Genus	Vol. 24(3-4): 315-323	Wrocław, 28 XII 2013

Redescription of *Mimastra kumatai* (Kimoto & Takizawa, 1972), comb. nov. (Coleoptera: Chrysomelidae: Galerucinae)

Jan Bezděk
Mendel University, Department of Zoology, Zemědělská 1, 613 00 Brno, Czech Republic,
e-mail: bezdek@mendelu.cz

Abstract. *Trichomimastra kumatai* Kimoto & Takizawa, 1972 is transferred to *Mimastra* (comb. nov.) and redescribed. *Mimastra fulva* Kimoto & Takizawa, 1983 is synonymized with *Mimastra kumatai*. Variability of dorsal coloration and drawings of genitalia are presented.

Key words: entomology, taxonomy, synonymy, new combination, Coleoptera, Chrysomelidae, Galerucinae, *Mimastra*, *Trichomimastra.*

INTRODUCTION

The genus *Trichomimastra* was proposed by Weise (1922) as a subgenus of *Mimastra* Baly, 1865 and originally included six small species (body lenght 3-4 mm) with elytra densely covered with short setae. Subsequent authors very often confused the generic concept of *Trichomimastra* and described or transferred here many species although, evidently, not congeneric. Recently, four *Trichomimastra* species were transferred elsewhere: *T. itoi* Takizawa, 1986 to *Mimastra*, *T. kandyensis* (Maulik, 1936) to *Mimastracella*, *T. mauliki* (Lopatin, 1962) to *Cerophysa* and *T. indica* (Takizawa, 1985) to *Hoplosaenidea* (see Beenen 2008, Bezděk 2007, 2009, 2010). Currently, 19 species and 1 subspecies are listed in *Trichomimastra* however in about half of species the transfers to other genera are expected (those with larger body size and elytra glabrous with very sparse short setae on apical slopes).

Trichomimastra kumatai was described from three specimens (Kimoto & Takizawa 1972). The type specimens, deposited in Entomological Institute of Hokkaido University, were not examined, however, several years ago the poor photo of the holotype

(Fig. 7) was downloaded from the web pages of this institution. Recently, the link was not found again and seems to be cancelled or inactive. The identity of this species is based on the series of specimens deposited in Canadian National Collection of Insects (Ottawa) identified by Takizawa himself and habitually fitting the photo of the holotype and the drawing in the original description. About ten years later, both authors (Kimoto & Takizawa 1983) described *Mimastra fulva* also from Nepal. The holotype and one paratype (both females) were borrowed from National Science Museum (Tokyo) and examined.

The comparison of several tens of specimens of *Trichomimastra kumatai* showed this species to be extremely variable from completely pale brown specimens to specimens with variable black pattern on pronotum and elytra. While description of *Mimastra fulva* was based on pale specimens without black pattern, type specimens of *Trichomimastra kumatai* represents darker form with broad black bands on the elytra and two dark spots on the pronotum. Also Kimoto (2001) mentioned that pale specimens of *Trichomimastra kumatai* have pronotum and elytra completely yellowish brown. Because no additional distinguishing characters including the structure of aedeagus were found, following taxonomical changes are proposed: *Mimastra kumatai* (comb. nov.) = *Mimastra fulva* (**syn. nov.**).

MATERIAL AND METHODS

All measurements were made using an ocular grid mounted on MBS-10 stereomicroscope (at 16× magnification for the body length and 32× magnification for the remaining measurements). Photographs of the specimens were taken with Canon EOS 550D digital camera with Canon MP-E 65 mm objective. Images of the same specimen at different focal planes were combined using Helicon Focus 5.3 software.

The material is housed in the following collections:

CNC – Canadian National Collection of Insects, Ottawa, Ontario, Canada (Laurent LeSage);
JBCB – Jan Bezděk collection, Brno, Czech Republic;
MDCA – Manfred Döberl collection, Abensberg, Germany;
NHMB – Naturhistorisches Museum, Basel, Switzerland (Michael Geiser, late Michel Brancucci);
NMEG – Naturkundesmuseum, Erfurt, Germany (Matthias Hartmann);
NSMT – National Science Museum, Tokyo, Japan (Shuhei Nomura);
SMNS – Staatliches Museum für Naturkunde, Stuttgart, Germany (Wolfgang Schawaller).

Exact label data are cited for type material. A forward slash (/) separates different lines and a double slash (//) different labels of data. Additional remarks are in square brackets: [p] – preceding data are printed, [h] – preceding data are handwritten, [w] – white label, [b] – blue label, [r] – red label, and x/y – number of males/females.

Mimastra kumatai (Kimoto & Takizawa, 1972), comb. nov.

(Figs. 1-12)

Trichomimastra kumatai Kimoto & Takizawa, 1972, Kontyû 40: 218 (Type locality: Godavari, Nepal Valley).

Trichomimastra kumatai: Wilcox 1975: 683 (cat.); Kimoto & Takizawa 1981: 59; Kimoto & Takizawa 1983: 88; Takizawa 1988a: 538; Takizawa 1988b: 8; Medvedev & Sprecher-Uebersax 1999: 321 (cat.); Kimoto 2001: 50; Kimoto 2005: 75 (cat.); Beenen 2010: 490 (cat.); Sprecher-Uebersax 2011: 449 (cat.)

Mimastra fulva Kimoto & Takizawa, 1983, Bull. Natn. Sci. Mus. (Tokyo) (Ser. A) 9: 87 (Type locality: Lukhla – Phakding, Solukhumbu Dist.). **syn. nov.**

Mimastra fulva: Sprecher-Uebersax 1997: 153; Medvedev & Sprecher-Uebersax 1999: 311 (cat.); Kimoto 2004: 55; Kimoto 2005: 61 (cat.); Zhang et al., 2006: 203 (cat.); Beenen 2010: 481 (cat.); Sprecher-Uebersax 2011: 449 (cat.).

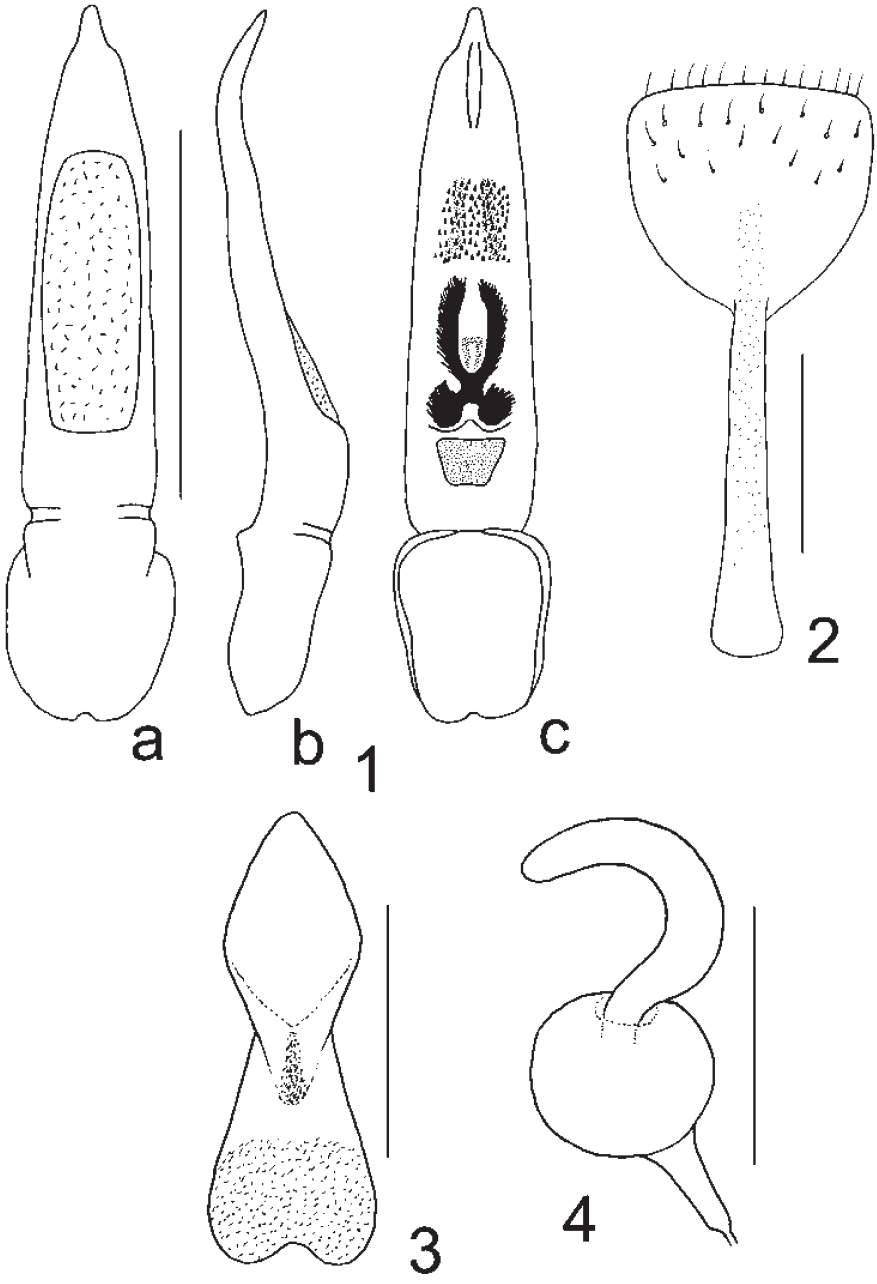
Type material

Trichomimastra kumatai. Not examined. Holotype is deposited in Entomological Institute of Hokkaido University (Japan).

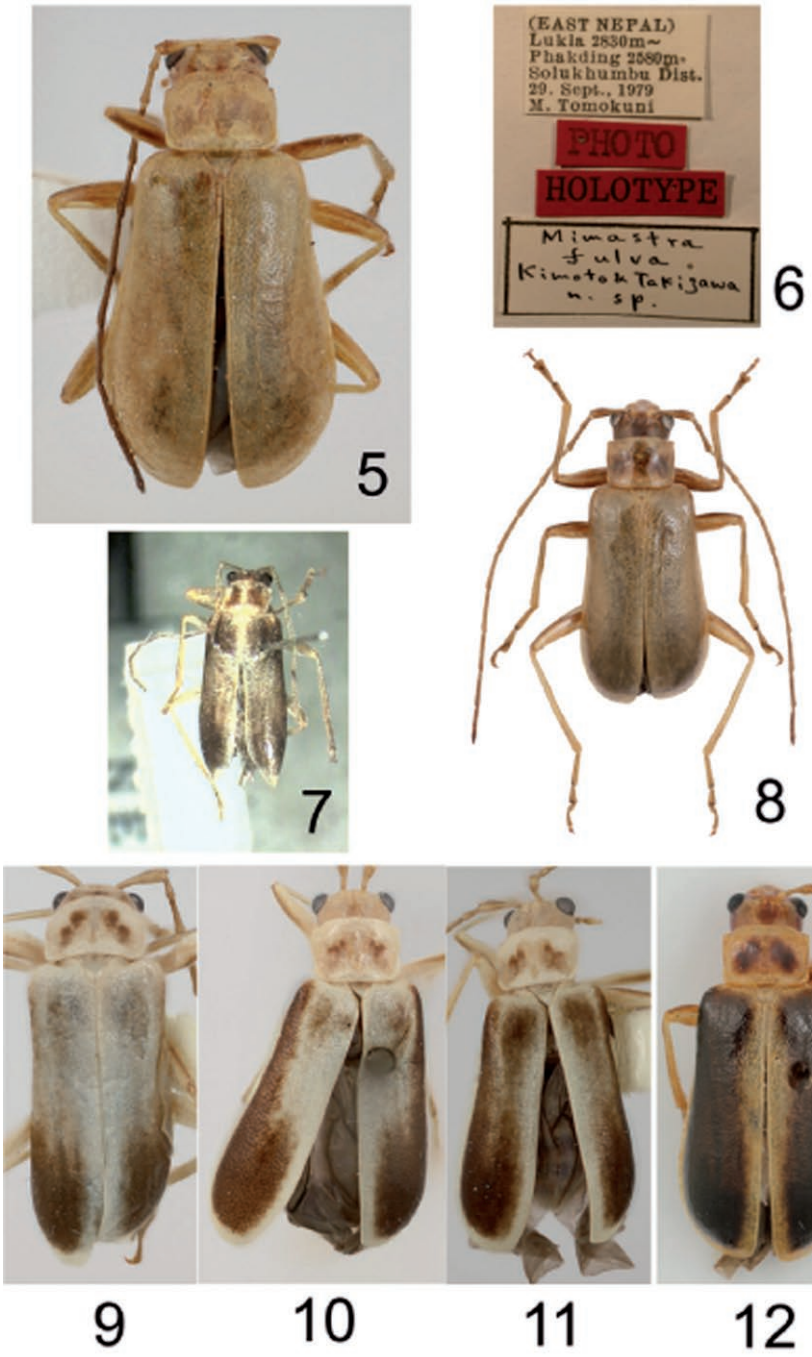
Mimastra fulva. Holotype (female), labelled: „(EAST NEPAL) / Lukla 2830m~ / Phakding 2580m / Solukhumbu Dist. / 29. Sept., 1979 / M. Tomokuni [w, p] // PHOTO [r, p] // HOLOTYPE [r, p] // Mimastra / fulva / Kimoto & Takizawa / n. sp. [w, h]“ (in NSMT); 1 paratype (female), labelled: „Changma / 2,200-2,350m / Ramechhap / Janakpur [w, p] // E NEPAL / 14-X-1979 / Y. Nishikawa [w, p] // PARATYPE [b, p] // Mimastra / fulva / Kimoto & Takizawa / n. sp. [w, h] // Trichomimastra / Det. H. Takizawa 1981 VI. [w, h]“ (in NSMT).

Additional material examined

NEPAL: Kathmandu, Godavari, 20.vii.-23.viii.1967, Can. Nepal Exp. leg. (7/5 in CNC, 2 spec. unsexed in JBCB); Kangchenjunga Himal Mts., Chiruwa vill., 27.29N 87.45E, 1260 m, 30.vi.-1.vii.2000, D. Král leg. (1/1 in NHMB); Kangchenjunga Himal Mts., Yaden vill., 27.32N 87.48E, 1597 m, 11.vii.2000, J. Farkač leg. (0/2 in NHMB); Kosi, Chichila, 27°28´N 87°14´E, 1900-2000 m, 3.-5.vi.2001, NHMB Basel expedition to Nepal (1/1 in NHMB); Kosi, Num Khola, 27°33´N 87°18´E, 900-1000 m, 8.-10.vi.2001, NHMB Basel expedition to Nepal (2/1 in NHMB); Arun valley, Arun river – Num, 800-1500 m, 17.vi.1983, M. Brancucci leg. (1/2 in NHMB); Arun valley, Num, 1550 m, 5.-6..vi.1983, M. Brancucci leg. (0/1 in NHMB); Arun valley, Lamobagar Gola, 1400 m, 8.-14.vi.1983, M. Brancucci leg. (0/1 in NHMB); Arun valley, Hedangna – Lamobagar, 1100-1400 m, 8.vi.1983, M. Brancucci leg. (1 spec. unsexed in NHMB); Arun valley, Num – Hedangna, 1500-800-1100 m, 7.vi.1983, M. Brancucci leg. (1/0 in NHMB); Mechi/Taplejung, 20 km NEE of Taplejung, Phumphe env., 27°24´28´´N 87°51´46´´E, 1850 m, 24.v.2003, A. Weigel leg. (1/0 in NMEG); Langtang, Syabru, Bamboo Lodge, 28°09´N 85°24´E, 1900-2160 m, 14.ix.1997, Fabrizi & Ahrens leg. (0/1 in NMEG); Sankhua Sabha distr., between Pahakhola and Karmarang, 1500-1800 m, cultural land, bushes, 4.vi.1988, J. Martens & W. Schawaller leg. (2/0 in SMNS, 1/0 in MDCA); Sankhua Sabha distr., Arun valley bottom, between Hedangna and Num, 950-1000 m, subtropical forest, 6.-8.vi.1988, J. Martens & W. Schawaller leg. (0/1 in



1-4. *Mimastra kumatai*: 1 – aedeagus (a – dorsal view, b – lateral view, c – ventral view with internal sclerites, 2 – tignum and sternite VIII, 3 – vaginal palpi, 4 – spermatheca. Scales: 1 mm for Fig. 1, 0.5 mm for Fig. 2, 0.25 mm for Figs. 3-4



5-12. *Mimastra kumatai*: 5 – holotype of *Mimastra fulva* (female, 6.4 mm), 6 – labels of holotype of *Mimastra fulva*, 7 – holotype of *Trichomimastra kumatai*, 8 – pale specimen (male, 5.9 mm), 9-12 – dark specimens

SMNS); Sankhua Sabha distr., Arun valley bottom, ascent to Num, 1100-1450 m, broad leaved forest, 8.vi.1988, J. Martens & W. Schawaller leg. (0/1 in MDCA); Sankhua Sabha distr., Arun valley, between Mure and Hurure, 2050-2150 m, mixed broad-leaved forest, 9.-17.vi.1988, J. Martens & W. Schawaller leg. (3/0 in SMNS).

Redescription

Body length: males 5.0–6.0 mm; females 6.0–7.2 mm.

Male (Fig. 8). Body moderately flattened, subparallel, slightly dilated posteriorly, glabrous, apical slopes of elytra with sparse hairs. Head yellowish brown or brown, sometimes vertex dark brown. Pronotum yellowish brown to brown or with two black oblique spots with ill-defined margins. Colour of elytra variable from completely pale brown to forms with broad black band on elytra (see Variability section). Antennae brown, in dark specimens apical antennomeres gradually darkened. Prosternum yellowish brown, meso- and metasternum black. Abdomen black, extreme lateral margins of ventrites I to IV sometimes yellow to brown, last ventrite yellow (rarely with transverse black spot at anterior margin). Legs yellowish brown or brown, rarely outer margins of femora slightly darkened.

Head lustrous. Labrum transverse, with several long pale setae laterally, anterior margin slightly concaved, lateral margins convergent and rounded. Anterior part of head almost glabrous, several setae visible only at lateral sides of flat and wide nasal keel. Interocular space wide, 2.90 times as wide as transverse diameter of eye. Frontal tubercles shiny, covered with very fine microsculpture, subtriangular, transverse, with slightly divergent anterior tips, moderately elevated, separated from each other by thin furrow. Interantennal space 1.25 times as wide as transverse diameter of antennal socket. Frons separated from frontal tubercles by distinct groove, with setigerous pore behind each eye bearing long pale seta. Vertex lustrous, glabrous, impunctate, sometimes with indistinct median line. Antennae long, filiform, 1.25 times as long as body, length ratio of antennomeres I–XI equals 16-7-9-17-15-15-15-15-15-14-14.

Pronotum transverse, 1.30-1.35 times as broad as long, widest at first quarter. Surface lustrous, nearly impunctate, glabrous, behind the middle with two transverse lateral depressions. Anterior margin unbordered, straight. Posterior margin stright in middle part, laterally slightly oblique, distinctly bordered. Lateral margins straight, slightly convergent posteriorly, distinctly bordered. Anterior angles rectangular, posterior ones slightly obtusely angulate, all angles with setigerous pore bearing one long pale seta. Scutellum triangular with rounded apex, lustrous, glabrous, covered with very fine microsculpture.

Elytra lustrous, 2.1 times as long as wide at humeral part, 0.70-0.75 as long as body, slightly divergent posteriorly (widest at apical quarter), densely covered with small confused punctures, glabrous but sparse pale setae present on apical half. Humeral calli well developed. Epipleura moderately wide at anterior third, gradually narrowing in middle part, disappearing before apex. Macropterous.

Ventral surface lustrous, finely punctate and covered with long pale setae. Posterior margin of last ventrite moderately concave, without incisions.

Protarsomere I elongate, slender, 0.80 times as long as two following tarsomeres

combined, length ratios of protarsomeres I–IV equal to 8-6-4-8. Metatarsomere I long, slender, 1.3 times as long as two following tarsomeres combined, length ratios of metatarsomeres I–IV equal to 13-6-4-8. Claws appendiculate.

Aedeagus (Fig. 1) elongate, in median third subparallel, slightly convergent, in apical third gradually narrowed, subapically with distinct concavity, apex triangular with shortly rounded tip. In lateral view, apex distinctly bent upwards. Ventrally with median furrow in apical quarter. Internal sclerites: basally with small trapezoidal plate, medially with large X-shaped sclerites densely covered with black setae, basal branches shorter and subglobular, apical branches elongate, subapically with large membranous plate densely covered with minute sclerotized triangles.

Female. Interocular space 3.1 times as wide as transverse diameter of eye. Interantennal space as wide as transverse diameter of antennal socket. Antennae shorter than in males, 1.0-1.1 times as long as body. Pronotum 1.35-1.40 times as broad as long. Posterior margin of last ventrite regularly rounded. Sternite VIII with row of setae at posterior margin, setae visible also on the posterior half of disc. Tignum relatively short and wide (Fig. 2). Vaginal palpi compact, not divided apically, apical part rhomboid with shortly rounded apex, basal part divergent and widely incised at base (Fig. 3). Spermatheca with globular nodulus, cornu widely C-shaped, distinctly penetrated to nodulus, proximal spermathecal duct relatively wide and than suddenly narrowed (Fig. 4).

Variability

The coloration of dorsal side is very variable. The pale specimens are uniformly yellowish brown to brown, sometimes vertex slightly darker brown. Often the disc of elytra is slighly more brownish than yellowish elytral margins. Pronotum in the darker specimens bears two oblique dark brown to black spots, usually with ill-defined margins, rarely almost divided into four small spots (Figs. 9-12). The black pattern on elytra varies from large apical spots (Fig. 9), large apical spots connected by a thin stripe with humeral calus (Fig. 10), broad black bands ill-defined in the apical half and on the disc (Fig. 11), to well developed broad black bands (Fig. 12).

Diagnosis

Mimastra kumatai belongs to *Mimastra* species with normal, not modified, first protarsomere in males. The dark forms with well developed broad black bands on elytra can be confused with similarly coloured *Mimastra* species revised recently (Bezděk & Lee 2011), particularly with *Mimastra birmanica* Bryant, 1954 (Myanmar), *M. fouqueorum* Bezděk & Lee, 2011, *M. schneideri* Bezděk & Lee, 2011 (both Thailand), *M. hsuehleeae* Bezděk & Lee, 2011 (Taiwan), *M. laotica* Bezděk & Lee, 2011 (Laos) and *M. tenuelimbata* Lopatin, 2004 (Vietnam). The mentioned species always have completely yellow or brown pronotum without any black pattern which frequently occurs in the darker specimens of *M. kumatai*. All species differ also in the structure of aedeagus (compare Fig. 1 with drawings in Bezděk & Lee 2011).

The intermediate forms with a fragmented black pattern on elytra cannot be confused with any other *Mimastra*. The rare form of *Mimastra kumatai* with preapical

dark spot on elytra resembles *M. riedeli* Bezděk, 2009 but differs in less transverse pronotum (1.30-1.35 times as broad as long in *M. kumatai*, whilst 1.85–1.90 times in *M. riedeli*).

Only four dorsally pale *Mimastra* species are distributed in Nepal and surrounded countries. *Mimastra gracilicornis* Jacoby, 1889 can be distinguished from *M. kumatai* by completely orange ventral side and aedeagus widely rounded in lateral view. *Mimastra scutellata* Jacoby, 1904 was described from South India and the records from Himalayas, East India and Indochina were possibly based on misidentified specimens. Nevertheless, legs and antennae of *M. scutellata* are completely black while predominantly pale in *M. kumatai*. Although *M. riedeli* was described only from specimens with preapical spot on elytra, the specimens with completely pale elytra frequently occur in Nepal. As described above, *M. kumatai* differs in less transverse pronotum. The last species, *M. gracilis* Baly, 1878, is not congeneric with *Mimastra* and will be transferred elsewhere in the near future.

Distribution

Nepal (Kimoto & Takizawa 1972, 1981, 1983; Takizawa 1988a, b; Sprecher-Uebersax 1997, Kimoto 2001; present paper), India (West Bengal), Sikkim (Kimoto 2004).

Comments

Mimastra kumatai was originally described in the genus *Trichomimastra* Weise, 1922 based on the presence of sparse pale setae on the apical half of elytra. Elytral setation as the main generic diagnostic character was misunderstood in this case. Elytra of true *Trichomimastra* are densely covered with short setae on the whole elytral surface and this genus contains small species of body lenght about 3-4 mm.

Although elytra are often described as glabrous, in fact sparse pale setae on the apical half of elytra frequently occur in *Mimastra* species (sometimes may be abraded or were overlooked by authors). *Trichomimastra kumatai* is a typical representative of the genus *Mimastra* including the structure of both male and female genitalia and, thus, it is transferred to *Mimastrai.*

Acknowledgements

I would like to thank all curators and colleagues listed above for giving me the opportunity to study the material from their collections.

This study was supported by the Research plan No. MSM6215648905 “Biological and technological aspects of sustainability of controlled ecosystems and their adaptability to climate change”, which is financed by the Ministry of Education, Youth and Sports of the Czech Republic.

REFERENCES

Beenen, R., 2008. Taxonomical and nomenclatural changes in Palaearctic Galerucinae and description of a new species (Chrysomelidae). Entomologische Blätter, **103/104**: 63-80.

—, 2010. Galerucinae, pp. 443-491. In: Löbl, I. & Smetana, A. (eds.): Catalogue of Palaearctic Coleoptera, Volume 6, Chrysomeloidea. Apollo books, Stenstrup, 924 pp.

Bezděk, J., 2007. Notes on the Galerucini from India and Sri Lanka, with description of *Pyrrhalta warchalowskii* n. sp. from Tamil Nadu state, India (Coleoptera: Chrysomelidae: Galerucinae). Genus, **18**: 603-612.

—, 2009. Taxonomic and faunistic notes on Oriental Galerucinae (Coleoptera: Chrysomelidae). Genus, **20**: 85-103.

—, 2010. Revisional study on the genus *Mimastra* (Coleoptera: Chrysomelidae: Galerucinae). Part 2. Ann. Zool., **60**: 35-46.

Bezděk, J. & Lee, Ch.-F., 2011. Revisional study on the genus *Mimastra* (Coleoptera: Chrysomelidae: Galerucinae). Part 4. Annales Zoologici, 61: 709-729.

Kimoto, S., 2001. The Chrysomelidae (Insecta: Coleoptera) collected by the Kyushu University Scientific Expedition to the Nepal Himalaya in 1971 and 1972. Bull. Kitakyushu Mus. Nal. Hist., **20**: 17-80.

—, 2004. New or little known Chrysomelidae (Coleoptera) from Nepal, Bhutan and the northern territories of Indian subcontinent. Bull. Kitakyushu Mus. Nat. Hist. & Human Hist., Series A (Nat. Hist.), **2**: 47-63.

—, 2005. Systematic catalog of the Chrysomelidae (Coleoptera) from Nepal and Bhutan. Bull. Kitakyushu Mus. Nat. Hist. & Human Hist., Series A (Nat. Hist.), **3**: 13-114.

Kimoto, S., Takizawa, H., 1972. Chrysomelid-beetles of Nepal, collected by the Hokkaido University scientific expedition to Nepal Himalaya, 1968. Part I. Kontyû, **41**: 215-223.

—, 1981. Chrysomelid-beetles of Nepal, collected by the Hokkaido University scientific expeditions to Nepal Himalaya, 1968 and 1975. Part III (Coleoptera). Ent. Rev. Japan, **35**: 51-65.

—, 1983. Chrysomelid beetles of Nepal, collected by the Himalaya expedition 1979 of the National Science Museum, Tokyo (Part 1). Bull. Nat. Sci. Mus. Tokyo (Ser. A), **9**: 83-96.

Medvedev, L. N., Sprecher-Uebersax, E., 1999. Katalog der Chrysomelidae von Nepal. Ent. Basil., **21**: 261-354.

Sprecher-Uebersax, E., 1997. Blattkäfer aus Nepal in den Sammlungen des Naturkundemuseums Erfurt (Insecta: Coleoptera: Chrysomelidae). Veröffentlich. Naturkundemus. Erfurt, **16**: 138-171.

—, 2011. A new catalogue of leaf beetles (Coleoptera, Chrysomelidae) from Nepal. Ent. Basil. Coll. Frey, **33**: 375-512.

Takizawa, H., 1988a. Notes on chrysomelid beetles (Coleoptera, Chrysomelidae) of India and its neighboring areas. Part 7. Kontyû, **56**: 534-552.

—, 1988b. Chrysomelid beetles of Nepal, collected by the Hokkaido University scientific expeditions to Nepal Himalaya. Part IV (Coleoptera: Chrysomelidae). Ent. Rev. Japan **43**: 1-16.

Weise, J., 1922. Chrysomeliden der indo-malayischen Region. Tijd. Entomol., **65**: 39-130.

Wilcox, J. A., 1975. Chrysomelidae: Galerucinae. Addenda et index. In: Wilcox, J. A. (ed.): Coleopterorum Catalogus Supplementa. Pars 78(4). Second edition. W. Junk, 's Gravenhage, 667-770 pp.

Zhang, L.-J., Yang, X.-K., Cui, J.-Z., Li, W.-Z., 200a. A key to the genus *Mimastra* Baly (Coleoptera: Chrysomelidae: Galerucinae) from China, with the description of a new species. Entomol. News, **117**: 203-210.