

Borowiecianus and *Tarnawskianus*, two new and closely related
genera of the tribe Ctenicerini from China and North India
(Insecta: Coleoptera: Elateridae)

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ABSTRACT. The material used for this study has been collected at an altitude of 2200 to 4300 m. a.s.l. in the environments of the Chinese provinces Gansu, Henan, Hubei, and Yunnan, and in the North-Indian province Himachal Pradesh. A new genus *Borowiecianus* n. gen. with new species: *B. alatus* n. sp. (China: Yunnan), *B. gansuensis* n. sp. (China: Gansu), *B. lindemeri* n. sp. (China: Yunnan), and *B. gorodinskii* n. sp. (India: Himachal Pradesh), and a new genus *Tarnawskianus* n. gen. with new species: *T. becvari* n. sp. (China: Yunnan), *T. kucerai* n. sp. (China: Yunnan), *T. longicornis* n. sp. (China: Hubei), *T. turnai* n. sp. (China: Henan), and *T. yanmenensis* n. sp. (China: Yunnan) are described. Both new genera are placed into the natural system near the genus *Prosternon* LATREILLE, 1834. *Athous kubani* SCHIMMEL, 1998 is transferred to the genus *Tarnawskianus*, new combination. As of the general conformity of the bodies, and special characteristics, like the male genitalia and antennae, the new genera are treated as closely related. However, there are conspicuous differences in the development of wings and legs in the species of both groups. As of the morphological characteristics of the new species, the new genera are placed in this study as members of the tribe Ctenicerini FLEUTIAUX, 1936, which belongs to the subfamily Denticollinae REITTER, 1905.

Key words: entomology, taxonomy, Coleoptera, Elateridae, *Borowiecianus*, *Tarnawskianus*, new genera, new species, new combination, China, North India.

INTRODUCTION

The genera *Borowiecianus* and *Tarnawskianus* described in this paper as new to sciences are systematically closely related to each other due to the general conformity in body shape, in colour, and in special characteristics like male genitalia. However, there are conspicuous and basic differences, especially in the development of wings

and legs in the species of both groups. In *Borowiecianus*, the wings are fully developed (fig. 10), the legs are developed normally (fig. 11). In *Tarnawskianus*, the wings are reduced to little rudiments in all species (fig. 13), and the legs are conspicuously extended (fig. 14). The pronotum in *Borowiecianus* is relatively flat, its lateral margins are slightly convex (fig. 9), while in *Tarnawskianus* it is slightly raised at centre, and slightly bent laterally (fig. 12). Both new genera are treated as members of the tribe Ctenicerini FLEUTIAUX, 1936 that belongs to the subfamily Denticollinae REITTER, 1905 (in accordance with STIBICK, 1979: 168-174).

ABBREVIATIONS

CDZ	Coll. DUŠÁNEK, Zábřeh, Czech Republic;
CMH	Coll. MERTLIK, Hradec Kralové, Czech Republic;
CPG	Coll. PLATIA, Gatteo, Italy;
CRG	Coll. RIESE, Genova, Italy (don. Museo Civico di Storia Naturale, Genova);
CSV	Coll. SCHIMMEL, Vinningen, Germany;
CTW	Coll. TARNAWSKI, Wrocław, Poland;
TICB	TAMMIN, Ins. Coll. Brno, Czech Republic.

DESCRIPTIONS OF NEW GENERA AND NEW SPECIES

***Borowiecianus* n. gen.**

(Figs. 1-11)

TYPE SPECIES

Borowiecianus alatus n. sp.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 12.0 mm in length (measured from apical margin of frons to apex of elytra). Body black to blackish-brown with bronze metallic shine, legs and epipleura of elytra brown. Pubescence yellowish, fine and on pronotum tightly inclined from median line to lateral sides, and wrinkled, on elytra inclined from basis to apex and to lateral margins (figs. 1, 3, 5, 7, 9).

Head with dense, deep, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, reaching behind basal angles of pronotum for the length of the last three to four antennomeres. Second antennomere conspicuously shorter than the following, third antennomere clearly shorter than fourth, and the following antennomeres, those are little extended at apex, and thickened, last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median line longer than wide at the basal angles (length/width ratio 1.3:1.0), flat at centre, slightly bent laterally, little narrowed at basal angles, the latter divergent, and sharp at apex (figs. 9). Pronotum with deep,

and umbilicate, regularly rounded punctures, interstices of points approximately once their diameter. Pronotum basal angles with a feebly visible carina, but without median furrow or mould.

Scutellum tongue-shaped, straight to little concave at basis, little narrowing laterally, and rounded at apex. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter, and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, but without inner tooth. Basis of elytra little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder little raised, wings fully developed (fig. 10). Striae of elytra as well as their interstices covered with fine and small, simple punctures, interstices of points flat. Body semi-dull, and little shiny.

Furrows of prosternum laterally with a fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices flat and dull. Pubescence short and adjacent.

Legs slender, and thin, femora as long as tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with feebly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with a thin, apically slightly bevelled, slightly outreaching parameres. Paramere with spoon-like lateral lobe, and covered with short hairs (figs. 2, 4, 6, 8).

SYSTEMATIC POSITION

According to the following characters: head flattened, frontal carina feebly acute above antennal basis, being absent in middle, mouth parts prognathous, antenna serrate, prosternal sutures excavated anterior, and with a fine carina, scutellum tongue-shaped, mesocoxae open to mesepimeron and mesepisternum, tarsi and claws simple, the new genus *Borowiecianus* is placed here as a member of the subfamily Denticollinae REITTER, 1905, and included into the tribe Ctenicerini FLEUTIAUX, 1936.

Borowiecianus is placed into the system near the genera *Prosternon* LATREILLE, 1834, *Eanus* LECONTE, 1861, *Hypoganus* KIESENWETTER, 1858, *Aplotarsus* STEPHENS, 1830, and *Tarnawskianus* n. gen., as of the possession of a fine carina at the inner side of proepisternum, forming the prosternal furrows for the accommodation of the first antennomeres.

DIFFERENTIAL DIAGNOSIS

Borowiecianus n. gen. is closely allied to the genus *Prosternon* LATREILLE, 1834 on the account of characters of proepisternum, but may be easily distinguished by the cylindrical pronotum (fig. 9), across median line clearly longer than wide across basal angles of pronotum (length/width ratio 1.3:1.0), the spoon-shaped paramere-apex of male genitalia (figs. 2, 4, 6, 8), and the antennae exceeding hind-angles of pronotum by the length of the last three antennomeres. The new genus *Borowiecianus* is closely allied to the new genus *Tarnawskianus*, but may be easily distinguished by the fully developed wings (fig. 10), the shorter legs (fig. 11), the flat pronotum, and the sharp apex of its basal angles (fig. 9).

DISTRIBUTION

China, North-India.

DERIVATIO NOMINIS

The new genus, *Borowiecianus*, is dedicated to Prof. Dr. L. BOROWIEC, Department of Biodiversity and Evolutionary Taxonomy, Zoological Institute, University of Wrocław, honouring his excellent editorial works on the papers of the Polish Taxonomical Society. Gender: masculine.

ECOLOGICAL REMARKS

The specimen of the new genus had been found at an altitude of 2200 to 4300 m.

***Borowiecianus alatus* n. sp.**

(Figs. 1-2, 9-11)

LOCUS TYPICUS

China: Yunnan.

TYPE MATERIAL

Holotypus ♂ (CMH): China: Yunnan, Baishui, 3000 m, 26.VI.-3.VII.1996, leg. E. Kučera. **Paratypes** 5 ♂♂, 2 ♀♀ (TICB, CMH, CSV): Same date as holotype, 1 spm.; same location as holotype but 10.-17.VI.1998, 1 spm., leg. E. Kučera; China: Yunnan, Yulongshan Mts., 2800-3600 m, 8.-9.VII.1990, 1 spm., leg. V. Kubáň; same location but 3600-4300 m, 22.VI.1993, 1 spm., leg. V. Kubáň; same location but 3500-4000 m, 16.-19.VI.1993, 2 spm., leg. V. Kubáň; same location but 3300-3500 m, 20.-21.VI.1993, 1 spm., leg. V. Kubáň.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 12.0 mm in length (measured from apical margin of frons to apex of elytra), and 2.9 mm in width (measured across basis of elytra). Body black to blackish-brown with bronze metallic shine, legs and antennae blackish, epipleura of elytra brown. Pubescence yellowish, fine and on pronotum tightly inclined from median line to lateral sides, and wrinkled, on elytra inclined from basis to apex and to lateral margins (figs. 1, 9, 11).

Head with dense, deep, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, reaching behind basal angles of pronotum for the length of the last three antennomeres. Second antennomere conspicuously shorter than the following, third antennomere clearly shorter than fourth, and the following antennomeres, those are little extended at apex, and thickened, last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.3:1.0), flat at centre, slightly bent laterally, little narrowed at basal

angles, the latter divergent, and sharp at apex (figs. 9). Pronotum with deep, and umbilicate, regularly rounded punctures, interstices of points once their diameter. Pronotum basal angles with a feebly visible carina, but without median furrow or mould.

Scutellum tongue-shaped, straight to little concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder little raised, wings fully developed (fig. 10). Striae of elytra as well as their interstices covered with fine and small, simple punctures, interstices of points flat. Body semi-dull, only a little shiny.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices flat and dull. Pubescence short and adjacent.

Legs slender, and thin, femora as long as tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with feebly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-forming lateral lobe, and covered with short hairs (figs. 2).

DIFFERENTIAL DIAGNOSIS

The new species, *B. alatus*, is closely related to *B. gansuensis*, but may be easily distinguished by larger body, black antennae, less dense puncturation of pronotum, and by spoon-forming lateral lobe of the aedeagus.

DERIVATIO NOMINIS

Named after fully developed wings of the species.

DISTRIBUTION

China.

Borowiecianus gansuensis n. sp.

(Figs. 3-4)

LOCUS TYPICUS

China: Gansu.

TYPE MATERIAL

Holotypus ♂ (CRG): China: Gansu, 40 km west of Wudu Tane Vill., 15.VI.2005, leg. A. Gorodinski. **Paratypes** 5 ♂♂ (CRG, CSV, CTW): Same data as Holotypus.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 11.5 mm in length (measured from apical margin of frons to apex of elytra), and 2.8 mm in width (measured across basis

of elytra). Body black with bronze metallic shine, legs and antennae brown. Pubescence yellowish, fine and on pronotum tightly inclined from median line to lateral sides, and wrinkled, on elytra inclined from basis to apex and to lateral margins (fig. 3).

Head with dense, deep, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, reaching behind basal angles of pronotum for the length of the last three antennomeres. Second antennomere conspicuously shorter than the following, third antennomere as long as fourth, and the following antennomeres, those are slender, and little extended at apex, last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.3:1.0), flat at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, and sharp at apex. Pronotum with deep, and umbilicate, regularly rounded punctures, interstices of points half to once their diameter. Pronotum basal angles with only weakly visible carina, but without median furrow.

Scutellum tongue-shaped, straight to little concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex, and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder little raised, wings fully developed. Striae of elytra as well as their interstices covered with fine and small, simple punctures, interstices of points little raised. Body semi-dull, and little shiny.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices flat and dull. Pubescence short and adjacent.

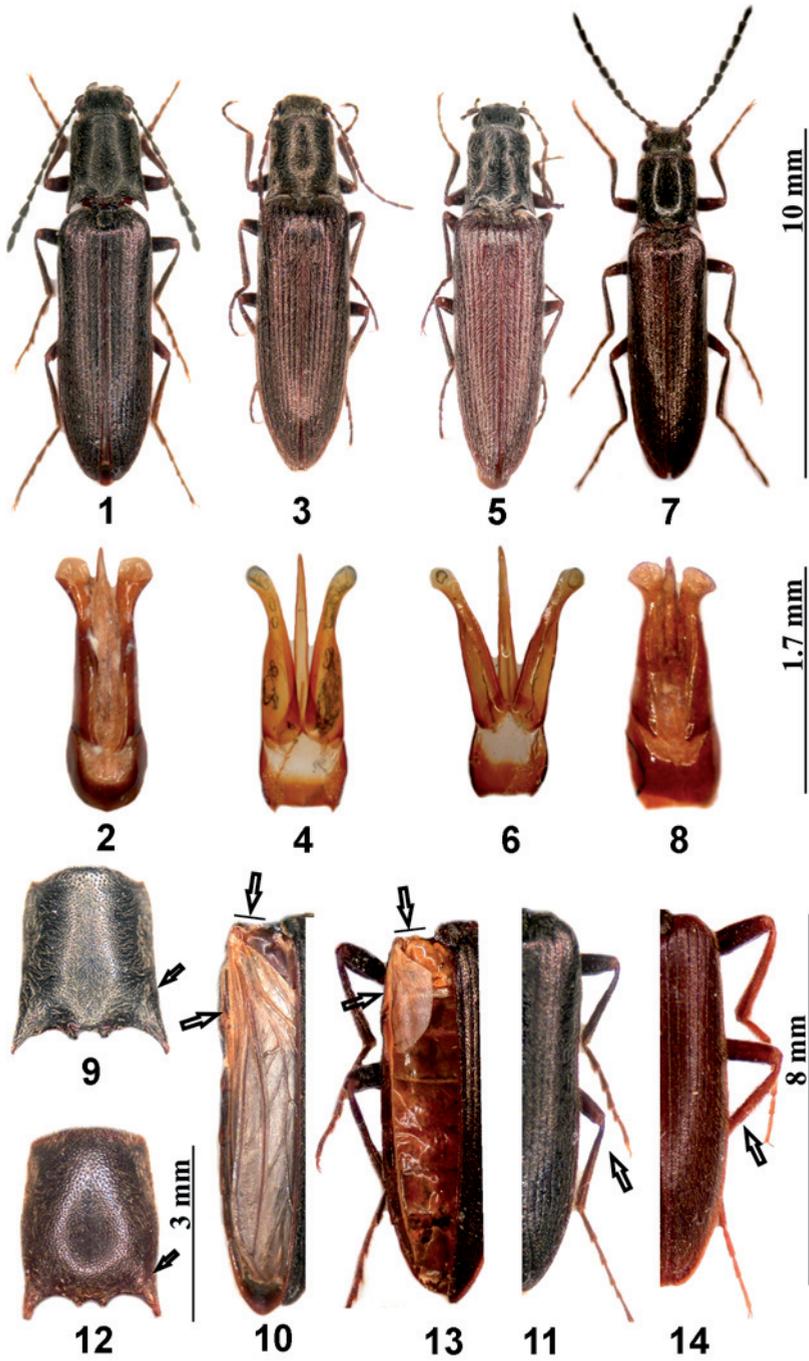
Legs slender, and thin, femora as long as tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with only weakly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Apex of paramere slender, spoon-like latero-apically, and covered with short hairs (figs. 4).

DIFFERENTIAL DIAGNOSIS

The new species, *B. gansuensis*, is closely related to *B. gorodinskii* but may be easily distinguished by shorter antennae, denser puncturation of pronotum, and by the form of latero-apical part of parameres.

1-14. Habitus, pronotum, wings, legs, and aedeagus of *Borowiecianus*- and *Tarnawskianus*-species: 1-2, 9- 11, *Borowiecianus alatus* n. sp., 1 - habitus, 2 - aedeagus, 9 - pronotum, 10 - left wing, 11 - middle and hind leg of right side. Figs. 3-4, *B. gansuensis* n. sp., 3 - habitus, 4 - aedeagus. Figs. 5-6, *B. gorodinskii* n. sp., 5 - habitus, 6 - aedeagus. Figs. 7-8, *B. lindemeri* n. sp., 7 - habitus, 8 - aedeagus. Figs. 12-14, *Tarnawskianus becvari* n. sp., 12 - pronotum, 13 - rudiment of left wing. Fig. 14 - middle and hind leg of right side of *T. longicornis* n. sp.



DERIVATIO NOMINIS

Named after the locus typicus.

DISTRIBUTION

China.

***Borowiecianus gorodinskii* n. sp.**

(Figs. 5-6)

LOCUS TYPICUS

India: Himachal Pradesh.

TYPE MATERIAL

Holotypus ♂ (CRG): India: Himachal Pradesh, Pirpandzhal Range, Manali Vill., 2200 m, 1.VII.2003, leg. A. Gorodinski.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 11.6 mm in length (measured from apical margin of frons to apex of elytra), and 2.8 mm in width (measured across basis of elytra). Body black with bronze metallic shine of elytra, legs and antennae brown. Pubescence yellowish, fine and on pronotum tightly inclined from median line to lateral sides, and wrinkled, on elytra inclined from basis to apex and to lateral margins (fig. 5).

Head with dense, deep, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, reaching behind basal angles of pronotum for the length of the last four antennomeres. Second antennomere conspicuously shorter than the following, third antennomere as long as fourth, and the following antennomeres, those are slender, and little extended at apex, last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, nearly rectangular, across median area longer than wide at the basal angles (length/width ratio 1.3:1.0), flat at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, and sharp at apex. Pronotum with flat, and simple, regularly rounded punctures interstices of points once to two times their diameter. Pronotum basal angles without visible carina, and without median furrow.

Scutellum tongue-shaped, straight to little concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, just after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder little raised, wings fully developed. Striae of elytra as well as their interstices covered with fine and small, simple punctures, interstices of points little raised. Body semi-dull, only weakly shining.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices flat and dull. Pubescence short and adjacent.

Legs slender, and thin, femora as long as tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with only weakly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with slender, spoon-like latero-apical lobe covered with short hairs (figs. 6).

DIFFERENTIAL DIAGNOSIS

The new species, *B. gorodinskii*, is closely related to *B. gansuensis* but may be easily distinguished by longer and slender antennae, less dense puncturation of pronotum, and by the form of latero-apical part of parameres.

DERIVATIO NOMINIS

Named after the discoverer of the new species, A. GORODINSKI.

DISTRIBUTION

North-India.

Borowiecianus lindemeri n. sp.

(Figs. 7-8)

LOCUS TYPICUS

China: Yunnan.

TYPE MATERIAL

Holotypus ♂ (TICB): China: Yunnan, Yulongshan Mts., 3500-4000 m, 16.-19.VI.1993, leg. B. Kuban. **Paratypes** 2 ♂♂ (TICB, CSV): Same date as holotype, leg. V. Kuban.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 10.7 mm in length (measured from apical margin of frons to apex of elytra), and 2.4 mm in width (measured across basis of elytra). Body black to blackish brown with bronze metallic shine, legs brown, antennae blackish. Pubescence yellowish, fine and on pronotum tightly inclined from median line to lateral sides, and wrinkled, on elytra inclined from basis to apex and to lateral margins (fig. 7).

Head with dense, deep, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, apical prominently edged, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, reaching behind basal angles of pronotum for the length of the last three antennomeres. Second antennomere conspicuously shorter than the following, third antennomere clearly shorter than fourth, and the following antennomeres, those are little extended at

apex, and thickened, last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured, and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.3:1.0), flat at centre, and slightly bent laterally, in front of basal angles little convex, basal angles divergent, and sharp at apex. Pronotum with flat, and simple, regularly rounded punctures interstices of points two to three times as wide as their diameter. Pronotum basal angles with only weakly visible carina, without median furrow.

Scutellum tongue-shaped, straight to little concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, only little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder little raised, wings fully developed. Striae of elytra as well as their interstices covered with fine and small, simple punctures, interstices of points flat, and conspicuously wrinkled. Body semi-dull, only weakly shining.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices flat and dull. Pubescence short and adjacent.

Legs slender, and thin, femora as long as tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with only weakly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe covered with short hairs (figs. 8).

DIFFERENTIAL DIAGNOSIS

The new species, *B. lindemeri*, is closely related to *B. alatus*, but may be easily distinguished by smaller body, less dense interstices of pronotum punctures, wrinkled interstices of elytral striae, and the form of latero-apical part of parameres.

DERIVATIO NOMINIS

Named after our dear friend and colleague, P. LINDEMER, Bann, Germany.

DISTRIBUTION

China.

***Tarnawskianus* n. gen.**

(Figs. 12-31)

TYPE SPECIES

Tarnawskianus longicornis n. sp.

DIAGNOSIS

Slender, sub-parallel, feebly raised species from 10.6 mm to 15.6 mm in length (measured from apical margin of frons to apex of elytra). Body black to blackish-brown, in some species with bronze and pink metallic shine, legs yellowish brown to blackish brown, antennae brown, their ventral sides blackish. Pubescence yellowish, dense, fine and on pronotum tightly inclined from basis to apex and from lateral sides to median line, in some species conspicuously wrinkled, on elytra inclined from basis to apex and to lateral margins (figs. 15, 18, 20, 23, 26, 29).

Head with dense, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, reaching behind basal angles of pronotum for the length of the last two to five antennomeres. Second antennomere slightly shorter than the following, third antennomere slightly longer or at least of the same length than fourth, and the following antennomeres, those are little extended at apex (figs. 16, 24, 27, 30), or thickened in one of the species (fig. 21), last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured, and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.4:1.0), raised at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent (fig. 12), and rectangular at apex. Pronotum with fine, simple, and regularly rounded punctures, interstices of points as wide as two to three times their diameter. Pronotum basal angles with a distinct or indistinct carina, and in some species absent, with or without median furrow.

Scutellum tongue-shaped, straight to little concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, only little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder flat, (wings reduced, their length add up to one third, to one fourth of the length of elytra). Striae of elytra as well as their interstices covered with fine and small, simple punctures, interstices of points flat. Body semi-dull, only weakly shining.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices flat and dull. Pubescence short and adjacent.

Legs slender, long and thin, femora little wider than tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with only weakly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe covered with short hairs (figs. 17, 19, 22, 25, 28, 31).

SYSTEMATIC POSITION

According to the following characters: head flattened, frontal carina acute above antennal basis, and absent in middle, mouth parts prognathous, antennae serrate, prosternal sutures excavated anterior, and with a fine carina, scutellum tongue-shaped, mesocoxae open to mesepimeron and mesepisternum, tarsi and claws simple, the new genus *Tarnawskianus* is placed here as a member of the subfamily DENTICOLLINAE REITTER, 1905, and included into the tribe CTENICERINI FLEUTIAUX.

Tarnawskianus is placed into the system near the genera *Prosternon* LATREILLE, 1834, *Eanus* LECONTE, 1861, *Hypoganus* KIESENWETTER, 1858, *Aplotarsus* STEPHENS, 1830, and *Borowiecianus* n. gen., as of the possession of a fine carina at the inner side of proepisternum, shaped the prosternal furrows for the accommodation of the first antennomeres.

DIFFERENTIAL DIAGNOSIS

Tarnawskianus n. gen. is closely allied to the genus *Prosternon* LATREILLE, 1834 on the account of characters of proepisternum, but may be easily distinguished by the cylindrical pronotum (fig. 12), across median line clearly longer than wide across basal angles of pronotum (length/width ratio 1.2:1.0 to 1.4:1.0), the spoon-shaped paramere-apex of male genitalia (figs. 17, 19, 22, 25, 28, 31), and the antennae exceeding hind-angles of pronotum by the length of the last two to five antennomeres (figs. 16, 21, 24, 27, 30). *Tarnawskianus* may be distinguished from the closely related new genus *Borowiecianus* by the shape of the raised pronotum (fig. 10), the rectangular apex of its basal angles, the rudiments of wings (fig. 13), by the longer legs (fig. 14), and antennae.

DISTRIBUTION

China.

DERIVATIO NOMINIS

The new genus, *Tarnawskianus*, is dedicated to Prof. Dr. D. TARNAWSKI, Department of Biodiversity and Evolutionary Taxonomy, Zoological Institute, University of Wrocław, honouring his excellent scientific workings on the genus *Selatossomus* STEPHENS, 1830, and on the whole tribus Ctenicerini FLEUTIAUX, 1936, an Elateridae group of the subfamily Denticollinae REITTER, 1905. Gender: masculine.

ECOLOGICAL REMARKS

The specimens of the new genus have been found at an altitude of 2500-4000 m.

***Tarnawskianus becvari* n. sp.**

(Figs. 12-17)

LOCUS TYPICUS

China: Yunnan.

TYPE MATERIAL

Holotypus ♂ (CDZ): China: Yunnan, Habashan, Habashan-Mts., 3500-4000 m, 7.-10.VI.2002, leg. S. Bečvář & R. & H. Fouquè. **Paratypes** 7 ♂♂, 1 ♀ (CSV, CDZ, CPG, CRG): Same date as holotype, 4 spm.; same data as holotype but 6.-11.VI.2002, 3 spm., leg. Bečvář & R. & H. Fouquè; same data as Holotypus but 3.-6.VI.1995, 1 spm., leg. Bečvář.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 14.1 mm in length (measured from apical margin of frons to apex of elytra), and 3.4 mm in width (measured across apical fifth of elytra). Body blackish with bronze metallic shine, basal antennomeres, and lateral sides of elytra, as well as their epipleura, and a small line at lateral sides of pronotum reddish. Pubescence yellowish, dense, fine and on pronotum tightly wrinkled, and inclined from basis to apex and from lateral sides to median line, on elytra inclined from basis to apex and to lateral margins (fig. 15).

Head with dense, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, slender, reaching behind basal angles of pronotum for the length of the last four antennomeres, second antennomere slightly shorter than the following, third antennomere as long as fourth, and the following antennomeres, those are little extended at apex (fig. 16), last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.4:1.0), little raised at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, and rectangular at apex. Pronotum with fine, regularly rounded, and simple punctures, interstices of points as wide as two to three times of their diameter. Pronotum basal angles with a distinct carina. Pronotum with a short and fine median furrow that is reaching from basis up to the centre.

Scutellum tongue-shaped, concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, only little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder flat, (wings reduced, their length add up to one fourth of the length of elytra (fig. 13)). Striae of elytra as well as their interstices densely covered with fine and small, simple punctures, interstices of points flat. Body semi-dull, only weakly shining, lateral sides little depressed.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices of points flat and dull. Pubescence short and adjacent.

Legs slender, long and thin, femora little wider than tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with only

weakly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe covered with short hairs (fig. 17).

DIFFERENTIAL DIAGNOSIS

The new species *T. becvari* is closely allied to *T. turnai*, but may be easily distinguished by more depressed body, slightly longer antennae, darker and bronze metallic colour, longer furrow on median line of pronotum, and by the form of male genitalia.

DERIVATIO NOMINIS

Named after one the discoverers of the new species, Mr. S. BEČVÁŘ.

DISTRIBUTION

China.

***Tarnawskianus kubani* (SCHIMMEL, 1998) n. comb.**

(Figs. 18-19)

Athous kubani SCHIMMEL, 1998, Entomol. Problems, **29** (2): 149-151.

LOCUS TYPICUS

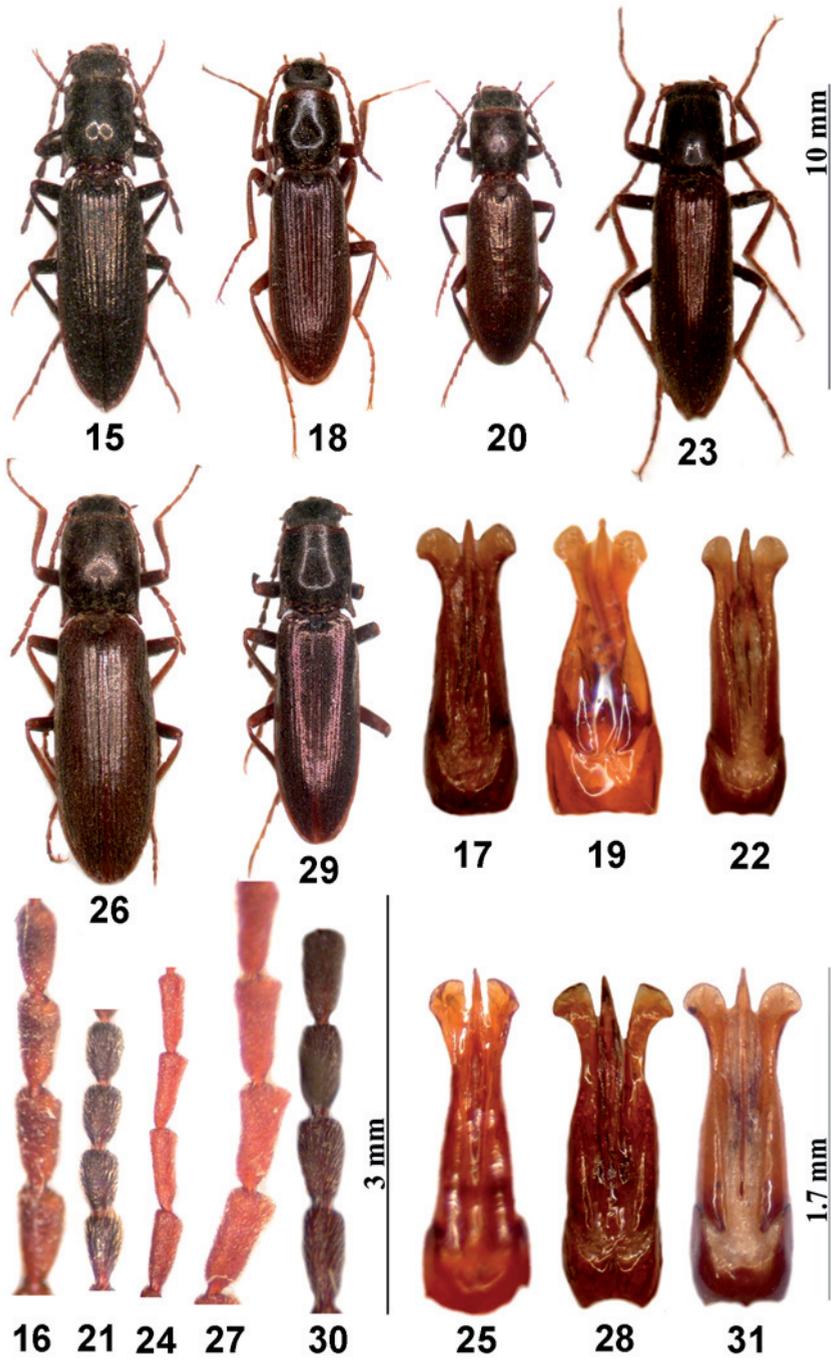
China: Yunnan.

RE-DESCRIPTION

Slender, sub-parallel, feebly raised species of 11.4 mm in length (measured from apical margin of frons to apex of elytra), and 2.6 mm in width (measured across apical fifth of elytra). Body blackish with bronze metallic shine, antennae, legs, and elytra brown, lateral margins of the latter reddish. Pubescence yellowish, dense, fine and on pronotum tightly wrinkled, and inclined from basis to apex and from lateral sides to median line, on elytra inclined from basis to apex and to lateral margins (fig. 18).

Head with dense, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, slender, reaching behind basal angles of pronotum for the length of the last three antennomeres, second antennomere slightly shorter than the following, third antennomere as long as fourth, and the following antennomeres, those are little extended at apex, last antennomere oval, sub-apically conspicuously bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

15-31. Habitus, antennomeres 5-8, and aedeagus of *Tarnawskianus*-species: 15-17, *Tarnawskianus becvari* n. sp., 15 - habitus, 16 - antennomeres 5-8, 17 - aedeagus. Figs. 18-19, *T. kubani* (SCHIMMEL, 1998) n. comb., 18 - habitus, 19 - aedeagus. Figs. 20-22, *T. kucerai* n. sp., 20 - habitus, 21 - antennomeres 5-8, 22 - aedeagus. Figs. 23-25, *T. longicornis* n. sp., 23 - habitus, 24 - antennomeres 5-8, 25 - aedeagus. Figs. 26-28, *T. turnai* n. sp., 26 - habitus, 27 - antennomeres 5-8, 28 - aedeagus. Figs. 29-31, *T. yanmenensis* n. sp., 29 - habitus, 30 - antennomeres 5-8, 31 - aedeagus



Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.3:1.0), little raised at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, and rectangular at apex. Pronotum with fine, regularly rounded, and simple punctures, interstices of points once their diameter. Pronotum basal angles with an indistinct carina. Pronotum without any median furrow or mould.

Scutellum tongue-shaped, concave at basis, laterally little narrowed, rounded at apical, and wedge-shaped. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder flat, (wings reduced, their length add up to one fourth of the length of elytra). Striae of elytra as well as their interstices densely covered with fine, small, and simple punctures, interstices of points slightly raised. Body semi-dull, only weakly shining, lateral sides little depressed.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices of points flat and dull. Pubescence short and adjacent.

Legs slender, long and thin, femora little wider than tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with only weakly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe covered with short hairs (fig. 19).

DIFFERENTIAL DIAGNOSIS

The species *T. kubani* is closely allied to *T. yanmenensis*, but may be easily distinguished by raised interstices of elytral striae, brown colour, and by the form of the aedeagus.

REMARKS

This species has been described by the first author of this paper in 1998 as *Athous kubani*. Since that time no other specimen of this species came to our knowledge, but many others of the new genus *Tarnawskianus*. As this species shows all important characteristics of the new genus, we are going to transfer it from the genus *Athous* to the genus *Tarnawskianus*.

DISTRIBUTION

China.

***Tarnawskianus kucerai* n. sp.**

(Figs. 20-22)

LOCUS TYPICUS

China: Yunnan.

TYPE MATERIAL

Holotypus ♂ (CMH): China: Yunnan, Zongdian, 17.-19.VI.1995, leg. E. Kučera.
Paratypes 5 ♂♂ (TICB, CMH, CSV), same data as holotypus, 2 spm., leg. E. Kučera; same location but 16.-21.VI.1994, 2 spm., leg. E. Kučera; Yunnan, Lijiang, 2100 m, 13.-27.VI.1995, 1 spm., leg. V. Kubáň.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 10.6 mm in length (measured from apical margin of frons to apex of elytra), and 2.8 mm in width (measured across apical fifth of elytra). Body blackish with bronze metallic shine, basal antennomeres, and lateral sides of pronotum reddish, elytra and legs brown. Pubescence yellowish, dense, fine and on pronotum tightly wrinkled, and inclined from basis to apex and from lateral sides to median line, on elytra inclined from basis to apex and to lateral margins (fig. 20).

Head with dense, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long and slender, reaching behind basal angles of pronotum for the length of the last two antennomeres (fig. 21), second antennomere slightly shorter than the following, third antennomere as long as fourth, and the following antennomeres, those are little extended at apex, last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, nearly rectangular, across median area longer than wide at the basal angles (length/width ratio 1.2:1.0), little raised at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, little rectangular at apex. Pronotum with fine, simple, and regularly rounded punctures, interstices of points as wide as two times their diameter. Pronotum basal angles without carina. Pronotum with a flat, feebly visible mould that is reaching from basis up to the centre.

Scutellum tongue-shaped, concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, only little raised at apex, punctures dense and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to the apex and to the lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder flat, (wings reduced, their length add up to one fourth of the length of elytra). Striae of elytra as well as their interstices densely covered with larger and deeper, simple punctures, interstices of points flat. Body semi-dull, only a little shiny, lateral sides little depressed.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices of points flat and dull. Pubescence short and inclined.

Legs slender, long and thin, femora little wider than tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with feebly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe covered with short hairs (fig. 22).

DIFFERENTIAL DIAGNOSIS

The new species, *T. kucerai*, is closely allied to *T. becvari*, but may be easily distinguished by smaller and shorter body, thickened and shorter antennae, and by the form of male genitalia.

DERIVATIO NOMINIS

Named after Mr. E. KUČERA, Praha.

DISTRIBUTION

China.

Tarnawskianus longicornis n. sp.

(Figs. 23-25)

LOCUS TYPICUS

China: Hubei.

TYPE MATERIAL

Holotypus ♂ (CSV): China: Hubei, Dashennongjia-Mts., 2500-2900 m, 17.V.-13.VI.2004, leg. by an nameless collector. **Paratypes** 9 ♂♂, 3 ♀♀ (CSV, CTW, CPG): Same data than holotype, 6 spm; Same data than holotype but 20.V.-7.VI.2005, 6 spm.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 13.3 mm in length (measured from apical margin of frons to apex of elytra), and 3.5 mm in width (measured across apical fifth of elytra). Body blackish brown, elytra, legs, antennae, and apex of basal angles of pronotum yellowish brown. Pubescence yellowish, dense, fine and on pronotum tightly inclined from basis to apex and from lateral sides to median line, on elytra inclined from basis to apex, and to lateral margins (fig. 23).

Head with dense, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, conspicuously slender, reaching behind basal angles of pronotum for the length of the last five antennomeres, second article slightly shorter than the following, third antennomere long as fourth, and the following antennomeres, those are little extended at apex

(fig. 24), last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.4:1.0), raised at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, and rectangular at apex. Pronotum with fine, regularly rounded, and simple punctures, interstices of points as wide as two to three times their diameter. Pronotum basal angles without carina. Pronotum without median furrow.

Scutellum tongue-shaped, straight at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points as wide as their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, just after apical fifth narrowing to apex. Apex regularly curved, but without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder flat, (wings reduced, their length add up to one third of elytra). Striae of elytra as well as their interstices covered with fine and small, simple punctures, interstices of points flat. Body semi-dull to shiny.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices of points flat and dull. Pubescence short and adjacent.

Legs slender, conspicuously long and thin, femora little wider than tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with feebly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe covered with short hairs (fig. 25).

DIFFERENTIAL DIAGNOSIS

The new species, *T. longicornis*, is closely allied to *T. turnai*, but may be easily distinguished by slender, and shorter body, longer antennae, longer legs, lighter colour of elytra and legs, finer hairs on pronotum, by the absence of carina on basal angles of pronotum, and by the form of male genitalia.

DERIVATIO NOMINIS

Named after the conspicuously long antennae of the new species.

DISTRIBUTION

China.

SYSTEMATIC REMARKS

The new species, *T. longicornis*, reminds species of *Dima* of the *D. longicornis*-group, as the long antennae, reduction of the wings, slender general form of body, colour, and long legs are nearly identical in those species.

Tarnawskianus turnai n. sp.

(Figs. 26-28)

LOCUS TYPICUS

China: Henan.

TYPE MATERIAL

Holotypus ♂ (CSV): China: Henan, Funiu-Shan, Baotianman (pitfall traps), 15.V.-2.VI.2005, leg. by an unnamed collector. **Paratypes** 6 ♂♂, 3 ♀♀ (CSV, CTW, CPG): Same date as holotype, 3 spm.; same location but 10.V.-6.VII.2006, 1500-1750 m, 6 spm, leg. by an unnamed collector.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 15.6 mm in length (measured from apical margin of frons to apex of elytra), and 4.2 mm in width (measured across apical fifth of elytra). Body chestnut brown, antennae, and apex of basal angles of pronotum yellowish brown. Pubescence yellowish, dense, fine and on pronotum tightly wrinkled, and inclined from basis to apex and from lateral sides to median line, on elytra inclined from basis to apex and lateral margins (fig. 26).

Head with dense, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised above the basis of antennae. Eyes semi-circular and prominent. Antennae long, slender, reaching behind basal angles of pronotum for the length of the last three antennomeres, second antennomere slightly shorter than the following, third antennomere slightly longer than fourth, and the following antennomeres, those are little extended at apex (fig. 27), last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.4:1.0), little raised at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, and little rectangular at apex. Pronotum with fine, regularly rounded, and simple punctures, interstices of points two to three times their diameter. Pronotum basal angles with a distinct carina. Pronotum with a short and fine median furrow at basis.

Scutellum tongue-shaped, little concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points once their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, surrounding the scutellum slightly depressed, shoulder flat, (wings reduced, their length add up to one fourth of the length of elytra). Striae of elytra as well as their interstices densely covered with fine and small, simple punctures, interstices of points flat. Body semi-dull, only a little shiny.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices of points flat and dull. Pubescence short and inclined.

Legs slender, long and thin, femora little wider than tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with feebly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe covered with short hairs (fig. 28).

DIFFERENTIAL DIAGNOSIS

The new species *T. turnai* is closely allied to *T. longicornis*, but may be easily distinguished by wider and longer body, shorter antennae and legs, darker colour of elytra and legs, wrinkled hairs on pronotum, fine carina on basal angles of pronotum, and by the form of male genitalia.

SYSTEMATIC REMARKS

The females of *T. turnai* are little longer than the males, more robust, the sides of pronotum are conspicuously rounded, and antennae are short, reaching two thirds of the length of pronotum.

DERIVATIO NOMINIS

Named after Mr. J. TURNA, Praha.

DISTRIBUTION

China.

Tarnawskianus yanmenensis n. sp.

(Figs. 29-31)

LOCUS TYPICUS

China: Yunnan.

TYPE MATERIAL

Holotypus ♂ (CSV): China: Yunnan, Yanmen, 13.-23.VI.2005, leg. E. Kučera.

DIAGNOSIS

Slender, sub-parallel, feebly raised species of 12.5 mm in length (measured from apical margin of frons to apex of elytra), and 3.0 mm in width (measured across apical fifth of elytra). Body chestnut brown, elytra pink metallic shine. Pubescence yellowish, dense, fine and on pronotum tightly wrinkled, and inclined from basis to apex and from lateral sides to median line, on elytra inclined from basis to apex, and to lateral margins (fig. 29).

Head with dense, and umbilicate punctures, and pubescence inclined to apex. Frons depressed, its margin totally absent in middle, prominently edged at apex, and raised

above the basis of antennae. Eyes semi-circular and prominent. Antennae long, slender, reaching behind basal angles of pronotum for the length of the last three antennomeres, second antennomere clearly shorter than the following, third antennomere as long as fourth, and the following antennomeres, those are little extended at apex (fig. 30), last antennomere oval, sub-apically bevelled. Surface of antennae densely punctured and covered with fine, short and protruding pubescence.

Pronotum cylindrical, across median area longer than wide at the basal angles (length/width ratio 1.3:1.0), raised at centre, slightly bent laterally, in front of basal angles little convex, basal angles divergent, and rectangular at apex. Pronotum with fine, regularly rounded, and simple punctures, interstices of points two times their diameter. Pronotum basal angles with a feebly visible carina. Pronotum with a short and fine median furrow at basis.

Scutellum tongue-shaped, little concave at basis, laterally little narrowed, and rounded at apex. Surface nearly flat, little raised at apex, punctures fine and umbilicate, interstices of points once their diameter and little raised. Pubescence fine and short, pointed from centre to apex and to lateral margin.

Elytra sub-parallel, slender and long, after apical fifth narrowing to apex. Apex regularly curved, without inner tooth. Basis little wider than that of pronotum, in the area of scutellum slightly depressed, shoulder flat, (wings reduced, their length add up to one fourth of the length of elytra). Striae of elytra as well as their interstices densely covered with fine and small, simple punctures, interstices of points flat. Body semi-dull, and little shiny.

Furrows of prosternum laterally with fine carina. Pro-, meso- and metathorax with fine, and simple punctures, interstices flat and dull. Pubescence short and adjacent.

Legs slender, long and thin, femora little wider than tibia, the latter with a pair of long thorns on apex, tarsomeres up to claws of decreasing length, ventral with feebly visible fine pubescence, and fine upholstery, legs covered with short, and fine hairs.

Aedeagus long and slender, with thin, slightly bevelled apex, slightly outreaching parameres. Paramere with spoon-like latero-apical lobe rounded apically and covered with short hairs (fig. 31).

DIFFERENTIAL DIAGNOSIS

The new species, *T. yanmenensis*, is closely allied to *T. becvari*, but may be easily distinguished by shorter body, and shorter antennae, pink metallic colour of elytra, and by the form of the male genitalia.

DERIVATIO NOMINIS

Named after the locus typicus.

DISTRIBUTION

China.

KEY TO GENERA OF THE TRIBE CTENICERINI, FOR SPECIES WITH PROSTERNAL SUTURES DOUBLED APICALLY

1. Pronotum across basal angles wider than long over median line *Eanus* LE CONTE, 1861
- . Pronotum as long as wide, as or clearly longer than wide 2.
2. Surface plain, shiny, anterior margin of pronotum lined *Hypoganus* KIESENWETTER, 1858
- . Surface hirsute 3.
3. Pronotum over median line as long as wide across basal angles 4.
- . Pronotum over median line clearly longer than wide across basal angles 5.
4. Surface of pronotum with simple hairs inclined to apex *Aplotarsus* STEPHENS, 1830
- . Surface of pronotum with bristly and wrinkled hairs *Prosternon* LATREILLE, 1834
5. Pronotum flat, its basal angles sharp at apex, wings complete *Borowiecianus* n. gen.
- . Pronotum raised, its basal angles rectangular at apex, wings reduced to small rudiments *Tarnawskianus* n. gen.

KEY TO SPECIES OF THE GENUS *BOROWIECIANUS*

1. Antennae black, median antennomeres triangular and thickened at apex (fig. 1, 7) 2.
- . Antennae brown, median antennomeres sub-parallel, and slender, not thickened at apex (figs. 3, 5) 3.
2. Body longer (12.0 mm), puncturation of pronotum with interstices of points once their diameter *B. alatus* n. sp.
- . Body shorter (10.7 mm), puncturation of pronotum with interstices two to three times their diameter *B. lindemeri* n. sp.
3. Antennae reaching behind the base of pronotum by the length of the three apical antennomeres; pronotum puncturation with interstices of points half to one times their diameter (figs. 3) *B. gansuensis* n. sp.
- . Antennae reaching behind the base of pronotum by the length of the four apical antennomeres; pronotum puncturation with interstices of points one to two times of their diameter (fig. 5) *B. gorodinskii* n. sp.

KEY TO SPECIES OF THE GENUS *TARNAWSKIANUS*

1. Antennae conspicuously long, reaching behind the base of pronotum by the length of the 5 apical antennomeres (figs. 23, 24) *T. longicornis* n. sp.
- . Antennae shorter, reaching behind the base of pronotum by the length of the 2-4 apical antennomeres (figs. 6, 21, 27, 30) 2.

2. Whole body or part of it with bronze or pink metallic shines (figs. 15, 20, 29) 5.
 – Body chestnut-brown, antennae yellowish brown (fig. 18, 26) 4.
 4. Body longer (15.6 mm), and conspicuously raised *T. turnai* n. sp.
 – Body shorter (11.4 mm), and slightly raised
 *T. kubani* (SCHIMMEL, 1998) n. comb.
 5. Whole body with bronze metallic shine (figs. 15, 20) 6.
 – Only elytra with pink metallic shine (fig. 29) *T. yanmenensis* n. sp.
 6. Body shorter (10.6 mm), antennomeres 4-11 thickened at apex (figs. 20, 21)
 *T. kucerai* n. sp.
 – Body longer (14.1 mm), antennomeres 4-11 slender (figs. 15, 16)
 *T. becvari* n. sp.

ECOLOGICAL REMARKS

For some of the species of the new genera *Borowiecianus* and *Tarnawskianus*, there is a more detailed ecological information.

Specimen of *Borowiecianus alatus* has been collected in the Yulongshan Mountains in the Chinese province Yunnan. The specimens have been picked by hand in daylight from lower vegetation at an altitude of 3600-4300 m. The environment of the



32. A typical section from locus typicus of *Tarnawskianus longicornis* n. sp., in the Dashennongjia mountains at Hubei, China, on 17.V.2004 (photo by the collector of the species)

location at that altitude is grouted with grass, moss and bushes, and mountain forms of coniferous trees like *Picea* sp. are dominant. The location can be characterized as a clear and semi-open mountain forestland with larger openings of grass-areas. In June and July 1993, when the specimens of *B. alatus* have been collected, heavy rain fell at least once a day in the area (V. KUBÁŇ, verbal information). The precipitation is above 1000 mm (in middle) per year (data for Chongqing, China [KNAUR, 1998: plate 3]). This classifies the area as a typical wet-warm location of the southwest Chinese mountain regions. The few known ecological facts show *B. alatus* as an occupant of coniferous, grass and bush grouted, semi-open forest locations in the mountain regions of the Chinese province Yunnan.

All specimens of the species *Tarnawskianus longicornis* have been collected in pitfall traps filled with a mixture of beer and conserve liquid. Obviously, the collected specimen reflected on the aerosols of the trap's liquid by chemo-receptive transmitting. The locus typicus of the species in the Dashennongjia Mountain in the Chinese province Hubei, where the specimens have been found, is of 2500-2900 m in altitude. It is grouted with primary mountain coniferous forest, and very old trees of *Abies* sp. are dominant (fig. 32). The bottom of the location is richly covered with a great variety of moss, and ferns, and with fewer shrubs (verbal information from the collector of the specimens). The place is located in the wet-warm, and summer-hot sub-tropical climatic zone of southeastern Asia, with a precipitation of 1091 mm (in middle) per year (data for Chongqing, China [KNAUR, 1998: plate 3]). The dry season is in winter-time. Its vegetation is typical for the mountain regions of central China with dominant coniferous trees and further mountain vegetation forms. The known ecological data of the species *Tarnawskianus longicornis* classifies it as an occupant of mountains and highlands, with a walking locomotion in coniferous grouted, and moss and fern covered environment, located in the wet-warm, and summer-hot sub-tropical climatic zone of central China.

DISCUSSION

The species of the genera *Borowiecianus* and *Tarnawskianus* concur in many characteristics, and are very similar in their body appearance. However, on the account of certain characteristic differences, it obviously seems to be the case that the species of both groups follow different ancestral directions.

As the possession of wings constitutes an original characteristic of the insects, the wings of the species of the genus *Borowiecianus* obviously represent this primary condition. The wings of these species are fully developed, the shoulder with the wing joint is slightly raised, and the flight muscles are developed as well (fig. 10). The legs of the species are developed normally, not extended (fig. 11). Compared with this, the rudiments of the wings, as well as the flat shoulder (fig. 13) in all species of the genus *Tarnawskianus* have to be treated as reductions of the original condition. As these characteristics are formed nearly identically in every species of the group, the morphological transformation is very probably based on a derivation of one of the ancestors of the group. The larger and slenderer legs (fig. 14) indicate an extension of

the original condition as well, and therefore a secondary transformation too. From the functional perspective, the reductions of wings and the extension of legs in the species of the *Tarnawskianus*-group point to a change in locomotion, and it can be presumed that the extension of legs had an essential repercussion in the reduction of wings. The necessity for the evolution of slender legs in the *Tarnawskianus*-group is very probably based on the fact that one of the ancestral species had to change at least a part of the ecological orientation from flying to walking at some time, as walking became more efficient and more advantageous than flying. Then, as the wings were not needed any longer, their reduction is a consequence of the change in the ecological orientations of this species.

As of the different forms of wings and legs in the species of the *Borowiecianus*- and the *Tarnawskianus*-group, that has obviously had essential influence on the respective possibilities of locomotion. It is assumed that the species of both groups are currently constituted on totally different ecological concepts.

One of the species of the *Tarnawskianus*-group, *T. longicornis*, shows conspicuous similarities to the species of the *Dima longicornis*-group, and can be easily mistaken as one of them. The species of the *Dima longicornis*-group all appear in the Himalaya Mountains, at an altitude of 3300-3700 m (SCHIMMEL, 1996: 105). *Tarnawskianus longicornis* has been collected in the Dashennongjia Mountains in the Chinese province Hubei, at an altitude of 2500-2900 m. The members of both groups obviously have similar chorological distributions and ecological orientations. In the species of the *Dima longicornis*-group, the wings are reduced, and legs and antennae are extended in the same way as the ones currently being formed in *Tarnawskianus longicornis*. Obviously, these characteristics also represent secondary derivations of the primary condition, and the main differences to their next relations that are winged, and possess normally developed legs and antennae.

The species of the *Dima longicornis*-group and *Tarnawskianus longicornis* are currently ground-walking with oblong and slender bodies, long antennae and legs, and only rudiments of wings, and it seems that similar ecological modifications from flying to walking on the ground and occupation in similar chorological environments has resulted in nearly identical derivative morphological transformations in body constitutions of both groups, up to nearly identical body appearance in the various species.

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