

**Revision of the genus *Hesperopenna* Medvedev et Dang, 1981 (Coleoptera:  
Chrysomelidae: Galerucinae). II.  
*H. vietnamica* species group and new taxonomical changes**

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**Taxonomy, new species, new synonymy, new combination, Coleoptera, Chrysomelidae, Galerucinae, *Hesperopenna*, Oriental Region**

**Abstract.** The *Hesperopenna vietnamica* species group is revised. Four species are recognized and illustrated: *Hesperopenna vietnamica* (Medvedev, 2000); *H. thailandica* (Kimoto, 1989) (= *Luperus panfilovi* Medvedev, 2012, syn. nov.); *H. rolciki* sp. nov. (India: Assam, Megalaya) and *H. samuelsoni* sp. nov. (Laos). The following additional taxonomical changes are proposed: *Hesperopenna bacboensis* (Medvedev, 2013) (comb. nov.) (= *Martinella nigricollis* Medvedev, 2013, syn. nov.); *H. brancuccii* (Medvedev, 2007) (comb. nov.) (= *H. helferi* Bezděk, 2013, syn. nov.); *H. buonloica* (Medvedev, 2013) (comb. nov.); *H. insularis* (Medvedev, 2013) (comb. nov.); *H. kabakovi* (Medvedev, 2013) (comb. nov.); *H. longicollis* (Medvedev, 2013) (comb. nov.); *H. ovata* (Medvedev, 2013) (comb. nov.); *H. tamdaoensis* (Medvedev, 2013) (comb. nov.); *H. tiami* (Medvedev, 2013) (comb. nov.); *H. tiami condaoensis* (Medvedev, 2013) (comb. nov.) (all from *Calomicrus*); *H. gialaiensis* nom. nov. (for *Luperus vietnamicus* Medvedev, 2012, nec *Martinella vietnamica* Medvedev, 2000, both in *Hesperopenna* now).

## INTRODUCTION

The genus *Hesperopenna* Medvedev et Dang, 1981 is one of many Oriental Galerucinae genera which badly need the comprehensive revision based on the study of primary type specimens. Initial study was published by Bezděk (2013) who redefined the genus, proposed six species groups and revised the *H. medvedevi* species group. Until that the *Hesperopenna* species were dispersed in various genera like *Liroetiella* Kimoto, 1989, *Martinella* Medvedev, 2000, *Calomicrus* Dillwyn, 1829, *Luperus* Geoffroy, 1762 or *Microlepta* Jacoby, 1886.

The present study is a continuation of the first contribution (Bezděk 2013) and includes the revision of *H. vietnamica* species group with descriptions of two new species accompanied with newly discovered taxonomical changes associated with *Hesperopenna*.

In light of newly examined material and nomenclatorial changes proposed here, the arrangement of *Hesperopenna* species into six species groups as proposed by Bezděk (2013) seems to be insufficient. At least two of the groups (the *H. medvedevi* species group and *H. vietnamica* species group revised here) are well defined and supported by uniformity of various characters (predominantly structures of aedeagus, spermatheca, pronotum, female sternite VIII, body length, etc.). However, other four groups probably do not cover the rest of species sufficiently. Based on the large number of specimens frequently found in both

expedition or institutional materials I am sure that part of the groups will be redefined or split into several newly established groups in the future.

## MATERIAL AND METHODS

In each description only the diagnostic characters usable for identification of the species as compared with the general description of the species group are given. Identification of females is more problematic as in many other galerucine genera.

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 objects at different focal planes were combined using Helicon Focus 5.1.3 software.

The examined material is housed in the following collections:

- BMNH The Natural History Museum, London, UK (Michael Geiser);
- BPBM Bernice P. Bishop Museum, Honolulu, USA (Shepherd Myers);
- FKCC František Kantner private collection, České Budějovice, Czech Republic;
- HNHM Hungarian Natural History Museum, Budapest, Hungary (Otto Merkl);
- JBCB Jan Bezděk private collection, Brno, Czech Republic;
- JVCJ Jiří Voříšek private collection, Jirkov, Czech Republic;
- KMNH Kitakyushu Museum and Institute of Natural History, Fukuoka, Japan (Yusuke Minoshima);
- LMRM Lev N. Medvedev collection, Moscow, Russia;
- NHMB Naturhistorisches Museum, Basel, Switzerland (Matthias Borer);
- NHMW Naturhistorisches Museum, Wien, Austria (Harald Schillhammer);
- NMEG Naturkundesmuseum, Erfurt, Germany (Matthias Hartmann);
- NMPC Národní Muzeum, Praha, Czech Republic (Jiří Hájek).

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 lines. 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, [w]-white label, [r]-red label, [b]-blue label, and [y]-yellow label.

## RESULTS

### **Taxonomy of the *Hesperopenna vietnamica* species group**

*Hesperopenna vietnamica* group. Mid-size species, body length 4.6-7.8 mm. Body completely yellow (with apices of mandibles black only) or with tibiae, tarsi, scutellum, pronotum and/or head black, antennae completely yellow or gradually darkened towards apex.

Labrum transverse with anterior angles rounded, anterior margin straight or slightly concave, surface with six pores in transverse row bearing long pale setae. Anterior part of

head triangular, flat or slightly convex, surface smooth or covered with microsculpture, larger punctures bearing setae are present only on lateral margins in impressed parts below antennal insertions, posterior part sometimes forming more or less distinct keel. Frontal tubercles subtriangular, somewhat transverse, slightly elevated, smooth, separated from vertex by rounded impressed line. Vertex smooth and glabrous. Antennae filiform, 0.80-1.05 times as long as body. Antennomere III about 1.25-2.85 times longer than antennomere II.

Pronotum transverse, 1.45-1.95 times as wide as long, widest in middle, lustrous, very finely punctate. Surface moderately convex, laterally slightly but distinctly protuberant. Anterior margin unbordered, straight, lateral margins moderately rounded, thinly bordered, posterior margin widely rounded, bordered. Anterior angles swollen, elongate, with setigerous pore placed posteriorly on swelling, posterior angles pointed with setigerous pore. Lateral margins with small notch behind anterior angle and before posterior angle. Scutellum smooth, glabrous, subtriangular with apex rounded.

Elytra 1.45-1.75 as long as wide, 0.60-0.75 times as long as body, glabrous, lustrous, densely covered with small confused punctures. Humeral calli well developed. Epipleura wide basally, narrowed in middle part and gradually narrowing towards apex.

Last abdominal ventrite transverse, posterior margin with two very short triangular incisions, surface with narrow impression along middle of posterior margin.

Legs slender, protarsomere I subtriangular, elongate, protarsomere II triangular, metatarsomere I elongate, metatarsomere II triangular.

Aedeagus dorsally with two thin lateral processes, left one is directed obliquely over the aedeagus, the second is parallel to aedeagus, incision between processes very deep, reaching basal third of aedeagus, ventral side of aedeagus apically with or without hook-like process, with one thin endophallic sclerite (Figs. 1, 8, 15, 22).

Females. Pygidium subtriangular with rounded apex or apex shallowly concave. Spermatheca with C-shaped cornu, its apex with large appendix, nodulus spherical, proximal spermathecal duct ca twice longer than cornu and nodulus combined. Sternite VIII subpentagonal or with lateral margins more or less convergent, posterior margin with deep narrow incision in middle, pores bearing very long setae cumulated along posterior margin, tignum thin, 1.50-2.00 times as long as sternite VIII. Vaginal palpi narrow, ca 10-15 times as long as wide, apices slightly divergent, darker, with several long setae.

**Diagnosis.** From other *Hesperopenna* species groups, the species of *H. vietnamica* species group can be distinguished by the combination of following characters: aedeagus with two thin dorsolateral processes and without ventral projection from basal part directed anteriorly, pronotum 1.45-1.95 times as wide as long and very finely punctate, antennomere III about 1.25-2.85 times longer than antennomere II.

**Species included.** *Hesperopenna vietnamica* (Medvedev, 2000), *H. thailandica* (Kimoto, 1989), *H. rolciki* sp. nov. and *H. samuelsoni* sp. nov. Although at least four undescribed species were announced in this group by Bezděk (2013), their number decreased due to discovered remarkable colour variability of the specimens of *H. thailandica* which were considered as undescribed species in the previous study.

## *Hesperopenna thailandica* (Kimoto, 1989)

(Figs. 1-7, 31-35)

*Luperus thailandicus* Kimoto, 1989: 100 (original description).

*Hesperopenna thailandica*: Bezděk, 2013: 721.

*Luperus panfilovi* Medvedev, 2012: 253 (original description). **syn. nov.**

**Type localities.** *Luperus thailandicus*: Thailand: Chiangmai Prov., Doi Suthep; *Luperus panfilovi*: China, Yunnan, vicinity of Pho-Hoi.

**Type material examined.** *Luperus thailandicus*: Holotype: ♀ (BPBM), "THAILAND / Chiangmai Prov.: / Doi Suthep / 1 - 5. IV. 1958 [w, p] // T. C. Maa / Collector / BISHOP [w, p] // HOLOTYPE [r, p] // *Luperus / thailandicus / n. sp.* [w, h] // PHOTO [r, p]". Paratypes: 1 ♀ (BPBM), "THAILAND: / Chiengmai / 1200 m / 11. IV. 1966 [w, p] // T. C. Maa / Collector / BISHOP [w, p] // PARATYPE [b, p] // *Luperus / thailandicus / n. sp.* [w, h]"; 1 ♀ (KMNH), "THAILAND / Chiangmai Prov.: / Doi Suthep / 1-5. IV. 1958 [w, p] // T. C. Maa / Collector / Bishop [w, p] // PARATOPOTYPE [b, p] // *Luperus / thailandicus / n. sp.* [w, h]".

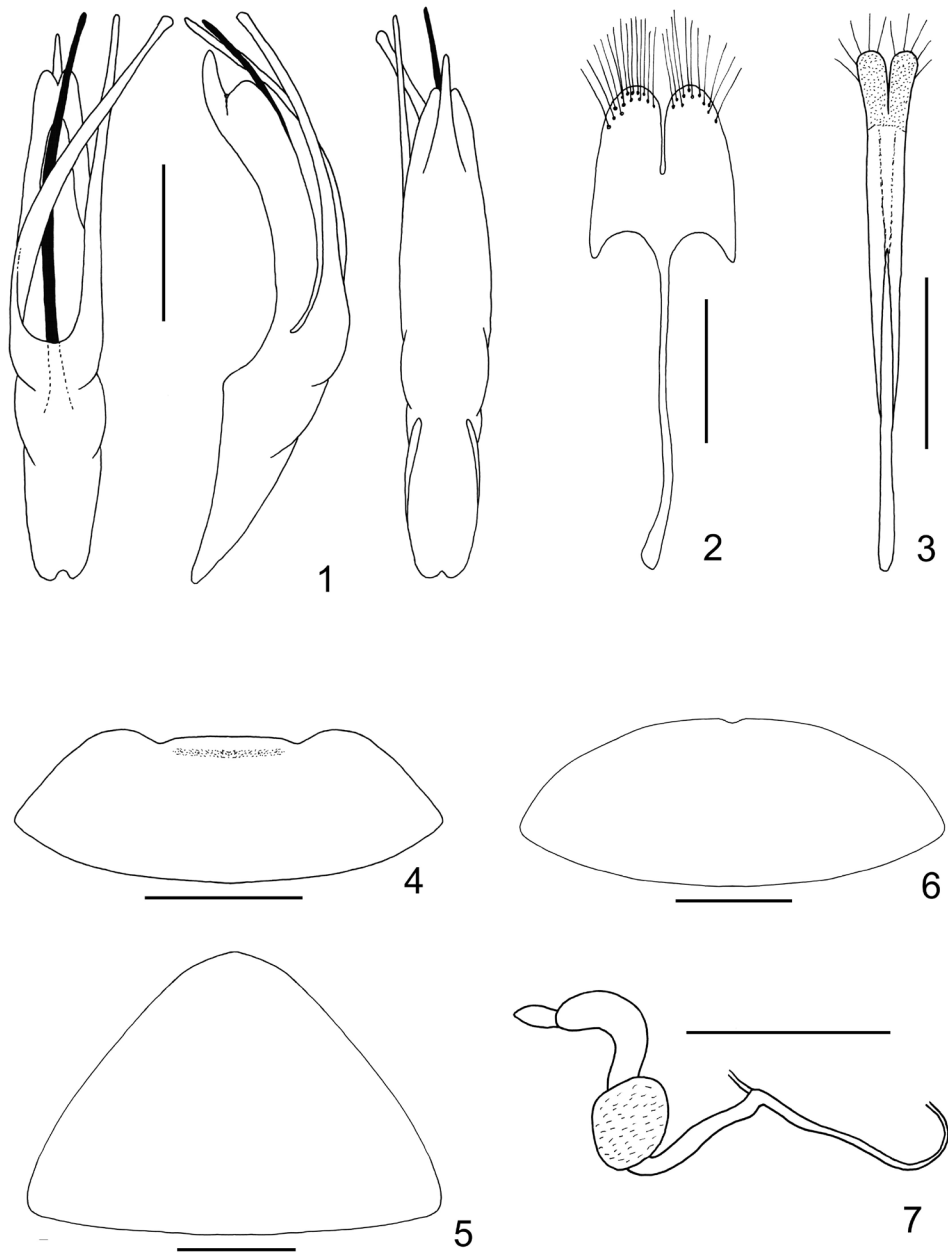
*Luperus panfilovi*: Not examined. Based on photos, the holotype (♂) bears following labels: "Юньнань [p] 1100 m / окр. Фохая [h] / Д. Панфилов [horizontally, w, p] / 23.4.57 [vertically, h] [= Yunnan, Pho-Hoi env., 1100 m, 23.iv.1953, D. Panfilov leg.] // HOLOTYPE / *Luperus / panfilovi / L. Medvedev [r, p]*".

**Additional material examined.** 33 specimens: LAOS: Hua Phan Prov.: 1 ♂ 2 ♀♀, Ban Saluei, Phu Phan Mt. env., 20°13'N 103°59'E, 1300-2000 m, 6.-18.v.2004, J. Bezděk leg. (JBCB); 1 ♀, Ban Saluei→Phou Pane Mt. env., 20°12-13.5'N 103°59.5'-104°01'E, 1340-1870 m, 15.iv.-15.v.2008, Lao collector leg. (NMPC); 1 ♂, Phu Phan Mt., 1500-1900 m, 17.v.-3.vi.2007, M. Brancucci leg. (NHMB). Oudom Xai Prov.: 2 ♂♂ 3 ♀♀, Nam Miang river, 30 km SE of Muang Xai, 1200 m, v.1999, Lao collector leg. (FKCC); 1 ♂, 17 km NEE of Oudom Xai, 1100 m, 1.-9.v.2002, V. Kubáň leg. (NHMB). Louang Phrabang Prov.: 2 ♂♂, Bang Song Cha, 1200 m, 24.iv.-16.v.1999, C. Holzchuh leg. (JBCB); 1 ♂, 2 ♀♀, 5 km W of Bang Song Cha, 1200 m, 1.-16.v.1999, V. Kubáň leg. (NHMB). Phongsaly Prov.: 3 ♂♂ 1 ♀, Phongsaly env., 1500 m, 28.v.-20.iv.2003, V. Kubáň leg. (NHMB); 1 ♂, Phongsaly env., 1500 m, 6.-17.v.2004, C. Holzchuh leg. (NHMB); 1 ♂, Phongsaly env., 1500 m, 6.-17.v.2004, P. Pacholátko leg. (NHMB). THAILAND: Mae Hong Son Prov.: 1 ♂, Soppong - Pai, 1800 m, 25.iv.-5.v.1992, P. Pacholátko leg. (NHMW); 1 ♀, Soppong env., 600 m, 2.vi.1999, D. Hauck leg. (JBCB); 1 ♂ 1 ♀, Ban Huai Po, 1600-2000 m, 9.-16.v.1991, L. Dembický leg. (JBCB); 1 ♀, Ban Huai Po, 1600-2000 m, 17.-23.v.1991, L. Dembický leg. (BMNH); 2 ♂♂ 1 ♀, Ban Si Lang, 1200m, 1.-8.v.1992, J. Horák leg. (JVCJ). Chiang Mai Prov.: 3 ♀♀, Ang Khang region, 19°53'45''N 99°02'45''E, 1600 m, 2.-7.v.2009, L. Dembický leg. (NHMB).

**Redescription.** Measurements. Males: 5.2-7.0 mm, females: 5.4-7.5 mm (holotype 7.5 mm). Colouration variable with three main variants: 1) body completely yellow except apices of mandibles black and apical antennomeres gradually infuscate, legs yellow (Fig. 31); 2) head and scutellum black (often with brownish frontal tubercles and part of vertex), lateral margins of epipleura at basal third thinly darkened, meso- and metaventrites darkened to black, pygidium darkened, and apical antennomeres gradually infuscate, legs yellow (Fig. 32); 3) head, antennae, tibiae and tarsi black, rest of body yellow (Fig. 33).

Male (Figs. 31-33). Labrum with anterior margin straight. Clypeus with slightly concave anterior margin. Anterior part of head slightly convex, lustrous, smooth and glabrous, posterior part forming more or less distinct keel. Interocular space 2.25 times as wide as transverse diameter of eye. Antennae 1.00-1.05 times as long as body. Antennomere III 2.45 times longer than II, length ratio of antennomeres equals 30-7-17-26-32-33-33-33-30-28-22.

Pronotum 1.75 times as wide as long. Elytra 1.77 times as long as wide, 0.71 times as long as body. Last ventrite with two shallow subtriangular incisions, posterior margin nearly straight, surface impressed along posterior margin (Fig. 4). Length ratio of protarsomeres



Figs. 1-7. Details of *Hesperopenna thailandica*: 1- aedeagus (dorsal, lateral and ventral views); 2- sternite VIII and tignum; 3- gonocoxae; 4- male last ventrite; 5- female pygidium; 6- female last ventrite; 7- spermatheca. Scale bar: 0.5 mm.

I-IV equals 11-7-6-11, of metatarsomeres I-IV equals 13-7-6-11. Ventral side of aedeagus terminated with short slightly bent hook (Fig. 1).

**Female.** Interocular space wider, 2.85 time as wide as transverse diameter of eye. Antennae shorter than in males, 0.85 times as long body. Pronotum 1.65-1.80 times as wide as long. Last ventrite with widely rounded posterior margin, in middle with very small shallow concavity (Fig. 6). Pygidium subtriangular with rounded apex (Fig. 5). Sternite VIII and tignum as in Fig. 2. Vaginal palpi as in Fig. 3. Spermatheca as in Fig. 7.

**Differential diagnosis.** *Hesperopenna thailandica* is very similar to *H. vietnamica*, both species differ in the structure of aedeagus which have short and only slightly bent apical hook in *H. thailandica* but long thin strongly bent apical hook in *H. vietnamica* (Figs. 1, 7). *Hesperopenna thailandica* is variable in coloration and particularly the form with black tibiae is similar to *H. vietnamica*. Nevertheless, such form of *H. thailandica* has also head black while the specimens of *H. vietnamica* always have head yellow.

**Comments.** Three colour forms are known within the populations of *Hesperopenna thailandica* (see above). The form with black head and yellow legs is known only from Thailand (here belong also the type specimens of *H. thailandica*, holotype in Fig. 34). The darkest form with black head and tibiae occurs in North Laos and Yunnan. The third, completely yellow form, is distributed either in Thailand or Laos, often syntopically with darker specimens.

The holotype of *Luperus panfilovi* was not studied but Pavel Romantsov kindly made its simple photos in Medvedev's collection. Although the drawings of aedeagus in the original description (Medvedev 2012) are very simplified, based on the photos of holotype I have no doubts that it belongs to most dark colour form of *H. thailandica* known from North Laos. Thus, *Luperus panfilovi* is synonymized here with *H. thailandica*.

**Distribution.** Thailand (Kimoto 1989, present study), China: Yunnan (Medvedev 2013a). Newly recorded from Laos.

### ***Hesperopenna vietnamica* (Medvedev, 2000)** (Figs. 8-14, 36-38)

*Martinella vietnamica* Medvedev, 2000: 168 (original description).

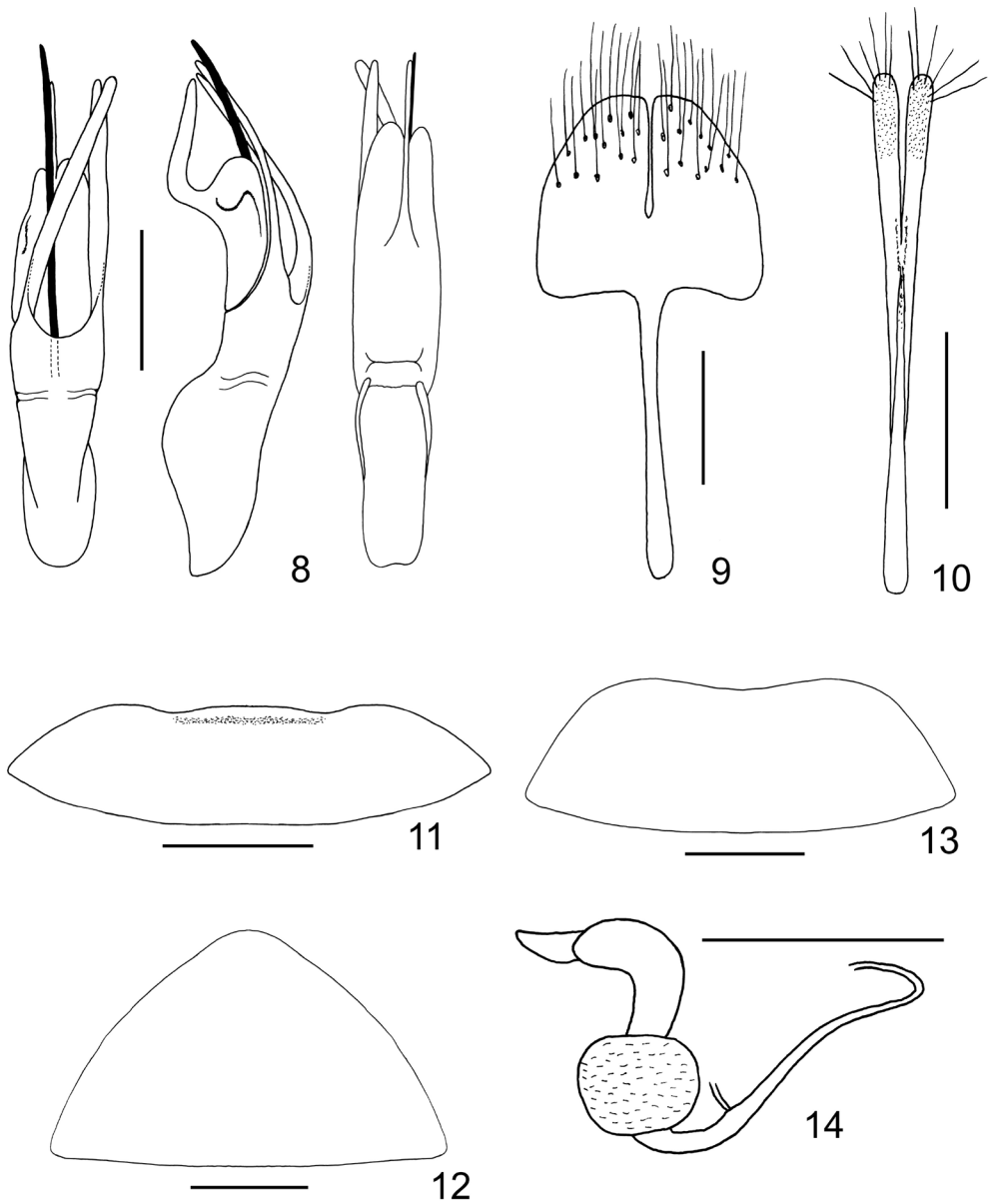
*Hesperopenna vietnamica*: Bezděk, 2013: 721.

*Calomicrus flavus*: Kimoto, 1989: 102 (partim).

**Type locality.** Vietnam, prov. Daklak, 40 km NW Buonmethuot, Buon Ya Wam.

**Type material examined.** Paratype: ♂ (LMRM), “CPB, пров. Даклак / 12 км ЮЗ Буонметхуота, / оз. Еакао, 23-24. VI. / 1985 г., Л. Медведев и д. [= Vietnam, Daklak prov., 12 km SW of Buonmethuot, Eakao lake, 23.-24. vi.1985, Medvedev et al leg.] [w, p] // PARATYPUS [p] / *Martinella* / *vietnamicus* m. [h] / L. Medvedev det. 19 [p] 99 [r, h]”.

**Additional material examined.** 8 specimens: CAMBODIA: 1 ♀, Bu Sra waterfall, xi.2005, R. Tropek leg. (JBCB); 1 ♀, Kampong-Kedey, Vitalis leg. (NMPC). LAOS: Vientiane prov.: 1 ♂, Lao Pako env. 55 km NE of Vientiane, 200 m, 1.-4.v.2004, J. Bezděk leg. (JBCB). Champasak prov.: 1 ♂, 5 km E of Pakse, 13.v.1965, P. D. Ashlock & Dao Van Tao leg. (BPBM). THAILAND: Loei prov.: 1 ♀, Phu Kradung N. P., 16°52'N 101°49'E, 1000 m, 16.-17.v.1999, M. Říha leg. (JBCB). Tak prov.: 1 ♂, Umphang river, 16°07'N 99°00'E, 1000 m, 28.iv.-6.v.1991, V.



Figs. 8-14. Details of *Hesperopenna vietnamica*: 8- aedeagus (dorsal, lateral and ventral views); 9- sternite VIII and tignum; 10- gonocoxae; 11- male last ventrite; 12- female pygidium; 13- female last ventrite; 14- spermatheca. Scale bar: 0.5 mm.

Kubáň leg. (NHMB). Prachin Buri prov.: 1 ♂, Sakaerat Ecol. Research Institute, 12.vi.2001, E. Horváth & Gy. Sziráki leg. (HNHM). VIETNAM: Gialai prov.: 1 ♀, 25 km SW of Pleiku, 400 m, 12.v.1960, L. W. Quate leg. (BPBM).

**Redescription.** Measurements. Males: 5.5-6.2 mm, females: 5.4-7.3 mm. Colouration: body completely yellow, except apices of mandibles, tibiae and tarsi black (inner sides of tibiae often yellowish particularly in basal half). Apical antennomeres sometimes infusate.

Male (Fig. 36). Labrum with anterior margin straight. Clypeus with slightly concave anterior margin. Anterior part of head slightly convex, lustrous and glabrous, covered with very fine microsculpture, posterior part without distinct keel. Interocular space 2.45 times as wide as transverse diameter of eye. Antennae 0.85 times as long as body, antennomere III 1.25 times longer than II, length ratio of antennomeres equals 25-6-8-29-28-27-27-25-25-22-25.

Pronotum 1.85 times as broad as long. Elytra 1.55 times as long as wide and 0.75 times as long as body. Last ventrite with two shallow subtriangular incisions, posterior margin slightly rounded, surface impressed along posterior margin (Fig. 11). Length ratio of protarsomeres I-IV equals 10-6-6-14, of metatarsomeres I-IV equals 14-7-6-16. Ventral side of aedeagus terminated with large strongly bent hook (Fig. 8).

**Female.** Interocular space wider, 2.50-2.55 times as wide as transverse diameter of eye. Antenna shorter, 0.65 times as long as body. Last ventrite transverse, posterior margin very widely concave (Fig. 13). Pygidium subtriangular with rounded apex (Fig. 12). Sternite VIII and tignum as in Fig. 9. Vaginal palpi as in Fig. 10. Spermatheca as in Fig. 14.

**Variability.** Antennomere III 1.15-1.30 times longer than II.

**Differential diagnosis.** Habitually, particularly due to black tibiae and tarsi, *Hesperopenna vietnamica* resembles some colour forms of *H. thailandica*. However, the combination of black tibiae and yellow head is known exclusively in all identified specimens *H. vietnamica* but not in the specimens of *H. thailandica* where the specimens with black tibiae always have black head. Both species can be also distinguished by the structure of aedeagus which possesses a large apical hook ventrally in *H. vietnamica* and a very small one in *H. thailandica* (Figs. 1, 8).

**Comments.** Two specimens from BPBM (Vietnam: 25 km SW of Pleiku; Laos: 5 km E of Pakse) published by Kimoto (1989) as *Calomicrus flavus* proved to be *Hesperopenna vietnamica*.

**Distribution.** Vietnam (Medvedev 2000, present study). Newly recorded from Cambodia, Laos and Thailand.

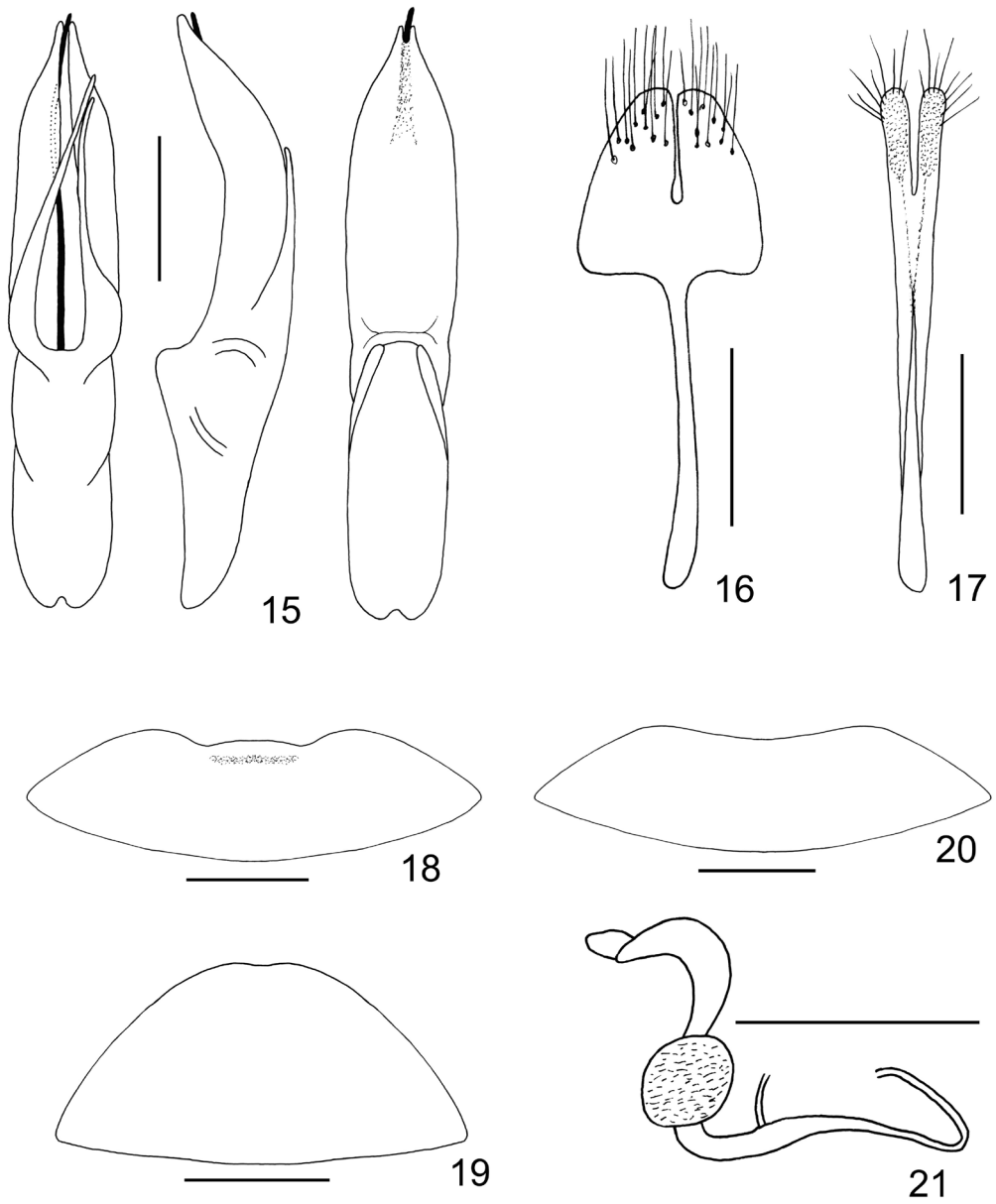
### *Hesperopenna rolciki* sp. nov.

(Figs. 15-21, 39)

**Type locality.** India, Assam, 5 km N of Umrongso, 25°27'N 92°43'E.

**Type material.** Holotype: ♂ (NMPC), "NE INDIA; ASSAM; 1999 / 5km N of Umrongso; 700m; / 25°27'N 92°43'E; 17.-25.v. / J. Rolčík lgt. [w, p]". Paratypes: 1 ♂ 3 ♀♀, same data as in holotype (JBCB, 1 ♀ in NMPC); 3 ♂♂ 2 ♀♀ (FKCC), "NE INDIA, ASSAM / 5 km N of Umrongso, 700m / 25°27'N; 92°43'E, / lgt. J. Rolčík 17-





Figs. 15-21. Details of *Hesperopenna rolciki* sp. nov.: 15- aedeagus (dorsal, lateral and ventral views); 16- sternite VIII and tignum; 17- gonocoxae; 18- male last ventrite; 19- female pygidium; 20- female last ventrite; 21- spermatheca. Scale bar: 0.5 mm.

25.v.1999 [w, p]"; 4 ♂♂ 5 ♀♀ (JVCJ), "NE INDIA - ASSAM / 5 km N of Umrongso; 700m / 25°27'N 92°43'E / 17.-25.V.1999 J. Rolčík leg. [y, p]"; 1 ♂ (JBCB), "NE INDIA, Meghalaya, 2002, / 1 km E of TURA, 500-600m, / 25°30'N, 90°14'E, 13.-18.v. / M. Trýzna & P. Benda lgt. [w, p]". The specimens are provided with one additional printed red label: "HOLOTYPE, [or PARATYPE, respectively], / *Hesperopenna / rolciki* sp. nov., / J. Bezděk det., 2015".

**Description.** Measurements. Males: 6.2-7.3 mm (holotype 7.3 mm), females: 6.5-7.8 mm. Colouration: body completely yellow, except apices of mandibles and apical antennomeres infusate.

Male (holotype, Fig. 39). Labrum with anterior margin straight. Clypeus with straight anterior margin. Anterior part of head moderately convex, lustrous, smooth and glabrous, posterior part without distinct keel. Interocular space 2.80 times as wide as transverse diameter of eye. Antennae 1.05 times as long body, antennomere III 1.85 times longer than II, length ratio of antennomeres equals 29-7-13-37-35-35-35-35-31-34.

Pronotum 1.45 times as broad as long. Elytra 1.40 times as long as wide and 0.60 times as long as body. Last ventrite with two wide shallow subtriangular incisions, posterior margin between incisions moderately rounded, surface impressed along posterior margin (Fig. 18). Length ratio of protarsomeres I-IV equals 12-7-7-14, of metatarsomeres I-IV equals 18-9-8-16. Aedeagus without apical hook, apex triangular with short narrow incision at tip, ventral side with shallow narrow median impression in apical quarter (Fig. 15).

**Female.** Interocular space wider, 3.8 time as wide as transverse diameter of eye. Antennae shorter than in males, 0.80 times as long body. Pronotum more transverse, 1.57 times as wide as long. Last ventrite transverse, posterior margin very widely shallowly concave (Fig. 20). Pygidium subtriangular with apex shallowly concave (Fig. 19). Sternite VIII and tignum as in Fig. 16. Vaginal palpi as in Fig. 17. Spermatheca as in Fig. 21.

**Differential diagnosis.** With body completely yellow, *Hesperopenna rolciki* sp. nov. is similar to *H. samuelsoni* sp. nov. and to palest forms of *H. thailandica*. All the three species can be easily distinguished one from another by the structure of their aedeagi. The aedeagus of *H. thailandica* is terminated with short slightly bent hook on its ventral side, while in aedeagi of *Hesperopenna rolciki* sp. nov. and *H. samuelsoni* sp. nov. such hook is missing. Aedeagus of *H. rolciki* sp. nov. is incised at apex, ventral side is impressed medially in apical quarter, aedeagus is wider in lateral view, while in *H. samuelsoni* sp. nov. apex is not incised, ventral side is not impressed and aedeagus is narrower in lateral view (Figs. 15, 22).

Interocular space of males of *H. rolciki* sp. nov. is 2.80 times as wide as transverse diameter of eye while only 2.25 times wider in *H. samuelsoni* sp. nov. The specimens of *H. rolciki* sp. nov. are larger, 6.2-7.8 mm, while *H. samuelsoni* sp. nov. are smaller 4.6-5.6 mm.

**Etymology.** Dedicated to Jakub Rolčík (Praha, Czech Republic), who collected most specimens of this newly described species.

**Distribution.** India (Assam and Meghalaya states).

***Hesperopenna samuelsoni* sp. nov.**  
(Figs. 22-28, 40)

*Calomicrus flavus*: Kimoto, 1989: 102 (partim).

**Type locality.** Laos, Pon-Hom, N of Pakkading.

**Type material.** Holotype: ♂ (BPBM), “LAOS: / Pon-hom, N. / of Pakkading / 20.IV.1965 [w, p] // J. A. Rondon / Collection / BISHOP MUS. [w, p] // J. L. Gressitt / Collector / BISHOP MUSEUM [w, p]”. Paratypes: 1 ♂ (BPBM), “LAOS: 100 m. / PakKading / Borikhane Prov. / 23.IV.1965 [w, p] // J. L. Gressitt / Collector / BISHOP MUSEUM [w, p]”; 1 ♀ (BPBM), “LAOS: 100 m. / PakKading / Borikhane Prov. / 22.IV.1965 [w, p] // 4904 [w, h] // J. L. Gressitt / Collector / BISHOP MUSEUM [w, p] // Calomicrus / flavus / (Jacoby) [h] / Det. S. Kimoto, 19 [p] 88 [w, h]”. The specimens are provided with one additional printed red label: “HOLOTYPUS, [or PARATYPUS, respectively], / *Hesperopenna samuelsoni* sp. nov., / J. Bezděk det., 2015”.

**Description.** Measurements. Males: 4.6-5.2 mm (holotype 4.6 mm), female: 5.6 mm. Colouration: body completely yellow, except apices of mandibles and antennomeres III-XI infusate.

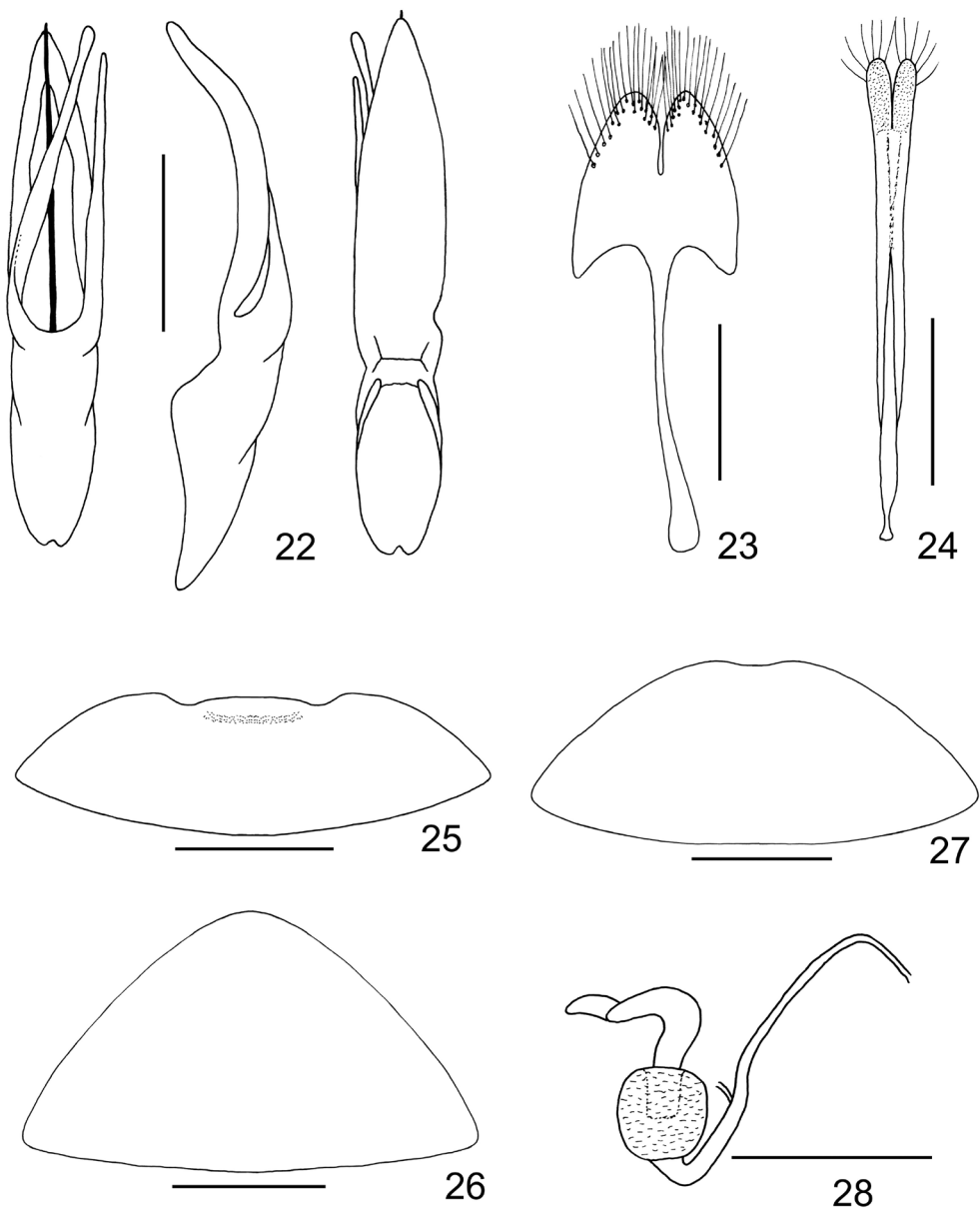
Male (holotype, Fig. 40). Labrum with anterior margin slightly concave. Clypeus with slightly concave anterior margin. Anterior part of head flat, lustrous, smooth and glabrous, posterior part forming distinct relatively sharp keel. Interocular space wide, 2.25 times as wide as transverse diameter of eye. Antennae 1.08 times as long as body. Antennomere III 2.8 times longer than II, length ratio of antennomeres equals 24-5-14-24-25-27-28-25-26-22-22.

Pronotum 1.73 times as wide as long. Elytra 1.53 times as long as wide, 0.63 times as long as body. Last ventrite with two shallow subtriangular incisions, posterior margin between incisions moderately rounded, surface impressed along posterior margin (Fig. 25). Length ratio of protarsomeres I-IV equals 8-5-6-12, of metatarsomeres I-IV equals 11-7-6-11. Aedeagus without apical hook, apex triangular, ventral side without impressions (Fig. 22).

**Female.** Interocular space wider, 2.60 times as wide as transverse diameter of eye. Pronotum more transverse, 1.95 times as wide as long. Last ventrite subtrapezoidal, posterior margin with shallow concavity (Fig. 27). Pygidium subtriangular with rounded apex (Fig. 26). Sternite VIII and tignum as in Fig. 23. Vaginal palpi as in Fig. 24. Spermatheca as in Fig. 28.

**Differential diagnosis.** Due to completely pale body, *Hesperopenna samuelsoni* sp. nov. resembles the palest forms of *H. thailandica* and *H. rolciki* sp. nov. All the three species differ in the shape of aedeagus which possesses short slightly bent hook on its ventral side in *H. thailandica*, but the hook is absent in the aedeagi of *H. rolciki* sp. nov. and *H. samuelsoni* sp. nov. Aedeagus of *H. samuelsoni* sp. nov. has its apex triangular, not incised, ventral side without impression and the aedeagus is narrower in lateral view, while the aedeagus of *H. rolciki* sp. nov. is incised at apex, ventral side is impressed medially in apical quarter and the aedeagus is wider in lateral view (Figs. 15, 22).

On average, *Hesperopenna samuelsoni* sp. nov. is the smallest species in the *H. vietnamica* species group, remarkably smaller than the habitually similar *H. rolciki* sp. nov. The interocular space of males of *H. samuelsoni* sp. nov. is also narrower, 2.25 times wider



Figs. 22-28. Details of *Hesperopenna samuelsoni* sp. nov.: 22- aedeagus (dorsal, lateral and ventral views); 23- sternite VIII and tignum; 24- gonocoxae; 25- male last ventrite; 26- female pygidium; 27- female last ventrite; 28- spermatheca. Scale bar: 0.5 mm.

than the transverse diameter of eye, while in males of *H. rolciki* sp. nov. the interocular space is wide, 2.80 times as wide as the transverse diameter of the eye.

**Etymology.** Dedicated to Al Samuelson, well known specialist in Chrysomelidae and former curator in BPBM.

**Comments.** Kimoto (1989) misinterpreted the concept of *Calomicrus flavus* and included several different species into this taxon. The specimens from Pakkading (Laos) are described here as new to science.

**Distribution.** Laos.

### **Additional taxonomical changes in *Hesperopenna***

Over the time of publishing my first contribution with redefinition of *Hesperopenna* (Bezděk 2013), several species were erroneously described in *Luperus* or *Calomicrus* by Medvedev (2012, 2013 a, b). The paratypes of three species were kindly donated to my collection, the rest of species is transferred to *Hesperopenna* based on their description and simple photos of the type specimens kindly taken by Pavel Romantsov in Medvedev's collection in Moscow. As Medvedev's descriptions are accompanied with simplified and often inaccurate drawings of aedeagi, the affiliation of most of his species to particular species groups is impossible now.

### ***Hesperopenna bacboensis* (Medvedev, 2013) comb. nov.**

(Figs. 29, 41-45)

*Calomicrus bacboensis* Medvedev, 2013a: 39 (original description).

*Martinella nigricollis* Medvedev, 2013b: 417 (original description) **syn. nov.**

**Type localities.** *Calomicrus bacboensis*: Vietnam, mountains NO Thai Nguyen; *Martinella nigricollis*: N.Vietnam, Na Hang, 160 km NNW Hanoi, env. NE of Na Hang.

**Type material examined.** *Calomicrus bacboensis*: Paratype: ♂ (JBCB), “Вьетнам горы NO / Тхай Нгуен 300 м / 12.III.1963 Кабаков [= Vietnam, mountains NO of Thai Nguen, 12.iii.1963, Kabakov leg.] [w, p] // PARATYPUS / *Calomicrus* / *bacboensis* / L. Medvedev [r, p]”.

*Martinella nigricollis*: Holotype: ♂ (NMEG), “VIETNAM, N (Na Hang) / 160 km NNW Hanoi / NE env. of Na Hang / 30.-31.V.1996 / 150-200 m NN, leg. A. / Napolov & I. Roma [w, p] // collection / NATURKUNDE- / MUSEUM ERFURT [y, p] // PARATYPUS / *Martinella* / *nigricollis* / L. Medvedev [r, p]”.

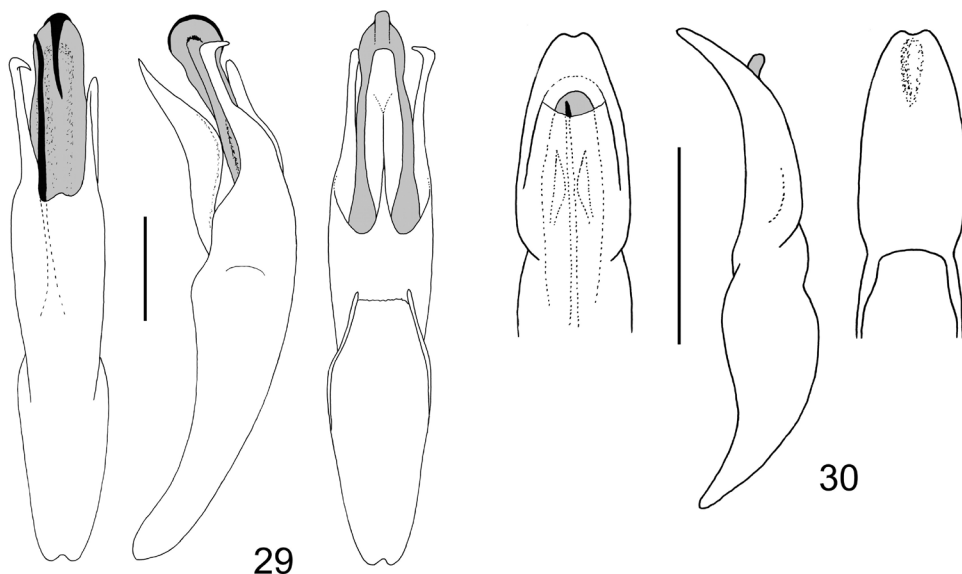
**Additional material examined.** 3 specimens: VIETNAM: Ninh Binh prov.: 1 ♂ 2 ♀♀, Cuc Phong Nat. Park, 20°21'10''N 105°35'00''E, 440 m, 24.-28.iv.2012, E. Jendek leg. (JBCB).

**Distribution.** Vietnam.

**Comments.** The aedeagi of *Calomicrus bacboensis* Medvedev, 2013 (paratype from the type locality, Fig. 42) and *Martinella nigricollis* Medvedev, 2013 (holotype, Fig. 44) were compared and as no differences were observed, *M. nigricollis* is proposed new synonym of *Hesperopenna bacboensis* (comb. nov.). Both taxa were described in the same year (Medvedev 2013a, b), however, the description of *C. bacboensis* is older as was published on May 6, 2013, while that of *M. nigricollis* on Dec. 27, 2013.

*Hesperopenna bacboensis* is variable in colour. Head and pronotum are orange in most of specimens, but head can also be partly or completely black (see also Medvedev 2013a) and pronotum mostly black as in the holotype of *M. nigricollis* (compare Figs. 41, 42, 44).

The long ventral process of aedeagus of *Hesperopenna bacboensis* and presence of two internal sclerites could support the position in the *H. bicolor* species group (cf. Bezděk 2013), however, the shape of pronotum is different. Presently I avoid classifying *H. bacboensis* in any species group.



Figs. 29-30. Aedeagus (dorsal, lateral and ventral views): 29- *Hesperopenna bacboensis*; 30- *H. tiami* (paratype). Scale bar: 0.5 mm.

***Hesperopenna brancuccii* (Medvedev, 2007) comb. nov.**

(Figs. 46-47)

*Liroetis brancuccii* Medvedev, 2007: 295 (original description).

*Hesperopenna helferi* Bezděk, 2013: 734 (original description) **syn. nov.**

**Type localities.** *Liroetis brancuccii*: Nepal, Bagmati, Sindhupalchok, Ganjwal; *Hesperopenna helferi*: Myanmar, Tenasserim.

**Type material examined.** *Liroetis brancuccii*: Holotype: ♂ (NHMB), “Sindhupalchok / Gangjwal, 2500m / 6-7.VI.89 [w, p] // Nepal / Bagmati / M. Brancucci [w, p] // HOLOTYPUS [p] / Liroetis / brancuccii m. [h] / L. Medvedev det. [p] 2005 [r, h]”.

*Hesperopenna helferi*: Paratype: ♂ (JBCB), “MUS. PRAGENSE / TENASSERIM / COLL. HELFER [w, p] // PARATYPUS, / Hesperopenna / helferi sp. nov., / J. Bezděk det., 2012 [r, p]”.

**Distribution.** Nepal, Myanmar.

**Comments.** During the cumulation of material for future revision of the genus *Liroetis* Weise, 1889 I also examined the holotype of *L. brancuccii*, which proved to be *Hesperopenna*. Without any doubts *L. brancuccii* and *H. helferi* are conspecific and thus, *H. helferi* is synonymized here with *H. brancuccii* (comb. nov.).

***Hesperopenna buonloica* (Medvedev, 2013) comb. nov.**

*Calomicrus buonloicus* Medvedev, 2013: 41 (original description).

**Type locality.** Vietnam, Buon Loi, 40 km N Ankhe.

**Type material examined.** Not examined. Based on photos, the holotype (♂, LMRM) bears following labels: “W72 [w, h] // Vietnam: Buon Loi / 40 km W Ankhe / 600m [p] VII [h] 198 [p] 3 [h] / L. MEDVEDEV et al. [w, p] // HOLOTYPE / Calomicrus / buonloicus / L. Medvedev [r, p]”.

**Distribution.** Vietnam.

**Comments.** The type material was not examined. Photos of the holotype allow me to transfer this species to *Hesperopenna* without any doubts. However, the affiliation to any species group is uncertain until the detailed study of the holotype.

***Hesperopenna gialaiensis* nom. nov.**

*Luperus vietnamicus* Medvedev, 2012: 253 (original description, nec *Martinella vietnamica* Medvedev, 2000, both in *Hesperopenna* now).

**Type locality.** Vietnam, prov. Gialai-Contum, Buon Loi, 40 km N Ankhe.

**Type material examined.** Not examined. Based on photos, the holotype (♂, LMRM) bears following labels: “ТРОПИЧЕСКИЙ / ЛЕС [= tropical forest] [w, p] // Vietnam. Prov. Gialai- / Contum, Buon-Loi, 40 km / N Anke. L. Medvedev [p] / 4.VII [h] 198 [p] 1. [w, h] // HOLOTYPE / Luperus / vietnamicus / L. Medvedev [r, p]”.

**Distribution.** Vietnam.

**Comments.** The type material was not examined. Based on the photos of the holotype and the drawing of aedeagus outline in the original description, this species is most likely to belong to the *Hesperopenna granulicollis* species group.

***Hesperopenna insularis* (Medvedev, 2013) comb. nov.**

*Calomicrus insularis* Medvedev, 2013: 38 (original description).

**Type locality.** Vietnam, Donghoi Island.

**Type material examined.** Not examined. Based on photos, the holotype (♀, LMRM) bears following labels: “Вьетнам. / О. Донгкхо / 19.III.1987. [= Vietnam, Donghoi Island, 19.iii.1987] [w, h] // HOLOTYPE / Calomicrus / insularis / L. Medvedev [r, p]”.

**Distribution.** Vietnam.

**Comments.** The type material was not examined. A simple photo of the holotype allow me to transfer this species to *Hesperopenna* without any doubts. As this species was described based on one female, its identity can be resolved only after more specimens from the type locality including males are discovered.

***Hesperopenna kabakovi* (Medvedev, 2013) comb. nov.**

*Calomicrus kabakovi* Medvedev, 2013: 39 (original description).

**Type locality.** Vietnam, mountains SW Cui-Chau.

**Type material examined.** Not examined. Based on photos, the holotype (♂, LMRM) bears following labels: “ВЬЕТНАМ горы SW / КУИ-ЧЯУ [p] 200- [h] 400m [p] / 13.IV. [h] 196 [p] 2 [h] г. Кабаков [w, p] [= Vietnam, mountains SW of Cui-Chau, 200-400 m, 13.iv.1962, Kabakov leg.] // HOLOTYPUS / Calomicrus / kabakovi / L. Medvedev [r, p]”.

**Distribution.** Vietnam.

**Comments.** The type material was not examined. A simple photo of the holotype allow me to transfer this species to *Hesperopenna* without any doubts. However, the affiliation to any species group is uncertain until the detailed study of the holotype.

***Hesperopenna longicollis* (Medvedev, 2013) comb. nov.**

*Calomicrus longicollis* Medvedev, 2013: 41 (original description).

**Type locality.** Vietnam, Dongnai prov., Cat-Tien.

**Type material examined.** Not examined. Based on photos, the holotype (♂, LMRM) bears following labels: “CPB, Донгнай / Каттиен, / 22-24.I.1983 / Л. Медведев [w, p] [= Vietnam, Dongnai prov., Cat Tien N. P., 22.-24.i.1983, L. Medvedev leg.] // HOLOTYPUS / Calomicrus / longicollis / L. Medvedev [r, p]”.

**Distribution.** Vietnam.

**Comments.** The type material was not examined. The simple photo of holotype allow me to transfer this species to *Hesperopenna*. However, the affiliation to any species group is uncertain until the detailed study of the holotype.

***Hesperopenna ovata* (Medvedev, 2013) comb. nov.**

(Figs. 48-49)

*Calomicrus ovatus* Medvedev, 2013: 38 (original description).

**Type locality.** Vietnam, Prov. Gialai-Contum, Son Lang.

**Type material examined.** Paratype: ♀ (JBCB), “SRV, Prov. Gia Lai-Con Tum / Son Lang, 50 km N Ankhe / Ha Nung [p] 5 XI 79 / вырубка [= clearing] [w, h] // Ormosia / (Fabaceae) [w, p] // HOLOTYPUS / Calomicrus / ovatus / L. Medvedev [r, p]”.



**Distribution.** Vietnam.

**Comments.** One female paratype was kindly donated to my collection by L. Medvedev. The species is unique within all other *Hesperopenna* species with its shortly broad oval body. The affiliation to any species group will be possible after the detailed study of male specimen(s).

***Hesperopenna tamdaoensis* (Medvedev, 2013) comb. nov.**

*Calomicrus tamdaoensis* Medvedev, 2013: 39 (original description).

**Type locality.** “Vietnam, Prov. Vinh-Phu, Tamdao”.

**Type material examined.** Not examined. Based on photos, the holotype (♂, LMRM) bears following labels: “2. Vietnam, Prov. Vinh-Phu, / Tamdao, 800-1200 m, forest / 12-22.IV.1986, leg. L. MED- / VEDEV, S. GOLOVATCH et al. [w, p] // HOLOTYPE / Calomicrus / tamdaoensis / L. Medvedev [r, p]”.

**Distribution.** Vietnam.

**Comments.** The type material was not examined. The simple photo of holotype provided by Pavel Romantsov allowed me to transfer this species to *Hesperopenna*, however, the affiliation to any species group is uncertain until the detailed study of the holotype.

***Hesperopenna tiami tiami* (Medvedev, 2013) comb. nov.**

(Figs. 30, 50-51)

*Calomicrus tiami* Medvedev, 2013: 39 (original description).

**Type locality.** Vietnam, Quangnam-Danang Prov., Tiam Island.

**Type material examined.** Paratype: ♂ (JBCB), “Вьетнам нр. Куангнам / Даканг. о. Тям / 28-29.III.1987 [w, h] [= Vietnam, near Kuangnam, Dakang, Tiam island] // HOLOTYPE / Calomicrus / tiami [sic!] / L. Medvedev [r, p]”.

**Distribution.** Vietnam.

**Comments.** Based on the structure of the aedeagus (Fig. 30) it cannot be assigned to any of the groups as proposed by Bezděk (2013).

***Hesperopenna tiami condaoensis* (Medvedev, 2013) comb. nov.**

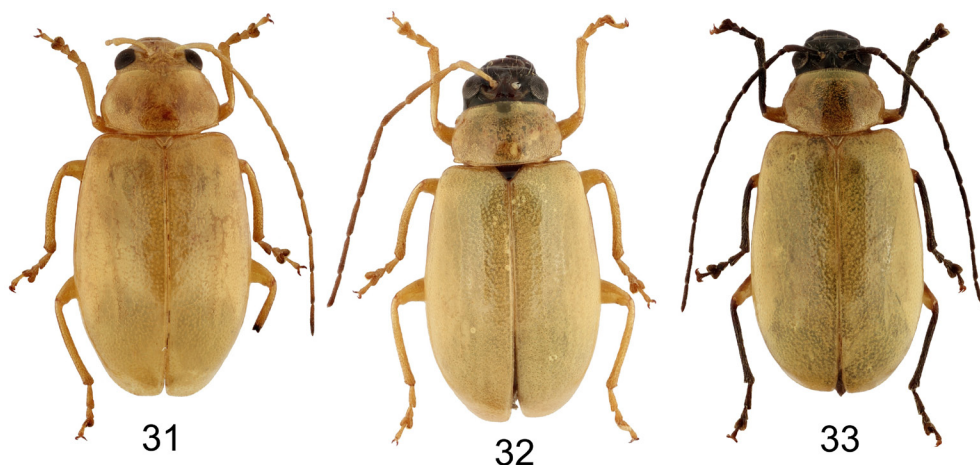
*Calomicrus tiami condaoensis* Medvedev, 2013: 40 (original description).

**Type locality.** Vietnam, Condao Island.

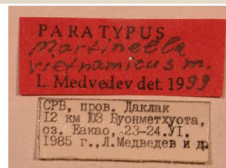
**Type material examined.** Not examined.

**Distribution.** Vietnam.

**Comments.** Neither type specimens nor their photos were studied. This subspecies is transferred to *Hesperopenna* together with its nominotypical taxon.



35



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Figs. 31-38. Habitus and type specimens of *Hesperopenna*: 31- *H. thailandica* (male, 6.3 mm, Laos); 32- *H. thailandica* (male, 5.5 mm, Thailand); 33- *H. thailandica* (female, 6.7 mm, Laos); 34- holotype of *Luperus thailandicus* Kimoto, 1989, female, 7.5 mm; 35- its labels; 36- *H. vietnamica* (male, 6.1 mm, Thailand); 37- paratype of *Martinella vietnamica* Medvedev, 2000, male, 6.3 mm; 38- its labels.



39



40



41



42



43

VIETNAM, N (Na Hang)  
160 km NNW Hanoi  
NE env. of Na Hang  
30.-31.V.1996  
150-200m NN, leg. A.  
Napolov & I. Roma

collection  
NATURKUNDE-  
MUSEUM ERFURT

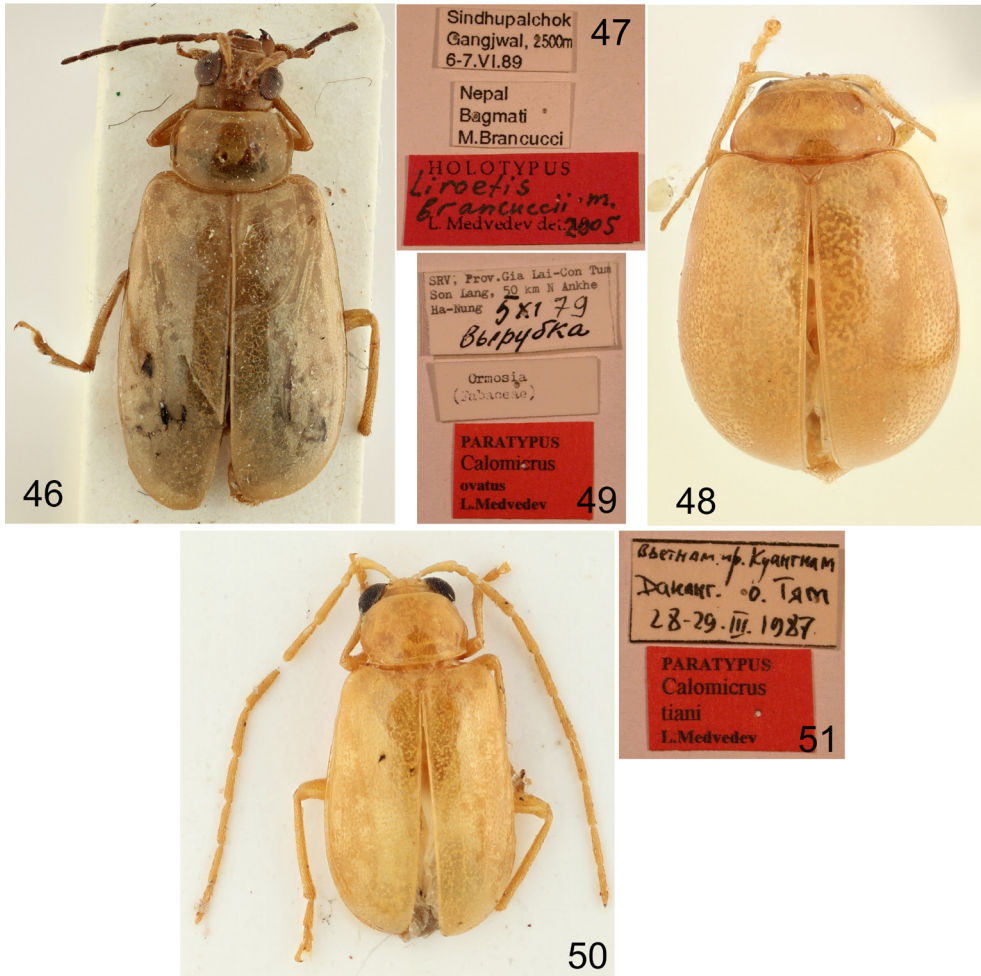
**HOLOTYPE**  
Martinella  
nigricollis  
L. Medvedev

45



44

Figs. 39-45. Habitus and type specimens of *Hesperopenna*: 39- *H. rolciki* sp. nov. (holotype, male, 7.2 mm); 40- *H. samuelsoni* sp. nov. (holotype, male, 4.7 mm); 41- *H. bacboensis* (male, 6.5 mm, Vietnam); 42- paratype of *Calomicrus bacboensis* Medvedev, 2013, male, 5.0 mm; 43- its labels; 44- holotype of *Martinella nigricollis* Medvedev, 2013, male, 5.8 mm; 45- its labels.



Figs. 46-49. Type specimens of *Hesperopenna*: 46- holotype of *Liroetis brancuccii* Medvedev, 2007; 47- its labels; 48- paratype of *Calomicrus ovatus* Medvedev, 2013, female, 3.3 mm; 49- its labels; 50- paratype of *Calomicrus tiani* Medvedev, 2013, male, 3.5 mm; 51- its labels.

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