEDBAŁA 1989)

DIAGNOSIS. Prodorsum with median field longer than lateral; posterior furrows weak; lateral carinae absent; sensilli with globular head covered with short, sparse spines; interlamellar setae robust, erect covered with small spines in distal half, lamellar setae very short, smooth, rostral setae short, spiniform, rough, exobothridial

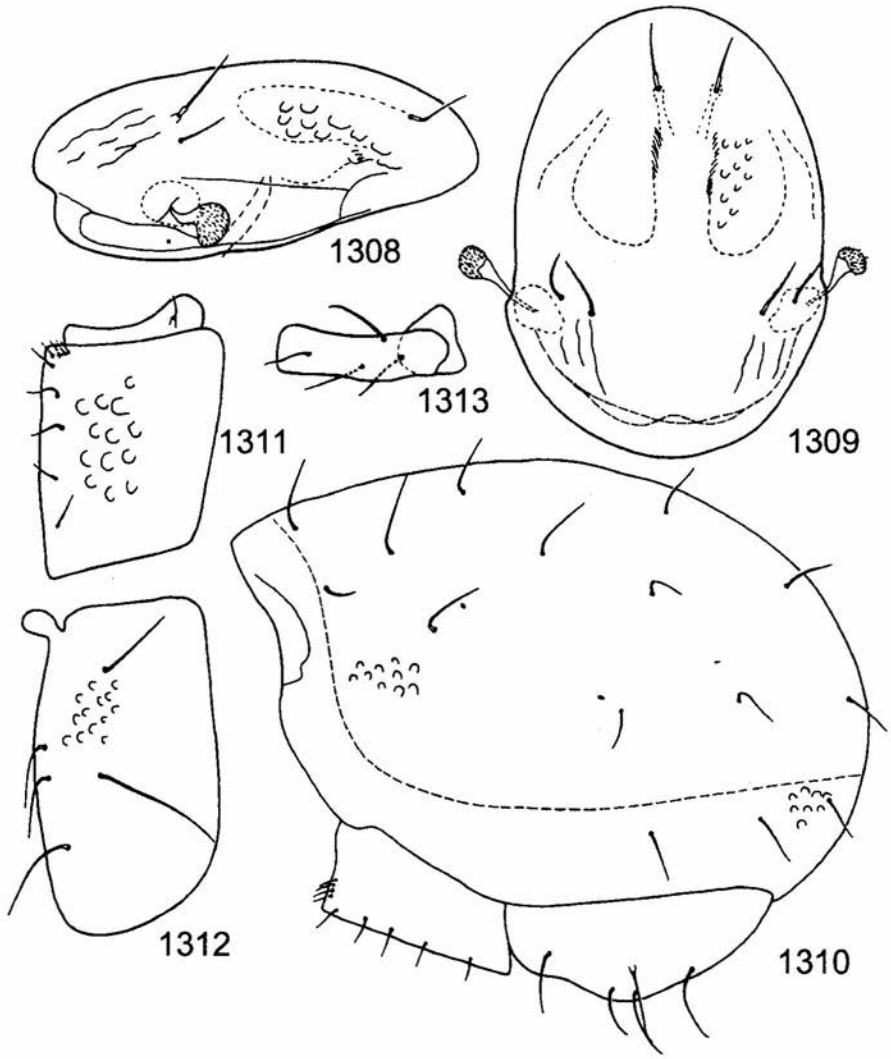


1299-1307. *Arphthicarus heterotrichus* sp. nov. (holotype): 1299 - prodorsum, lateral view, 1300 - prodorsum, dorsal view, 1301 - sensillus, dorsal view, 1302 - notogaster, lateral view, 1303 - seta d_1, 1304 - seta c_2,1305 - fragment of genitoaggenital plate, 1306 - anoadanal plate, 1307 - trochanter and femur of leg I

setae vestigial. Notogaster with 15 pairs of robust, relatively thick setae covered with small spines; vestigial setae f_1 posterior to h_1 setae; all lyrifissures: *ia. im, ip, ips* present. Ventral region, setae *h* of mentum very long, considerably longer than distance between them; genitoaggenital plates each with 9 setae with formula: 6(4+2): 3; anoadanal plates each with 5 setae, setae ad_1 et ad_3 covered with spines, other setae rough, setae ad_2 the longest and the thickest, hooked at distal end. Leg chaetotaxy complete.

MATERIAL. Localities in the Australian region: Australia, QLD, Mosman Gorge, 30 m, 23 II 1984, leg. L. MASNER – (1) (NIEDBAŁA 1989); Australia, RS 1583 – (1).

DISTRIBUTION. North Australia, probably an endemic species.



1308-1313. *Arphthicarus tinctus* sp. nov. (holotype): 1308 - prodorsum, lateral view, 1309 - prodorsum, dorsal view, 1310 - notogaster, lateral view, 1311 - genitoaggenital plate, 1312 - anoadanal plate, 1313 - trochanter and femur of leg I

Arphthicarus tinctus sp. nov.

(Figs 1308-1313)

DESCRIPTION. Measurements: Holotype: prodorsum: length 180, width 126, height 75.9, sensillus 22.8, setae: interlamellar 35.4, lamellar 22.8, rostral 27.8; notogaster: length 338, width and height 212, setae: c_1 43.0, h_1 and ps_1 35.4; genitoaggenital plate 88.5x63.2, anoadanal plate 134x60.7. Colour brown. Microsculpture of integument deeply foveolate. Prodorsum with narrow, well developed fields. Lateral carinae reaching as far as sinus. Posterior furrows well-marked. Sensilli short with small, narrow stalk and rounded, densely spinose head. Setae shortm, spiniform, interlamellar and lamellars densely spinose, rostral setae rough, comparative lengths: *in* > *ro* > *le*. Exobothridial setae vestigial. Notogaster with 15 pairs of spiniform, rough, short (c_1/c_1-d_1=0.53) setae, c_3 the shortest. Setae c_1 and c_3 close to anterior margin, setae c_2 considerably remote from margin. Lyrifissures *ia* and *im* present. Vestigial setae f_1 not discernible because of strong microsculpture. Ventral region. Setae *h* of mentum longer than their mutual distance. Formula of genital setae: 5(4+1): 4. Anoadanal plates each with 2 anal and 3 adanal setae, well developed, rough, ad_1=ad_2>an=ad_3. Legs. Formulae of setae and solenidia of reduced type. Setae *v'* on femora I and *a'* on tarsi I absent. Setae *d* on femora I long and inserted towards proximal end of article. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II straight distally.

DIAGNOSIS. This species is similar to the Australian *Arphthicarus aoki* (NIEDBAŁA 1987) and differs from the latter in the strong sculpture of body, the number (15 pairs) of gastronotic setae and the presence of 3 pairs of adanal setae.

ETYMOLOGY. The specific name *tinctus* is Latin for "dyed" on alludes to the painted surface of body - light brown pits against a darker brown background.

MATERIAL. Holotype and 4 paratypes: New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (5) .Other material. Localities in the Australian region: New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, black soil with roots under the very thick moss under trees, 7-8 X 1977, leg. J. BALOGH – (9); Mont Panié, at 1300-1500 m, black soil with roots under the very thick moss under trees, 7-8 X 1977, leg. J. BALOGH – (32); Mont Panié, at 1300-1500 m, soil and roots under farntrees, 7-8 X 1977, leg. J. BALOGH – (1); Mont Panié, at 1300-1500 m, very thick moss under trees, 7-8 X 1977, leg. J. BALOGH – (9).

DISTRIBUTION. New Caledonia, probably an endemic species.

Phrathicarus NIEDBAŁA, 1994

DIAGNOSIS. Body surface punctate; dorsal and lateral fields of prodorsum not fused, lateral carinae and furrows in the back of prodorsum absent, interlamellar setae erect; neotrichy of gastronotal setae present; 9 pairs of genital setae present; setae g_7-g_9 (or only g_7 and g_9) displaced towards paraxial margin, in a row with g_1-g_5, setae g_6 (or also g_8) remote from margin, four setae (ad_1, an_1, an_2 and ad_2) form a row near paraxial margin of anoadanal plates; setae d on femora I located at distal end of segment; setae *v'* on femora I and setae *l'* on genua IV present, setae *l'* on tibiae IV short, coupled with solenidia, setae *ft"* on tarsi I normal.

Phrathicarus inflatus NIEDBAŁA, 1994

(Figs 192-199 in NIEDBAŁA 1994)

DIAGNOSIS. Median and lateral fields of prodorsum short, lateral carinae absent; sensilli long, narrow, bent, roughened; interlamellar setae erect, long, rough with flagellate distal end, rostral setae robust, bent, rough with flagellate end, lamellar setae robust, rough, *in* > *ro* > *le* > *ex*. Notogaster neotrichous with 19 pairs of setae of varied length and shape, some anterior and posterior setae long, rough with flagellate end, other setae shorter and not flagellate; one pair of lyrifissures *im* present. Ventral region with setae *h* of mentum longer than distance between them; arrangement of genital setae: 6(4+2): 3, setae g_6 and g_8 remote from paraxial border; row of four flagelliform setae inserted in paraxial margin of anoadanal plates. Leg chaetotaxy complete, setae *d* on femora I located at distal end.

MATERIAL. Localities in the Australian region: New Zealand, Waipona Forest, 6 I 1967, leg. R.R. FORSTER – (19) (NIEDBAŁA 1994a); Mangamuka 7 I 1967, leg. R.R. FORSTER – (4); Summit Mangamaka Rd., at 2000 m, *Knightia weinmannia*, 21.I.1972, leg. G.W. RAMSAY and N.A. WALKER – (1).

DISTRIBUTION. New Zealand, perhaps an endemic species.

Notophthiracarus abstemius NIEDBAŁA et COLLOFF, 1997

(Figs 89-96 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Large species. Prodorsum with long narrow fields, weakly developed; lateral carinae absent; sensilli short, club-like; interlamellar setae long, spinose distally, morphologically similar to notogastral setae, arising vertically from prodorsal surface, lamellar setae minute, spiniform, rostral setae spiniform, rough; *in* > *ex* > *ro* > *le*. Notogaster with 15 pairs of short setae (c_1/c_1-d_1=0.72), spinose distally; vestigial setae f_1 inserted dorsally of h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum longer than distance between them; formula of genital setae: 5(4+1): 4; anoadanal plates with setal formula 3:2; setae ad_1 shorter than ad_2, both setae longer and thicker than others. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I stout, positioned proximally.

MATERIAL. Localities in the Australian region: Tasmania, Mount Victoria, pyrethrum knock-dawn, 41°20'S, 147°50'E, tree, 25 XI 1989, leg. R. COY – (17); Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. SMITH – (17); Mount Mangana, Bruny Island, 43°21'S, 147°13'E, moss sample, 9 IV 1989, leg. J. DIGGLE – (1); Mount Mangana, Bruny Island, 43°21'S, 147°13'E, moss sample, 9 IV 1989, leg. J. DIGGLE – (7); Mount Mangana, Bruny Island, litter, 43°22'S, 147°17'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (6); Mount Michael, *Nothofagus cunninghamii*, suction samples, 41°11'S, 148°01'E, 28 XI 1989, leg. R. COY – (1); Savage River, Pipeline Road, sweeping, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (23); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii* and *Sassafras*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (1); Bruny Island, Mount Mangana, litter, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (8);

Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. L. ROBERTSON – (24); TAS-003 Savage River, Pipeline Road, pyrethrum knock-down, *Sassafras*, 41°30'S, 145°20'E, 19 IV 1989, leg. H. MITCHELL – (27); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. J. DIGGLE – (10); Savage River, Pipeline Road, hand collection in logs , 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (10); Savage River, Pipeline Road, pyrethrum knock-down, Leatherwood, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (4); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. H. MITCHELL – (2); Bruny Island, Mount Mangana, Celery Top Pine, pyrethrum knock-down, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (1); Bruny Island, Mount Mangana, pitfall traps, 43°21'S, 147°13'E, 4-9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (1); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, suction, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (1); Projection Bluff (Pine Lake), 7,5 km NNE of Breona, 41°43'S, 146°43'E, soil cores, 9 III 1989, leg. P. GREENSLADE – (2); Frodshams Pass. litter, thamnic rainforest, 42°49'S, 146°13'E, 18 XI 1988, leg. P. GREENSLADE – (1); Simons Road, soil cores, 41°21'S, 147°31'E, 5 VI 1989, leg. J. DIGGLE – (2); Mount Horror, litter, 41°04'S, 147°44'E, XII 1988, leg. M. NEYLAND – (5); Simons Road, soil cores, 41°21'S, 147°31'E, 5 VI 1989, leg. P. GREENSLADE – (31); Mount Victoria, pyrethrum knock-down, tree 1, 41°20'S, 147°50'E, 25 XI 1989, leg. R. Coy – (3); Mount Mangana, Bruny Island, 43°21'S, 147°13'E, moss sample, 9 IV 1989, leg. J. DIGGLE – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Notophthiracarus admirabilis NIEDBAŁA et COLLOFF, 1997

(Figs 97-106 in NIEDBALA and COLLOFF 1997)

DIAGNOSIS. Prodorsal cuticle pitted, notogaster punctate. Body covered by strong cerotegument. Prodorsum with distinct posterior furrows and massive, tuberculate, median carina; prodorsum becoming markedly concave posteriorly; only narrow lateral fields visible; lateral carinae absent; sensilli short, spindle-shaped, smooth; setae short, fine, smooth, interlamellar setae flagelliform distally; *in* > *le* = *ro*. Notogaster with 15 pairs of very short, fine setae (c_1/c_1-d_1=0.2), flagelliform distally; vestigial seate obscured by cerotegument; 3 lyrifissures (*ia, im, ip*) present on each side. Ventral region, setae *h* of mentum equal to distance between them; genital setal formula: 4: 5; anoadanal setal formula 3:2; setae very short, fine; ad_1 and ad_2 situated near median edge of plates. Legs, formulae of setae and solenidia of complete type, setae *d* on femur I remote from distal end, Seta *v'* on femur I emerges ventral of seta *v''*.

MATERIAL. Localities in the Australian region: Tasmania, Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, moss on ground, 41°50'S, 145°37'E, 21 IV 1989, leg. H. MITCHELL – (3); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, litter, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, sweeping and beating, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE

and H. MITCHELL – (1); Frodshams Pass, implicate rainforest, litter, 42°49'S, 146°13'E, 18 XI 1988, leg. P. GREENSLADE – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (6); Mount Michael, *Nothofagus cunninghamii*, suction samples, 41°11'S, 148°01'E, 28 XI 1989, leg. R. COY – (2); Savage River, Pipeline Road, sweeping, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (12); Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (7); Savage River, Pipeline Road, pyrethrum knock-down, *Sassafras*, 41°30'S, 145°20'E, 19 IV 1989, leg. H. MITCHELL – (46); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. H. MITCHELL – (3); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (5); Savage River, Pipeline Road, pyrethrum knock-down, Leatherwood, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (3); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. H. MITCHELL – (1); Bruny Island, Mount Mangana, pitfall traps, 43°21'S, 147°13'E, 4-9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (1); Spero River, litter, 42°38'S, 145°22'E, 23 II 1989, leg. J. MARSDEN-SMEDLY – (3); Savage River, Pipeline Road, moss on log, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (6); Mount Field, below Lake Fenton, moss on log, *Nothofagus gunnii*, 42°41'S, 146°38'E, 25 VIII 1989, leg. H. MITCHELL – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. J. DIGGLE – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, Leatherwood – open, 41°50'S, 145°37'E, 18 IV 1989, leg. P. GREENSLADE – (3); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – open, 41°50'S, 145°37'E, 18 IV 1989, leg. P. GREENSLADE – (2); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, moss on rocks, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, moss on ground, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (1) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

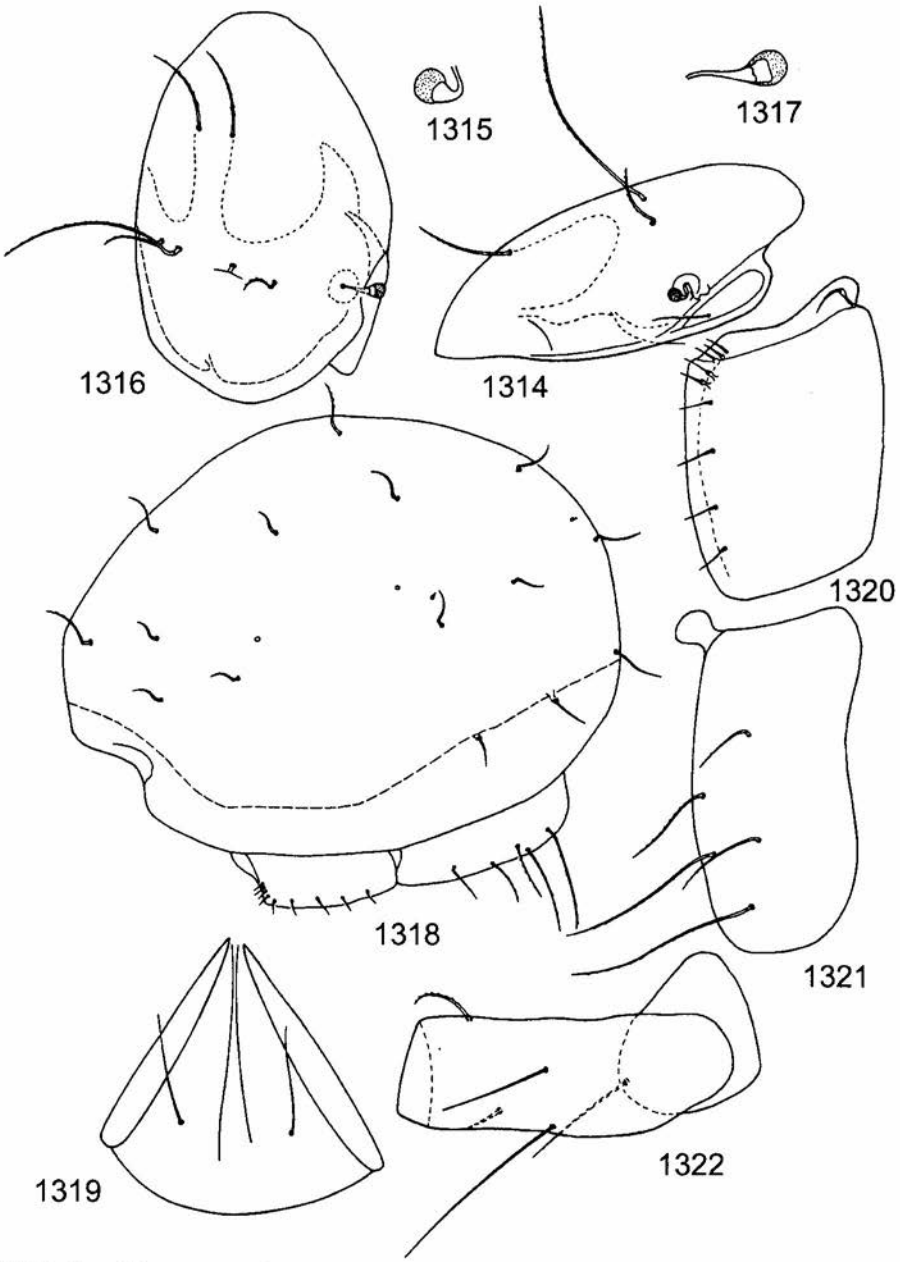
Notophthiracarus alienus NIEDBAŁA, 1989

(Figs 9-15 in NIEDBALA 1989)

DIAGNOSIS. Prodorsum with median field narrow, considerably longer than lateral; posterior furrows weak; lateral carinae distinct, reach sinus; sensilli with short pedicel and rounded head; interlamellar setae long, robust, erect covered sparsely with small spines, lamellar and rostral setae spiniform, rough. Notogaster with 15 pairs of unequal setae covered sparsely with small spines, majority of setae long, tapered towards distal end, setae c_3, cp, h_3, ps_3 et ps_4 considerably shorter; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them, formula of genital setae: 4: 5; anoadanal plate with rough setae, $ad_2 > ad_1 > an = ad_3$; ad_2 setae hooked distally. Leg chaetotaxy of complete type.

MATERIAL. Localities in the Australian region: Australia, NSW, Macquarie Pass., 800 m, 8 km E of Robertson, Lauriel-sassafras, rain forest ferns, 8 II 1984, leg. L. MASNER – (13); NSW, New England N.P., 1300-1500 m, 13 II 1984, leg. L. MASNER – (1); Tasmania, Hellyer Riv., gorge, 10-15 I 1984, leg. L. MASNER – (3); Tasmania, Pedder Lake, 14 I 1984, leg. L. MASNER – (2); Hellyer Riv. gorge, temperate rain forest, 11 I 1984, leg. L. MASNER – (6); Tasmania, Pedder Lake, 14 I 1984, leg. L. MASNER – (3); Lake St. Clair N.P., 750 m, 12 I 1984, leg. L. MASNER – (1); Tasmania, Mt. Field N.P., Mariette Falls, 13 I 1984, leg. L. MASNER – (1); Mt. Field N.P., 7 I 1984, leg. L. MASNER – (5); Mt. Field N.P., 7 I 1984, leg. L. MASNER – (1) (NIEDBAŁA 1989); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, sweeping and beating, 41°50'S, 145°37'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (9); Leatherwood, Mount Mangana, Bruny Island, pyrethrum knock-dawn, 43°21'S, 147°13'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (2); Mount Victoria, pyrethrum knock-dawn, 41°20'S, 147°50'E, tree, 25 XI 1989, leg. R. COY – (7); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, suction sample, 41°50'S, 145°37'E, 21 IV 1989, leg. B. Brown and L. ROBERTSON – (1); Big Sassy Creek, 21 km NNW of Little Swanport, yellow pan traps, 42°09'S, 147°55'E, 17 V 1989, leg. P. GREENSLADE – (2); Big Sassy Creek, 21 km NNW of Little Swanport, moss on tree, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE and H. MITCHELL – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. P. GREENSLADE – (1); Savage River, Pipeline Road, sweeping, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (13); Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (1); Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. L. ROBERTSON – (14); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. J. DIGGLE – (4); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. B. BROWN – (17); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. H. MITCHELL – (19); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. L. ROBERTSON – (9); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (43); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii* (edge), 41°30'S, 145°20'E, 20 IV 1989, leg. J. DIGGLE – (16); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. H. MITCHELL – (8); Bruny Island, Mount Mangana, Celery Top Pine, pyrethrum knock-down, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (14); Bruny Island, Mount Mangana, pitfall traps, 43°21'S, 147°13'E, 4-9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (4); TAS-044 Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, suction, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (1); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, moss at base of myrtle trunk, 43°03'S, 147°55'E, 16 III

1989, leg. P. GREENSLADE – (1); Spero River, litter, 42°38'S, 145°22'E, 23 II 1989, leg. J. MARSDEN-SMEDLY – (1); Savage River, Pipeline Road, moss on log, 41°30'S, 145°20'E, 21 IV 1989, leg. J. DIGGLE and H. MITCHELL – (2); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV 1989,



1314-1322. *Notophthiracarus aquilus* sp. nov. (holotype): 1314 - prodorsum, lateral view, 1315 - sensillus, lateral view, 1316 - prodorsum, dorsal view, 1317 - sensillus, dorsal view, 1318 - notogaster, lateral view, 1319 - mentum of infracapitulum, 1320 - genitoaggenital plate, 1321 - anoadanal plate, 1322 - trochanter and femur of leg I

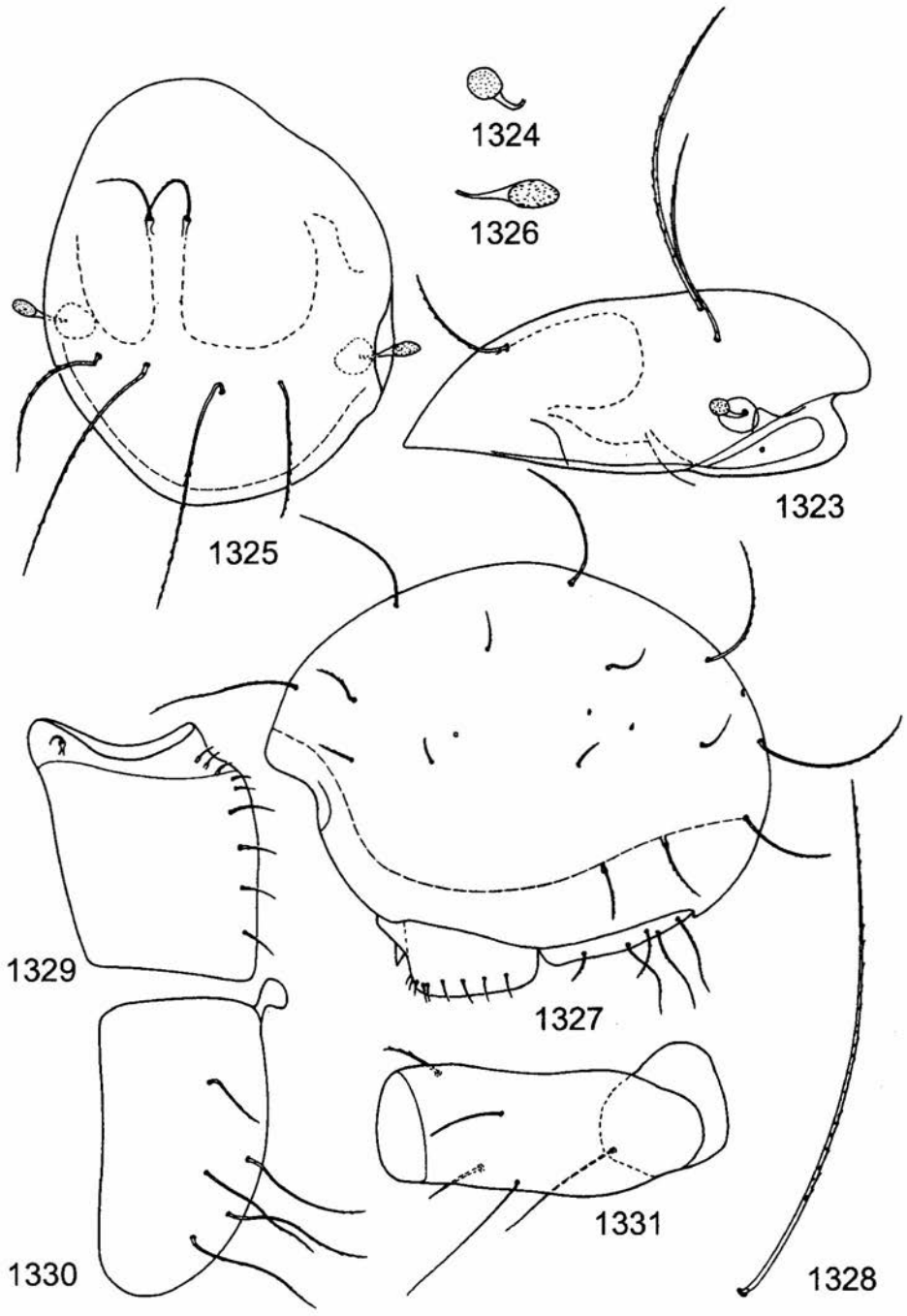
leg. P. GREENSLADE – (16); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV 1989, leg. P. GREENSLADE and D. ROUNSEVELL – (12); Big Sassy Creek, 21 km NNW of Little Swanport, litter, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE – (1); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (1); Mount Victoria, pyrethrum knock-down, tree 1, 41°20'S, 147°50'E, 25 XI 1989, leg. R. COY – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. J. DIGGLE – (1); Mount Mangana, Bruny Island, litter, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE – (1); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, pyrethrum knock-down, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. P. GREENSLADE and J. DIGGLE – (3); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, sweeping, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (18); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, suction, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (1); Rivaux Creek, Huon Pine, 43°10'S, 146°11'E, pyrethrum knock-down, 20 XII 1988, leg. P. GREENSLADE – (5); Savage River, Pipeline Road, suction, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (1); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, yellow pan traps, 41°50'S, 145°37'E, 21 IV 1989, leg. P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, suction (moss), 42°09'S, 147°55'E, 12 V 1989, leg. J. DIGGLE and H. MITCHELL – (3); Big Sassy Creek, 21 km NNW of Little Swanport, soil cores, 42°09'S, 147°55'E, 12 V 1989, leg. D. ROUNDSEVELL – (7); Big Sassy Creek, 21 km NNW of Little Swanport, sweeping and beating, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE – (15).

DISTRIBUTION. South Australia and Tasmania.

Notophthiracarus aquilus sp. nov.

(Figs 1314-1322)

DESCRIPTION. Measurements: Holotype: prodorsum: length 419, width 288, height 172, sensillus 27.8, setae: interlamellar 278, lamellar 68.3, rostral 111, exobothridial 58.2; notogaster: length 874, width 607, height 672, setae: c_1 81.0, h_1 60.7, ps_1 68.3; genitoaggenital plate 222x172, anoadanal plate 283x136. Colour grey to black. Integument finely porose. Prodorsum with distinct, narrow fields. Lateral carinae absent. Sensilli very short, with narrow, short stalk and globular head, covered with fine spines. Interlamellar, lamellar and rostral setae robust, erect, covered with small spines, interlamellar the strongest and the longest, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of short setae (c_1/c_1-d_1=0.39), spiniform, rough. Setae c_{1-3} remote from anterior border, setae c_2 more than setae c_1 and c_3. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 ventrad to h_1 setae. Ventral region. Setae *h* of mentum somewhat shorter than distance between them. Formula of genital setae: 6:3. Five pairs od anoadanal setae of unequal length, $ad_1 > an_1 > ad_2 > an_2 > ad_3$. Setae ad_1, ad_2 and *an* spinose, seta ad_3 rough. Legs. Setal formula of complete type. Setae *d* on femora I situated almost at distal end. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.



1323-1331. *Notophthiracarus ater* sp. nov. (holotype): 1323 - prodorsum, lateral view, 1324 - sensillus, lateral view, 1325 - prodorsum, dorsal view, 1326 - sensillus, dorsal view 1327 - notogaster, lateral view, 1328 - seta h_1, 1329 - genitoaggenital plate, 1330 - anoadanal plate, 1331 - trochanter and femur I

ETYMOLOGY: the specific name *aquilus* is Latin for "dark-coloured", "blackish" an allusion to the body colour of most specimens

DIAGNOSIS. The new species is similar to *Notophthiracarus australis* RAMSAY, 1966 from New Zealand and *N. maculatus* TRAGARDH 1931 from Juan Fernandez island but has shorter gastronotic setae and different length of anoadanal setae. Moreover, *N. australis* has longer lammellar setae and *N. maculatus* longer rostral setae.

MATERIAL. Holotype: New Zealand, Evansdale glen, 11 VI 1966, leg. C.L.W.; one paratype: New Zealand, Waipori Corge, 18 XI 1966, leg. R.R. FORSTER and C.L.W.

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus ater sp. nov.

(Figs 1323-1331)

DESCRIPTION. Measurements: Holotype: prodorsum: length 380, width 258, height 152, sensillus 30.3, setae: interlamellar 303, lamellar 182, rostral 111; notogaster: length 745, width 478, height 580, setae: c_1 237, c_2 45.4, h_1 237, ps_1 217; genitoaggenital plate 192x162, anoadanal plate 288x111. Colour black. Integument finely porose. Prodorsum with distinct fields, subequal in length, dorsal field narrow. Lateral carinae absent. Sensilli short, with short, narrow stalk and globular head, finely spinose. Setae erect, covered with distinct spines along whole length, interlamellar setae the thickest, rostral setae the narrowest, comparative length: *in* > *le* > *ro*. Exobothridial setae vestigial. Notogaster with 15 pairs of setae. Dorsal setae long, c_1/c_1-d_1=1.3, bent anteriorly, gradually tapering and covered with small spines along whole length. Setae ps_{2-4} shorter but of the same shape. Other setae small, spiniform but covered with small spines. Setae c_{1-3} remote from anterior margin, setae c_2 more so than c_1 and c_3. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 ventrad to h_1 setae. Ventral region. Setae *h* of mentum longer than distance between them. Formula of genital setae: 6: 3. Anoadanal plates with robust, long setae covered with small spines, $an > ad_1 > ad_2 > ad_3$. Legs. Formulae of setae of complete type. Setae *d* on femora I straight and situated almost at distal end of article. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.

DIAGNOSIS. The new species is well characterised by the length of the interlamellar and lamellar setae and the heterotrichy of gastronotic setae. Three other species have interlamellar and lamellae setae as long as *Notophthiracarus ater* sp. nov. They are: *Notophthiracarus caliginosus* NIEDBAŁA, 1989 from New Zealand, *N. schizocomus* (HAMMER, 1962) and *N. sicilocomus* (HAMMER, 1962) from Chile. However, none of these species has heterotrichous gastronotic setae and vestigial setae ad_1 and ad_2.

ETYMOLOGY. After its black body.

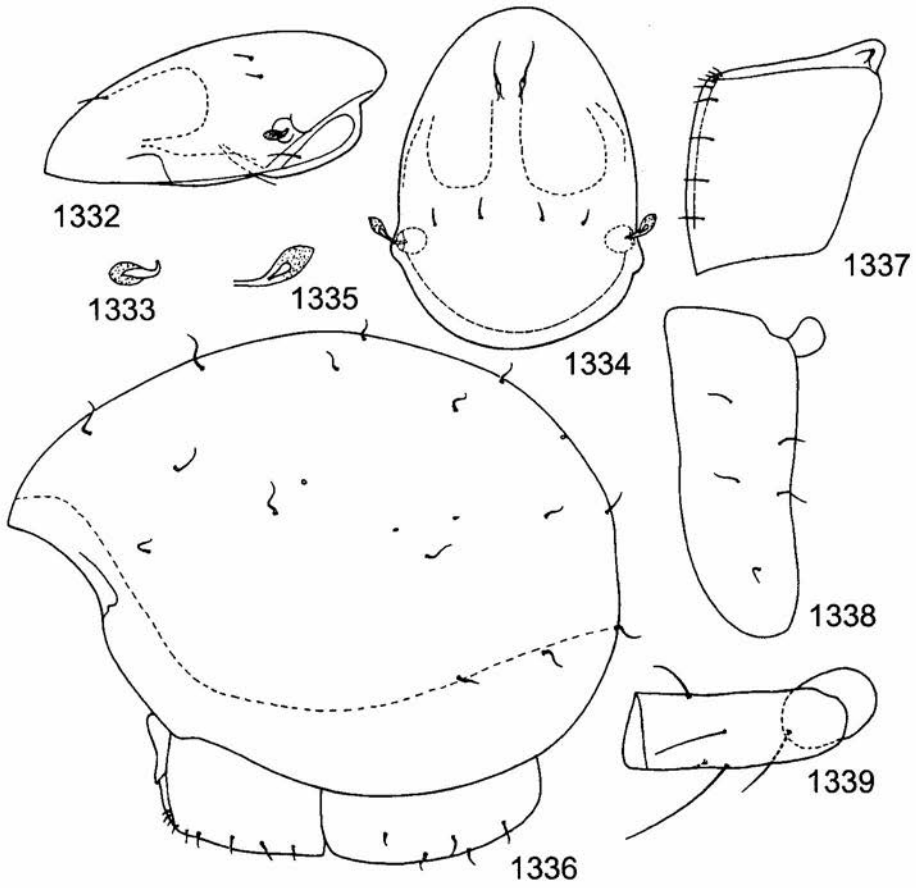
MATERIAL. Holotype and 6 paratypes: New Zealand, Whakapohai Plant Reserve, Balclutha, 21 VI 1966, leg. R.R. FORSTER. Other material. Localities in the Australian region: New Zealand, Ulva Is., Stewart Is., 18 XII 1968, leg. I. SUTHERLAND – (1); Karamea Coast, 28 IX 1966, leg. R.R. FORSTER and C.L.W. – (1); New Zealand, FORSTER – (4).

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus atratus sp. nov.

(Figs 1332-1339)

DESCRIPTION. Measurements: Holotype: prodorsum: length 293, width 202, height 121, sensillus 22.7, setae: interlamellar and lamellar 20.2, rostral 27.8, exobothridial 29.0; notogaster: length 520, width 387, height 399; setae: c_1 30.4, h_1 and ps_1 20.2; genitoaggenital plate 111X80.8, anoadanal plate 202x63.1. Colour black. Integument finely punctate. Prodorsum with narrow fields, subequal in length. Lateral carinae absent. Sensilli short, with short, narrow stalk and globular head with pointed tips, head covered with fine spines. Setae minute, smooth, comparative length: *ex* > *ro* > *in* = *le*. Rostral setae considerably remote from end of rostrum. Notogaster with 15 pairs of short (c_1/c_1-d_1=0.27), flexible, smooth setae. Setae c_{1-3} remote from anterior margin, setae c_1 and c_2 much more so than setae c_3. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 situated ventrad to setae h_1. Ventral region. Setae *h* of infracapitular mentum slightly longer than distance between them. Formula of genital setae: 6: 3. Anoadanal plate with fine setae, similar in shape to



1332-1339. *Notophthiracarus atratus* sp. nov. (holotype): 1332 - prodorsum, lateral view, 1333 - sensillus, lateral view, 1334 - prodorsum, dorsal view, 1335 - sensillus, lateral view, 1336 - notogaster, lateral view, 1337 - genitoaggenital plate, 1338 - anoadanal plate, 1339 - trochanter and femur of leg I

gastronotic setae. Legs. Formula of setae to complete type. Setae *d* on femora I remote from distal end of article. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.

DIAGNOSIS. *Notophthiracarus atratus* sp. nov. can be distinguished from all other species of *Notophthiracarus* on the basis of the shape and length of the body setae. It is somewhat similar to *Notophthiracarus hammeri* NIEDBAŁA, 1987 from Australia but differs in the absence of dorsal carina of prodorsum and a different shape of sensilli.

ETYMOLOGY. The specific name *atratus* is Latin for "clothed in black" and alludes the body colour of the specimen.

MATERIAL. Holotype: New Zealand, Waipona Forest, 6 I 1967, leg. R.R. FORSTER – (1).

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus australis RAMSAY, 1966

(Figs 1340-1342)

Notophthiracaus australis: SPAIN and LUXTON 1971, LUXTON1985, NIEDBAŁA 1986, 1992

DIAGNOSIS. Prodorsum with median region longer than lateral, lateral carinae absent, sensilli short with round head, interlamellar and lamellar setae erect, covered with spines, rostral setae rough, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of robust setae covered with spines, $c_1 = c_1$-d_1, vestigial setae absent, three pairs of lyrifissures *ia*,im, *ip* present. Ventral region, formula of genital setae: 4: 5, anoadanal plates; setae ad_1 and ad_2 vestigial, anal setae longer than ad_3 setae. Chaetotaxy of legs complete.

MATERIAL. Locality in the Australian region: New Zealand, The brothers, Cook Strait, 12-19 V 1956,leg. W. RAMSAY - 22 specimens (RAMSAY 1966).

DISTRIBUTION. New Zealand, perhaps an endemic species.

Notophthiracarus caliginosus NIEDBAŁA, 1989

(Figs 16-22 in NIEDBAŁA 1989)

DIAGNOSIS. Colour blackish, almost black. Prodorsum with narrow median field longer than lateral, anterior to rostral setae incision is present; lateral carinae and posterior furrows absent; sensilli club-like, with short pedicel and rounded head covered with small spines; interlamellar and lamellar setae erect, robust, covered sparsely with small spines, rostral setae spiniform, rough, exobothridial setae fairly long. Notogaster with 15 pairs ofrobust setae covered sparsely with small spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of infracapitular mentum very long, considerably longer than distance between them, formula of genital setae: 4: 5, setae g_6-g_9 and aggenital setae very long; anoadanal plates; ad_1 and ad_2 setae vestigial, anal setae the longest and rough, ad_3 setae covered with fine spines. Leg chaetotaxy complete.

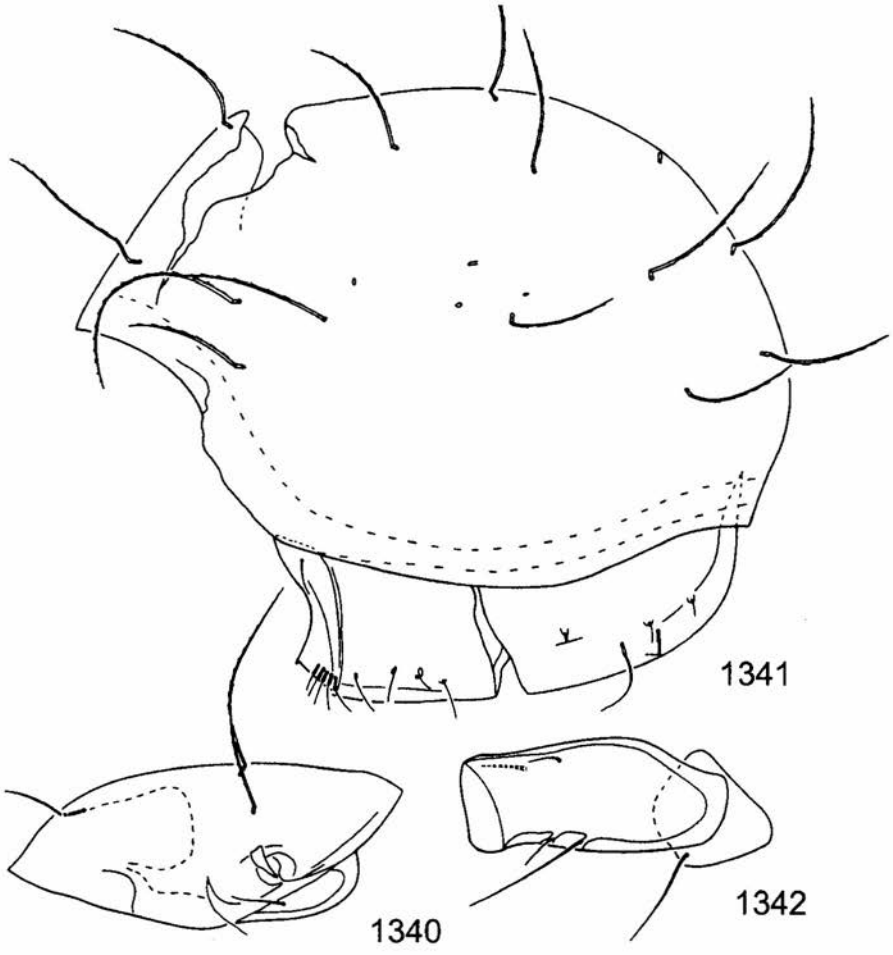
MATERIAL. Locality in the Australian region: New Zealand, Arthurs Pass, 900 m, 31 XII 1983, leg. L. MASNER – (1) (NIEDBAŁA 1989).

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus calugari NIEDBAŁA, 1987

(Figs XL-XLII in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with weak median carina; fields long and narrow, median longer than lateral, with incision between rostral setae; lateral carinae distinct reach sinus, posterior furrows visible; sensilli small, club-like with rounded head, covered with small spines; interlamellar and lamellar setae robust, erect, covered with small spines,rostral setae short, thick, rough, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of long, robust setae covered with small spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum far each other but longer than distance between them; genitoaggenital plates with formula of setae: 5: 4; anoadanal plates; ad_2 setae displaced towards posterior part of plate; all setae rough, $ad_2 > ad_1 = an > ad_3$. Leg chaetotaxy of reduced type, setae *v'* on femora I absent.



1340-1342. *Notophthiracarus australis* RAMSAY, 1966 (paratype): 1340 - prodorsum, lateral view, 1341 - notogaster, lateral view, 1342 - trochanter and femur of leg I

MATERIAL. Localities in the Australian region: Australia, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (3) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Notophthiracarus capillatus NIEDBAŁA, 1989

(Figs 23-29 in NIEDBAŁA 1989)

DIAGNOSIS. Prodorsum with narrow and short fields; lateral carinae and posterior furrows absent; sensilli club-like with head covered with fine spines; interlamellar setae erect, thick, long, sparsely covered with spines, rostral setae robust, rough, lamellar setae spiniform, short. Notogaster with 15 pairs of long, rigid setae covered with fine spines, $c_1 > c_1$-d_1; vestigial setae f_1 posterior to h_1 setae; three pairs of lyrifissures *ia, im, ip* present. Ventral region, setae *h* of mentum very long, considerably longer than distance between them; genital setae short, with formula: 5: 4; anoadanal plates with rigid and rough setae, $ad_2 > ad_1 > an > ad_3$. Legs with setae and solenidia of normal number and position, setae *d* on femora I bifurcate.

MATERIAL. Locality in the Australian region: Australia, NSW New England N.P., 1600 m, *Nothofagus moorei* forest, ferns, 12 II 1984, leg. L. MASNER – (1) (NIEDBAŁA 1989).

DISTRIBUTION. South Australia, probably an endemic species.

Notophthiracarus claviger NIEDBAŁA, 1993

(Figs 69-76 in NIEDBAŁA 1993)

DIAGNOSIS. Integument coarsely pitted and covered with strong cerotegument. Prodorsum with median and lateral fields poorly visible; lateral carinae absent; sensilli with a narrow stalk and rounded head covered with distinct spines, rostral setae spiniform, lamellar setae minute; Notogaster with 15 pairs of normal, robust, thick and minutely barbed setae; vestigial setae and lyrifissures not visible because of the thick layer of cerotegument, only one pair of lyrifissures (*ia*) was observed. Ventral region, infracapitular setae *h* shorter than their mutual distance, formula of genital setae: 6: 3, anoadanal plates; setae ad_2 long and robust, setae ad_1 longer than anal setae, setae ad_3 minute, needle-like. Leg chaetotaxy of complete type.

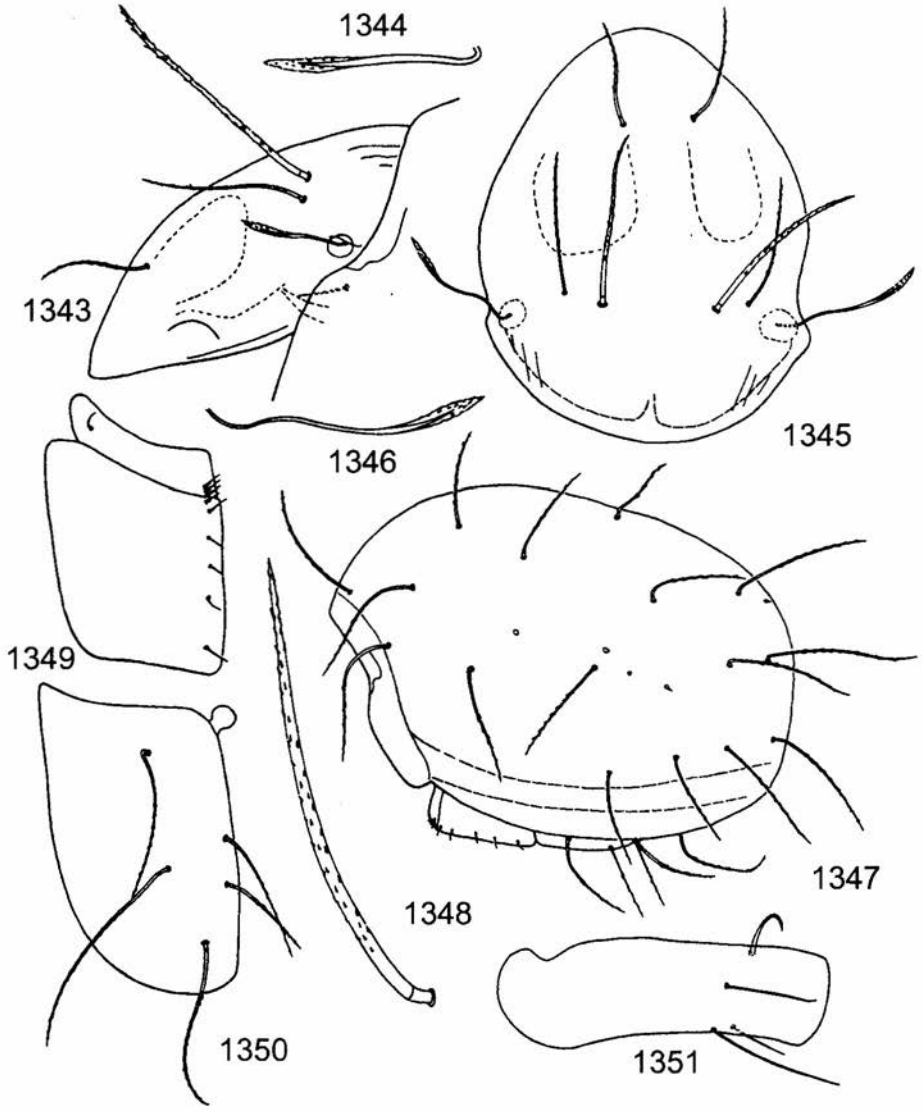
MATERIAL. Localities in the Australian region: New Zealand, Lake Okataina , 1.3 mi. N, at 1250 ft, Luxuriant podocarp-hardwood forest, much adult lancewood, litter under, beetwen two large podocarps, no wood, 10 IV 1965, leg. N.A. WALKER – (1) (NIEDBAŁA 1993); C. Reinga, 7 I 1967, leg. R.R. FORSTER – (4); Mt. Tegrost below Dawson Falls, at 500 m, Kamahi, grisilinea, 23 I 1972, leg. G.W. RAMSAY and N.A. WALKER – (1)

DISTRIBUTION. New Zealand, probably an endemic species

Notophthiracarus comatus sp. nov.

(Figs 1343-1351)

DESCRIPTION. Measurements: Holotype: prodorsum: length 343, width 257, height 151, sensillus 88.5, setae: interlamellar 215, lamellar 126, rostral 93.6, exobothridial 40.5; notogaster: length 718, width 497, height 515, setae: c_1 227, h_1 192, ps_1 227; genitoaggenital plate 182x136, anoadanal plate 242x136. Colour brown. Integument finely punctate. Prodorsum with distinct, short fields. Posterior furrows present, carinae absent. Sensilli long, with narrow stalk and spindle-shaped, elongated head, spinose on distal half. Interlamellar setae long, thick, erect, covered with spines along whole length. Lamellar and rostral setae narrower, shorter, spinose, compara-



1343-1351. *Notophthiracarus comatus* sp. nov. (holotype): 1343 - prodorsum, lateral view, 1344 - sensillus, lateral view, 1345 - prodorsum, dorsal view, 1346 - sensillus, dorsal view, 1347 - notogaster, lateral view, 1348 - seta h_1, 1349 - genitoaggenital plate, 1350 - anoadanal plate, 1351 - femur of leg I

tive length: *in* > *le* > *ro* > *ex*. Notogaster with 16 pairs of long setae (c_1/c_1-d_1=1.18) robust, covered with spines along whole length. Additional setae in *ps* row. Setae c_1 and c_3 close to anterior margin, setae c_2 remote from margin. Three pairs of lyrifissures *ia, im, ip* present. Vestigial setae f_1 situated ventrad to h_1 setae. Ventral region. Setae *h* of mentum somewhat shorter than distance between them. Formula of genital setae: 5: 4. Anoadanal plates with setae long and spinose, adanal setae longer than anal. Legs. Formula of setae of complete type. Setae *d* on femora I remote from distal end of article. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.

DIAGNOSIS: The species differs significantly from its congeners in shape of sensilli, shape and length of the interlamellar, lamellar and gastronotic setae.

ETYMOLOGY. the specific name *comatus* is Latin for "hairy" and alludes to the length of gastronotic and adanal setae.

REMARK. It is the second (apart from *N. kamilli*) species of genus *Notophthiracarus* with more than 15 pairs of notogastral setae.

MATERIAL. Holotype and 2 paratypes: New Zealand, Norsewood, Motor Camp, 14 III 1966, leg. C.L.W. Other material. Locality in the Australian region: New Zealand, Desert Rd., 10 I 1967, leg. R.R. FORSTER – (1)

DISTRIBUTION: New Zealand, probably an endemic species.

Notophthiracarus comparativus NIEDBAŁA et COLLOFF, 1997

(Figs 107-114 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with distinct fields; median field behind rostral setae with deep sinus; lateral carinae absent; sensilli club-like, with short stalk and globular head, spinose distally; interlamellar setae well-developed, spinose distally, similar morphologically to notogastral setae, rostral and lamellar setae setiform, spinose; exobothridial setae vestigial, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of short setae (c_1/c_1-d_1 = 0.52), weakly spinose distally, with blunted tip; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum longer than distance between them; genital setae minute with formula: 5: 4;setae of anoadanal plates rough, $ad_2 > ad_1 > an > ad_3$. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I remote from distal end, forked distally.

MATERIAL. Localities in the Australian region: Tasmania, Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. J. DIGGLE – (2); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. B. BROWN – (7); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. H. MITCHELL – (3); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. L. ROBERTSON – (3); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. H. MITCHELL – (83); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, suction, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (19); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. P. GREENSLADE and J. DIGGLE –

(3); Spero River, litter, 42°38'S, 145°22'E, 23 II 1989, leg. J. MARSDEN-SMEDLY – (1); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, moss on fallen log, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (3); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, moss on ground, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (32); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, suction, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (8) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Notophthiracarus consimilis NIEDBAŁA et COLLOFF, 1997

(Figs 115-123 after NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with distinct median carina, lateral carinae absent; fields partially obscured by pitted microsculpture; sensilli club-shaped with long, narrow stalk and small globose head with irregular margin; interlamellar setae long, spinose distally, emerging vertically from prodorsum, morphologically similar to those of notogaster; lamellar and rostral setae setiform, rough, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of well-developed setae (c_1/c_1-d_1=0.74), spinose distally; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum shorter than distance between them; genital setal formula: 5: 4; anoadanal setal formula: 3: 2; setae ad_3 minute, $ad_2 > ad_3 > an > ad_1$. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I remote from distal end, forked distally.

MATERIAL. Localities in the Australian region: Tasmania, Rivaux Creek, Huon Pine litter, 43°11'S, 146°11'E, 20 XII 1988, leg. P. GREENSLADE (NIEDBAŁA & COLLOFF 1997). Australia, Mt. Nebo, S.E.Q., Berleseate leaf, 28 III 1967, leg. J.B. WILLIAMS – (6).

DISTRIBUTION. North Australia and Tasmania.

Notophthiracarus conspicuus NIEDBAŁA, 1989

(Figs 30-36 in NIEDBAŁA 1989)

DIAGNOSIS. Prodorsum with narrow fields, median longer than lateral; lateral carinae reach sinus; posterior furrows absent; sensilli with globular head covered with small spines, setae short, fine. Notogaster with 15 pairs of very long, flagelliform setae, $c_1 > c_1$-d_1, setaec_3 very short, vestigial setaef_1 posterior to $h_1$setae; two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 6: 3; anoadanal plates; adanal setae very long, considerably longer than spiniform anal setae, $ad_2 > ad_3 > ad_1$. Leg chaetotaxy of complete type.

MATERIAL. Locality in the Australian region: New Zealand, Waipona Kauri Forest, 11 XII 1983, leg. L. MASNER – (1) (NIEDBAŁA 1989).

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus distinctus NIEDBAŁA, 1989

(Figs 37-43 in NIEDBAŁA, 1989)

DIAGNOSIS. Prodorsum with weak, narrow fields, median longer than lateral; median carina remarkable and very large in anterior part; lateral carinae reach sinus; posterior furrows absent; sensilli long, fusiform, narrow, pointed distally, rough; setae short, spiniform, smooth, exobothridial setae vestigial. Notogaster with weak, anterior cowl, 15 pairs of short and fine setae, $c_1 < c_1$-d_1; vestigial setae and lyrifissures not visible. Ventral region, setae *h* of mentum considerably longer than distance between them; genital setae very short, with formula: 4: 5;anal setae longer than adanal. Leg chaetotaxy of reduced type, setae *v'* on femora I absent.

MATERIAL. Localities in the Australian region: Australia, QLD, Mosman Gorge, 30 m, 23 II 1984, leg. L. MASNER – (1) (NIEDBAŁA 1989); Lamington Nat. Park, S.E.Q., extracted from litter, 6 III 1965, leg. B. CANTRELL – (2).

DISTRIBUTION. North Australia, probably an endemic species.

Notophthiracarus fatidicus (NIEDBAŁA, 1982)

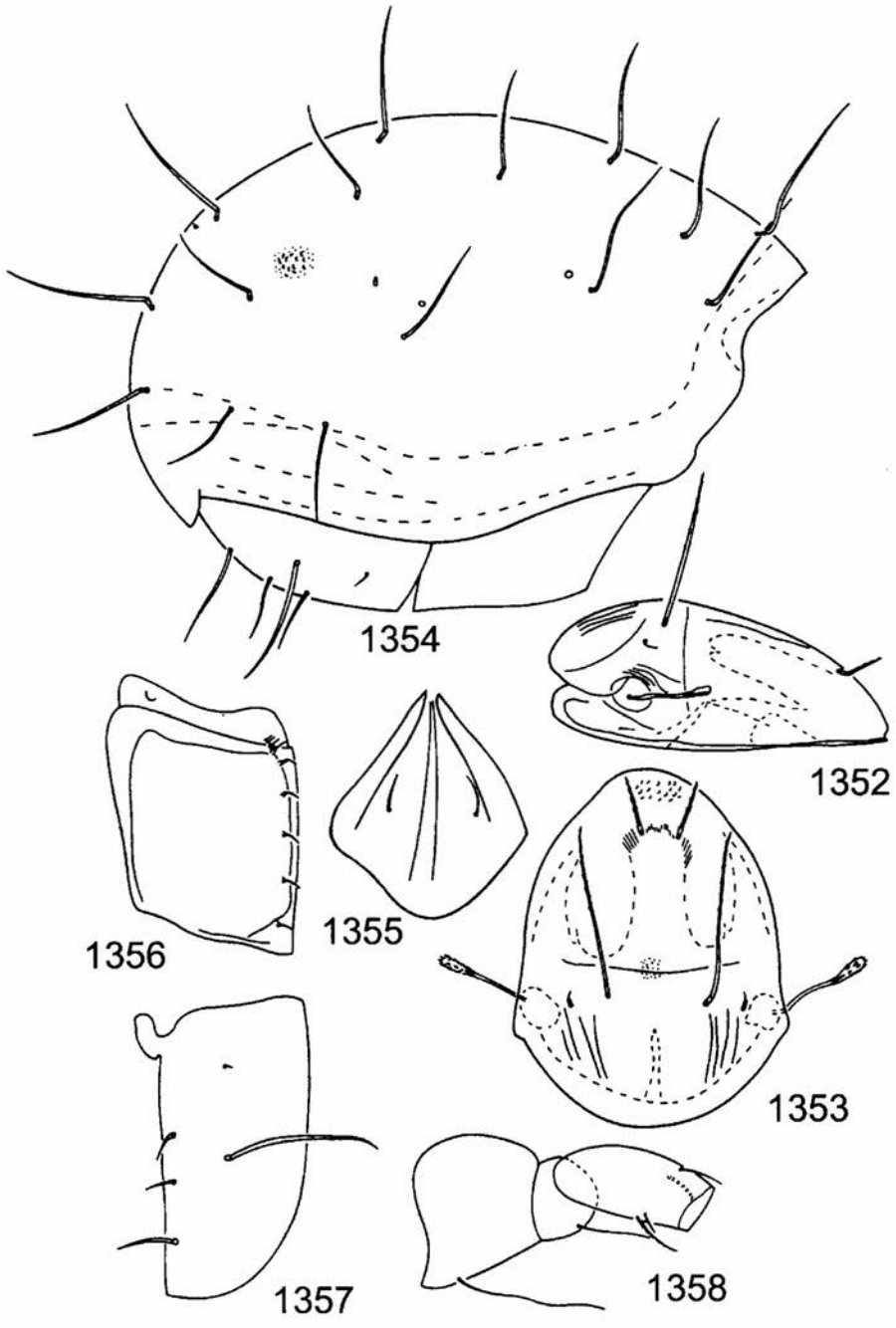
(Figs 1352-1358)

Hoplophthiracarus fatidicus NIEDBAŁA, 1982; BALOGH and BALOGH 1986
Notophthiracarus fatidicus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum finely striated distally, lateral fields with tooth in proximal part, lateral carinae and posterior furrows distinct;sensilli long, with narrowpedicel and round head covered with thin spines; interlamellar and rostral setae thick, erect, covered with spines, *in* > *ro*; lamellar and exobothridial setae minute. Notogaster with 15 pairs of robust, dagger-shaped setae covered with small spines ($c_1 < c_1$-d_1); vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum shorter than distance between them;formula of genital setae: 5: 4, anoadanal plates; setae ad_2 the longest and the thickest, anal setae shorter than ad_1 and ad_2 setae, setae ad_3 minute. Leg chaetotaxy complete.

MATERIAL. Localities in the Australian region: Papua New Guinea, Mt. Wilhelm, at 3000 m, thick litter and rich mosses in mixed forest, 10 IX 1979, leg. J. MICHEJDA – (13) (NIEDBAŁA 1982); Mt.Wilhelm, ca 3200 m, near Kambugomambuno, moss forest, litter, 14IX 1968, leg. J. BALOGH - 2 specimens (BALOGH and BALOGH 1986); Mt. Wilhelm, at 2930 m, dry litter in leafy forest, 10 IX 1979, leg. J. BŁOSZYK – (20). Australia, QLD Joalah Nat. Park, at 380 m, 27° 55'S, 153° 12'E, rainforest, 14 III 1973, leg. R.J KOHOUT – (4); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (4); Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (20); New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. KOHOUT – (1).

DISTRIBUTION. Papua New Guinea, North and South Australia.

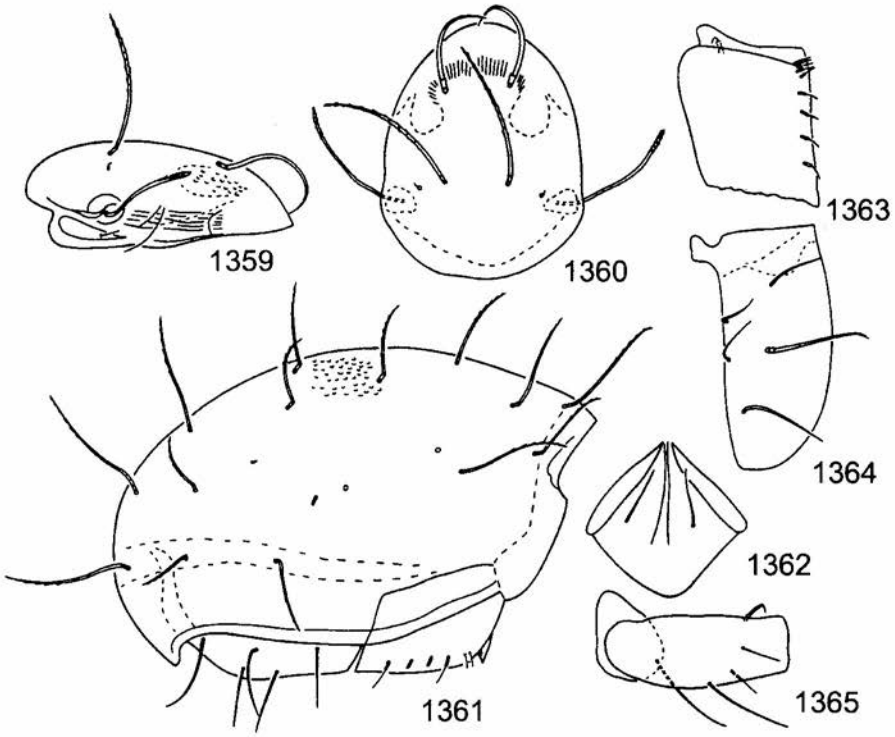


1352-1358. *Notophthiracarus fatidicus* (Niedbała, 1982) (holotype): 1352 - prodorsum, lateral view, 1353 - prodorsum, dorsal view, 1354 - notogaster, lateral view, 1355 - infracapitulum, 1356 - genitoaggenital plate, 1357 - anoadanal plate, 1358 - epimera, trochanter and femur of leg I

Notophthiracarus fecundus sp. nov.

(Figs 1355-1363)

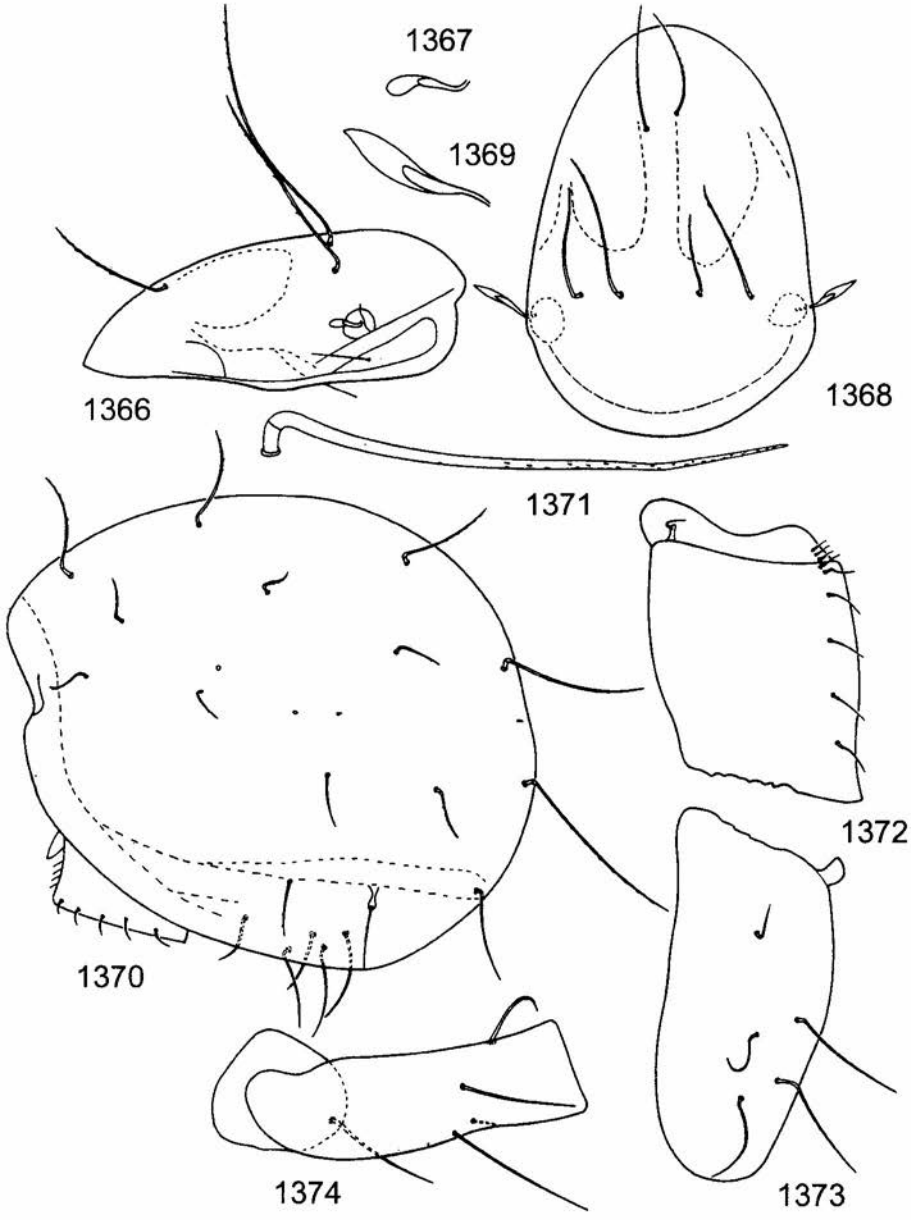
DESCRIPTION. Measurements: Holotype: prodorsum: length 425, width 298, height 165, sensillus 40.4, setae: interlamellar 293, lamellar 207, rostral 126, exobothridial 50.5; notogaster: length 837, height 690, setae: c_1 177, c_2 85.8, h_1 227, ps_1 263; genitoaggenital plate 192x162, anoadanal plate 283x116. Body colour brown. Integumant finelly porose. Prodorsum with well developed, narrow fields, median field slightly longer than lateral. Lateral carinae absent. Sensilli short, spindle-shaped, smooth. Interlamellar, lamellar and rostral setae robust, erect, spinose, comparative length: *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of heteromorphic setae. Dorsal setae longer (c_1/c_1-d_1=0.8) especialy ps_1 and h_1, thick, tapering gradually and sparsely spinose. Other setae shorter (only ps_2 and ps_3 somewhat longer), spinose. Setae c_{1-3} remote from anterior margin, seta c_2 much more so than setae c_1 and c_3. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 positioned ventrad to h_1 setae. Ventral region, Infracapitular mentum with setae *h* longer than their mutual distance. Genitoaggenital plates with formula of genital setae: 5:4. Anoadanal plates with coarse setae, ad_1 > *an* > ad_2 > ad_3. Legs. Chaetotaxy of complete type. Setae *d* on femora I robust and remote from distal end of article. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.



1359-1365. *Notophthiracarus fulvus* (NIEDBALA, 1985) (holotype): 1359 - prodorsum, lateral view, 1360 - prodorsum, dorsal view, 1361 - notogaster, lateral view, 1362 - mentum of infracapitulum, 1363 - genitoaggenital plate, 1364 - anoadanal plate, 1365 - trochanter and femur of leg I

DIAGNOSIS. The new species can be easily distinguished by the heterogenous shape of gastronotic setae. The most similar species: *Notophthiracarus australis*, RAMSAY, 1966, *N. caliginosus* NIEDBAŁA, 1989 and *N. sicilicomus* (HAMMER, 1962) have differently shaped sensilli and vestigial setae ad_1 and ad_2.

ETYMOLOGY: the specific name *fecundus* is Latin for "rich", "abundant" and alludes to the body rich in setae of different length.



1366-1374. *Notophthiracarus fecundus* sp. nov. (holotype): 1366 - prodorsum, lateral view, 1367 - sensillus, lateral view, 1368 - prodorsum, dorsal view, 1369 - sensillus, dorsal view, 1370 - notogaster, lateral view, 1371 - seta h_1, 1372 - genitoaggenital platc, 1373 - anoadanal platc, 1374 - trochanter and femur of leg I

MATERIAL. Holotype: New Zealand, South Is., Brods Bay Shore, Lake Te Anau, Fiordland National Park, Silver, mountain beech, dry litter, fungusy, 21 II 1965, leg. N.A. WALKER.

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus flagrus sp. nov.

(Figs 1375-1380)

DESCRIPTION. Measurements: Holotype: prodorsum: length 268, width 212, height 101, sensillus 114, setae: interlamellar 152, rostral 81, exobothridial 40.5; notogaster: length 505, width 379, height 303, setae: c_1 121, h_1 106, ps_1 96,1; genitoaggenital plate 121x101, anoadanal plate 217x106. Colour brown, microsculpture of integument weakly foveate. Prodorsum with weak, short fields, lateral carinae absent. Sensilli long, narrow, with distal end flagelliform and covered with small spines. Setae long, attenuate, smooth, only lamellar setae minute. Notogaster with 15 pairs of attenuate setae covered with small spines in distal half, setae c_1 and c_3 situated near anterior border, setae c_2 remote from border. Vestigial setae f_1 located posterior to h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region. Setae *h* of mentum shorter than distance between them. Formula of genital setae 4+1: 4. Anoadanal plates with setae flagelliform. Legs. Formula of setae and solenidia of complete type.

DIAGNOSIS. The new species is similar to *N. ramsai* NIEDBAŁA, 1987 but differs in the flagelliform sensilli, anal and adanal setae.

ETYMOLOGY. The specific epithet *flagrum* is Latin for "a whip bin" and alludes to flagelliform sensilli, anal and adanal setae.

MATERIAL. Holotype: Australia, Lamington National Park, S.E.Q., extracted from litter, 21. 11. 1965, leg. B. CANTRELL.

DISTRIBUTION. North Australia, probably an endemic species.

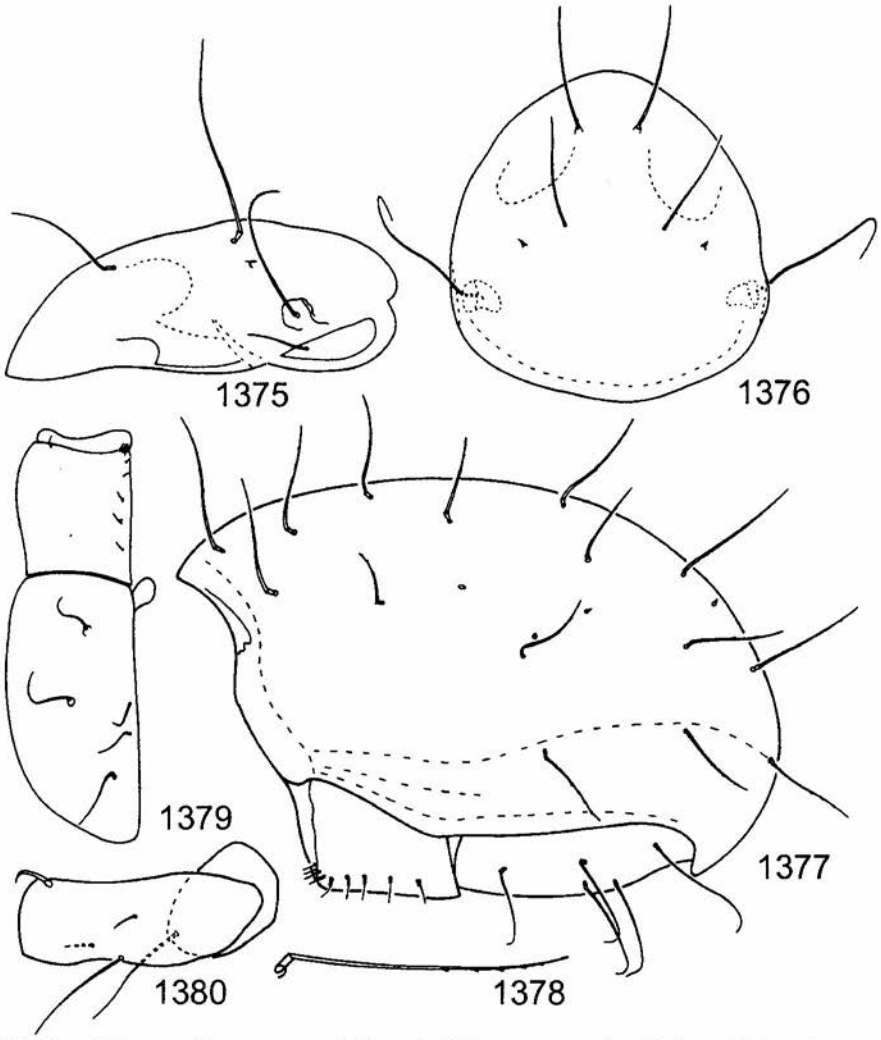
Notophthiracarus flexiloquus NIEDBAŁA, 1989

(Figs 44-51 in NIEDBAŁA 1989)

DIAGNOSIS. Prodorsum with fields long and narrow, median longer than lateral; lateral carinae short, reach rib; posterior furrows present; sensilli club-like with short stalk and rounded, smooth head; setae short, spiniform, rough. Notogaster with 15 pairs of spiniform, rough and short setae, $c_1 < c_1\text{-}d_1$, vestigial setae f_1 posterior to h_1 setae; all lyrifissures: *ia, im,* ip, *ips* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital setae fine with formula: 5: 4; anoadanal plates each with rough setae, $ad_2 > ad_1 > an > ad_3$. Leg chaetotaxy complete.

MATERIAL. Localities in the Australian region: Tasmania, Hellyer Riv. gorge, temperate rain forest, 11 I 1984, leg. L. MASNER – (3) (NIEDBAŁA 1989); Mount Victoria, pyrethrum knock-dawn, 41°20'S, 147°50'E, tree, 25 XI 1989, leg. R. COY – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. L. ROBERTSON – (8); Savage River, Pipeline Road, pyrethrum knock-down, *Sassafras*, 41°30'S, 145°20'E, 19 IV 1989, leg. H. MITCHELL – (20); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus*

cunninghamii, 41°30'S, 145°20'E, 19 IV 1989, leg. J. DIGGLE – (2); Savage River, Pipeline Road, moss on ground, 41°30'S, 145°20'E, 21 IV 1989, leg. H. MITCHELL – (6); Savage River, Pipeline Road, pyrethrum knock-down, Leatherwood, 41°30'S, 145°20'E, 20 IV 1989, leg. B. BROWN – (14); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 20 IV 1989, leg. L. ROBERTSON – (9); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. H. MITCHELL – (3); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. J. DIGGLE – (1); Bruny Island, Mount Mangana, Celery Top Pine, pyrethrum knock-down, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (2); Bruny Island, Mount Mangana,



1375-1380. *Notophthiracarus flagrus* sp. nov. (holotype): 1375 - prodorsum, lateral view, 1376 - prodorsum, dorsal view, 1377 - notogaster, lateral view, 1378 - seta c_1, 1379 - genitoaggenital and anoadanal plates, 1380 - trochanter and femur of leg I

pitfall traps, 43°21'S, 147°13'E, 4-9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (6); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, suction, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (2); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, moss at base of myrtle trunk, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (1); Bruny Island, Mount Mangana, pyrethrum knock-down, dead tree, 43°21'S, 147°13'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (1); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, moss on dead log, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (1); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, sweeping, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (8) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Notophthiracarus fulvus (NIEDBAŁA, 1985)

(Figs 1359-1365)

Hoplophthiracarus fulvus NIEDBAŁA, 1985
Notophthiracarus fulvus: NIEDBAŁA 1986, 1992

DIAGNOSIS. Median field of prodorsum very broad, lateral fields narrow; lateral carinae and posterior furrows absent;sensilli long, thick, robust without enlarged head, covered with small spines at distal end, interlamellar setae very long, thick, covered with spines in distal half, lamellar setae minute, rostral setae thicker than interlamellar setae, long, curved downwards and finely rough, *in* > *ro* > *ex* > *le*. Notogaster with 15 pairs of robust setae, fairly long, $c_1 = c_1$-d_1, covered with spines in distal half, vestigial setae f_1 absent, two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them, formula of genital setae: 6: 3, anoadanal plates; adanal setae longer and thicker than anal setae. Leg chaetotaxy reduced, setae *a'* on tarsi II absent.

MATERIAL. Localities in the Australian region: Papua New Guinea, Mt. Wilhelm, 3000 m, litter and mosses frm mixed forest, 10 IX 1979, leg. J. BŁOSZYK - 2 specimens (NIEDBAŁA 1985b); Mt. Wilhelm, at 2930 m, dry litter in leafy forest, 10 IX 1979, leg. J. BŁOSZYK – (2)

DISTRIBUTION. Papua New Guinea, perhaps an endemic species.

Notophthiracarus hammeni NIEDBAŁA, 1987

(Figs XLIII, XLIV in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with normal fields; lateral carinae absent; posterior furrows present; sensilli with rounded, spinose head, interlamellar setae erect, long, thick, covered with small spines, rostral setae long and rough, lamellar setae fine, spiniform and smooth, *in* > *ro* > *le* = *ex*. Notogaster with 15 pairs of robust, fairly long setae covered with small spines, dorsal setae longer than other setae; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* et *im* present. Ventral region, setae *h* of infracapitulum longer than distance between them; genitoaggenital plates

each with 10 genital setae with formula: 5: 5; anoadanal plates with rough setae, $ad_2 > ad_1 = ad_3 > an$. Leg chaetotaxy complete.

MATERIAL. Locality in the Australian region: Australia, New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. KOHOUT – (7) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Notophthiracarus hammeri NIEDBAŁA, 1987

(Figs XLV, XLVI in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with protuberant median carina; median field not visible, lateral fields distinct; lateral carinae absent; posterior furrows remarkable; sensilli short, smooth, club-like; setae very short, smooth, spiniform, *ex* > *ro* > *in* > *le*. Notogaster with 15 pairs of fine and spiniform setae; vestigial setae f_1 posterior to h_1 setae; three pairs of lyrifissures: *ia, im, ip* present. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates each with 9 genital setae with formula: 5: 4; anoadanal plates with very small setae. Leg chaetotaxy of incomplete type, setae *v'* on femora I absent.

MATERIAL. Locality in the Australian region: Australia, New South Wales, Clyde Mtn., 35° 33'S, 149° 57'E, rainforest, at 800 m, 15 VII 1973, leg. R.J. KOHOUT – (4) (NIEDBAŁA 1987).

DISTRIBUTION. South Australia, probably an endemic species.

Notophthiracarus incomparabilis sp. nov.

(Figs 1381-1389)

DESCRIPTION. Measurements: Holotype: prodorsum: length 430, width 313, height 177, sensillus 40.4, setae: interlamellar 353, rostral 20.2, exobothridial 50.5; notogaster: length 1030, width 625, height 699, setae: c_1 349, h_1 279, ps_1 304; genitoaggenital plate 202x192, anoadanal plate 379x207. Colour light brown. Integument finely punctate and very weakly foveolate, pits visible only on margins of body. Prodorsum. Median field narrow, longer than lateral fields. Lateral carinae short. Sensilli short, with rounded head pointed sharply and covered with fine spines. Interlamellar setae very long and robust arising perpendicularly from the surface, spinose along whole length. Rostral and lamellar setae minute, smooth, comparative length: *ex* > *ro* > *le*. Notogaster with 15 pairs of robust, long, spinose setae, especially dorsal ones (c_1/c_1-d_1=1.37). Setae c_{1-3} remote from anterior margin, setae c_2 much more so than setae c_1 and c_3. Setae ps_3 and ps_4 displaced towards posterior end, setae ps_4 the shortest, positioned more posteriorly than setae ad_1. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 situated ventrad of h_1 setae. Ventral region. Setae *h* of mentum longer than distance between them. Formula of genital setae: 5: 4. Anoadanal plates; etae ad_1 and ad_2 longer and thicker than anal setae, all coarse. Seta ad_3 small, slim, smooth. Legs. Chaetotaxy of complete type. Setae *d* on femora I robust, situated almost in middle of article, on level of *v"* seta. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.

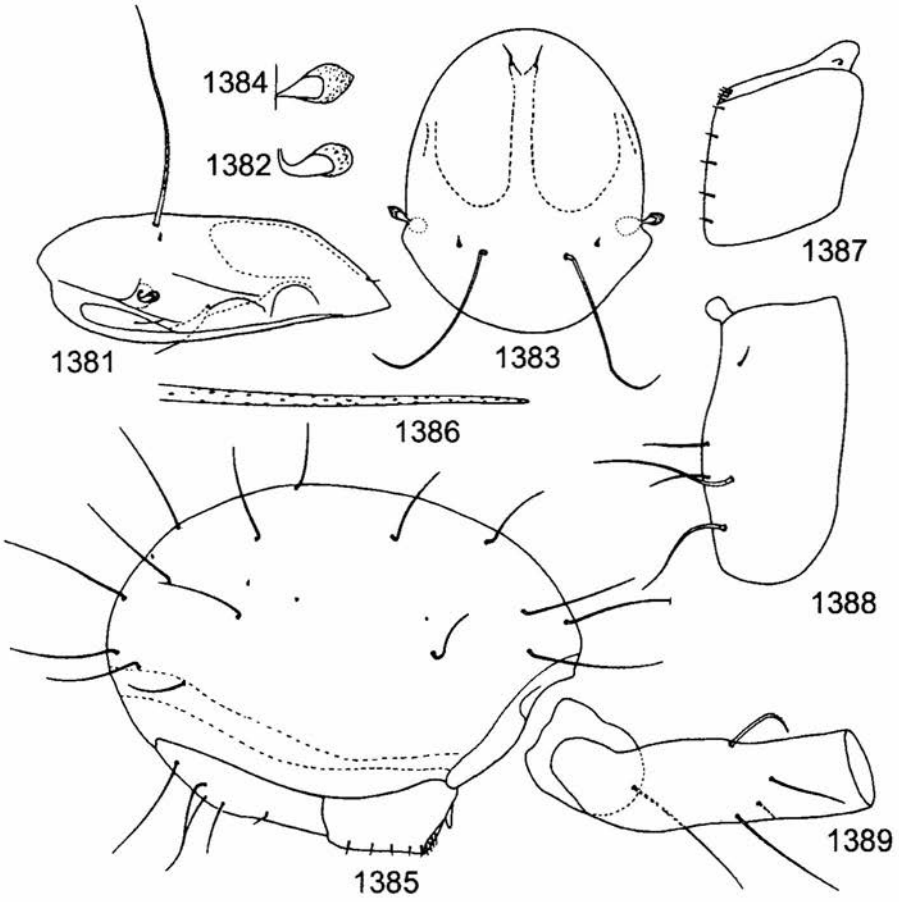
DIAGNOSIS. This species differs from other known members of the genus in the following characters: rounded, short sensilli of the prodorsum, lamellar, rostral and

ad_3 setae minute, setae ps_3 and ps_4 on notogaster displaced posterad. It is slightly similar to *Notophthiracarus mahunkai* NIEDBAŁA, 1987 but the shape of their sensilli is different, the gastronotic setae are longer and the setae formula of legs is of the "complete type".

ETYMOLOGY. The specific epithet *incomparabilis* meaning "incomparable" and refers to the weak morphological similarity of this species to its congeners.

MATERIAL. Holotype and 9 paratypes: New Zealand, L. Monk, beech, litter, 28 I 1960, leg. A. CHAPMAN. Other material. Localities in the Australian region: New Zealand, Cascade Ck (Creek?), moss, 16 II 1966, leg. R.R. FORSTER and C.L.WILTON – (22); Jackson Bay, 15 III 1966, leg. R.R. FORSTER – (1); New Whakapohai R.N. of Haast, 13 II 1966, leg. D.A. MCHUGH – (17); Waituhi, Tanmarunui, 10 I 1967, leg. R.R. FORSTER – (16).

DISTRIBUTION. New Zealand, probably an endemic species.



1381-1389. *Notophthiracarus incomparabilis* sp. nov. (holotype): 1381 - prodorsum, lateral view, 1382 - sensillus, lateral view, 1383 - prodorsum, dorsal view, 1384 - sensillus, dorsal view, 1385 - notogaster, lateral view, 1386 - distal part of seta h_1, 1387 - genitoaggenital plate, 1388 - anoadanal plate, 1389 - trochanter and femur of leg I

Notophthiracarus indubitatus NIEDBAŁA et COLLOFF, 1997

(Figs 124-130 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with distinct posterior furrows; fields narrow, median longer than lateral; median carina robust, lateral carinae absent; sensilli club-like, with short, narrow stalk and globular head; setae short, spiniform, rough, *ro* > *in* > *ex* > *le*. Notogaster with 15 pairs of moderately short, stout setae (c_1/c_1-d_1=0.76), spinose distally except small, smooth, spiniform c_3 setae, dorsal setae longer than lateral; vestigial setae f_1 inserted ventrad to h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, setae *h* of mentum slightly longer than distance between them; formula of genital setae: 5: 4; anoadanal plates; comparative lengths of setae: $ad_2 > ad_1 > an > ad_3$. Legs, formulae of setae and solenidia of complete type, setae *d* on femora I robust, curved, positioned medially.

MATERIAL. Localities in the Australian region: Tasmania, Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (1); Savage River, Pipeline Road, pyrethrum knock-down, *Nothofagus cunninghamii*, 41°30'S, 145°20'E, 19 IV 1989, leg. J. DIGGLE – (2); Bradshaws Road, below Mount Murchison, Loftus Hill Memorial Reserve, pyrethrum knock-down, *Nothofagus cunninghamii* – closed, 41°50'S, 145°37'E, 18 IV 1989, leg. H. MITCHELL – (1); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, moss at base of myrtle trunk, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (16); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. P. GREENSLADE and J. DIGGLE – (20); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, north track, litter, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (16); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, moss on fallen log, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (13); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, moss on ground, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (35); Sandspit River, forestry reserve, soil cores, 42°42'S, 147°52'E, 22 V 1989, leg. J. DIGGLE – (2); Sandpit River, litter, forestry reserve, 42°42'S, 147°52'E, 22 V 1989, leg. P. GREENSLADE – (30); Mount Victoria, pyrethrum knock-down, tree 1, 41°20'S, 147°50'E, 25 XI 1989, leg. R. COY – (2); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, sweeping, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (2); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, south track, suction, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. J. DIGGLE – (6) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Notophthiracarus kamilii NIEDBAŁA, 1987

(Figs XLVII-XLIX in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with normal fields; lateral carinae and posterior furrows absent; sensilli fusiform, narrow; setae fine, smooth, spiniform, rostral setae situated far from rostrum end, *ex* > *ro* > *in* > *le*. Notogaster with 16 pairs of fine setae; vestigial

setae f_1 posterior to h_1 setae; three pairs of lyrifissures *ia, im, ips* present. Ventral region, setae *h* of infracapitulum shorter than distance between them; genitoaggenital plates with with formula of genital setae: 5: 4; anoadanal plates; setae ad_2 et ad_1 longer than other setae. Leg chaetotaxy incomplete, setae *l'* on femora I absent.

MATERIAL. Locality in the Australian region: Australia, QLD, Mt. Bellenden - ker (Summit), 17° 16'S, 145° 51'E, moss forest, at 1560 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (8) (NIEDBAŁA 1987).

DISTRIBUTION. North Australia, probably an endemic species.

Notophthiracarus lee NIEDBAŁA, 1987

(Figs LV-LVII in NIEDBALA 1987)

DIAGNOSIS. Prodorsum without fields; lateral carinae reach sinus; posterior furrows weak; sensilli, setiform; interlamellar setae erect, robust, covered with spines at distal end; lamellar and rostral setae spiniform, rough, *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of robust setae covered with small spines at distal end; vestigial setae f_1 at the level of or posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of infracapitulum longer than distance between them; genitoaggenital setae with formula of genital setae: 5: 4; anoadanal plates with rough setae, $ad_2 > ad_1 > an > ad_3$; Leg chaetotaxy complete, setae *d* on femora I with bifurcate distal end.

MATERIAL. Localities in the Australian region: Australia, WA. 7 ml N of Walpole, 34° 59'S, 116° 44'E, at 180 m, Karri Forest Leafmould, 23 X 1969, leg. R.W. TAYLOR – (2) (NIEDBAŁA 1987); New South Wales, Blue Mountains, Lithgow, *Eucalyptus* sp. forest, litter sample, 12 III 1989, leg. D.A. KRIVOLUCKIJ – (48).

DISTRIBUTION. West and South Australia.

Notophthiracarus lionsi NIEDBAŁA, 1987

(Figs L-LII in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with normal fields; lateral carinae absent; posterior furrows weak; sensilli with narrow stalk and rounded head covered with small spines; setae spiniform, smooth, *ro* > *in* > *ex* > *le*. Notogaster with 15 pairs of robust setae covered with spines; vesitiagial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im, ip* et *ips* well visible. Ventral region, setae *h* of mentum longer than distance between them; genitoaggenital plates with formula of genital setae: 6: 3; anoadanal plates each with rough setae, $ad_2 > ad_1 > an > ad_3$. Leg chaetotaxy complete, setae *d* on femora I with bifurcate distal end.

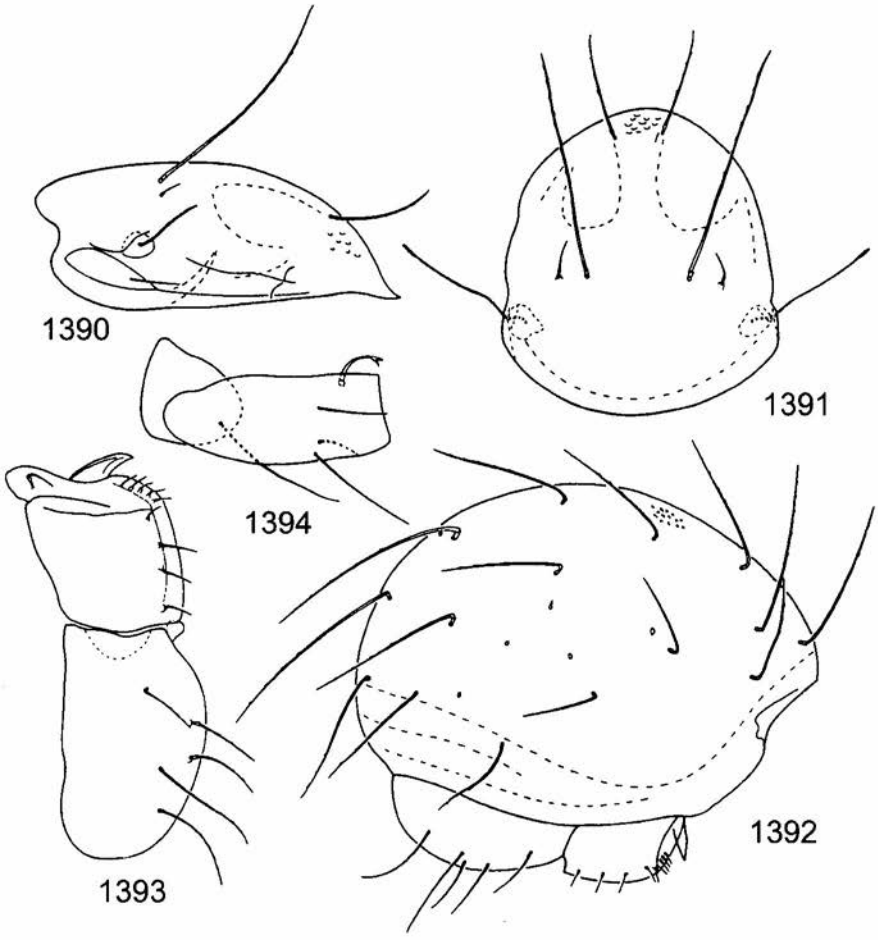
MATERIAL. Localities in the Australian region: Australia, QLD, Mt. Bellenden - ker (Summit), 17° 16'S, 145° 51'E, moss forest, at 1560 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (5) (NIEDBAŁA 1987); QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (7); QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (16); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1);QLD Seymour Range, 50 m, 17° 26'S, 146° 00'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (8).

DISTRIBUTION. North Australia, probably an endemic species.

Notophthiracarus longisetus sp. nov.

(Figs 1390-1394)

DESCRIPTION. Measurements: Holotype: prodorsum: length 369, width 263, height 146, sensilli 125, setae: interlamellar 237, lamellar 25.2, rostral 121, exobothridial 55.5; notogaster: length 707, width 434, height 525, setae: c_1 257, h_1 and ps_1 323; genitoaggenital plate 167x141, anoadanal plate 232x146. Colour light brown, surface of body slightly pitted, especially on margins. Prodorsum with distinct fields and weak, short lateral carinae. Sensilli long, narrow, without head but distal end sparsely covered with small spines. Interlamellar and rostral setae erect, sparsely covered with small spines in distal half. Lamellar setae short, spiniform, smooth. Notogaster with 15 pairs of long and rigid setae (some paratypes have the setae d_1, d_2, e_1, e_2 shorter than other setae) sparsely covered with small spines, setae c_1 and c_3 located near anterior border, setad c_2 remote from border. Vestigial setae f_1 situated at the level of h_1 setae. All lyrifissures *ia, im,* ip, *ips* present. Ventral region. Setae *h* of



1390-1394. *Notophthiracarus longisetosus* sp. nov.(holotype): 1390 - prodorsum, lateral view, 1391 - prodorsum, dorsal view, 1392 - notogaster, lateral view, 1393 - genitoaggenital and anoadanal plates, 1394 - trochanter and femur of leg I

mentum shorter than distance between them. Formula of genital setae 4: 5. Anoadanal plates with setae sparsely covered with small spines. Legs. Formulae of setae and solenidia of complete type.

DIAGNOSIS. The new species is easily distinguisable from its congeners by long and narrow sensilli without head, long, rigid notogastral setae, presence of all lyrifissures and vestigial setae f_1 situated at the level of h_1 setae.

ETYMOLOGY. The specific name alludes to the length of notogastral setae.

MATERIAL. Holotype and two paratypes: Australia, Lamington National Park, S.E.Q., extracted from litter, 21. 11. 1965, leg. B. CANTRELL; 11 paratypes: as above, 06. 03. 1965.

DISTRIBUTION. North Australia, probably an endemic species.

Notophthiracarus mahunkai NIEDBAŁA, 1987

(Figs LIII, LIV in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with narrow median field longer than lateral; lateral carinae reach sinus; posterior furrows absent; sensilli short with narrow stalk and club-like head; interlamellar setae erect, robust covered with spines; lamellar and rostral setae short, spiniform and smooth, *in* > *ro* > *ex* > *le*. Notogaster with 15 pairs of fairly short, robust setae covered with spines on distal half; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of infracapitulum shorter than distance between them; genitoaggenital plates with formula of genital setae: 5: 4; anoadanal plates; adanal setae inserted in paraxial margin of plates, $ad_2 > ad_1 > an > ad_3$. Leg chaetotaxy incomplete, setae *v'* femora I absent.

MATERIAL. Localities in the Australian region: Australia, WA. 7 ml N of Walpole, 34° 59'S, 116° 44'E, at 180 m, Karri Forest Leafmould, 23 X 1969, leg. R.W. TAYLOR – (5) (NIEDBAŁA 1987); Western Australia, 34° 59'S, 116° 44'E, Kari Forest, 4 ml N of Walpole, at 150 m, leafmould, 22.10.1969, leg. R.W. TAYLOR – (3); QLD Crawford's Lookout, at 320 m, 17° 37'S, 145° 48'E, rainforest, 5 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1); QLD Mc Namee CK, 300 m, 17° 40'S, 145° 49'E, rainforest, 8 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1).

DISTRIBUTION. North and West Australia.

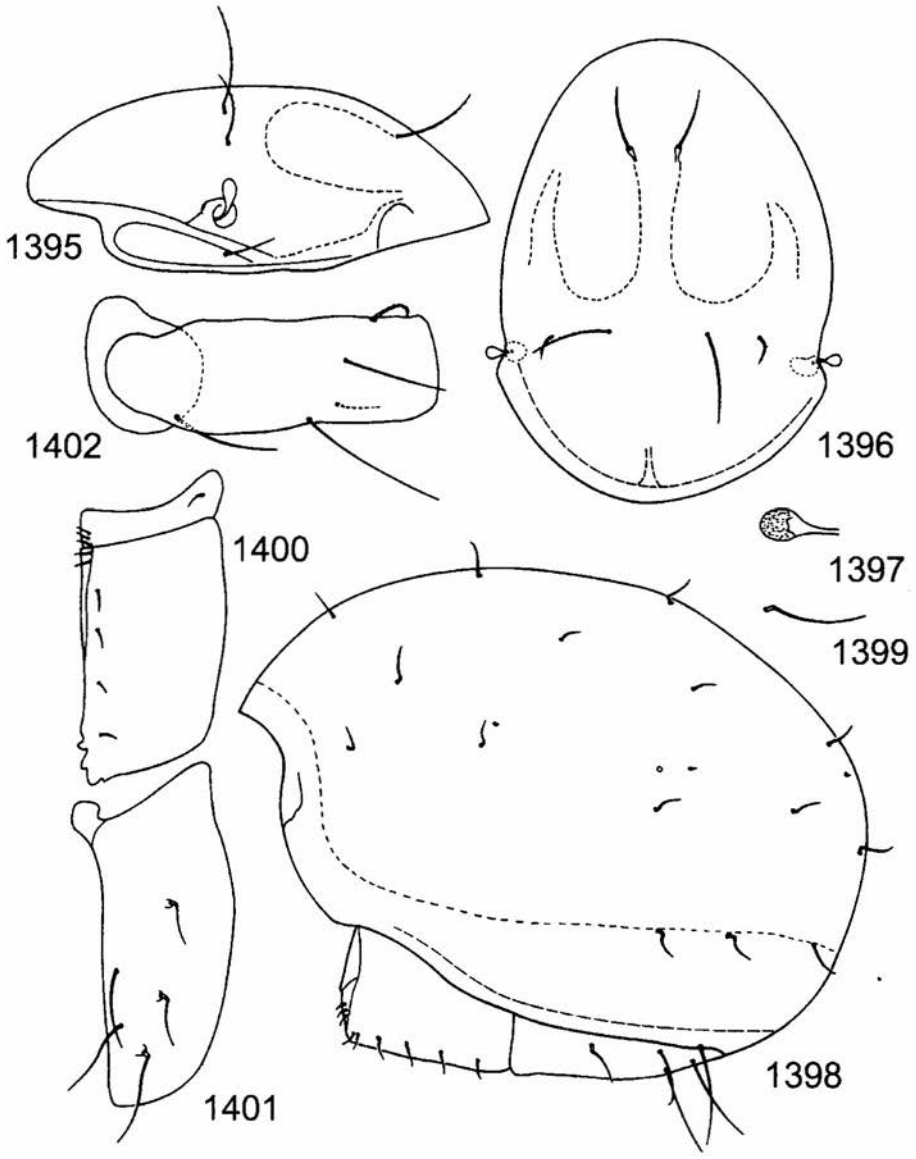
Notophthiracarus maurus sp. nov.

(Figs 1395-1402)

DESCRIPTION. Measurements: Holotype: prodorsum: length 429, width 303, height 172, sensillus 30.4, setae: interlamellar 81.0, lamellar 58.2, rostral 70.8, exobothridial 50.6; notogaster: length 837, width 598, height 625, setae: c_1, h_1 and ps_1 40.5; genitoaggenital plate 252x136, anoadanal plate 268x106. Colour black. Integument finely punctate. Prodorsum with narrow fields. Lateral carinae absent. Sensilli short, with narrow, short stalk and small, globular head, covered with small spines. Setae fairly short but longer than gastronotic setae, erect, covered with distinct spines, comparative length: *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of very short setae (c_1/c_1-d_1=0.21), spiniform, rough, subequal in length. Setae c_{1-3} remote from anterior

margin, setae c_1 and c_2 more so than setae c_3. Vestigial setae f_1 ventral of h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region. Infracapitular setae *h* slightly longer than distance between them. Formula of genital setae: 6: 3. Anoadanal plates with rough setae, longer than gastronotic setae, $an > ad_1 > ad_2 > ad_3$. Legs. Chaetotaxy of complete type. Setae *d* on femora I remote from distal end.

DIAGNOSIS. *Notophthiracarus maurus* sp. nov. is most similar to *Notophthiracarus atratus* sp. nov. also from New Zealand but differs in longer prodorsal setae, anoadanal setae and in the shape of gastronotic setae.



1395-1402. *Notophthiracarus maurus* sp. nov. (holotype): 1395 - prodorsum, lateral view, 1396 - prodorsum, dorsal view, 1397 - sensillus, dorsal view, 1398 - notogaster, lateral view, 1399 - seta h_1, 1400 - genitoaggenital plate, 1401 - anoadanal plate, 1402 - trochanter and femur of leg I

ETYMOLOGY. The specific epithet is derived from Greek *mauros*, meaning "dark", "obscure" referring to the colour of the body.

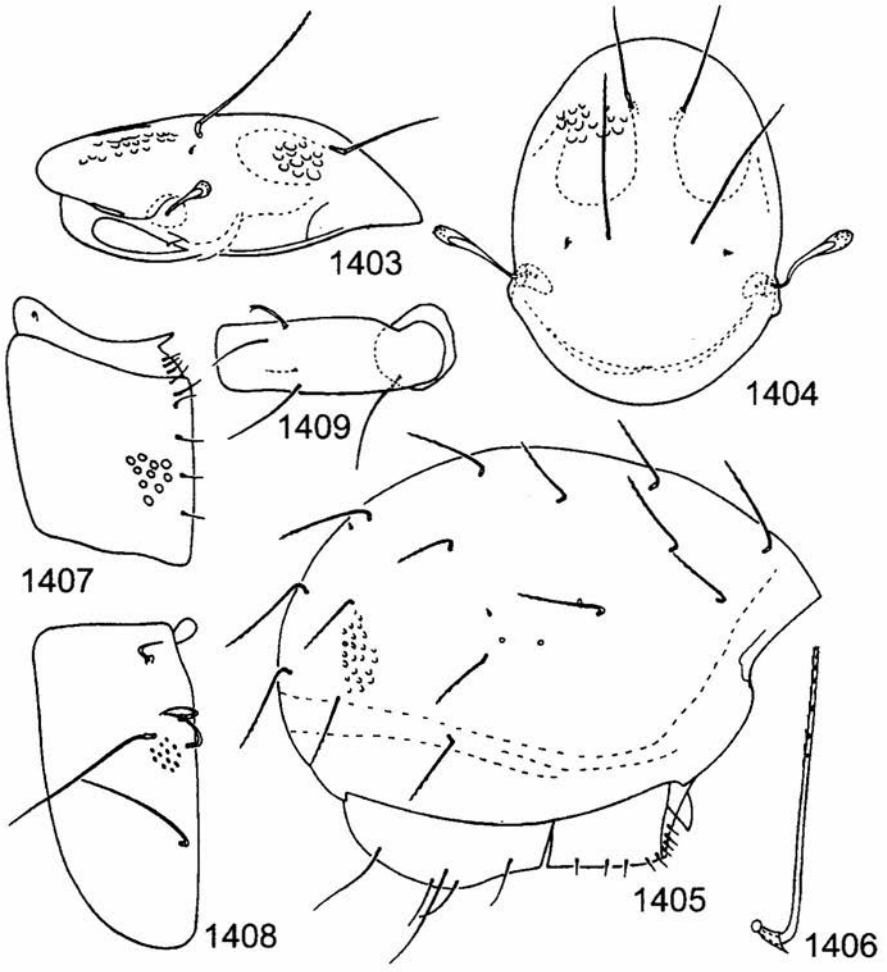
MATERIAL. Holotype and 4 paratypes: New Zealand, Taiari Mouth-Waihola Rd., 26 XI 1966, leg. C.L.W. Other material. Localities in the Australian region: New Zealand, Te Wharau E. Wairarapa, 5 III 1967, leg. C.L.W. – (3); New Zealand, Mangamuka 7 I 1967, leg. R.R. FORSTER – (4); New Zealand, FORSTER – (4).

DISTRIBUTION. New Zealand, probably an endemic species.

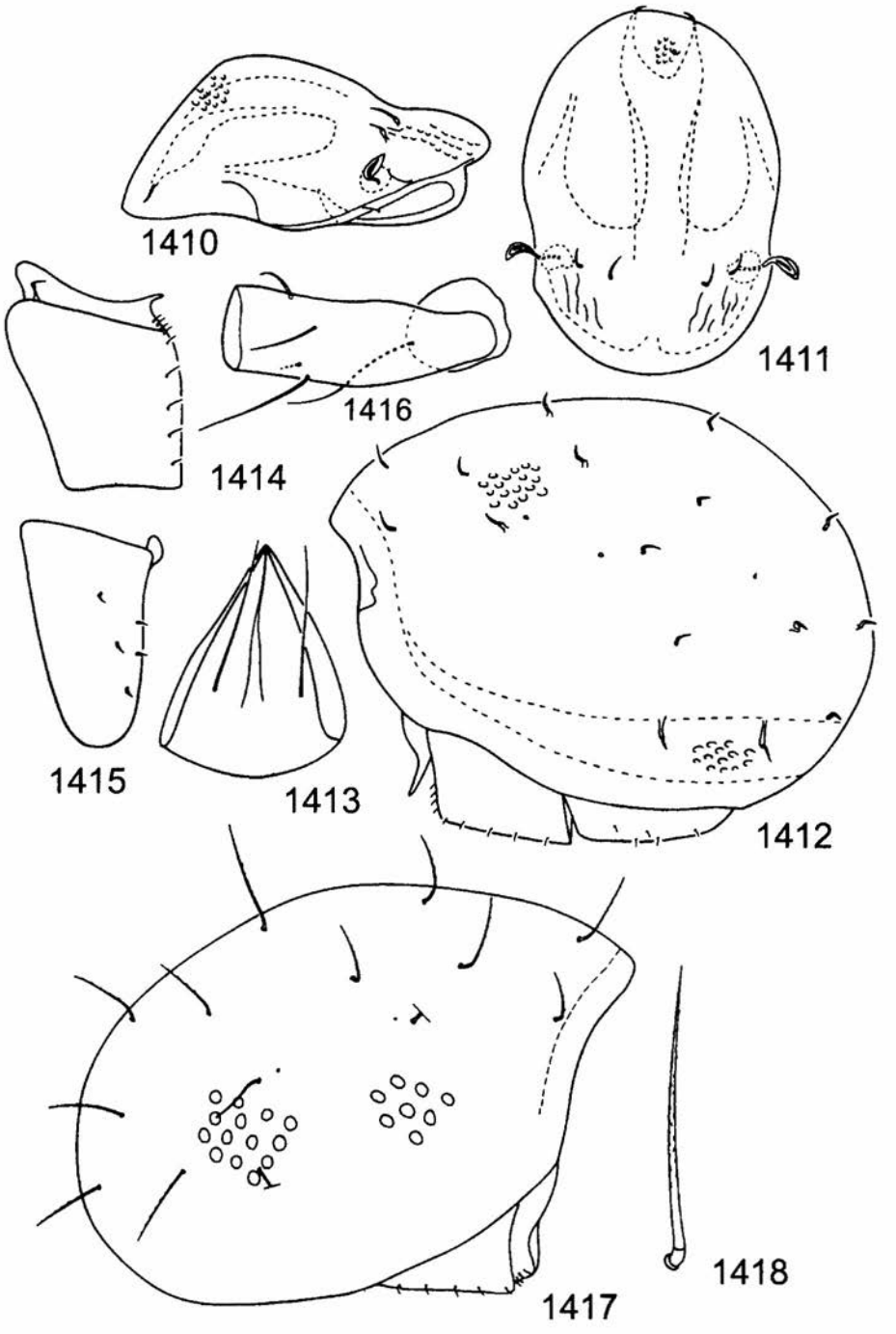
Notophthiracarus modicus sp. nov.

(Figs 1403-1409)

DESCRIPTION. Measurements: Holotype: prodorsum: length 343, width 237, height 126, sensillus 50.6, setae: interlamellar 152, lamellar 7.6, rostral 101, exobothridial



1403-1409. *Notophthiracarus modicus* sp. nov. (holotype): 1403 - prodorsum, lateral view, 1404 - prodorsum, dorsal view, 1405 - notogaster, lateral view, 1406 - seta c_1, 1407 - genitoaggenital plate, 1408 - anoadanal plate, 1409 - trochanter and femur of leg I



1410-1416. *Notophthiracarus parvulus* NIEDBALA, 1998 (holotype): 1410 - prodorsum, lateral view, 1411 - prodorsum, dorsal view, 1412 - notogaster, lateral view, 1413 - mentum of infracapitulum, 1414 - genitoaggenital plate, 1415 - anoadanal plate, 1416 - trochanter and femur of leg I; 1417, 1418. *Notophthiracarus paraparvulus* sp. nov. (holotype): 1417 - notogaster, lateral view, 1418 - seta e_1

15.2; notogaster: length 616, width 404, height 429, setae: c_1 137, h_1 116, ps_1 129; genitoaggenital plate 116x96, anoadanal plate 237x90.9. Colour light brown, microsculpture of integument foveate. Prodorsum with distinct fields, lateral carinae absent. Sensilli with narrow pedicel and rounded head covered with small spines. Interlamellar and rostral setae erect, interlamellar setae covered with small spines at distal end, rostral setae rough, lamellar setae minute. Notogaster with 15 pairs of fairly short, rigid setae covered with small spines at distal end, setae c_1 and c_3 near anterior border, setae c_2 remote from border, vestigial setae f_1 posterior to h_1 setae. All lyrifissures *ia, im,* ip, *ips* present (in MATERIAL. Holotype and in two paratypes lyrifissures *ips* on the right side are absent). Ventral region. Setae *h* of mentum shorter than distance between them, formula of genital plate 4+1: 4, anoadanal plates with rough setae, setae ad_1 and ad_2 the longest. Legs. Formulae of setae and solenidia of complete type, distal end of setae *d* on femora I bifurcate.

DIAGNOSIS. The new species is similar to some Australian species. It differs from *N. hammeni* NIEDBAŁA, 1987 in shorter notogastral setae, presence of lyrifissures *ip* and *ips*, setae *h* of mentum shorter than distance between them, longer ad_1 and ad_2 setae and bifurcate setae d on femora I. *N. lionsi* NIEDBAŁA, 1987 has a different shape of sensilli and shorter rostral setae. *N. mahunkai* NIEDBAŁA, 1987 has shorter rostral and notogastral setae, different shape of sensilli and lyrifissures *ip* and *ips* are absent. *N. usitatus* NIEDBAŁA, 1989 has shorter rostral setae, lyrifissures *ip* and *ips* are absent, setae *h* of mentum longer than distance between them, setae ad_3 are minute and setae d on femur I are not bifurcate. *N.capillatus* NIEDBAŁA, 1989 has longer interlamellar, lamellar and notogastral setae and setae *h* of mentum longer than distance between them. *N. consimilis* NIEDBAŁA et COLLOFF, 1997 has shorter rostral setae, two pairs of lyrifissures *ia* and *im* and setae ad_3 minute.

ETYMOLOGY. The specific epithet *modicus* is Latin for "ordinary" and alludes to ordinary, usual morphology of this species.

MATERIAL. Holotype and 7 paratypes: Australia, Banya Mts., S.E.Q., Berleseata, 11-12. February 1967. leg. B. CANTRELL.

DISTRIBUTION. North Australia, probably an endemic species.

Notophthiracarus paraparvulus sp. nov.

(Figs 1417, 1418)

DESCRIPTION. Measurements: Holotype: notogaster: length: 609, width 368, height 418, setae: c_1 106, h_1 and ps_1 116. All characters the same as in *Notophthiracarus parvulus* NIEDBAŁA, 1998 except one: the length and shape of gastronotic setae. These setae are longer (c_1/c_1-d_1=0.58), tapering, sharply pointed and sparsely covered with small spines. Possibly it is not a new species but only a new subspecies or variety. However, for the present, it is given specific status.

ETYMOLOGY. The specific epithet is derived from the Latin *parvulus* and alludes to the resemblance of this species to *N. parvulus*.

MATERIAL. Holotype: New Caledonia, Mont Panié, at 1300-1500 m, 7-8 X 1977, leg. J. BALOGH.

DISTRIBUTION. New Caledonia, probably an endemic species.

Notophthiracarus parvulus NIEDBAŁA, 1998
(Figs 1410-1416)

DIAGNOSIS. Integument strongly foveolate. Prodorsum with powerful median carina; lateral carinae absent; fields well developed, narrow, long, median one with deep sinus between rostral setae; sensilli short, with narrow and bent stalk and spindle-shaped, spinose head; setae very short, spiniform, comparative lengths: *in* > *ex* > *le* = *ro*. Notogaster with 15 pairs of very short (c_1/c_1-d_1 = 0.13), spiniform setae, c_{1-3} sharply pointed, remaining setae obtuse distally; vestigial setae f_1 not discernible because of strong microsculpture; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum considerably longer than distance between them; formula of genital setae: 5: 4; anoadanal plate with minute setae. Leg chaetotaxy and solenidiotaxy of complete type; setae *d* on femora I remote from distal end.

MATERIAL. Localities in the Australian region: New Caledonia, Mont Panie, 1300-1500 m, Agathis litter, 7-8 X 1977, leg. J. BALOGH - (3sp.) (NIEDBAŁA 1997); New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (1).

DISTRIBUTION. New Caledonia, probably an endemic species.

Notophthiracarus perezinigoi NIEDBAŁA, 1987
(Figs LVIII, LIX in NIEDBAŁA 1987)

DIAGNOSIS. Body surface covered with mosaic. Prodorsum without fields and posterior furrows; lateral carinae reach sinus; sensilli long, narrow, dilated towards distal end, covered with small spines; interlamellar (erect) and rostral setae robust, covered with spines on distal half, lamellar and exobothridial setae vestigial, *in*>*ro*. Notogaster with 15 pairs of robust setae, covered with spines in distal half; vestigial setae f_1 anterior to ps_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region; setae *h* of infracapitulum shorter than distance between them; formula of genital setae: 5: 4; setae ad_3 covered with spines in distal half, $ad_2 > ad_1 > an > ad_3$. Leg chaetotaxy of complete type, setae *d* of femora I with bifurcate distal end.

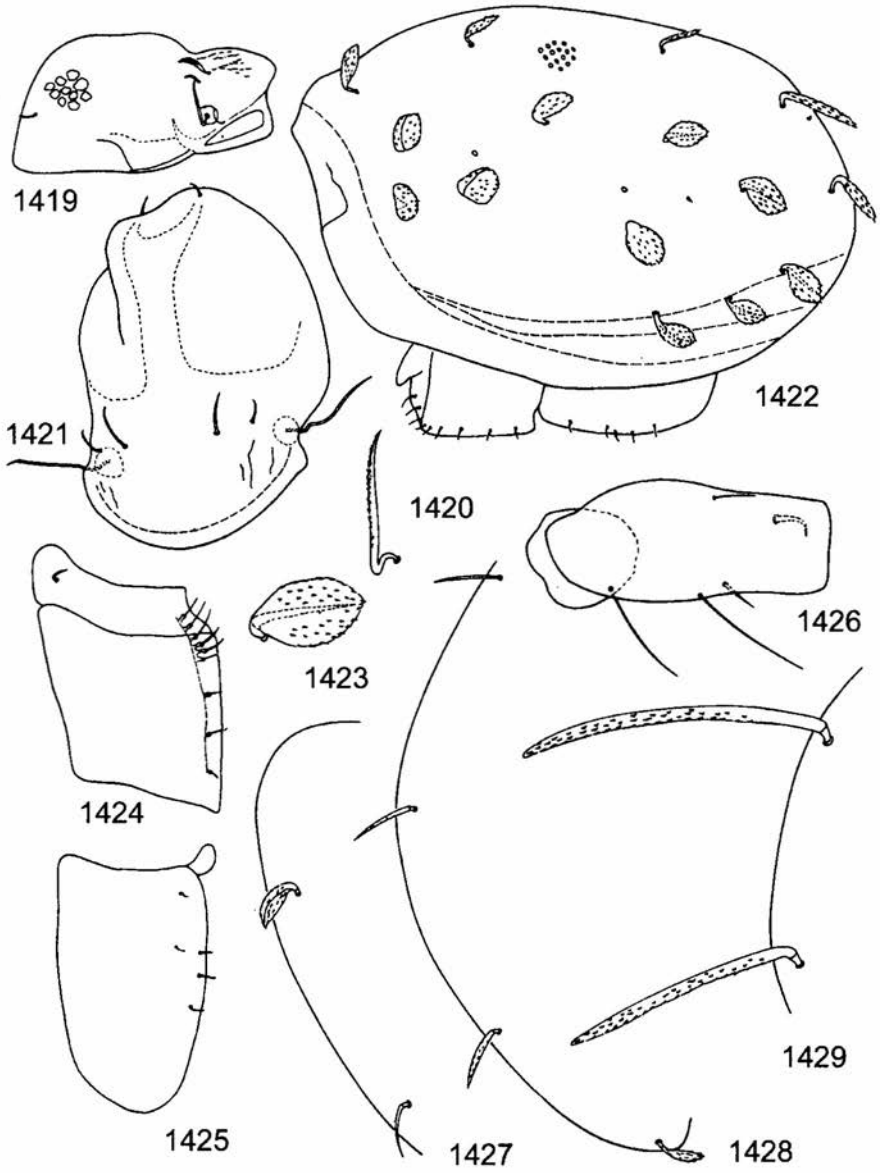
MATERIAL. Localities in the Australian region: Australia, QLD Joalah Nat. Park, at 380 m, 27° 55'S, 153° 12'E, rainforest, 14 III 1973, leg. R.J KOHOUT – (8) (NIEDBAŁA 1987); QLD Mc Namee CK, 300 m, 17° 40'S, 145° 49'E, rainforest, 8 VII 1971, leg. R.W. TAYLOR, FEEHAN – (6); QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (10).

DISTRIBUTION. North Australia, probably an endemic species.

Notophthiracarus perlucundus sp. nov.
(Figs 1419-1426)

DESCRIPTION. Measurements: Holotype: prodorsum: length 348, width 232, height 202, sensillus 88.5, setae: interlamellar 35.4, lamellar 25.3, rostral 30.4; notogaster: length 621, width 406, height 412, setae: c_1 75.9, h_1 101, ps_1 101, ps_1 88.5; genitoaggenital plate 126x126, anoadanal plate 212x111. Colour grey-yellow.

Microsculpture of integument deeply foveolate. Body covered with strong cerotegument. Prodorsum with powerful median carina. Lateral carinae absent. Posterior furrows distinct. Fields weakly marked, dorsal field with broad sinus posterior to rostral setae. Sensilli with short, narrow, bent stalk and elongated, thick, but indistinct head, sharply pointed distally and covered with small spines. Setae



1419-1426. *Notophthiracarus perlucundus* sp. no v. (holotype): 1419 - prodorsum, lateral view, 1420 - sensillus, lateral view, 1421 - prodorsum, dorsal view, 1422 - notogaster, lateral view, 1423 - seta h_2, 1424 - genitoaggenital plate, 1425 - anoadanal plate, 1426 - trochanter and femur of leg I; 1427, 1428. *N. perlucundus* sp. nov (paratype I): 1427 - setae c_1 and d_1 of notogaster, 1428 - setae e_1, h_1, e_1 and ps_1 of notogaster; 1429. *Notophthiracarus perlucundus* sp. nov. (paratype II) - setae h_1 and *psi* of notogaster

short, thick, interlamellar setae phylliform, all covered with small spines, comparative length: *in* > *ro* > *le*. Exobothridial setae vestigial. Notogaster with 15 pairs of short (c_1/c_1-d_1=0.54) broad, phylliform setae, with central nerve and covered with robust spines. Only setae e_1, h_1 and ps_1 narrower. Dorsal setae of some paratypes different in shape (figs 1416-1418). Setae c_{1-3} remote from anterior border, setae c_2 more so than setae c_1 and c_3. Two pairs of lyrifissures *ia* and *im* present. Vestigial setae f_1 situated ventrad of h_1 setae. Ventral region;setae *h* of mentum longer than distance between them. Genitoaggenital plates with setae g_4, g_5 and aggenital unusual in shape, thick, knife-like, with formula: 6: 3. Anoadanal plates with minute, smooth setae. Legs. Setal formula of complete type. Setae *d* on femora I remote from distal end of article. Setae *a"* on tarsi I and II curved distally, setae *ft"* on tarsi II straight distally.

DIAGNOSIS: This species is unique in the genus *Notophthiracarus* in having broad, phylliform gastronotic setae, broadened g_4, g_5 and aggenital setae and minute anoadanal setae.

REMARKS. Two specimens from the paratype series have a different shape of gastronotic setae: one has setae h_1 and ps_1 long, thick, obtuse distally and covered with small spines along whole length. Other setae are broad and phylliform as described above. The second specimen has setae d_1 and e_1 short, thick, smooth and setae h_1 and ps_1 short, thick but coarse. Other setae are broad and phylliform as described above.

ETYMOLOGY: the specific name *perlucundus* is Latin for "very nice" alluding to the unusual, nice shape of gastronotic setae.

MATERIAL. Holotype and 20 paratypes: New Zealand, Mangamuka 7 I 1967, leg. R.R. FORSTER. Other material. Localities in the Australian region: New Zealand, Waipona Forest, 6 I 1967, leg. R.R. FORSTER – (22); Sullivans Dam, leaf mould, 6 I 1963, leg. R.R. FORSTER – (5).

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus quietus NIEDBAŁA, 1989

(Figs 55-57 in NIEDBALA 1989)

DIAGNOSIS. Prodorsum with distinct fields, median longer than lateral, between rostral setae weak, incision present; lateral carinae weak reach sinus; posterior furrows present; sensilli short with short pedicel dilated towards rounded head covered with fine spines; interlamellar setae erect, similar to gastronotic setae, robust, covered with dense spines, rostral setae spiniform, rough, lamellar setae very short, smooth. Notogaster with 15 pairs of fairly short setae, $c_1 < c_1$-d_1, robust, covered with robust spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of infracapitulum longer than distance between them; genital setae very short with formula: 5: 4; anoadanal plates with setae ad_2 the longest, hooked distally. Leg chaetotaxy of complete type, setae *d* on femora I with bifurcate distal end.

MATERIAL. Localities in the Australian region: Australia, NSW, Macquarie Pass., 800 m, 8 km E of Robertson, Lauriel-sassafras, rain forest ferns, 8 II 1984, leg. L. MASNER – (1); NSW, Monga State Forest, 2 I 1984, leg. L. MASNER – (1). New

Zealand, Waipona Kauri Forest, 11 XII 1983, leg. L. MASNER – (7); New Zealand, 23 km S Aria, 14 XII 1983, leg. L. MASNER – (1); New Zealand, Arthurs Pass, 900 m, 31 XII 1983, leg. L. MASNER – (1) (NIEDBAŁA 1989).

DISTRIBUTION. South Australia and New Zealand.

Notophthiracarus ramsai NIEDBAŁA, 1987

(Figs LX-LXII in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with weak and short fields; posterior furrows also weak; lateral carinae weak and short; sensilli long, narrow and smooth; interlamellar and rostral setae erect, robust, covered with spines, lamellar setae very short, *in* > *ro* > *ex* > *le*. Notogaster with 15 pairs of robust setae, sparsely covered with spines in distal half; vestigial setae f_1 posterior to h_1 setae; lyrifissures not visible. Ventral region, setae *h* of mentum shorter than distance between them; genitoaggenital plates with formula of genital setae: 5: 4; anoadanal plates with rough setae, $ad_1 = ad_2 > an > ad_3$. Leg chaetotaxy of complete type.

MATERIAL. Locality in the Australian region: Australia, QLD Joalah Nat. Park, at 380 m, 27° 55'S, 153° 12'E, rainforest, 14 III 1973, leg. R.J. KOHOUT – (1) (NIEDBAŁA 1987).

DISTRIBUTION. North Australia, probably an endemic species.

Notophthiracarus repostus NIEDBAŁA, 1989

(Figs 58-65 in NIEDBAŁA 1989)

DIAGNOSIS. Median field of prodorsum short and bifurcate at distal end, longer than lateral fields; posterior furrows and lateral carinae absent; sensilli with narrow pedicel and oval head covered with small spines; interlamellar setae very robust, erect covered with small spines; rostral setae robust, fairly long, rough, lamellar and exobothridial setae vestigial. Notogaster with 15 pairs of rigid, short setae, $c_1 < c_1\text{-}d_1$, covered with spines on distal half; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of infracapitulum slightly longer than distance between them; genitoaggenital plates with formula of genital setae: 5: 4, setae $g_5\text{-}g_9$ fairly long; anoadanal plates with rough setae, setae ad_2 the longest and the thickest, hooked at distal end, $ad_2 > ad_1 > an > ad_3$. Leg chaetotaxy of complete type, setae *d* of femora I with bifurcate distal end.

MATERIAL. Localities in the Australian region: Australia, NSW, New England N.P., 1300-1500 m, 13 II 1984, leg. L. MASNER – (2); NSW New England N.P., 1600 m, *Nothofagus moorei* forest, ferns, 12 II 1984, leg. L. MASNER – (22) (NIEDBAŁA 1989).

DISTRIBUTION. South Australia, probably an endemic species.

Notophthiracarus schusteri NIEDBAŁA, 1987

(Figs LXIII, LXIV in NIEDBAŁA 1987)

DIAGNOSIS. Body surface covered with strong mosaic. Prodorsum with weak fields, median longer than lateral; lateral carinae and posterior furrows absent;

sensilli short, fusiform, covered with small spines; lamellar setae vestigial, other setae spiniform, smooth, *ex* > *ro* > *in*. Notogaster with 15 pairs of robust, spiniform, smooth setae, setae h_1, h_2, ps_1, ps_2 thicker than other setae, vestigial setae posterior to h_1 setae; all lyrifissures: *ia, im,* ip, *ips* present. Ventral region, setae *h* of infracapitulum longer than distance between them; genitoaggenital plates with formula of genital setae: 5: 4; anoadanal plates with fine, short setae, roughly of the same length. Leg chaetotaxy of complete type.

MATERIAL. Localities in the Australian region: Australia, QLD, Eachan Nat. Park, 17° 18'S, 145° 37'E, rainforest, at 760 m, 16 II 1973, leg. R.W. TAYLOR – (10) (NIEDBAŁA 1987); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, moss at base of myrtle trunk, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (3) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. North Australia and Tasmania.

Notophthiracarus shealsi (LEE, 1981)

(Figs 1430-1433)

Hoplophthiracarus shealsi LEE, 1981
Notophthiracarus shealsi: NIEDBAŁA 1986, 1992

DIAGNOSIS. Prodorsum with narrow median region and broad lateral regions; lateral carinae absent; sensilli very long, narrow, enlarged towards distal end and covered with robust spines; interlamellar setae robust, erect, covered with spines, rostral and lamellar setae spiniform, smooth, *in* > *le* > *ro* > *ex*. Notogaster with 15 pairs of fairly short ($c_1 < c_1$-d_1), robust setae covered with small spines; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region with formula of genital setae: 4: 3, anoadanal plates with setae ad_2 the longest and the thickest. Chaetotaxy of legs complete, setae *d* on femora I bifurcate.

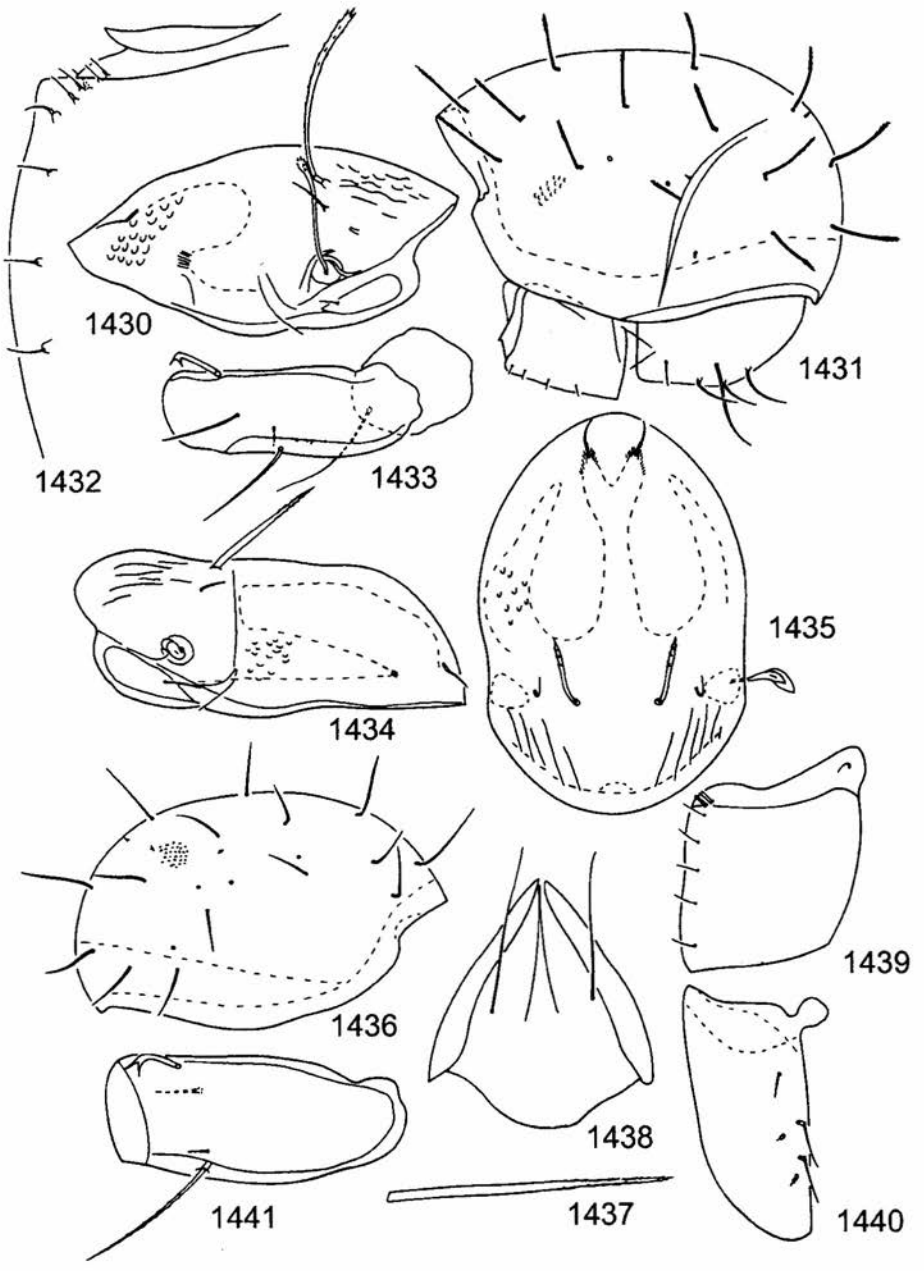
MATERIAL. Localities in the Australian region: Australia, South Australia, Knott Hill, cultivated pine forest, litter under *Pinus pinea*, 22 V 1974, leg. D.C. LEE - 319 specimens; Mt; Lofty, sclerophyll forest - 2 specimens (LEE 1981); Western Australia, 34° 59'S, 116° 44'E, Kari Forest, 4 ml N of Walpole, at 150 m, leafmould, 22.10.1969, leg. R.W. TAYLOR – (25); QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1) QLD W of Mc Namee CK, 600 m, 17° 40'S, 145° 48'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (50); QLD, VIC. Cimberlond, Val. Reserve, 37° 34'S, 145° 52'E, Wet scleropyll., at 920 m, 4 XI 1970, leg. R.W. TAYLOR and R.J. BARTELL – (1); WS Australia, WA. 7 ml N of Walpole, 34° 59'S, 116° 44'E, at 180 m, Karri Forest Leafmould, 23 X 1969, leg. R.W. TAYLOR – (26).

DISTRIBUTION. Australia, widespread.

Notophthiracarus sinuosus (NIEDBAŁA, 1982)

(Figs 1434-1441)

Phthiracarus sinuosus NIEDBAŁA, 1982
Notophthiracarus sinuosus: NIEDBAŁA 1986, 1992



1430-1433. *Notophthiracarus shealsi* (LEE, 1981) (holotype): 1430 - prodorsum, lateral view, 1431 - notogaster, lateral view, 1432 - fragment of genitoaggenital plate, 1433 - trochanter and femur of leg I; 1434-1441. *Notophthiracarus sinuosus* (NIEDBALA, 1982) (holotype): 1434 - prodorsum, lateral view, 1435 - prodorsum, dorsal view, 1436 - notogaster, lateral view, 1437 - seta c_1, 1438 - infracapitulum, 1439 - genitoaggenital plate, 1440 - anoadanal plate, 1441 - femur of leg I

DIAGNOSIS. Median carina of prodorsum prominent, median and lateral fields very long and narrow, distinct incisionin median region between rostral setae present; posterior furrows present;sensilli short with oval head covered with small spines at distal end; interlamellar setae fairly long, thick, robust, covered with small spines at distal end, lamellar and rostral setae small, spiniform, smooth, *in* > *ex* > *le*> *ro*. Notogaster with 15 pairs of fairly long ($c_1 > c_1$-d_1), thick, robust setae covered with thin spines in distal half; vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im, ip, ips* present. Ventral region, setae *h* of mentum longer than distance between them, formula of genital setae: 5: 4, anoadanal plates with setae ad_1 and ad_2 minute, close to anal setae, anal setae longer than ad_3 setae. Leg chaetotaxy complete.

MATERIAL. Localities in the Australian region: Papua New Guinea, Mt. Hagen, at upper limit of forest, at 3500 m, litter, 5 IX 1979, leg. J. MICHEJDA – (1) (NIEDBAŁA 1982); Mt. Wilhelm, at 2930 m, dry litter in leafy forest, 10 IX 1979, leg. J. BŁOSZYK – (1) (NIEDBAŁA 1992); Mt. Wilhelm, 3000 m, dry litter in leafy forest, 10 IX1979, leg. J. MICHEJDA - (1).

DISTRIBUTION. Papua New Guinea, perhaps an endemic, mountain species.

Notophthiracarus solitarius NIEDBAŁA et COLLOFF, 1997

(Figs 131-138 in NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Large species, microsculpture consisting of deep pits, body covered by strong cerotegument. Fields of prodorsum obscured by cerotegument; lateral carinae absent, median carina robust; furrows well-developed on posterior part of prodorsum; well-developed hump above bothridium; sensilli club-like, with short stalk and globular head, spinulose distally; interlamellar and lamellar setae very long, thick, wavy, tapering distally, covered with small spines, rostral setae short, spiniform, rough; *le* > *in* > *ro*. Notogaster with 15 pairs of long barbed setae (c_1/c_1-d_1=1.0), similar morphologically to interlamellar and lamellar setae, setae d_1, d_2, e_1, e_2, h_3, ps_1 and ps_2 shorter than others; vestigial setae obscured by cerotegument; only lyrifissures *im* visible. Ventral region, setae *h* of mentum longer than distance between them; genital setal formula: 5: 4;anal setae long, ad_3 minute, ad_1 and ad_2 vestigial. Legs, formula of setae and solenidia of complete type, setae *d* on femora I remote from distal end, forked distally. DISTRIBUTION. Tasmania.

MATERIAL. Locality in the Australian region: Tasmania, Rivaux Creek, Huon Pine litter, 43°11'S, 146°11'E, 20 XII 1988, leg. P. GREENSLADE – (1) (NIEDBAŁA & COLLOFFf 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Notophthiracarus sordidus NIEDBAŁA et COLLOFF, 1997

(Figs 139-141 after NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Microsculpture of prodorsum weakly pitted; notogaster, genito-aggenital and anoadanal plates strongly pitted. Fields of prodorsum obscured by microsculpture; median carina present, lateral absent; sensilli long, setiform, spinose in distal half; interlamellar setae long, well-developed, spinose in distal half, with

blunted tip, emerging vertically from prodorsum, lamellar setae minute, smooth, rostral setae spiniform, rough; *in* > *ro* > *le*. Notogaster with 15 pairs of stout, moderately short setae (c_1/c_1-d_1=0.66), spinose distally. Ventral region; genital setal formula: 6: 3; comparative length of anal and adanal setae: $ad_1 = ad_2 > ad_3 = an$.

MATERIAL. Locality in the Australian region: TAS-058 Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. SMITH – (7) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Notophthiracarus spurcus NIEDBAŁA et COLLOFF, 1997

(Figs 142-149 after NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Cerotegument well-developed. Microsculpture of prodorsum, genitoaggenital and anoadanal plates consisting of well-developed pits, notogaster with characteristic mosaic microsculpture. Fields of prodorsum obscured by cerotegument; median carina weakly developed, lateral carinae absent; Sensilli club-like, with very short stalk and globular head; interlamellar setae broadering distally, almost club-shaped, heavily spinose, rostral setae spiniform, rough, lamellar setae minute, smooth, exobothridial setae vestigial; *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of moderately short, stout setae (c_1/c_1-d_1=0.75), spinose distally, c_1 only resembling setae in; vestigial setae and lyrifissures obscured by cerotegument. Ventral region, formula of genital setae: 5: 4; anoadanal plates setae ad_2 long, broad, ad_3 minute; $ad_2 > an > ad_1 > ad_3$. Leg formulae of setae and solenidia of complete type; setae *d* on femora I positioned medially, forked distally.

MATERIAL. Locality in the Australian region: Tasmania, Hibbs Lagoon, litter, 42°34'S, 145°19'E, 27 II 1989, leg. S. SMITH – (5) (NIEDBAŁA & COLLOFF 1997).

DISTRIBUTION. Tasmania, probably an endemic species.

Notophthiracarus tripartitus NIEDBAŁA, 1989

(Figs 66-73 in NIEDBAŁA 1989)

DIAGNOSIS. Prodorsum with narrow median field, longer than lateral, Median carina weakly developed; lateral carinae absent; posterior furrows distinct; sensilli long, lanceolate, anterior side covered with thin spines; setae small, spiniform, smooth, rostral setae situated near each other. Notogaster with anterior cowl and two dorsal, longitudinal carinae; 15 pairs of spiniform, smooth and extremely short setae present; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of infracapitulum very long, considerably longer than distance between them; formula of genital setae: 5: 4; anoadanal plates with vestigial setae. Leg chaetotaxy of complete type.

MATERIAL. Locality in the Australian region: New Zealand, 23 km S Aria, 14 XII 1983, leg. L. MASNER – (1) (NIEDBAŁA 1989).

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus uncinatus NIEDBAŁA et COLLOFF, 1997

(Figs 150-153 after NIEDBAŁA and COLLOFF 1997)

DIAGNOSIS. Prodorsum with distinct fields; lateral carinae absent; sensilli short, club-like, with short narrow stalk and globular head; interlamellar setae long, robust, spinose, arising vertically from prodorsal surface, with hooked distal end, lamellar and rostral setae short, spiniform, spinose; *in* > *ro* > *le* > *ex*. Notogaster with 15 pairs of long, robust setae (c_1/c_1-d_1=0.83), mostly with hooked distal end, resembling interlamellar setae or straight distally (d_1, e_1, h_1 and p_1); vestigial setae f_1 inserted ventrad of h_1; two lyrifissures (*ia* and *im*) present on each side. Ventral region, formula of genital setae: 5: 4; anoadanal plates with setae of very different length and shape, anal setae long, curled distally, ad_1 and ad_2 minute, ad_3 spiniform, robust, similar in shape to rostral setae.

REMARK. The specimen from Australia differs from those from Tasmania in much more barbed notogastral setae and presence of lateral carinae of prodorsum.

MATERIAL. Localities in the Australian region: Tasmania, Savage River, Pipeline Road, litter, 41°30'S, 145°20'E, 21 IV 1989, leg. P. GREENSLADE – (1); Bruny Island, Mount Mangana, Celery Top Pine, pyrethrum knock-down, 43°21'S, 147°13'E, 9 IV 1989, leg. P. GREENSLADE and J. DIGGLE – (11); Pirates Road, 2.5 km SW of Eaglehawk Neck, Tasman Peninsula, *Nothofagus cunninghamii*, south track, suction, 43°03'S, 147°55'E, 16 III 1989, leg. P. GREENSLADE – (4); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV 1989, leg. P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV 1989, leg. P. GREENSLADE and D. ROUNSEVELL – (1); Sandpit River, *Sassafras*, pyrethrum knock-down, forestry reserve, 42°42'S, 147°52'E, 2 VI 1989, leg. J. DIGGLE and P. GREENSLADE – (1); Pirates Road, 2,5 km SW of Eaglehawk Neck, Tasman Peninsula, pyrethrum knock-down, *Nothofagus cunninghamii*, 43°03'S, 147°55'E, 21 III 1989, leg. P. GREENSLADE and J. DIGGLE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, sweeping and beating, 42°09'S, 147°55'E, 17 V 1989, leg. J. DIGGLE – (2); Bruny Island, Mount Mangana, pyrethrum knock-down, dead tree, 43°21'S, 147°13'E, 4 IV 1989, leg. J. DIGGLE and P. GREENSLADE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, *Sassafrass*, pyrethrum knock-dawn, 42°09'S, 147°55'E, 12 IV 1989, leg. J. DIGGLE – (1); Big Sassy Creek, 21 km NNW of Little Swanport, *Sassafrass*, moss on ground, 42°09'S, 147°55'E, 12 V 1989, leg. P. GREENSLADE – (1) (NIEDBAŁA & COLLOFF 1997). Australia, NSW, Wiangaree N.P. Brindle Creek, alt. 1000 m, leg. L. MASNER – (1)

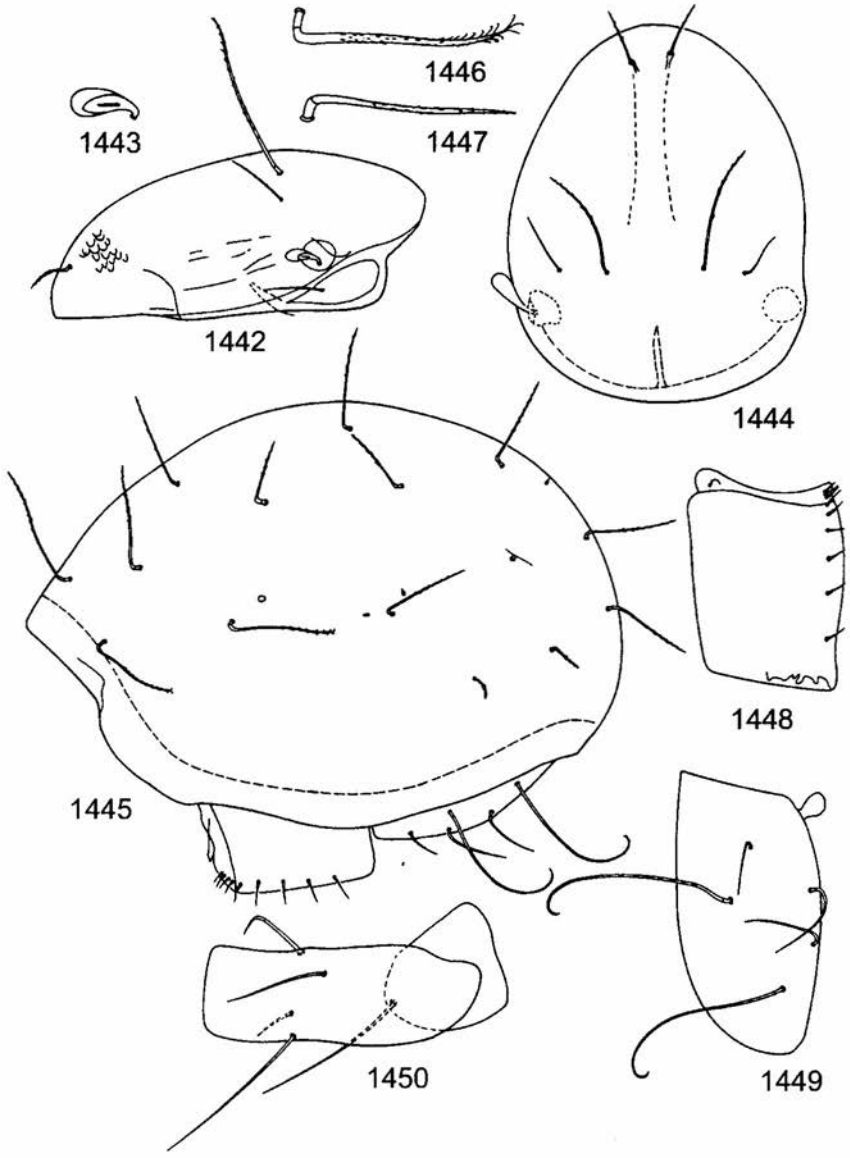
DISTRIBUTION. South Australia and Tasmania.

Notophthiracarus uncinulus sp. nov.

(Figs 1442-1450)

DESCRIPTION. Measurements: Holotype: prodorsum: length 361, width 273, height 152, sensillus 32.9, setae: interlamellar 159, lamellar 63.2, rostral 55.7, exobotridial 50.6; notogaster: length 681, width 488, height 488, setae: c_1 154, h_1 106, ps_1 109, ps_3 48.1, genitoaggenital plate 182x131, anoadanal plate 237x126. Colour yellow. Microsculpture of integument strongly and deeply foveolate. Prodorsum with weakly visible fields and lateral carinae, obscured by strong integument; median field

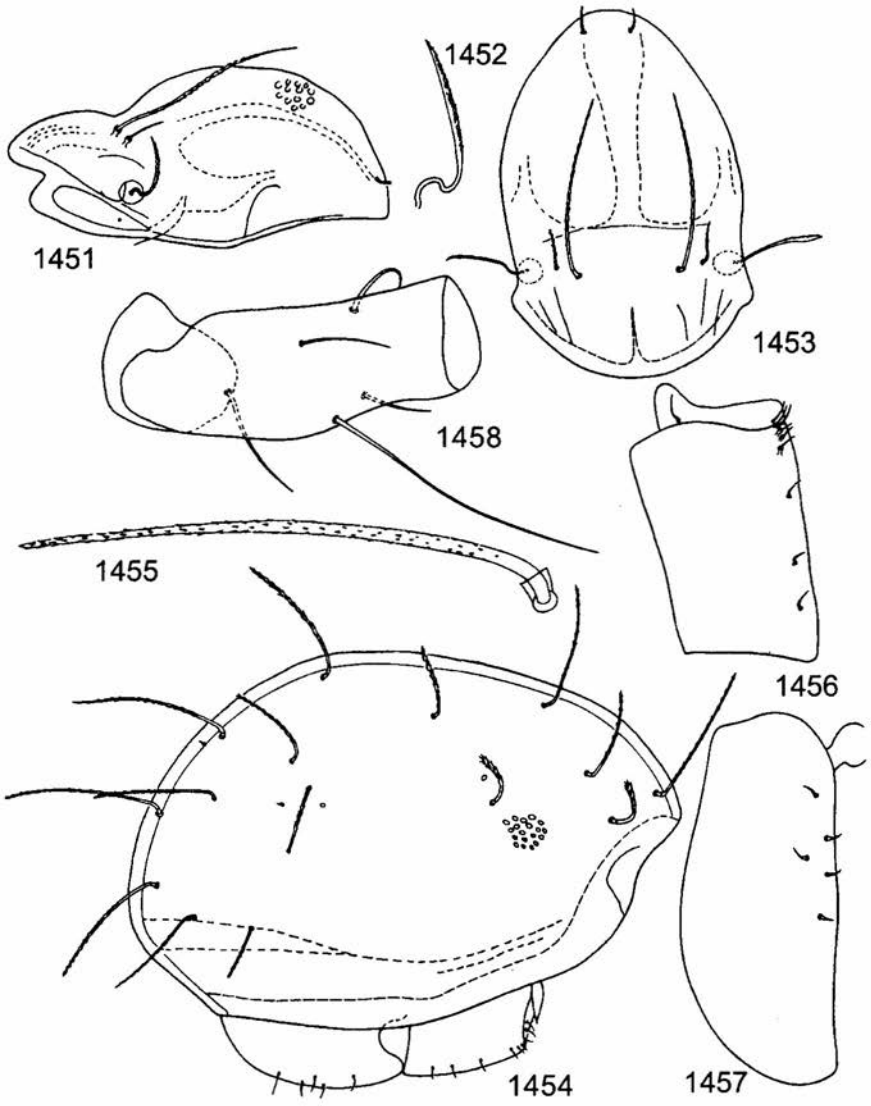
narrow. Lateral carinae reach sinus. Sensilli short, club-like, smooth. Interlamellar setae long, stout, inserted perpendicularly on surface, covered with distinct spines and with hooks distally. Lamellar and rostral setae spiniform, coarse, comparative length: *in>le>ro>ex*. Notogaster with 15 pairs of fairly long setae (c_1/c_1-d_1=0.92), with exception of ps_3 and ps_4 short setae. All setae stout, covered with distinct, small spines. Only two pairs of setae c_3 and *cp* covered, like interlamellar setae, with a few small hooks distally. Setae c_3 close to anterior margin, setae c_1 somewhat remote, setae c_2 much more remote from anterior margin. Vestigial setae f_1 situated ventrad



1442-1450. *Notophthiracarus uncinulus* sp. nov. (holotype): 1442 - prodorsum, lateral view, 1443 - sensillus, lateral view, 1444 - prodorsum, dorsal view, 1445 - notogaster, lateral view, 1446 - seta *cp*, 1447 - seta ps_1, 1448 - genitoaggenital plate, 1449 - anoadanal plate, 1450 - trochanter and femur of leg I

of h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region. Setae *h* of mentum slightly longer than distance between them. Formula od genital setae: 5: 4. Anoadanal plate with setae ad_1 and ad_2 very long, stout, bent distally, sparingly spinose. Anal setae and ad_3 slimer, shorter and rough, $ad_1 = ad_2 > an > ad_3$. Legs. Setal formula of complete type. Setae *d* on femora I considerably remote from distal end of article and implanted at level of *v"* and *v'* setae. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.

ETYMOLOGY. The name *uncinulus* is Latin for "barbed" refering to barbs on interlamellar, c_3 and *cp* setae.



1451-1458. *Notophthiracarus unicarinatus* sp. nov. (holotype): 1451 - prodorsum, lateral view, 1452 - sensillus, lateral view, 1453 - prodorsum, dorsal view, 1454 - notogaster, lateral view, 1455 - seta c_1, 1456 - genitoaggenital plate, 1457 - anoadanal plate, 1458 - trochanter and femur of leg I

DIAGNOSIS. The new species having similar sensillus slightly resembles *Notophthiracarus claviger* NIEDBAŁA, 1993 from New Zealand but has longer lamellar setae, shorter ps_3 and ps_4 setae and different shape of setae on anoadanal plate.

MATERIAL. Holotype: New Zealand, Ulva Is., Stewart Is., 18 XII 1968, leg. I. SUTHERLAND.

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus unicarinatus sp. nov.

(Figs 1451-1458)

DESCRIPTION. Measurements: Holotype: prodorsum: length 429, width 268, height 202, sensillus 83.5, setae: interlamellar 227, lamellar 50.6, rostral 12.6, notogaster: height 902, width 534, height 607, setae: c_1 237, h_1 278, ps_1 293; genitoaggenital plate 177x121, anoadanal plate 323x121. Colour yellow, light brown. Microsculpture of integument strongly foveolate. Prodorsum with powerful median carina. Lateral carinae absent. Fields well marked. Median field narrow, wider towards rostral setae and considerably longer than lateral fields. Sensilli with narrow, bent stalk and narrow, elongated head, covered dorsally with short spines. Interlamellar setae very long, robust, densely covered with spines. Interlamellar and rostral setae considerably shorter but thick and spinose, *in>le>ro*. Exobothridial setae vestigial. Notogaster with median carina and 15 pairs of robust, erect and thick setae, dorsal setae longer than lateral (c_1/c_1-d_1=1.04), all covered with dense spines, stronger in distal half of setae. Setae c_2, *cp* and ps_4 the shortest. Setae c_1 and c_3 somewhat remote from anterior margin, setae c_2 much more so than setae c_1 and c_3. Setae ps_3 and ps_4 remote posteriorly. Setae ps_4 implanted more posterior than setae ad_1. Vestigial setae f_1 positioned ventrad of h_1 setae. Two pairs of lyrifissures *ia* and *im* present. Ventral region. Setae *h* of mentum longer than the distance between them. Genital plates with formula of genital setae: 6: 3. Anoadanal plates each with minute setae. Adanal setae situated very close to paraxial margin. Legs. Formula of setae of complete type. Setae *d* on femora I remote from distal end and inserted at level of *v'* seta. Seta *v"* on femora I very long. Setae *a"* on tarsi I and II and setae *ft"* on tarsi II curved distally.

DIAGNOSIS. The new species is distinguishable from other members of the genus by the presence of powerful dorsal median carina of prodorsum and median carina of notogaster, the shape of sensilli, the length of interlamellar setae, the shortest rostral setae and the presence of minute setae of anoadanal plate.

ETYMOLOGY. The specific name *unicarinatus* refers to the presence of dorsal, prodorsal and notogastral carinae.

MATERIAL. Holotype and 6 paratypes: New Zealand, Waipona Forest, 6 I 1967, leg. R.R. FORSTER. Other material. Localities in the Australian region: New Zealand, Desert Rd., 10 I 1967, leg. R.R. FORSTER – (18); Sullivans Dam, leaf mould, 6 I 1963, leg. R.R. FORSTER – (1); Foot of Mt. Heldsworth, 3 VIII 1966, leg. C.L.W. – (4).

DISTRIBUTION. New Zealand, probably an endemic species.

Notophthiracarus usitatus NIEDBAŁA, 1989

(Figs 74-80 in NIEDBAŁA 1989)

DIAGNOSIS. Prodorsum with distinct fields; lateral carinae and posterior furrows absent; sensilli fairly long with pedicel dilated and oval head covered with small spines; interlamellar setae erect, robust, thick, covered with small spines in distal half, rostral setae spiniform, rough, lamellar and exobothridial setae vestigial. Notogaster with 15 pairs of rigid setae, fairly short, $c_1 < c_1$-d_1, covered with spines at distal end; vestigial setae f_1 posterior to h_1 setae; two pairs of lyrifissures *ia* and *im* present. Ventral region, setae *h* of mentum longer than distance between them, genital setae with formula: 5: 4; anoadanal plate with setae, ad_3 setae minute, ad_2 setae the longest and thickest, hooked at distal end, ad_1 setae longer than anal setae. Leg chaetotaxy of complete type.

MATERIAL. Localities in the Australian region: Australia, QLD 200 m Landsborough Shire, 8 III 1984, leg. L. MASNER – (3); QLD Mossman Gorge, 30 m, 23 II 1984, leg. L. MASNER – (1) (NIEDBAŁA 1989); Lamington Nat. Park, S.E.Q., extracted from litter, 21 XI 1965, leg. B. CANTRELL – (1); New South Wales, Blue Mountains, Lithgow, *Eucalyptus* sp. forest, litter sample, 12 III 1989, leg. D.A. KRIVOLUCKIJ – (6). Tasmania, Hellyer Riv. gorge, temperate rain forest, 11 I 1984, leg. L. MASNER – (1) (NIEDBAŁA 1989).

DISTRIBUTION. North and South Australia, Tasmania.

Notophthiracarus weigmanni NIEDBAŁA, 1987

(Figs LXV, LXVI in NIEDBAŁA 1987)

DIAGNOSIS. Prodorsum with weak fields, lateral longer than median; lateral carinae and posterior furrows absent; sensilli long, narrow and smooth; setae fine, spiniform, smooth, *in* > *ex* > *le* > *ro*. Notogaster with 15 pairs of fine, smooth setae; vestigial setae f_1 posterior to h_1 setae; all lyrifissures *ia, im,* ip, *ips* present. Ventral region, setae *h* of mentum shorter than distance between them; genitoaggenital plates with formula of genital setae: 4: 5; anoadanal plates with setae very short, $ad_2 > ad_1 > ad_3 > an$. Leg chaetotaxy of complete type, setae *d* on femora I with bifurcate distal end.

MATERIAL. Locality in the Australian region: Australia, QLD. ca 12 km SE Millae Millae, 17° 31'S, 145° 37'E, rainforest, at 600 m, 7 VII 1971, leg. R.W. TAYLOR, FEEHAN – (1) (NIEDBAŁA 1987).

DISTRIBUTION. North Australia, probably an endemic species.

Atropacarus (*Hoplophorella*) *cucullatus* (EWING, 1909)

(Figs 1053-1059)

Hoploderma cucullatum EWING, 1909
Atropacarus (*Hoplophorella*) *cucullatus*: NIEDBAŁA 1986,1992

DIAGNOSIS. See p. 281.

MATERIAL. Localities in the Australian region: Papua New Guinea, 40 km NE of Port Moresby, litter in mixed forest above stream, 1 IX 1979, leg J. BŁOSZYK – (1);

Port Moresby, Botanical Garden, humus, 13 XI 1981, leg. J. KOLASA – (6);Port Moresby, litter under old tree near University, 17 XI 1981, leg. J. KOLASA – (2) (NIEDBAŁA 1992); Port Moresby, Botanical Garden, litter, 13 XI 1981, leg. J. KOLASA – (2); Ambunti, litter from tropical forest, 22 IX 1979, leg. J. BŁOSZYK – (1); Central d. Korobosea, in litter of a yard (TF), 14 II 1974, leg. P.T. LEHTINEN – (12). Australia, Cairns, S of ville, in forest, 28 VIII 1979, leg. J. BŁOSZYK – (6);QLD Seymour Range, 50 m, 17° 26'S, 146° 00'E, rainforest, 6 VII 1971, leg. R.W. TAYLOR, FEEHAN – (3); QLD, Eachan Nat. Park, 17° 18'S, 145° 37'E, rainforest, at 760 m, 16 II 1973, leg. R.W. TAYLOR – (1); QLD 5 km W of Paluma, 19° 00'S 146° 12'E, at 950 m, rainforest, 4 XI 1970, leg. R.W. TAYLOR, FEEHAN – (2); Queensland, near Ellis Beach, N. Cairns, forest with high humidity, transitional zone to the rain forest, soil and litter, July 1992 – (30); Queensland, southern part of Cape Tribulation, N. Cairns, rain forest, soil and litter, July 1992 – (13). New Caledonia, Mont Panié, at 1300-1500 m, 7-8 X 1977, leg. J. BALOGH – (4); New Caledonia, Mont Panié, at 1300-1500 m, litter with thick moss, 7-8 X 1977, leg. J. BALOGH – (4); New Caledonia, Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (4); New Caledonia, Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (4); New Caledonia, Mont Panié, at 1300-1500 m, soil and roots under farntrees, 7-8 X 1977, leg. J. BALOGH – (7); New Caledonia, Mont Panié, at 1300-1500 m, moss on trunks, 7-8 X 1977, leg. J. BALOGH – (6).

DISTRIBUTION. A Semicosmopolitan species.

Atropacarus (*Hoplophorella*) *diaphoros* sp. nov.

(Figs 1474-1480)

DESCRIPTION. Measurements: Holotype: prodorsum: length 303, width 227, height 156, sensillus 60.7, setae: interlamellar 78.4, lamellar 73.4, rostral 63.2, exobothridial 15.2; notogaster: length 641, width 444, height 399, setae: c_1 105.9, h_1 101, ps_1 96.1; genitoaggenital plate 141x141, anoadanal plate 217x151. Colour light brown, integument with microsculpture of irregular patches. Prodorsum with broad median field and short lateral fields, median carina powerful, lateral carinae present. Sensilli long, narrow, setiform, rough. Interlamellar and lamellar setae similar in shape, robust, rigid, rough, rostral setae falciform, long, directed inwards. Notogaster with falciform setae, setae c_{1-3} remote from anterior border, setae c_{1-2} more than setae c_3, vestigial setae and lyrifissures not visible because of strong sculpture. Ventral region. Setae *h* of mentum shorter than distance between them. Formula of genital setae: 5: 4. Anoadanal plates with setae ad_1 and *an* rigid, rough, setae ad_2 similar to notogastral setae, falciform, covered with small spines, setae ad_3 long and lanceate. Legs. Formulae of setae and solenidia of "complete type".

DIAGNOSIS. This species is easily distinguishable from all other *Atropacarus* (*Hoplophorella*) species by the shape of setae. Only one species from Brasil - *A.* (*H.*) *galeatus* (BALOGH et MAHUNKA, 1978) is slightly similar to the new species.

ETYMOLOGY. The specific epithet *diaphoros* is Greek for "different" and alludes to the great morphological difference of the new species.

MATERIAL. Holotype and 14 paratypes: Australia, Bunya Mts. S.E.Q., 11.12 February 1967, leg. B. CANTRELL.

DISTRIBUTION. North Australia, probably an endemic species.