

Revision of the genus *Hesperopenna*

(Coleoptera: Chrysomelidae: Galerucinae).

I. Generic redescription, definition of species groups and taxonomy of *H. medvedevi* species group

Jan BEZDĚK

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

Abstract. The genus *Hesperopenna* Medvedev & Dang, 1981 is redefined. The following new synonyms are proposed: *Hesperopenna* = *Liroetiella* Kimoto, 1989 syn. nov. = *Martinella* Medvedev, 2000 syn. nov. = *Levnma* Özdikmen, 2008 syn. nov.; *Hesperopenna flava* (Jacoby, 1892) comb. nov. = *Calomicrus kimotoi* Warchałowski, 1991 syn. nov.; *Hesperopenna tibialis* (Kimoto, 1989) comb. nov. = *Martinella merkli* Medvedev, 2000 syn. nov. *Agelastica flava* Jacoby, 1892; *Calomicrus bicolor* Kimoto, 1989; *C. fulvus* Kimoto, 1977; *C. nigriceps* Kimoto, 2004; *C. persimilis* Kimoto, 1989; *Levnma thailandica* Medvedev & Romantsov, 2013; *L. malayana* Medvedev & Romantsov, 2013; *Liroetiella antennalis* Kimoto, 1989; *L. bicolor* Kimoto, 1989; *L. granulicollis* Kimoto, 1989; *L. minor* Kimoto, 1989; *L. nigricollis* Kimoto, 1989; *L. tibialis* Kimoto, 1989; *Luperus thailandicus* Kimoto, 1989; *Martinella vietnamica* Medvedev, 2000; *Microlepta annulicornis* Jacoby, 1896; *Microlepta fulvicollis* Jacoby, 1896, and *Microlepta pallida* Jacoby, 1894 are transferred to *Hesperopenna* and appropriate new combinations established. New names *Hesperopenna shinsakui* nom. nov. (for *Calomicrus bicolor* Kimoto, 1989), *H. romantsovi* nom. nov. (for *Levnma thailandica* Medvedev & Romantsov, 2013) and *H. medvedevi* nom. nov. (for *H. flava* Medvedev & Dang, 1981) are proposed. Based on the structure of male genitalia and additional external body characters, six species groups are defined. The *Hesperopenna medvedevi* species group is taxonomically revised. Five new species are described: *H. arnoldi* sp. nov. (Laos, China: Yunnan), *H. bonifaci* sp. nov., *H. helferi* sp. nov. (both Myanmar), *H. sipekorum* sp. nov. (India: Meghalaya), and *H. zofka* sp. nov. (Indonesia: Java, Bali). Four species from Malaysia originally described in *Liroetiella* (*L. antennata* Mohamedsaid & Kimoto, 1993; *L. apicalis* Mohamedsaid, 2001; *L. sallehmani* Mohamedsaid, 1998, and *L. warisan* Mohamedsaid, 1998) are transferred to

Monolepta. Liroetiella englerae Medvedev, 1995 from the Philippines (Leyte Isl.) is also not congeneric with *Hesperopenna* but the correct generic placement remains unknown.

Key words. Coleoptera, Chrysomelidae, Galerucinae, taxonomy, new species, synonymy, Oriental Region

Introduction

Despite a large number of recent taxonomical publications Oriental Galerucinae are still insufficiently known. Most genera are badly in need of modern taxonomical revision based on study of the primary type material. Revision of the genus *Hesperopenna* Medvedev & Dang, 1981 shows many attributes of such insufficient knowledge. Within the years 1981–2000 three new genera were proposed for *Hesperopenna* species, two of them with the same type species. Additional *Hesperopenna* species were dispersed in several other genera (e.g. in *Calomicrus* Dillwyn, 1829, *Luperus* Geoffroy, 1762 or *Microlepta* Jacoby, 1886). Male genitalia of most species were never studied before either by the authors of the species or subsequently by other specialists.

During the study of a large quantity of material deposited in various institutional and private collections (see the list in the Material section), I detected a well characterized group of pale coloured species often with very complicated structure of aedeagus. After comparison with relevant type material I was able to gather the species dispersed in various genera into *Hesperopenna* as the oldest genus described. In a planned series of papers I will revise the alpha-taxonomy of six species groups of *Hesperopenna*, as defined in this paper, step by step.

History of classification

Three genera were subsequently proposed for the current *Hesperopenna* species. Genus *Hesperopenna* with a single species *H. flava* from Vietnam was described by MEDVEDEV & DANG (1981). The description was either overlooked by following authors or not treated in differential diagnoses of other species due to partly pubescent elytra of *H. flava* contrary to all subsequently described glabrous species. KIMOTO (1989) described the genus *Liroetiella* with six new species from SE Asia (*L. tibialis* Kimoto, 1989 as the type species), and finally, MEDVEDEV (2000) erected the genus *Martinella* to accommodate *Calomicrus persimilis* Kimoto 1989, *Agelastica flava* Jacoby, 1892 and two newly described species *Martinella merkli* (type species) and *M. vietnamica*. However, the genus group name *Martinella* proved to be a junior homonym of *Martinella* Jousseume, 1887 (Mollusca), thus the replacement name *Levnma* was proposed by ÖZDIKMEN (2008).

Besides the species described in the above mentioned genera, some *Hesperopenna* species were found hidden in other galerucine genera (mainly in *Calomicrus*). The oldest described species is *Agelastica flava* Jacoby, 1892, with an uncertain generic position commented on by Jacoby himself. In the subsequent catalogue WEISE (1924) still treats the species in *Agelastica* Chevrolat, 1836. KIMOTO (1989) transferred this species to *Calomicrus*. Two years

later, WARCHAŁOWSKI (1991), in his paper devoted to pale coloured *Calomicrus*, suggested a replacement name *C. kimotoi* for *Agelastica flava* (nec *Luperus flavus* Rosenhauer, 1856 classified in that time in *Calomicrus*). MEDVEDEV (2000) included *Agelastica flava* in his new genus *Martinella*. In addition, KIMOTO (1977, 1989, 2004) subsequently described additional five current *Hesperopenna* species in the genera *Calomicrus* and *Luperus*: *Calomicrus fulvus* Kimoto, 1977, *C. bicolor* Kimoto, 1989, *C. persimilis* Kimoto, 1989, *C. nigriceps* Kimoto, 2004, and *Luperus thailandicus* Kimoto, 1989. Last two species, *Levnmia thailandica* and *L. malayana*, were described by MEDVEDEV & ROMANTSOV (2013).

Finally, five *Liroetiella* species described from Malaysia and the Philippines (MOHAMEDSAID & KIMOTO 1993; MEDVEDEV 1995; MOHAMEDSAID 1998, 2001) proved not to be congeneric with *Hesperopenna* and they are transferred to *Monolepta* Chevrolat, 1836 (except *L. englerae* Medvedev, 1995 whose correct generic position is unknown to me).

Material and methods

In each description I give only the diagnostic characters usable for identification of the species and variability as compared with the general description of the genus.

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 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 5.1.19 software.

The examined material is housed in the following collections:

- BPBM Bernice P. Bishop Museum, Honolulu, USA (Al Samuelson, Shepherd Myers);
 BMNH The Natural History Museum, London, United Kingdom (Sharon Shute, Maxwell V. L. Barclay);
 FKCC František Kantner collection, České Budějovice, Czech Republic;
 IRSN Institute Royal des Sciences Naturelles de Belgique, Brussels, Belgium (Alain Drumont, Pol Limbourg);
 JBCB Jan Bezděk collection, Brno, Czech Republic;
 JSCP Jaromír Strejček collection, Praha, Czech Republic;
 JVCJ Jiří Voříšek collection, Jirkov, Czech Republic;
 KMNH Kitakyushu Museum and Institute of Natural History, Fukuoka, Japan (Kyoichiro Ueda);
 LMCM Lev N. Medvedev collection, Moscow, Russia;
 MCSN Museo Civico di Storia Naturale 'Giacomo Doria', Genova, Italy (Roberto Poggi, Fabio Penati);
 MSNV Museo Civico di Storia Naturale, Verona, Italy (Leonardo Latella);
 NHMB Naturhistorisches Museum, Basel, Switzerland (Eva Sprecher-Uebersax, Isabelle Zürcher-Pfander, Michael Geiser, †Michel Brancucci);
 NMW Naturhistorisches Museum, Wien, Austria (Harald Schillhammer);
 NMPC Národní Muzeum, Praha, Czech Republic (Jiří Hájek);
 RBCN Ron Beenen collection, Nieuwegein, The Netherlands;
 RMNH Nationaal Natuurhistorisch Museum ('Naturalis'), Leiden, The Netherlands (Alfred van Assen);
 UACG Ulf Arnold collection, Berlin, Germany;
 UKM Universiti Kebangsaan Malaysia, Centre for Insect Systematics, Kuala Lumpur, Malaysia (Idris Ghani);
 SMNS Staatliches Museum für Naturkunde, Stuttgart, Germany (Wolfgang Schawaller);
 ZMHB Museum für Naturkunde der Humboldt-Universität, Berlin, Germany (Joachim Willers, Johannes Frisch);
 ZMUH Zoologisches Institut und Museum, Universität von Hamburg, Hamburg, Germany (Hans Riefenstahl, Kai Schütte);
 ZSM Zoologische Staatssammlung, München, Germany (Michael Balke).

Exact label data are cited for all type specimens; a double slash (//) divides the data on different labels and a single slash (/) divides the data in different rows. Type localities are cited in the original spelling. Other comments and remarks are placed in square brackets: [p] – preceding data are printed, [h] – preceding data are handwritten and [w] – white label. The specimens of the newly described species are provided with one printed red label: ‘HOLOTYPUS [or PARATYPUS], / *Hesperopenna* / name of species sp. nov., / det. J. Bezděk 2012’.

Generic taxonomy

Genus *Hesperopenna* Medvedev & Dang, 1981

Hesperopenna Medvedev & Dang, 1981: 634 (original description), type species *Hesperopenna flava* Medvedev & Dang, 1981 (by original designation); KIMOTO (1989): 99.

Liroetiella Kimoto, 1989: 106 (original description), type species *Liroetiella tibialis* Kimoto, 1989 (by original designation); MOHAMEDSAID (2004): 96 (catalogue); **syn. nov.**

Martinella Medvedev, 2000: 166 (original description), type species *Martinella merkli* Medvedev, 2000 (by original designation); preoccupied by *Martinella* Jousseume, 1887 in Mollusca: Gastropoda; **syn. nov.**

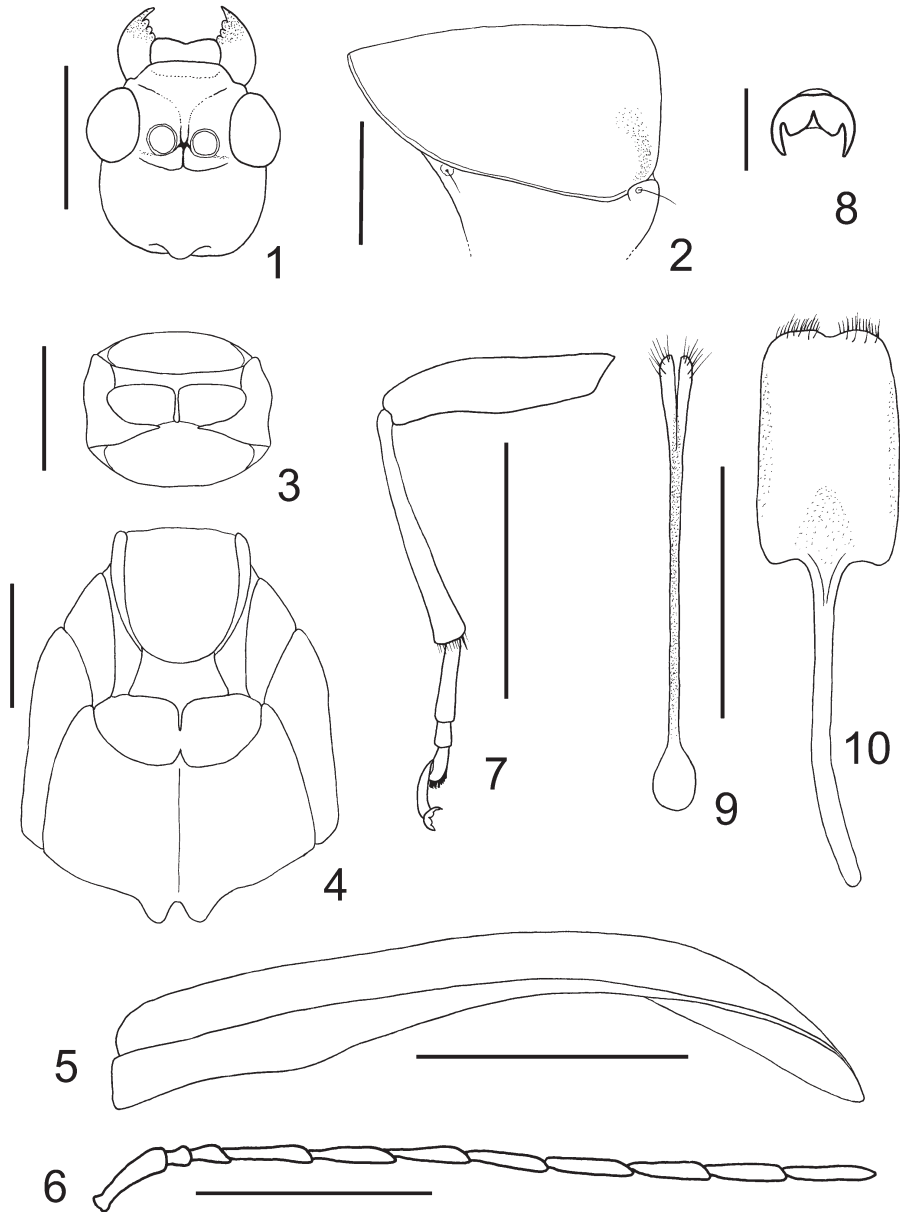
Levma Özdikmen, 2008: 644 (replacement name for *Martinella* Medvedev, 2000); **syn. nov.**

Redescription. Body. Small to medium-sized (3.5–10.0 mm), oblong ovate, convex, glabrous or elytra pubescent. Complete body usually coloured in various shades of yellow, orange or brown, elytra often with paler apical half; antennae, tibiae, tarsi, head, pronotum or part of underside black in some species.

Male. Head (Fig. 1). Labrum transverse, subrectangular, with rounded anterior angles, anterior margin usually shallowly concave, dorsally with several setiferous pores. Anterior part of head subtriangular, more or less elevated, posterior tip with distinctly raised nasal keel. Frontal tubercles subtriangular, with anterior angles produced to interantennal space, apically separated from each other by nasal keel, basally by thin furrow, from frons separated by impressed line. Interocular space wide, 1.25–1.60 times as wide as transverse diameter of eye. Interantennal space narrow, 0.60–1.00 times as wide as transverse diameter of antennal socket. Eyes small to medium sized, rounded or shortly elliptical, convex. Vertex wide, convex. Mandibles with four teeth. Apical maxillar palpomere conical. Antennae (Fig. 6) with 11 antennomeres, filiform, 0.75–1.25 times as long as body, antennomere III 1.5–4 times longer than antennomere II, apical antennomeres 6–8 times longer than wide.

Prothorax. Pronotum subquadrate to transverse, wider than long, ratio of length to width 1.30 to 1.80, anterior margin straight or almost straight, posterior margin rounded or straight medially, lateral margins more or less rounded, anterior margin unbordered, posterior margin thinly bordered, lateral margins with wider border, sometimes channelled. Surface glabrous, almost impunctate or finely to distinctly punctate, moderately convex, sometimes laterally with slightly elevated callosity, always with short shallow transverse or oblique impression behind anterior angles (Fig. 2). Procoxal cavities opened behind (Fig. 3), intercoxal prosternal process thin, low anteriorly, gradually increasing posteriorly.

Scutellum small, triangular, with apex sharp or more or less rounded. Mesothorax slender, posteriorly divergent, in middle of posterior margin with thin sharp process. Metathorax wide, convex (Fig. 4).



Figs 1–10. Morphological details of *Hesperopenna sipekorum* sp. nov. 1 – head; 2 – pronotum in lateral view; 3 – prothorax; 4 – meso- and metathorax; 5 – left elytron in lateral view; 6 – right antenna; 7 – left hind leg; 8 – claw; 9 – vaginal palpi; 10 – tignum and sternite VIII. Scale bars: 1 mm for Figs 1–5 and 9–10, 2 mm for Figs 6–7, 0.25 mm for Fig. 8.

Elytra. Elongate, convex, widest in posterior third, usually glabrous but in several species almost whole elytra or their posterior half densely covered with short pale semierect setae (sometimes partly abraded), punctation dense, fine, confused, without postscutellar impression. Epipleura impunctate, wide basally, in basal quarter slightly extended, narrowed in middle part, slender posteriorly, gradually disappearing at apex (Fig. 5). Elytral base distinctly wider than pronotal base, humeral calli well developed. Lateral and basal borders well developed, basal border ending near scutellum. Macropterous.

Legs moderately thin (Fig. 7), apices of middle and metatibiae with spine. Tarsi thin, first tarsomeres of all legs elongate triangular, base of metatarsomere I not darkened, about as long as two following metatarsomeres combined. Claws appendiculate (Fig. 8).

Abdomen. Posterior margin of last ventrite concave, sometimes straight in middle of concavity, without two incisions or with only very short indicated incisions, extreme posterior margin bent downwards. Surface in front of apical concavity transversely rounded and impressed.

Structure of aedeagus variable, from relatively simple to very complicated (see definitions of species groups), with large elongate basal orifice and internally with one or two large and long sclerites.

Female. Abdomen usually more convex, last ventrite entire or with wide shallow subtriangular incision. Pygidium entire or with narrow wedge-shaped incision. Spermatheca: nodulus globular or subglobular, cornu relatively narrow, distinctly inserted into nodulus, apex with distinct small appendix, spermathecal duct basally wider. Vaginal palpi, tignum and sternite VIII as in Figs 9–10.

Diagnosis. The genus *Hesperopenna* belongs to the subtribe Luperina (Galerucinae: Luperini) and is characterised by combination of the following characters: filiform antennae, anterior margin of pronotum unbordered, procoxal cavities open, apices of meso- and metatibiae with spine, metatarsomere I about as long as two following metatarsomeres combined, claws appendiculate and usually complicated structure of aedeagus.

In habitus, some oblong ovate species of *Calomicrus* (polyphyletic in current concept) and *Erganoides* Jacoby, 1903 are similar mainly to smaller species of *Hesperopenna*. In both *Calomicrus* and *Erganoides* pronotum is regularly convex, without any oblique impression behind anterior angles, which is typical for *Hesperopenna*. Last abdominal ventrite of male is trilobed with relatively short but always well developed incisions in both *Calomicrus* and *Erganoides* while the incisions are either missing or only indicated in *Hesperopenna*. In general appearance *Hesperopenna* species may resemble also some Oriental genera/species of the section Monoleptites (e.g. *Monolepta*, *Ochralea* Clark, 1865, *Paleosepharia* Laboissière, 1936, etc.) but can be easily distinguished by shorter metatarsomere I (typically elongated in Monoleptites, cf. WILCOX 1973, WAGNER 2004).

Distribution (based partly on specimens of formally undescribed species studied by the author). Vietnam, Thailand, Laos, Cambodia, South China, eastern provinces of India, Indonesia (Sumatra, Java, Bali), Malaysia (Peninsular Malaysia, Sarawak). Most known species are accumulated in continental SE Asia.

Previous records from Malaysia (MOHAMEDSAID & KIMOTO 1993; MOHAMEDSAID 1995, 1997, 1998, 1999, 2000, 2001; MOHAMEDSAID & HOLLOWAY 1999) and the Philippines (MEDVEDEV 1995) deal with species excluded here from *Hesperopenna*.

Species groups

Within *Hesperopenna* six species groups can be defined by combination of several characters, mainly: structure of aedeagus, body length, shape and surface of pronotum. Two species cannot be attributed to the species groups because only females are known.

***Hesperopenna medvedevi* group.** Larger species, body length 6.6–10.0 mm. Body completely yellow, orange or brown, legs completely pale or tibiae and tarsi black, antennae usually gradually darkened from antennomere III or IV, or black with first two antennomeres pale, or, rarely, antennae completely yellow.

Antennomere III about 1.5–2.0 times longer than antennomere II. Pronotum less transverse, 1.40–1.60 times as wide as long, widest in anterior third, lustrous, with very fine, almost indistinct punctures, lateral margins moderately rounded, channeled, posterior margin rounded. Scutellum triangular with apex shortly rounded. Elytra lustrous (in species with pubescent elytra the places with setae semiopaque), glabrous or partly covered with short dense setae. Pygidium of females often incised at apex, in some species apex pointed.

Aedeagus long, robust, subtubular, with basal orifice large and long, with two endophallic sclerites: one very large, with spoon-like apex and distinct ridges ventrally, always protruding aedeagus, second thin, usually hidden inside the aedeagus (Figs 11–18).

Species included. *Hesperopenna medvedevi* nom. nov. (for *flava* Medvedev & Dang, 1981), *H. tibialis* (Kimoto, 1989) (comb. nov.) (= *merkli* Medvedev, 2000, syn. nov.), *H. persimilis* (Kimoto, 1989) (comb. nov.) and 5 new species described below.

***Hesperopenna vietnamica* group.** Body length 5.1–7.1 mm. Body completely yellow or with tibiae, tarsi and/or head black. Antennomere III about 1.5–3.0 times longer than antennomere II. Pronotum transverse, 1.6–1.8 times as wide as long, finely punctate. Elytra glabrous. Aedeagus dorsally with two thin lateral processes, incision between them very deep, reaching basal third of aedeagus, ventral side apically with or without hook-like process (Fig. 66).

Species included. *Hesperopenna vietnamica* (Medvedev, 2000) (comb. nov.), *H. thailandica* (Kimoto, 1989) (comb. nov.) and at least four undescribed species.

***Hesperopenna pallida* group.** Body length 4.2–5.7 mm. Body completely orange or tibiae and metaventricle black. Antennae longer than body, antennomere III about 1.5–3.5 times longer than antennomere II. Pronotum 1.3–1.4 times as wide as long, covered with fine dense punctures. Elytra glabrous. Aedeagus simple, long, thin, with long internal sclerite (Fig. 67).

Species included. *Hesperopenna annulicornis* (Jacoby, 1896) (comb. nov.), *H. antennalis* (Kimoto, 1989) (comb. nov.), *H. fulvicollis* (Jacoby, 1896) (comb. nov.), *H. pallida* (Jacoby, 1894) (comb. nov.) and at least two undescribed species.

***Hesperopenna minor* group.** Body length 3.2–5.0 mm. Body completely orange. Antennomere III about 1.3–1.5 times longer than antennomere II. Pronotum transverse, 1.6–2.2 times as wide as long, covered with fine dense punctures. Elytra glabrous. Aedeagus relatively short, simple (Fig. 68).

Species included. *Hesperopenna minor* (Kimoto, 1989) (comb. nov.) and at least two undescribed species.

***Hesperopenna bicolor* group.** Body length 3.8–6.5 mm. Body completely orange or tibiae and tarsi or head black. Antennomere III about 1.3–1.5 times longer than antennomere II. Pronotum 1.6–2.0 times as wide as long, covered with almost indistinct to fine dense punctures. Aedeagus ventrally with long projection from basal part directed anteriorly (Fig. 69).

Species included. *Hesperopenna bicolor* (Kimoto, 1989) (comb. nov.), *H. shinsakui* nom. nov. (for *Calomicrus bicolor* Kimoto, 1989) and at least two undescribed species.

***Hesperopenna granulicollis* group.** Body length 3.7–7.0 mm. Antennomere III about two times longer than antennomere II. Body completely orange, tibiae sometimes black. Pronotum transverse, 1.45–1.55 times as wide as long, distinctly covered with fine dense punctures, often with two or four small slightly elevated areas on the disc. Elytra glabrous. Aedeagus with relatively short proximal part, apex often bent down (Fig. 70).

Species included. *Hesperopenna granulicollis* (Kimoto, 1989) (comb. nov.), *H. fulva* (Kimoto, 1977) (comb. nov.), *H. flava* (Jacoby, 1892) (comb. nov.) (= *kimotoi* Warchałowski, 1991, syn. nov.), *H. romantsovi* nom. nov. (for *Levnum thailandica* Medvedev & Romantsov, 2013) (comb. nov.), *H. malayana* (Medvedev & Romantsov, 2013) (comb. nov.) and at least six undescribed species.

Species not classified in any group. Known only from females which does not allow the correct classification into any group: *Hesperopenna nigriceps* (Kimoto, 2004) (comb. nov.) and *H. nigricollis* (Kimoto, 1989) (comb. nov.). These species will be dealt with in the last paper devoted to *Hesperopenna* because of the chance to discover their males either in recently collected material or in various collections.

Key to the species groups of *Hesperopenna*

- 1 Pronotum less transverse, 1.30–1.60 times as wide as long. 2
- Pronotum more transverse, 1.60–2.20 times as wide as long. 4
- 2 Antennae longer than body, antennomere III about 1.5–3.5 times longer than antennomere II. Pronotum 1.3–1.4 times as wide as long. Aedeagus simple, long, thin, with one internal sclerite (Fig. 67). Body length 4.2–5.7 mm. ***Hesperopenna pallida* group**
- Antennae shorter than body. 3
- 3 Larger species (body length 6.6–10.0 mm). Pronotum with very fine, almost indistinct punctures. Aedeagus long, robust, tubular, with basal orifice large and long (Figs 11–18). ***Hesperopenna medvedevi* group**
- Smaller species (body length 3.7–7.0 mm). Pronotum with fine dense punctures, often with two or four small slightly elevated areas on disc. Aedeagus with relatively short proximal part, apex often bent down (Fig. 70). ***Hesperopenna granulicollis* group**
- 4 Aedeagus short, simple (Fig. 68), without long dorsolateral projections. Antennomere III about 1.3–1.5 times longer than antennomere II. Small species (body length 3.2–5.0 mm). ***Hesperopenna minor* group**
- Aedeagus dorsolaterally with two thin processes, ventrally often with apical hook-like process or long projection from basal part directed anteriorly. 5

- 5 Aedeagus ventrally with or without apical hook-like process (Fig. 66), always without long projection from basal part directed anteriorly. Antennomere III about 1.5–3.0 times longer than antennomere II. Body length 5.1–7.1 mm. *Hesperopenna vietnamica* group
- Aedeagus ventrally with long projection from basal part directed anteriorly. Antennomere III about 1.3–1.5 times longer than antennomere II. Body length 3.8–6.5 mm. *Hesperopenna bicolor* group

Taxonomy of *Hesperopenna medvedevi* group

Key to the species of *Hesperopenna medvedevi* group

- 1 Tibiae and tarsi black, elytra yellowish, glabrous. 2
- Legs completely brownish or orange, elytra brown, glabrous or partly covered with fine setae. 3
- 2 Antennae completely yellow. Extreme margin of epipleura in apical third yellow or at most brownish. Aedeagus ventrally with long thin incision placed on right side (Fig. 13). Female pygidium with apex distinctly pointed (Fig. 36). Laos, Thailand, Peninsular Malaysia. *H. tibialis* (Kimoto, 1989)
- Antennae black with first two antennomeres pale. Extreme margin of epipleura in apical third black. Aedeagus ventrally with long thin incision placed medially (Fig. 18). Female pygidium with apex simply triangular (Fig. 40). Indonesia (Java, Bali). *H. zofka* sp. nov.
- 3 Elytra glabrous. 4
- Elytra densely covered with fine setae at least in apical half of elytra, 6
- 4 Last ventrite in male with subapical impression anteriorly surrounded with U-shaped ridge (Fig. 20). Aedeagus ventrally flat, with gradually tapering triangular apex (Fig. 12). Female pygidium with apex obtusangulate (Fig. 35). Vietnam, Laos, Thailand. *H. persimilis* (Kimoto, 1989)
- Last ventrite in male without U-shaped ridge. Female pygidium with small U-shaped incision at apex (Fig. 38). 5
- 5 Aedeagus dorsally with two thin touching processes, ventrally with deep incision on left side, ventral surface not keeled in the middle (Fig. 15). North Myanmar. *H. bonifaci* sp. nov.
- Aedeagus dorsally forms two wider touching processes, ventrally with deep incision on right side, ventral surface with high median keel (Fig. 16). Female pygidium with small U-shaped incision at apex (Fig. 38). South Myanmar. *H. helferi* sp. nov.
- 6 Elytra densely covered with fine setae only in apical half. 7
- Elytra almost completely covered with fine setae (at least in apical two thirds). Aedeagus ventrally with deep U-shaped incision on right side (Fig. 14). Female pygidium with small semicircular incision at apex (Fig. 37). Laos, Thailand, China (Yunnan). *H. arnoldi* sp. nov.

- 7 Aedeagus ventrally with symmetrical subtriangular apex, lateral incisions short and of the same depth, ventral surface flat with thin median keel (Fig. 11). Female pygidium with U-shaped incision and slightly concave posterior margins near incision (Fig. 37). Vietnam. *H. medvedevi* **nom. nov.**
- Aedeagus ventrally asymmetrical, with very deep and wide subtriangular incision on right side, ventral surface with high median keel apically forming robust process bent downwards (Fig. 17). Female pygidium with deep U-shaped incision with oblique apical margins straight (Fig. 39). India (Meghalaya). *H. sipekorum* **sp. nov.**

***Hesperopenna medvedevi* nom. nov.**

(Figs 11, 19, 27, 34, 41, 48, 56–57)

Hesperopenna flava Medvedev & Dang, 1981: 634 (original description); КИМОТО (1989): 99.

Type locality. Vietnam, Baktkhay, 50 km N of Thai Nguyen.

Type material. HOLOTYPE: ♂, 'Вьетнам горы / Тхай-Нгуен 50км [p] / 21. [h] y [p] I. [h] 196 [p] 3 [h] Кабаков [w, p] // Holotypus [p] / *Hesperopenna flava* / L. Medv. et D-Dap [red label, h]' (LMCM).

Additional material examined (8 spec.). VIETNAM: NINH BINH PROV.: Cuc Phong N. P., 20°21'10"N 105°35'00"E, 440 m, 24.-28.iv.2012, 4 ♂♂ 3 ♀♀, E. Jendek leg. (JBCB); Cuc Phuong, 3.-10.v.1966, 1 ♀, G. Topál leg. (ZMHB).

Description. Body length: ♂♂ 7.6–8.5 mm (holotype 7.6 mm), ♀♀ 8.0–9.0 mm.

Male (Fig. 48, holotype Fig. 56). Body completely pale brown, antennae pale brown or darkened from antennomere IV, apical half of elytra slightly paler than rest of body.

Interocular space 1.5 times as wide as transverse diameter of eye. Antennae 0.85 times as long as body, length ratio of antennomeres I to XI equals 15-4-7-13-14-14-16-15-15-14-15. Pronotum 1.50–1.55 times as broad as long. Elytra 1.7 times as long as wide (measured at humeral calli), 0.70 times as long as body. Apical half of elytra densely covered with short pale setae. Length ratio of metatarsomeres I–IV equals 12-6-6-9. Last ventrite posteriorly without two incisions (Fig. 19).

Aedeagus: dorsal side with long thin incision separating slightly wider and longer left part from narrower right part; ventral side apically with wide subtriangular process, in middle with distinct sharp keel (Fig. 11).

Female. Pronotum 1.48–1.58 times as broad as long. Apex of last ventrite with wide triangular incision (Fig. 27), pygidium with U-shaped incision and slightly concave posterior margins near incision (Fig. 34). Spermatheca: nodulus globular, cornu regularly rounded, apical appendage bent up (Fig. 41).

Differential diagnosis. Due to the apical half of elytra covered with short pale setae and completely brown legs, *H. medvedevi* nom. nov. is similar to *H. sipekorum* sp. nov. and *H. arnoldi* sp. nov. In *H. arnoldi* sp. nov. at least the apical 2/3 of elytra are covered with short pale setae, while only the apical half is covered with setae in *H. sipekorum* sp. nov. and *H. medvedevi*. Aedeagi of all three species share a thin long incision in the middle of dorsal side. Ventral side of aedeagus in *H. medvedevi* is more or less symmetrical, apex formed by subtriangular process with a rounded tip, lateral incisions short and of the same depth (Fig. 11). On the other hand, ventral sides of aedeagus in *H. sipekorum* sp. nov. and *H. arnoldi* sp. nov. have asymmetrical apex with a deep U-shaped (*H. arnoldi* sp. nov.) or V-shaped (*H. sipekorum* sp. nov.)

nov.) incision on the right and very short incision on the left (Figs 14, 17). Females of these three species can be distinguished by apex of pygidium with an U-shaped incision which is large and deep in *H. sipekorum* sp. nov., very small in *H. arnoldi* sp. nov., and of medium size in *H. medvedevi* (Figs 34, 37, 39).

Distribution. North Vietnam (MEDVEDEV & DANG 1981, present paper).

Comments. *Hesperopenna flava* Medvedev & Dang, 1981 is a junior secondary homonym of *H. flava* (Jacoby, 1892) (comb. nov.), thus a replacement name *H. medvedevi* nom. nov. is proposed.

Hesperopenna persimilis (Kimoto, 1989) comb. nov.

(Figs 12, 20, 28, 35, 42, 49, 58–59)

Calomicrus persimilis Kimoto, 1989: 102 (original description); WARCHALOWSKI (1991): 50 (key); MOHAMEDSAID & CONSTANT (2007): 167 (faunistics).

Martinella persimilis: MEDVEDEV (2000): 169 (key).

Type locality. ‘Laos: Sedone Prov., Pakse’.

Type material examined. HOLOTYPE: ♂, ‘LAOS: / Sedone Prov. / Pakse / 31.V.196 [p] 5 [w, h] // Native Collector / BISHOP MUS. [w, p] // HOLOTYPE [red label, p] // *Calomicrus / persimilis / n. sp.* [w, h] // PHOTO [red label, p] // 14964 [pink label, h]’ (BPBM). PARATYPES: 1 ♂ 1 ♀, ‘LAOS: / Sedone Prov. / Pakse / 31.V.196 [p] 5 [w, h] // Native Collector / BISHOP MUS. [w, p] // PARATOPOTYPE [blue label, p] // *Calomicrus / persimilis / n. sp.* [w, h]’ (BPBM); 2 ♂♂, ‘LAOS: / Ile de Khong / 17.IV.1965 [w, p] // J. L. Gressitt / Collector / BISHOP MUSEUM [w, p] // PARATYPE [blue label, p] // *Calomicrus / persimilis / n. sp.* [w, h]’ (BPBM).

Additional material examined (11 spec.). THAILAND: LOEI PROV.: Phu Kradung N. P., 16°52'N 101°49'E, 1000 m, 16.-17.v.1999, 1 ♀, M. Říha leg. (JBCB). PHETCHABUN PROV.: Lom Sak – Dan Sai, 17.–19.v.1993, 6 ♂♂ 3 ♀♀, Pacholátko & Dembický leg. (JBCB, JVCJ). LAOS: VIENTIANE PROV.: Vientiane, 1 ♂, Vitalis leg. (NMPC).

Description. Body length: ♂♂ 6.6–7.0 mm, ♀♀ 7.2–7.5 mm.

Male (Fig. 49, paratype Fig. 58). Body completely orange, only apices of mandibles black.

Interocular space 1.5 times as wide as transverse diameter of eye. Antennae 0.80 times as long as body, length ratio of antennomeres I to XI equals 11-4-5-13-12-12-12-13-12-12-13. Pronotum 1.42–1.54 times as broad as long. Elytra glabrous, 1.75 times as long as wide (measured at humeral calli), 0.70 times as long as body. Length ratio of metatarsomeres I–IV equals 9-4-4-7. Last ventrite with two very small incisions posteriorly, depression on the disc anteriorly surrounded with U-shaped ridge (Fig. 20).

Aedeagus: dorsal side with deep asymmetrical incision on left side, on right side with short rounded process and wide shallow subtriangular incision; ventral side gradually tapering to triangular apex, ventral surface flat (Fig. 12).

Female. Apex of last ventrite widely rounded (Fig. 28), pygidium with obtusangulate apex (Fig. 35). Spermatheca: nodulus subglobular, cornu regularly rounded with very long apical appendix (Fig. 42).

Differential diagnosis. Due to glabrous elytra and uniformly brown legs *Hesperopenna persimilis* is similar to *H. helferi* sp. nov. and *H. bonifaci* sp. nov. but differs from both species in the subapical impression on the last ventrite in male, anteriorly surrounded with an U-shaped ridge (without ridge in *H. helferi* sp. nov. and *H. bonifaci* sp. nov.) (Figs 20, 23, 24) and simple triangular apex of the ventral side of aedeagus (ventral side of aedeagus

asymmetrical with a deep U-shaped incision in *H. helferi* sp. nov. and *H. bonifaci* sp. nov. – incision on the right side in *H. helferi* sp. nov., on the left side in *H. bonifaci* sp. nov.) (Figs 12, 15, 16). Females of *H. persimilis* and *H. helferi* sp. nov. can be separated by the shape of pygidium: apex obtusangulate in *H. persimilis* while with a small U-shaped incision in *H. helferi* sp. nov. (Figs 35, 38).

Distribution. Laos (KIMOTO 1989, present paper), Vietnam (KIMOTO 1989), Thailand (MOHAMMEDSAID & CONSTANT 2007, present paper).

Hesperopenna tibialis (Kimoto, 1989) comb. nov.

(Figs 13, 21, 29, 36, 43, 50, 60–61)

Liroetiella tibialis Kimoto, 1989: 110 (original description).

Martinella merkli Medvedev, 2000: 167 (original description); **syn. nov.**

Calomicrus flavus: KIMOTO (1989): 102 (faunistics, partim).

Type localities. *Liroetiella tibialis*: ‘Laos: Khammouane Prov., Phon Tiou’. *Martinella merkli*: ‘Laos, Bolikhamsay Prov., Phou Khao Kouay NBCA, Tad Leuk Waterfall’.

Type material examined. *Liroetiella tibialis*: PARATYPES: 1 ♂, ‘LAOS: / Khammouane Prov. / Phon Tiou / 17.V.1965 [w, p] // Native Collector / Collector [w, p] // PARATOPOTYPE [blue label, p] // Liroetiella / tibialis / n. sp. [w, h] // PHOTO [red label, p]’ (KMNH); 1 ♀, ‘Laos / Umg. Vientiane / III.-VI.1963 [w, p] // PARATYPE [blue label, p] // Liroetiella / tibialis / n. sp. [w, p] // Zool. Staatslg. / München [pale blue label, p]’ (ZSM).

Martinella merkli: PARATYPES: 1 ♂, ‘LAOS, Bolikhamsay Prov., / Phou Khao Kouay NBCA, / Tad Leuk Waterfall, 280 m, [w, p] // at light, No. 46, / 11-12. IV. 1998, / leg. O. Merkl & G. Csorba [w, p] // PARATYPUS [p] / Martinella [h] / merkli m. [h] / L. Medvedev det. 19 [p] 99 [red label, h]’ (LMCM); 1 ♀, ‘LAOS, Bolikhamsay Prov., / Phou Khao Kouay NBCA, / Tad Leuk Waterfall, 280 m, [w, p] // at light, No. 46, / 11-12. IV. 1998, / leg. O. Merkl & G. Csorba [w, p] // PARATYPUS [p] / Martinella [h] / merkli m. [h] / L. Medvedev det. 19 [p] 99 [red label, h] // MUSEO GENOVA / Ex. coll. Medvedev / Acquisto XI. 2003 [w, p]’ (MCSN).

Additional material examined (16 spec.). **LAOS: VIENTIANE PROV.:** Lao Pako env., 55 km NE of Vientiane, 200 m, 1.-4.v.2004, 6 ♂♂ 2 ♀♀, J. Bezděk leg. (JBCB); Vientiane env., iii.–vi.1963, 1 ♀, without additional data (ZSM); **KHAMMOUAN PROV.:** 17°43’N 105°09’E, 500–600 m, 22.v.–8.vi.2001, 1 ♀, E. Jendek & O. Šauša leg. (JBCB). **VIETNAM: DONG NAI PROV.:** Nam Cat Tien N. P., 1.–15.v.1994, 2 ♀♀, P. Pacholátko & L. Dembický leg. (NMW). **MALAYSIA:** Federal Malay States, 1909, 1 ♂, C. J. Brooks leg. (BMNH). **PERAK:** 40 km SE of Ipoh, Banjaran Titi Wangsa, Ringlet, 900 m, 25.iii–3.iv.2002, 1 ♂ 2 unsexed specimens, P. Čechovský leg. (RBCN, UACG).

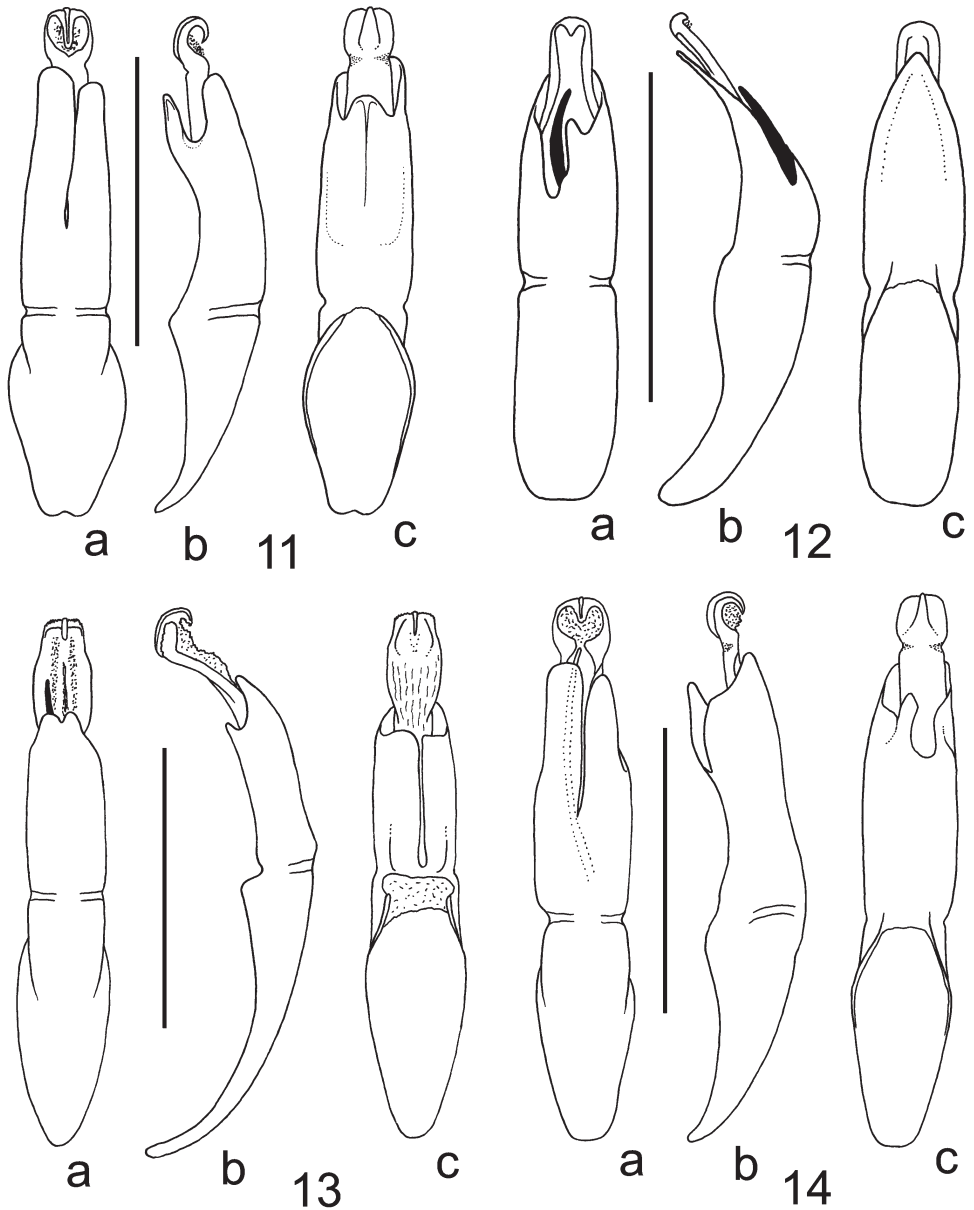
Description. Body length: ♂♂ 7.9–9.8 mm, ♀♀ 7.5–9.3 mm.

Male (Fig. 50, paratype of *Martinella merkli* Fig. 60). Body yellowish orange, apices of mandibles black, antennae completely yellow, epipleura either completely yellowish orange or extreme lateral margin of epipleura in basal third brownish. Femora yellowish, tibiae and tarsi black, last tarsomere and claws dark brown.

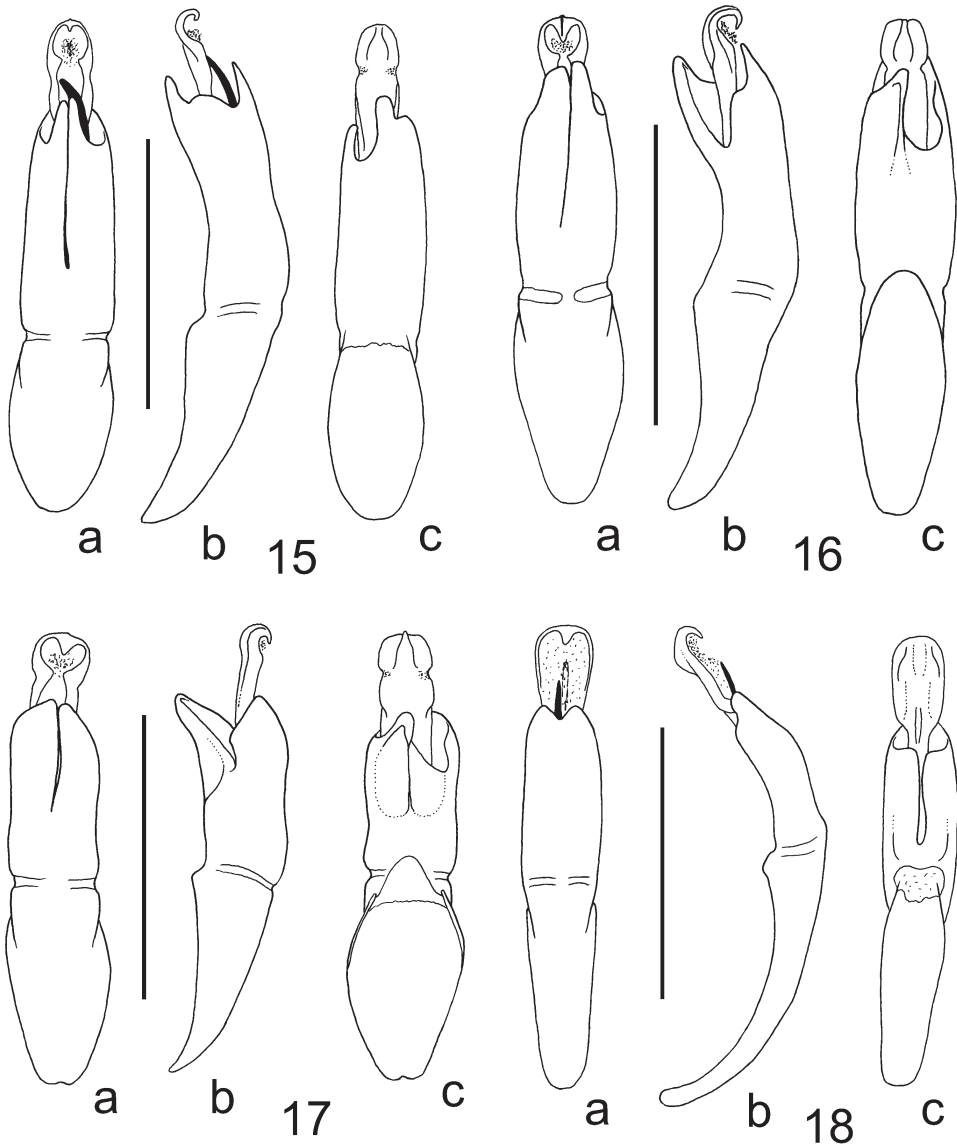
Interocular space 1.5 times as wide as transverse diameter of eye. Antennae 0.8 times as long as body, length ratio of antennomeres I to XI equals 17-5-7-16-18-16-17-16-15-14-15. Pronotum 1.52–1.65 times as broad as long. Elytra lustrous, glabrous, 1.75 times as long as wide (measured at humeral calli), 0.7 times as long as body. Length ratio of metatarsomeres I–IV equals 12-6-5-10. Last ventrite posteriorly without two incisions (Fig. 21).

Aedeagus: dorsal side apically with short triangular asymmetrical incision; ventral side with very long thin incision placed right along longitudinal axis (Fig. 13).

Female. Last ventrite with wide concavity at apex, lateral sides regularly rounded (Fig. 29), pygidium with sharp pointed tip (Fig. 36). Spermatheca: nodulus subglobular, cornu relatively thin, regularly rounded, slightly wider than nodulus (Fig. 43).



Figs 11–14. Aedeagus (a – dorsal view; b – lateral view; c – ventral view). 11 – *Hesperopenna medvedevi* nom. nov.; 12 – *H. persimilis* (Kimoto, 1989); 13 – *H. tibialis* (Kimoto, 1989); 14 – *H. arnoldi* sp. nov. Scale bar 1 mm.



Figs 15–18. Aedeagus (a – dorsal view; b – lateral view; c – ventral view). 15 – *H. bonifaci* sp. nov.; 16 – *H. helferi* sp. nov.; 17 – *H. sipekorum* sp. nov.; 18 – *H. zofka* sp. nov. Scale bar 1 mm.

Differential diagnosis. Having bicolorous legs and glabrous elytra, *Hesperopenna tibialis* is similar to *H. zofka* sp. nov. from Java. Both species also share similar structure of aedeagus with a very long basal orifice longer than the proximal part of aedeagus, which might indicate a close relationship. *Hesperopenna tibialis* can be distinguished by completely yellow antennae (black with first two antennomeres yellow in *H. zofka* sp. nov.) and epipleura completely yellowish orange or at most with brownish extreme lateral margin (always with black extreme lateral margin in basal half in *H. zofka* sp. nov.). Males of both species can be distinguished by long thin incision on the ventral side of aedeagus. While it is located on the right side in *H. tibialis*, it is placed medially in *H. zofka* sp. nov. (Figs 13, 18). Females of both species can be separated by the shape of pygidium: apex is distinctly pointed in *H. tibialis* while simply triangular in *H. zofka* sp. nov. (Figs 36, 40).

Distribution. Laos (KIMOTO 1989, MEDVEDEV 2000, present paper), Thailand (KIMOTO 1989). Newly recorded from Vietnam and Peninsular Malaysia.

Comments. One specimen of *Calomicrus flavus* from Laos published by KIMOTO (1989) proved to be a female of *H. tibialis*. Record of *Liroetiella tibialis* from Thailand published by MOHAMEDSAID & CONSTANT (2007) refers to *Hesperopenna vietnamica* (relevant specimens examined in IRSN).

Hesperopenna arnoldi sp. nov.

(Figs 14, 22, 30, 37, 44, 51)

Type locality. China, Yunnan, Jinghong env., 21°57.617'N 100°35.985'E.

Type material examined. HOLOTYPE: ♂, 'China, Yunnan, env. / Jinghong 12/19.vi.2006 / N 21°57,617' / E 100°35,985' 1350 m / R. Novak leg. [w, p]' (NMPC). PARATYPES: 3 ♀♀, '12-21.6.2006 Čína / Jinghong 1550 mmm / N 21°57, E 100°35 / lgt. Kremitovský [w, p]' (JBCB); 1 ♂, 'NW Thailand, 1.-7.V. / 1992, MAE HONG SON / Ban Si Lang / 1000m, S. Bily leg. [w, p]' (NHMB); 3 ♂♂ 1 ♀, 'LAOS c. Bolikhamsai prov. / BAN NAPE-KAEW NUA-pass / 18 iv - 1 v 1998, 600m. / N 18°22,3' E 105°09,1' / lgt Sausa [w, p]' (RBCN, UACG); 1 ♀, 'LAOS north, 13-24.V.1997 / 15 km NW Louang Namtha / N 21°07.5, E 101°21.0 / alt. 750±100 m / E. Jendek & O. Šauša leg. [w, p]' (JBCB); 1 ♀, 'LAOS, / Luang Namtha / 1997 [w, p]' (FKCC).

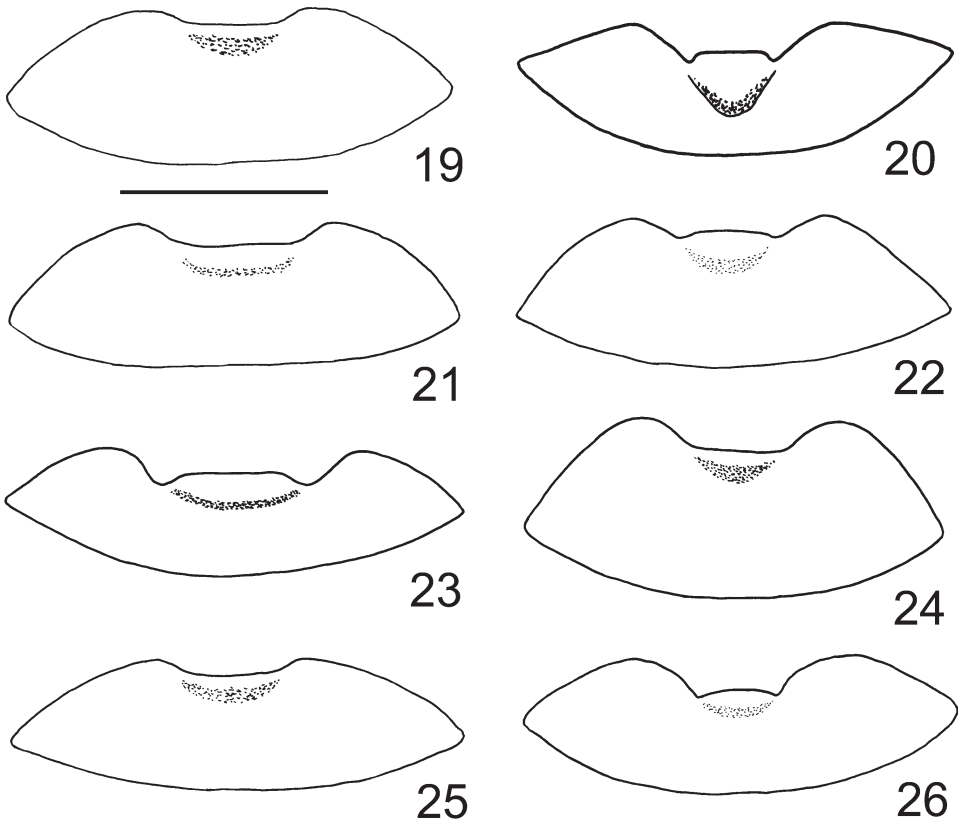
Material not included in the type series. 2 ♂♂, 'LAOS c. Bolikhamsai prov. / BAN NAPE-KAEW NUA-pass / 18 iv - 1 v 1998, 600m. / N 18°22,3' E 105°09,1' / lgt Sausa [w, p]' (RBCN, UACG). See Comments below.

Description. Body length: ♂♂ 7.7–9.2 mm (holotype 8.4 mm), ♀♀ 7.7–10.0 mm.

Male (holotype, Fig. 51). Body completely brown, apices of mandibles black, antennae gradually darkened from antennomere III, apical half of elytra slightly paler than rest of elytra.

Interocular space 1.87 times as wide as transverse diameter of eye. Antennae 0.80 times as long as body, length ratio of antennomeres I to XI equals 14-5-7-15-16-16-16-16-14-15. Pronotum 1.60 times as broad as long. Elytra 1.77 times as long as wide (measured at humeral calli), 0.80 times as long as body. At least apical two thirds of elytra densely covered with short pale setae. Length ratio of metatarsomeres I–IV equals 12-5-5-9. Last ventrite posteriorly with two small incisions (Fig. 22).

Aedeagus: dorsal side with long thin incision separating slightly wider and longer left part with wider apex from narrower and shorter right part with subtriangular apex; ventral side apically with tape-like slightly right-turn process in middle, right side with deep U-shaped incision, left side with short triangular incision (Fig. 14).



Figs 19–26. Last abdominal ventrite of males. 19 – *Hesperopenna medvedevi* nom. nov.; 20 – *H. persimilis* (Kimoto, 1989); 21 – *H. tibialis* (Kimoto, 1989); 22 – *H. arnoldi* sp. nov.; 23 – *H. bonifaci* sp. nov.; 24 – *H. helferi* sp. nov.; 25 – *H. sipekorum* sp. nov.; 26 – *H. zofka* sp. nov. Scale bar 1 mm.

Female. Apex of last ventrite with wide shallow concavity (Fig. 30), pygidium with small U-shaped incision (Fig. 37). Spermatheca: nodulus subglobular, cornu regularly rounded, wider than nodulus, apical appendage distinct, triangular (Fig. 44).

Variability. Width/length ratio of pronotum in males varies between 1.51–1.60, in females 1.46–1.57.

Differential diagnosis. Having most of elytral surface densely covered with short pale setae and completely brown legs, *Hesperopenna arnoldi* sp. nov. is similar to *H. medvedevi* nom. nov. and *H. sipekorum* sp. nov. Elytral setation covers at least the apical 2/3 of elytra while only the apical half in *H. medvedevi* and *H. sipekorum* sp. nov. All three species can be separated by the structure of the ventral side of aedeagus. *Hesperopenna medvedevi* nom. nov. has aedeagus more or less symmetrical ventrally, apex formed by a subtriangular process

with a rounded tip, lateral incisions short and of the same depth, while *H. arnoldi* sp. nov. and *H. sipekorum* sp. nov. have aedeagus asymmetrical ventrally with a deep incision on the right and a shallow incision on the left. Proximal part of aedeagus of *H. sipekorum* sp. nov. is comparatively shorter and more robust than in *H. arnoldi* sp. nov. Moreover, ventral side of aedeagus of *H. sipekorum* sp. nov. forms a thin keel bent downwards (Figs 11, 14, 17). Females of these three species can be distinguished by apex of pygidium with an U-shaped incision which is large and deep in *H. sipekorum* sp. nov., very small in *H. arnoldi* sp. nov. and of medium size in *H. medvedevi* (Figs 34, 37, 39).

Etymology. Dedicated to Ulf Arnold (Berlin, Germany), specialist in Chrysomelidae, who kindly allowed the study of specimens from his collection.

Distribution. China (Yunnan), Laos, Thailand.

Comments. Two males from Laos are left out of the type series because the deep U-shaped incision in the apical part of the ventral side of aedeagus is placed oppositely (on the left side, while in all other males it is placed on the right side).

Hesperopenna bonifaci sp. nov.

(Figs 15, 23, 52)

Type locality. Myanmar, Kachin State, 25 km E Putao, Nansabon vill.

Type material examined. HOLOTYPE: ♂, 'N Myanmar, 800 m, / 25 km E Putao, / Nansabon vill., 6-9.v. / 1998, S. Murzin leg. [w, p]' (NMPC). PARATYPE: 1 ♂, same data as in holotype (JBCB).

Description. Body length: ♂♂ 8.7–9.5 mm (holotype 9.5 mm).

Male (holotype, Fig. 52). Body completely orange brown, apical half of elytra slightly paler, apices of mandibles black.

Interocular space 1.6 times as wide as transverse diameter of eye. Antennae 0.85 times as long as body, length ratio of antennomeres I to XI equals 19-5-8-18-18-18-18-17-17-15-17. Pronotum 1.55 times as broad as long. Elytra glabrous (only several pale setae on apical slopes), 1.85 times as long as wide (measured at humeral calli), 0.75 times as long as body. Length ratio of metatarsomeres I–IV equals 14-7-5-12. Last ventrite posteriorly with two small incisions (Fig. 23).

Aedeagus: dorsal side medially with very long thin incision, apically pointed to two touching processes; ventral side apically asymmetrical, on left with U-shaped incision, on right with short process with rounded apex (Fig. 15).

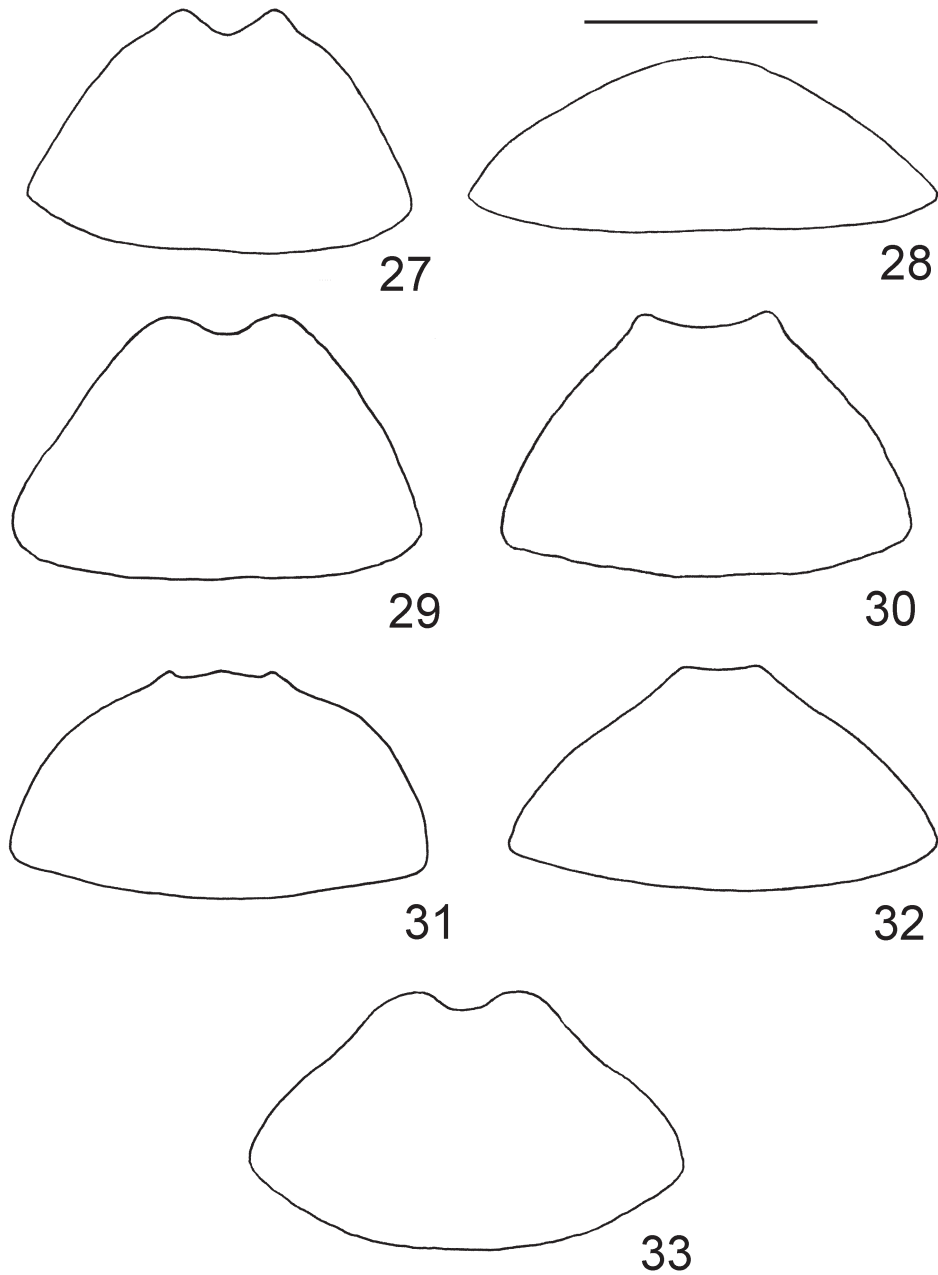
Female unknown.

Variability. In paratype, pronotum 1.45 times as broad as long.

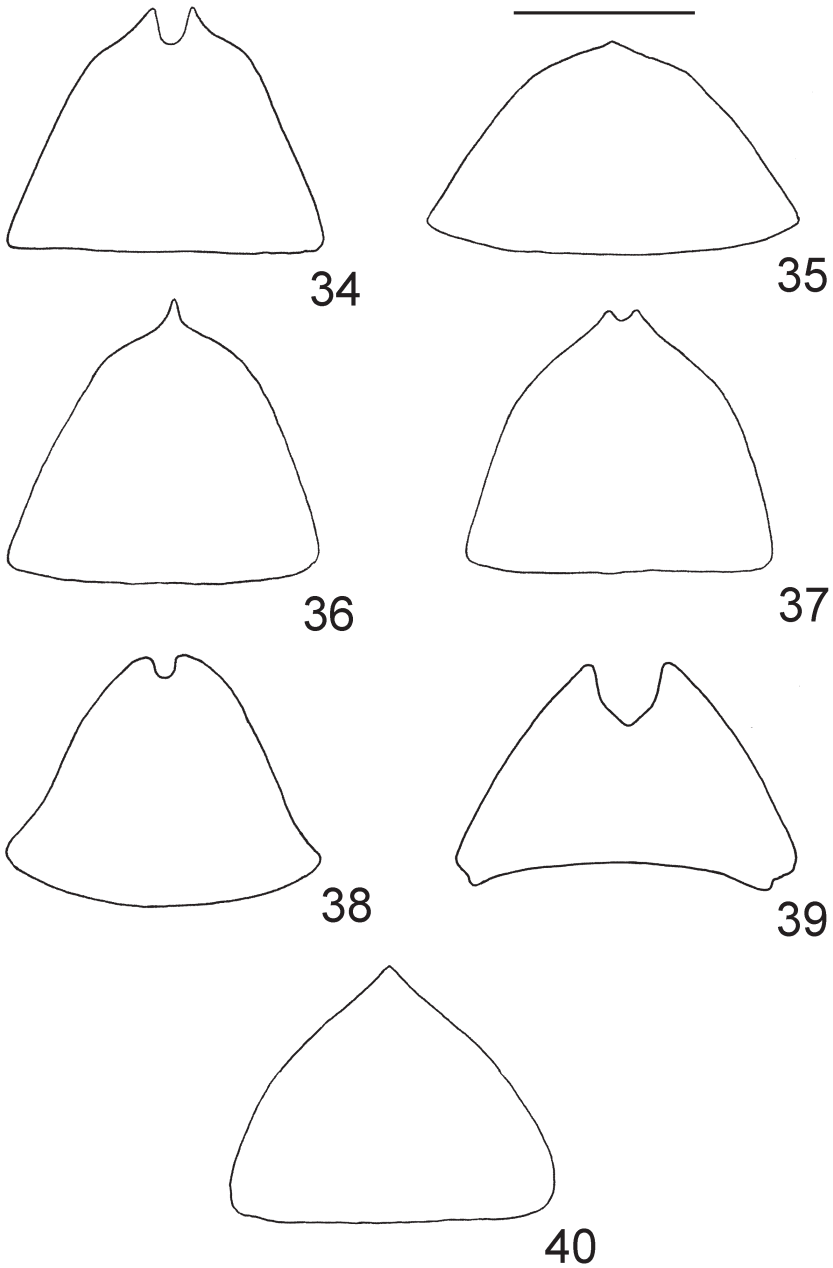
Differential diagnosis. Having glabrous elytra and brown legs, *Hesperopenna bonifaci* sp. nov. is similar to *H. helferi* sp. nov. Both species can be distinguished by the structure of aedeagus which in *H. bonifaci* sp. nov. forms two thin touching processes dorsally and is deeply incised on the left side ventrally, while in *H. helferi* sp. nov. forms two wider processes dorsally and is deeply incised on the right side ventrally, moreover with a high median keel (Figs 15, 16).

Etymology. Dedicated to Bonifác the black tom cat of Jiří Hájek and Květa Kalíková.

Distribution. Myanmar (Kachin State).



Figs 27–33. Last abdominal ventrite of females. 27 – *Hesperopenna medvedevi* nom. nov.; 28 – *H. persimilis* (Kimoto, 1989); 29 – *H. tibialis* (Kimoto, 1989); 30 – *H. arnoldi* sp. nov.; 31 – *H. helferi* sp. nov.; 32 – *H. sipekorum* sp. nov.; 33 – *H. zofka* sp. nov. Scale bar 1 mm.



Figs 34–40. Female pygidium. 34 – *Hesperopenna medvedevi* nom. nov.; 35 – *H. persimilis* (Kimoto, 1989); 36 – *H. tibialis* (Kimoto, 1989); 37 – *H. arnoldi* sp. nov.; 38 – *H. helferi* sp. nov.; 39 – *H. sipekorum* sp. nov.; 40 – *H. zofka* sp. nov. Scale bar 1 mm.

***Hesperopenna helferi* sp. nov.**

(Figs 16, 24, 31, 38, 45, 53)

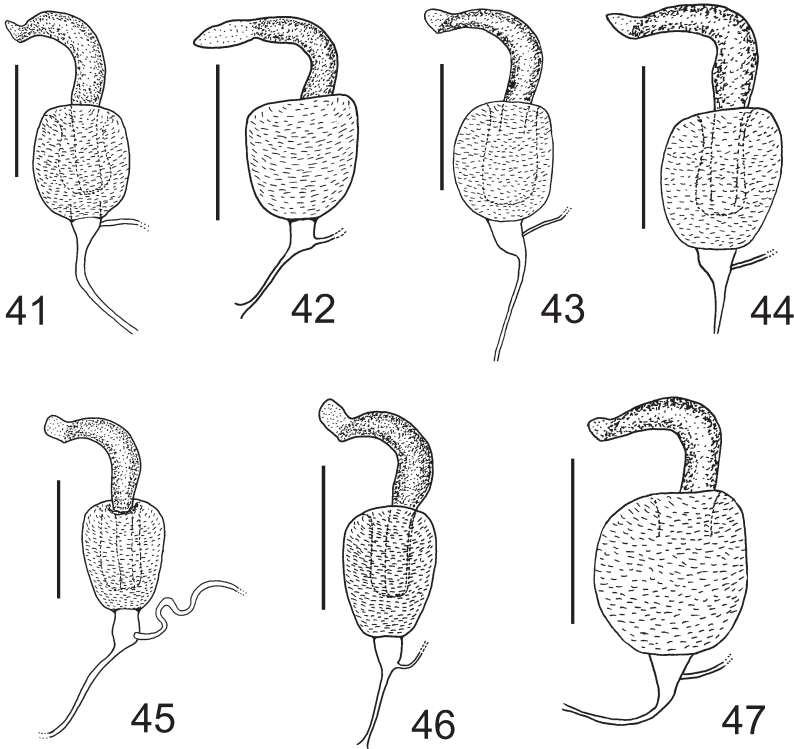
Type locality. Myanmar, Tenasserim [= Tanintharyi Region].**Type material examined.** HOLOTYPE: ♂, 'MUS. PRAGENSE / TENASSERIM / COLL. HELFER [w, p]' (NMPC). PARATYPES: 2 ♂♂ 1 ♀ and 1 spec. unsexed (abdomen missing), same data as in holotype (NMPC, 1 ♂ in JBCB).**Description.** Body length: ♂♂ 7.9–8.5 mm (holotype 8.5 mm), ♀ 8.6 mm.

Male (paratype, Fig. 53). Body completely brown, apical half of elytra somewhat paler, apices of mandibles black, antennae gradually darkened from antennomere III.

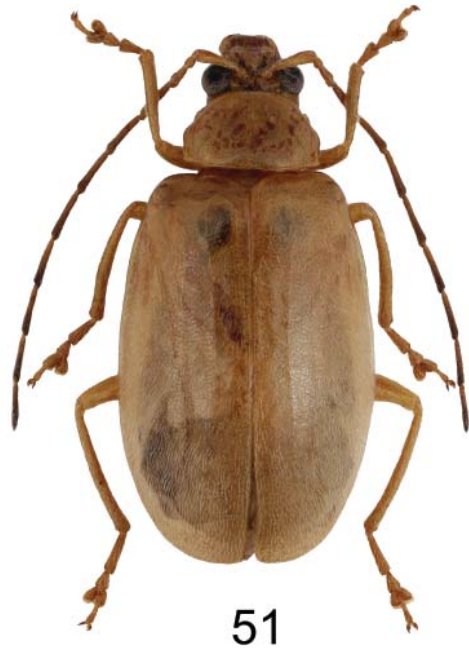
Interocular space twice as wide as transverse diameter of eye. Antennae 0.75 times as long as body, length ratio of antennomeres I to XI equals 16-5-7-15-15-15-16-15-16-14-17. Pronotum 1.55 times as broad as long. Elytra glabrous, 1.65 times as long as wide (measured at humeral calli), 0.72 times as long as body. Length ratio of metatarsomeres 1–4 equals 12-7-5-11. Last ventrite posteriorly without two small incisions (Fig. 24).

Aedeagus: dorsal side with long thin incision; apex ventrally with high thin keel in the middle and deep U-shaped incision on right side (Fig. 16).

Female. Apex of last ventrite with three very small protrusions (median and two lateral)



Figs 41–47. Spermatheca. 41 – *Hesperopenna medvedevi* nom. nov.; 42 – *H. persimilis* (Kimoto, 1989); 43 – *H. tibialis* (Kimoto, 1989); 44 – *H. arnoldi* sp. nov.; 45 – *H. helferi* sp. nov.; 46 – *H. sipekorum* sp. nov.; 47 – *H. zofka* sp. nov. Scale bar 0.25 mm.



Figs 48–51. Habitus. 48 – *Hesperopenna medvedevi* nom. nov. (male, Vietnam, 8.2 mm); 49 – *H. persimilis* (Kimoto, 1989) (male, Thailand, 6.2 mm); 50 – *H. tibialis* (Kimoto, 1989) (male, Laos, 9.5 mm); 51 – *H. arnoldi* sp. nov. (male, holotype, 8.4 mm).



Figs 52–55. Habitus. 52 – *Hesperopenna bonifaci* sp. nov. (male, holotype, 9.5 mm); 53 – *H. helferi* sp. nov. (male, paratype, 8.5 mm); 54 – *H. sipekorum* sp. nov. (male, holotype, 8.6 mm); 55 – *H. zofka* sp. nov. (male, holotype, 6.9 mm).



Figs 56–65. Type specimens. 56–57 – *Hesperopenna flava* Medvedev & Dang, 1981 (male, holotype, 7.6 mm); 58–59 – *Calomicrus persimilis* Kimoto, 1989 (male, paratype, 7.1 mm); 60–61 – *Martinella merkli* Medvedev, 2000 (male, paratype, 8.5 mm); 62–63 – *Liroetiella engleyae* Medvedev, 1995 (female, paratype, 5.8 mm); 64–65 – *Liroetiella warisan* Mohamedsaid, 1998 (female, paratype, 4.1 mm). 56, 58, 60, 62, 64 – habitus; 57, 59, 61, 63, 65 – labels.

(Fig. 31), pygidium with small U-shaped incision at apex (Fig. 38). Spermatheca: nodulus relatively narrow, subtubular, slightly extended apically, cornu regularly rounded, slightly wider than nodulus, apical appendage quadrangular (Fig. 45).

Differential diagnosis. *Hesperopenna helferi* sp. nov. is similar to *H. bonifaci* sp. nov. Both species share glabrous elytra and uniformly brown legs and can be distinguished by the structure of aedeagus which in *H. bonifaci* sp. nov. forms two thin touching processes dorsally and is deeply incised on the left side ventrally, while in *H. helferi* sp. nov. forms two wider processes dorsally and is deeply incised on the right side ventrally, moreover with high median keel (Figs 15, 16).

Etymology. Dedicated to a Czech physician and explorer Jan Vilém Helfer (1810–1840) who collected the type series and whose collection is now deposited in NMPC.

Distribution. Myanmar (Tanintharyi Region).

Hesperopenna sipekorum sp. nov.

(Figs 1–10, 17, 25, 32, 39, 46, 54)

Type locality. India, Meghalaya, SW of Sohra, 29°14'N 91°40'E.

Type material examined. HOLOTYPE: ♂, 'NE INDIA, Meghalaya, / SW of Sohra, 800–1000 m, / 29°14'N 91°40'E, / v.2005, C. L. Peša leg. [w, p]' (NMPC). PARATYPES: 4 ♂♂ 8 ♀♀, same data as holotype (2 ♂♂ 2 ♀♀ in NMPC, 2 ♂♂ 6 ♀♀ in JBCB); 1 ♂ 1 ♀, 'NE INDIA, MEGHALAYA; / SW of CHERRAPUNJEE; / 25°13'–15' N; 91°40' E; / 500–900m; 11–12.v.2004; / R. Businský leg. [w, p]' (JBCB); 2 ♂♂, 'INDIA, Meghalaya State, / E Khasi Hills, 11 km SW / Cherrapunjee, Laitkynsew, [w, p] // 810 m, 21–24.iv.2008 / 25°13' N, 91°39' E, Fikáček / Podskalská & Šípek leg. [w, p]' (JBCB); 7 ♂♂ 10 ♀♀, 'NE INDIA, MEGHALAYA / SW of CHERRAPUNJEE / 25°13'–14' N 91°40' E, 900m / L. Dembický leg., 1–24.v.2005 [w, p] // BMNH {E} / 2006–48 / L. Dembický [w, p]' (BMNH); 2 ♂♂ 3 ♀♀, 'NE INDIA, MEGHALAYA, / SW of CHERRAPUNJEE / 25°13'–14' N 91°40' E, / 5–24.v.2005, 900m / P. Pacholátko leg. [w, p] // BMNH {E} / 2006–48 / L. Dembický [w, p]' (BMNH); 1 ♂ 1 ♀, 'NE INDIA, MEGHALAYA, / 8 km N of SHILLONG; / 25°38' N 91°54'; ~1200m / L. Dembický leg.; 7–9.v.2004 [w, p]' (NHMB).

Description. Body length: ♂♂ 7.1–8.9 mm (holotype 8.3 mm), ♀♀ 6.6–9.4 mm.

Male (holotype, Fig. 54). Body orange brown, apices of mandibles black, antennae gradually darkened from antennomere III, apical half of elytra slightly paler than rest of elytra.

Interocular space 1.75 times as wide as transverse diameter of eye. Antennae 0.85 times as long as body, length ratio of antennomeres I to XI equals 14–5–7–15–15–14–16–15–15–14–17. Pronotum 1.55 times as broad as long. Elytra 1.78 times as long as wide (measured at humeral calli), 0.70 times as long as body. Apical third of elytra densely covered with short pale setae. Length ratio of metatarsomeres I–IV equals 13–6–7–10. Last ventrite posteriorly without two small incisions (Fig. 25).

Aedeagus: dorsal side with long thin incision; apex ventrally in the middle with high thin keel bent down and wide subtriangular incision on right side (Fig. 17).

Female. Apex of last ventrite almost straight (Fig. 32), apex of pygidium with large U-shaped incision (Fig. 39). Spermatheca: nodulus subtubular, slightly wider apically, cornu regularly rounded, as wide as nodulus, apical appendage large, bent up (Fig. 46).

Variability. Ratio width/length of pronotum in males varies between 1.44–1.56, in females 1.50–1.54.

Differential diagnosis. Having dense elytral setation and completely brown legs *H. sipekorum* sp. nov. is similar to *H. arnoldi* sp. nov. and *H. medvedevi* nom. nov. While the setation

covers at least the apical 2/3 of elytra in *H. arnoldi* sp. nov. it covers about the apical third to half in *H. sipekorum* sp. nov. and *H. medvedevi*. All these species can be also separated by the structure of the ventral side of aedeagus. *Hesperopenna medvedevi* has aedeagus more or less symmetrical ventrally, apex formed by a subtriangular process with a rounded tip, lateral incisions short and of the same depth, while *H. arnoldi* sp. nov. and *H. sipekorum* sp. nov. have aedeagus asymmetrical ventrally with a deep incision on the right and a shallow incision on the left. Proximal part of aedeagus of *H. sipekorum* sp. nov. is comparatively shorter and more robust than in *H. arnoldi* sp. nov. Moreover, ventral side of aedeagus of *H. sipekorum* sp. nov. forms a thin keel bent downwards (Figs 11, 14, 17). Females of these three species can be distinguished by apex of pygidium with an U-shaped incision which is large and deep in *H. sipekorum* sp. nov., very small in *H. arnoldi* sp. nov. and of medium size in *H. medvedevi* (Figs 34, 37, 39).

Etymology. Dedicated to Hanka Podskalská and Petr Šípek (now married couple the Šípeks) who collected two paratypes.

Distribution. India (Meghalaya).

Hesperopenna zofka sp. nov.

(Figs 18, 26, 33, 40, 47, 55)

Type locality. Indonesia, Java, Bogor env.

Type material examined. HOLOTYPE: ♂, 'West Java II.1991 / BOGOR env. / R. Černák lgt. [w, p]' (NMPC). PARATYPES: 2 ♂♂ 7 ♀♀, same data as in holotype (2 ♀♀ NMPC, 1 ♂ 3 ♀♀ in JBCP, 1 ♂ 2 ♀♀ in JSCP); 1 ♂ 1 ♀, 'ID-JAVA cent. Kudus env. / Colo- 1 km N of / Gunung Muria 1050-1200m / 21.-23.1.1998 / R. Červenka lgt. [w, p]' (JBCB); 1 ♀, 'Indonesia, Bali occ. / 6 km E of Gilimanuk / 31.1.1998, R. Červenka lgt. / pitfall baited traps [w, p]' (JBCB); 1 ♀, 'L. G. E. Kalshoven / Java [p] 700 [h] M. [p] / Djember [h] / 18.II [h] 19 [p] 19 [h] No [p] 842 [w, h] // 842 [w, h] // Le Moulnt vend. / via Reinbek / Eing. 1 – 1957 [w, p]' (ZMUH); 1 ♂, 'L. G. E. Kalshoven / JavaM. [p] / Djember [h] / XI [h] 19 [p] 19 [h] No [p] 842 [w, h] // Le Moulnt vend. / via Reinbek / Eing. 1 – 1957 [w, p]' (ZMUH); 1 spec. unsexed, 'Java orient. / Montes Tengger / 4000' 1890 / H. Fruhstorfer. [blue-gray label, p]' (RMNH).

Description. Body length: ♂♂ 6.8–8.9 mm (holotype 6.9 mm), ♀♀ 7.6–9.4 mm.

Male (holotype, Fig. 55). Body yellowish orange, apices of mandibles black, antennomeres I and II yellowish, rest of antennomeres black, extreme lateral margin of epipleura in basal half black. Femora yellowish, tibiae and tarsi black, last two tarsomeres and claws dark brown. Last ventrite posteriorly with two small incisions (Fig. 26).

Interocular space 1.5 times as wide as transverse diameter of eye. Antennae 0.9 times as long as body, length ratio of antennomeres I to XI equals 15-5-7-14-14-15-15-15-15-13-15. Pronotum 1.40 times as broad as long. Elytra glabrous, 1.75 times as long as wide (measured at humeral calli), 0.75 times as long as body. Length ratio of metatarsomeres I–IV equals 12-6-4-9.

Aedeagus: dorsal side apically with symmetrical triangular incision; ventral side with very long thin incision medially (Fig. 18).

Female. Last ventrite with wide concavity at apex, lateral sides slightly concave (Fig. 33), pygidium with simple sharp triangular tip (Fig. 40). Spermatheca: nodulus large, globular, cornu regularly rounded, slightly narrower than nodulus (Fig. 47).

Variability. Ratio width/length of pronotum varies between 1.40–1.55.

Differential diagnosis. *Hesperopenna zofka* sp. nov. is very similar to *H. tibialis*. Both species share a similar structure of aedeagus with a very long basal orifice longer than the proximal part of aedeagus, bicolourous legs and glabrous elytra. *Hesperopenna zofka* sp. nov. differs from *H. tibialis* in black antennae with first two antennomeres yellow (completely yellow antennae in *H. tibialis*) and in epipleura always with black extreme lateral margin in the basal half (epipleura completely yellow or at most with brownish extreme lateral margin in *H. tibialis*). Males can be distinguished by the long thin incision on the ventral side of aedeagus which is placed medially in *H. zofka* sp. nov. while placed on the right side in *H. tibialis* (Figs 13, 18). Females of both species can be separated by the shape of pygidium: apex simply triangular in *H. zofka* sp. nov. while distinctly pointed in *H. tibialis* (Figs 36, 40).

Etymology. Dedicated to Žofka the small black cat of Jiří Hájek and Květa Kalíková. Noun in apposition.

Distribution. Indonesia (Java, Bali).

Check-list of hitherto described *Hesperopenna* species with suggested taxonomical changes

Hesperopenna annulicornis (Jacoby, 1896), **comb. nov.** (from *Microlepta*)

Hesperopenna antennalis (Kimoto, 1989), **comb. nov.** (from *Liroetiella*)

Hesperopenna arnoldi **sp. nov.**

Hesperopenna bicolor (Kimoto, 1989), **comb. nov.** (from *Liroetiella*)

Hesperopenna bonifaci **sp. nov.**

Hesperopenna flava (Jacoby, 1892), **comb. nov.** (from *Agelastica*)

= *Calomicrus kimotoi* Warchalowski, 1991, **syn. nov.***

Hesperopenna fulva (Kimoto, 1977), **comb. nov.** (from *Calomicrus*)

Hesperopenna fulvicollis (Jacoby, 1896), **comb. nov.** (from *Microlepta*)

Hesperopenna granulicollis (Kimoto, 1989), **comb. nov.** (from *Liroetiella*)

Hesperopenna helferi **sp. nov.**

Hesperopenna malayana (Medvedev & Romantsov, 2013), **comb. nov.** (from *Levnum*)

Hesperopenna medvedevi **nom. nov.**

= *Hesperopenna flava* Medvedev & Dang, 1981, preoccupied by *H. flava* (Jacoby, 1892).

Hesperopenna minor (Kimoto, 1989), **comb. nov.** (from *Liroetiella*)

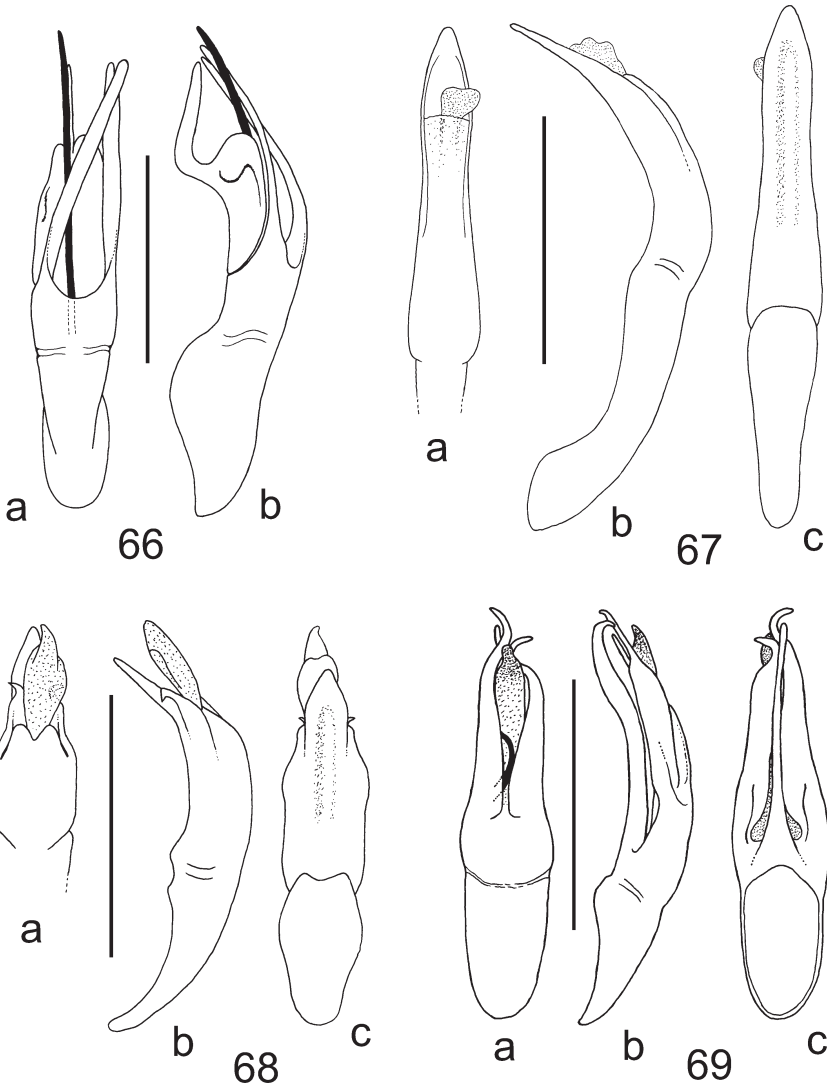
Hesperopenna nigriceps (Kimoto, 2004), **comb. nov.** (from *Calomicrus*)

Hesperopenna nigricollis (Kimoto, 1989), **comb. nov.** (from *Liroetiella*)

Hesperopenna pallida (Jacoby, 1894), **comb. nov.** (from *Microlepta*)

Hesperopenna persimilis (Kimoto, 1989), **comb. nov.** (from *Calomicrus*)

* In his revision of yellow *Calomicrus* species, WARCHALOWSKI (1991) suggested a new name *Calomicrus kimotoi* to replace *Agelastica flava* Jacoby, 1892, at that time classified in *Calomicrus* (see KIMOTO 1989) and preoccupied by *Calomicrus flavus* (Rosenhauer, 1856). However, *Calomicrus flavus* (Rosenhauer, 1856) is currently treated as a subspecies of *Luperus flavipennis* Lucas, 1849 (see VELA & BASTAZO 1990, BEENEN 2010) and *Agelastica flava* is here transferred to *Hesperopenna*. According to the ICZN (1999), article 59.4, *Calomicrus kimotoi* Warchalowski, 1991 is synonymized with *Hesperopenna flava* (Jacoby, 1892) (comb. nov.).

Hesperopenna romantsovi **nom. nov.**= *Levnum thailandica* Medvedev & Romantsov, 2013, preoccupied by *H. thailandica* (Kimoto, 1989).*Hesperopenna shinsakui* **nom. nov.**= *Calomicrus bicolor* Kimoto, 1989, preoccupied by *Hesperopenna bicolor* (Kimoto, 1989).*Hesperopenna sipekorum* **sp. nov.**

Figs 66–69. Aedeagus (a – dorsal view; b – lateral view; ventral view). 66 – *Hesperopenna vietnamica* (Medvedev, 2000) (paratype); 67 – *H. antennalis* (Kimoto, 1989); 68 – *H. minor* (Kimoto, 1989) (paratype); 69 – *H. bicolor* (Kimoto, 1989) (paratype). Scale bar 1 mm.

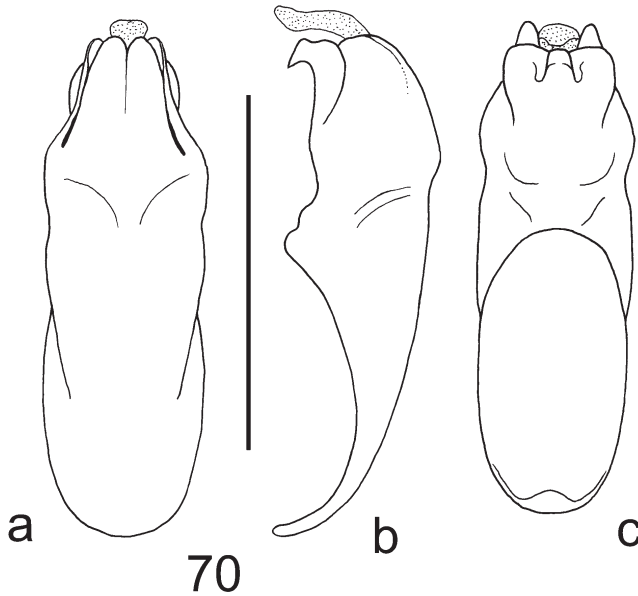


Fig. 70. Aedeagus of *Hesperopenna granulicollis* (Kimoto, 1989) (paratype) (a – dorsal view; b – lateral view; ventral view). Scale bar 1 mm.

Hesperopenna thailandica (Kimoto, 1989), **comb. nov.** (from *Luperus*)

Hesperopenna tibialis (Kimoto, 1989), **comb. nov.** (from *Liroetiella*)

= *Martinella merkli* Medvedev, 2000, **syn. nov.**

Hesperopenna vietnamica (Medvedev, 2000), **comb. nov.** (from *Martinella*)

Hesperopenna zofka **sp. nov.**

Species excluded from *Hesperopenna*

Four species described from Malaysia by MOHAMEDSAID (1998, 2001) and MOHAMEDSAID & KIMOTO (1993) have elongate metatarsomere I with black extreme base. These species are not congeneric with *Hesperopenna* and are tentatively transferred to *Monolepta* Chevrolat, 1836.

An additional species, *Liroetiella englerae* Medvedev, 1995, was described from Leyte Isl. (the Philippines). I had a possibility to examine one paratype (female) deposited in SMNS. Although habitually very similar to some *Hesperopenna* species and sharing most of their characters, the absence of the oblique impression behind the anterior angles on pronotum allows me to exclude this species from *Hesperopenna*. Unfortunately, due to the lack of males the correct generic position is unknown to me.

***Monolepta antennata* (Mohamedsaid & Kimoto, 1993) comb. nov.**

Liroetiella antennata Mohamedsaid & Kimoto, 1993: 45 (original description); MOHAMEDSAID (1995): 5; MOHAMEDSAID (1997): 167; MOHAMEDSAID (1999a): 15; MOHAMEDSAID & HOLLOWAY (1999): 166; MOHAMEDSAID (2003): 240 (figure of antennae); MOHAMEDSAID (2004): 96 (catalogue); MOHAMEDSAID & FURTH (2011): 45.

Type locality. 'Malaysia, Sabah, Lembah Danum'.

Type material. HOLOTYPE: ♂, 'SABAH: Lembah Danum / 27-31 Ogm 91 / Salleh, Zaidi, Mail, Lan [w, p] // HOLOTYPE [p] / Liroetiella / antennata n. sp. [h] / des. Mohamedsaid 199 [p] 2 [h] / & Kimoto [h] [white label with red margins]' (UKM).

Additional material examined (1 spec.). MALAYSIA: Sabah, Lembah Danum, 5.-8.xii.1992, 1 ♂, Ismail, Yusof & Razali leg. (MSNV).

Distribution. Malaysia: Sabah (MOHAMEDSAID & KIMOTO 1993; MOHAMEDSAID 1995, 1997, 1999; MOHAMEDSAID & HOLLOWAY 1999).

***Monolepta apicalis* (Mohamedsaid, 2001) comb. nov.**

Liroetiella apicalis Mohamedsaid, 2001: 252 (original description); MOHAMEDSAID (2004): 96 (catalogue).

Type locality. 'Malaysia, Sabah, Lembah Danum'.

Type material. Not examined.

Distribution. Malaysia: Sabah (MOHAMEDSAID 2001).

Comments. After the tentative transfer of this species to *Monolepta* it is now a homonym of *Monolepta apicalis* (Sahlberg, 1823). However, I avoid to suggest a new name till its definitive placement in *Monolepta* is confirmed.

***Monolepta sallehnoiri* (Mohamedsaid, 1998) comb. nov.**

Liroetiella sallehnoiri Mohamedsaid, 1998: 230 (original description); MOHAMEDSAID (2004): 96 (catalogue).

Type locality. 'Malaysia, Perak, Temengor'.

Type material. HOLOTYPE: ♂, 'PERAK: Temengor / Ekspedisi MNS-Belum / 29-30 Jan. 1994 / Salleh & Ismail [w, p] // HOLOTYPE [p] / Liroetiella / sallehnoiri n. sp. [h] / des. Mohamedsaid 199 [p] 8 [h] [white label with red margins]' (UKM). PARATYPE: 1 spec. unsexed, 'PERAK: Temengor / Ekspedisi MNS-Belum / 15-20 Nov. 1993 / Salleh, Ismail & Sham [w, p] // PARATYPE [p] / Liroetiella / sallehnoiri n. sp. [h] / des. Mohamedsaid 199 [p] 8 [h] [white label with red margins]' (UKM).

Distribution. Malaysia: Perak (MOHAMEDSAID 1998).

***Monolepta warisan* (Mohamedsaid, 1998) comb. nov.**

(Figs 64–65)

Liroetiella warisan Mohamedsaid, 1998: 232 (original description); MOHAMEDSAID (1999): 129; MOHAMEDSAID & HOLLOWAY (1999): 166; MOHAMEDSAID (2000): 310; MOHAMEDSAID (2004): 96 (catalogue).

Type locality. 'Malaysia, Perak, Temengor'.

Type material. HOLOTYPE: ♂, 'PERAK: Temengor / Ekspedisi MNS-Belum / 29 Nov. - 5 Dis. 1993 / Ismail, Yusof, Bidi, Sayful [w, p] // HOLOTYPE [p] / Liroetiella / warisan n. sp. [h] / des. Mohamedsaid 199 [p] 8 [h] [white label with red margins]' (UKM). PARATYPES: 1 spec. unsexed, 'PERAK: Temengor / Ekspedisi MNS-Belum / 29 Nov. - 5 Dis. 1993 / Ismail, Yusof, Bidi, Sayful [w, p] // PARATYPE [p] / Liroetiella / warisan n. sp. [h] / des. Mohamedsaid

199 [p] 8 [h] [white label with red margins]' (UKM); 1 ♀, 'PERAK: Temengor / Ekspedisi MNS-Belum / 29 Nov. - 5 Dis. 1993 / Ismail, Yusof, Bidi, Sayful [w, p] // PARATYPE [p] / Liroetiella / warisan n. sp. [h] / des. Mohamedsaid 199 [p] 8 [h] [white label with red margins] // COLLEZIONE / DACCORDI M. [pale blue label, p]' (MSNV).

Distribution. Malaysia: Perak (MOHAMEDSAID 1998), Sabah (MOHAMEDSAID 1999, 2000, MOHAMEDSAID & HOLLOWAY 1999).

'*Liroetiella*' *englerae* Medvedev, 1995

(Figs 62–63)

Liroetiella englerae Medvedev, 1995: 11 (original description).

Type locality. 'Leyte, VISCA N Baybay'.

Type material. HOLOTYPE: ♀, 'PHILIPPINEN: LEYTE / VISCA N Baybay 1991 / Untersu- IV-IX. / chungsbelege A. ENGLER [yellow label, p] // Chrys. / Ast 10 [w, h] // Holotypus [red label, p] // HOLOTYPE [p] / Liroetiella / englerae / m. [h] / L. Medvedev det. 199 [p] 3 [w, h]' (SMNS).

Distribution. Philippines: Leyte (MEDVEDEV 1995).

Discussion

Although densely pubescent elytra are relatively frequent in the tribe Galerucini, this character is very rare in Luperini and can be found for example in *Hesperopenna*, *Hirtomimastra* Medvedev, 2009, *Pseudespera* Chen, Wang & Jiang, 1985, *Trichobalya* Weise, 1924, *Trichomimastra* Weise, 1922 or *Trichosepharia* Laboissière, 1936. Widely used identification keys (e.g. MAULIK 1936, GRESSITT & KIMOTO 1963, KIMOTO 1989, MEDVEDEV & SPRECHER-UEBERSAX 2005) include densely pubescent elytra as one of the most important characters for identification of the genera. The data in the present paper on *Hesperopenna* show this character is not stable. Only three species (*H. medvedevi* nom. nov., *H. arnoldi* sp. nov., and *H. sipekorum* sp. nov.) have elytra covered with dense setae, while elytra of all other species are glabrous. Just this variability caused the chaos in the nomenclature of the genus. The genus *Hesperopenna* was proposed for the species with pubescent elytra, while additional two genera *Liroetiella* and *Martinella*, here synonymized with *Hesperopenna*, were erected for the species with glabrous elytra. The same variability of elytral setation, where the type species has pubescent elytra while other species are glabrous or only sparsely pubescent, can be found also in *Hirtomimastra* (BEZDĚK in prep.). Within the tribe Galerucini the pubescent/glabrous elytra seems to be a stable and useful character, while in Luperini its stability within each genus should be checked in subsequent studies.

Similar situation was recently described also in other two widely used characters: anterior coxal cavities (open/closed) and bifid claws. The stability of the anterior coxal cavities closed or open was doubted several times, e.g. for genera *Monolepta* (WAGNER 2003), *Menippus* Clark, 1864 (REID & NALLY 2008), or *Erganoides* (BEENEN & LEE 2010). In the mentioned studies, the anterior cavities are shown variable (open, partly closed or closed) within one genus. In *Hesperopenna*, the open anterior cavities are a constant character.

Variability of claws within one genus is better known in Eumolpinae. In *Colasposoma* Laporte, 1833, claws can be either simple, appendiculate at the base or bifid, with the division starting near the base of the claw or in its basal half (ZIOIA 2012). Similarly, in *Pachnephorus* Chevrolat, 1936, tarsal claws are simple or appendiculate, in males the claws of protarsi can

be simple, bifid or appendiculate (ZOLA 2007). In Galerucinae, variability of bifid claws was described in the genus *Hoplasoma* (BEZDĚK 2010).

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