

## RESEARCH PAPER

**Redefinition of *Liroetis*, with descriptions of two new species and an annotated list of species (Coleoptera: Chrysomelidae: Galerucinae)**

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**Abstract.** The genus *Liroetis* Weise, 1889 is redefined. The following new synonymies are established: *Liroetis* Weise, 1889 = *Siemssenius* Weise, 1922, syn. nov. = *Pseudoliroetis* Laboissière, 1929, syn. nov. = *Zangia* Chen, 1976, syn. nov. Consequently, the following new combinations are proposed: *Liroetis coeruleus* (Jiang, 1990) comb. nov.; *Liroetis latispinus* (Chen, 1976) comb. nov.; *Liroetis nigricollis* (Jiang, 1990) comb. nov.; *Liroetis pallidulus* (Jiang, 1990) comb. nov. (all from *Zangia*); *Liroetis nigropictus* (Fairmaire, 1889) comb. nov. (from *Leptarthra*); *Liroetis cheni* (Lee, 2016) comb. nov.; *Liroetis elongatus* (Kimoto, 1977) comb. nov.; *Liroetis jeanvoinei* (Laboissière, 1929) comb. nov.; *Liroetis jungchani* (Lee, 2016) comb. nov.; *Liroetis liui* (Lee, 2016) comb. nov.; *Liroetis metallipennis* (Chûjô, 1962) comb. nov.; *Liroetis modestus* (Weise, 1922) comb. nov.; *Liroetis nigriceps* (Laboissière, 1929) comb. nov.; *Liroetis rufipennis* (Chûjô, 1962) comb. nov.; *Liroetis sulcipennis* (Zhang & Yang, 2008) comb. nov.; *Liroetis tsoui* (Lee, 2016) comb. nov.; and *Liroetis yuae* (Lee, 2016) comb. nov. (all from *Siemssenius*). Two new species, *Liroetis aurantiacus* sp. nov., from continental South East Asia, and *L. baolocanus* sp. nov., from Vietnam, are described. A new substitute name, *Liroetis medvedevi* nom. nov., is proposed for *L. nigricollis* Medvedev, 2009 preoccupied by *L. nigricollis* (Jiang, 1990). The following new synonyms are established: *Liroetis aeneipennis* Weise, 1889 = *L. tiemushannis* Jiang, 1988, syn. nov.; *Liroetis ephippiatus* Laboissière, 1930 = *Zangia signata* Jiang, 1990, syn. nov. = *L. postmaculatus* Lopatin, 2004, syn. nov.; *Liroetis leechi* Jacoby, 1890 = *L. verticalis* Jiang, 1988, syn. nov.; *Liroetis nigricollis* (Jiang, 1990) = *L. unicolor* Zhang, Li & Yang, 2008, syn. nov.; *Liroetis reitteri* (Pic, 1934) = *Pseudoliroetis trifasciata* Jiang, 1992, syn. nov. The spelling of *Liroetis tiemushannis* Jiang, 1988 is fixed using the First Reviser Principle. Species of *Liroetis* are divided into five species-groups based on the combination of the following characters: presence/absence of border on anterior pronotal margin, width/length ratio of pronotum, structure of aedeagus, presence/absence of metatibial spur. The established groups are: the *aeneipennis* group, the *aurantiacus* group, the *flavipennis* group, the *fulvipennis* group, and the *grandis* group. The gender of *Liroetis* is masculine.

**Key words.** Coleoptera, Chrysomelidae, Galerucinae, *Liroetis*, *Siemssenius*, *Pseudoliroetis*, *Zangia*, new combination, new name, new species, new synonymy, nomenclature, taxonomy, Oriental Region, Palaearctic Region

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**Introduction**

The genus *Liroetis* was proposed by WEISE (1889) for *Liroetis aeneipennis* Weise, 1889 from Gansu and *L. coeruleipennis* Weise, 1889 from Japan. In the same paper, *Mimastrea octopunctata* Weise, 1889, now classified in *Liroetis*, was also described. Until the middle of the 20<sup>th</sup> century,

only eight additional species were described by JACOBY (1890, 1896), WEISE (1922), LABOISSIÈRE (1929, 1930) and PIC (1934). The vast majority of the currently known species were described after World War II. Two of them were recently assigned to different genera. Namely, *Liroetis brancuccii* Medvedev, 2007 (Nepal) was transferred



to *Hesperopenna* Medvedev & Dang, 1981 by BEZDĚK (2016b) and *Liroetis viridipennis* Kimoto, 1989 (South East Asia) to *Luperogala* Medvedev & Samoderzhenkov, 1989 by BEZDĚK (2017).

LOPATIN (2004a) proposed the subgenus *Liroetinus* Lopatin, 2004 of *Liroetis* with *L. belousovi* Lopatin, 2004 as the type species. The study of the type specimens proved that *Liroetinus* belongs to a different generic group and actually proved to be a synonym of *Agelopsis* Jacoby, 1896. *Liroetis belousovi* and also *L. spinipes* Ogloblin, 1936 and *L. aeneoviridis* Lopatin, 2004 were transferred to *Agelopsis* (see BEZDĚK 2020).

NIE et al. (2017) listed 34 species and one subspecies as classified in *Liroetis*, 13 species in *Siemssenius* and 5 in *Zangia*; they are distributed predominantly in China and adjacent countries. The Chinese species were keyed by YANG et al. (2015).

The *Liroetis* generic group was tentatively defined by BEZDĚK (2013) on the basis of sharing the same aedeagus morphology with the dorsal process starting near the base of the median lobe of aedeagus and directed apically (Figs 26–31, 65, 70, 108–117, 185–197, 291–298, 347–351). The group contains *Liroetis*, *Coeligetes* Jacoby, 1884; *Siemssenius* Weise, 1922; *Pseudoliroetis* Laboissière, 1929; *Luperogala* Medvedev & Samoderzhenkov, 1989; *Zangia* Chen, 1976; *Liroetoides* Kimoto, 1989 and *Coeligetoides* Bezdek, 2016. Subsequently, the entire group is in the process of being revised. To date, revisions of the genera *Liroetoides*, *Luperogala*, *Coeligetoides* and a part of *Coeligetes* have been published (BEZDĚK 2013, 2016a, 2017; BEZDĚK et al. 2014).

The definition of genera in this group is complicated by unusual variability of some of the characters traditionally used in the taxonomy of Galerucinae (BEZDĚK 2016a). As was shown in the revision of *Luperogala* by BEZDĚK et al. (2014), particularly the shape of claws and presence/absence of meso- and metatibial spurs are variable not only within the genus but also between males and females of a single species. The variability in bordered/unbordered anterior margin of pronotum and presence/absence of metatibial spurs is shown in the present paper for the genus *Liroetis*.

The present paper revises the generic concept of *Liroetis* based on the examination of the type specimens of most species. *Siemssenius*, *Pseudoliroetis* and *Zangia* are synonymized with *Liroetis*. Seventeen new combinations and seven new synonyms are proposed, and two new species are described. The aedeagi are depicted for all examined species.

## Material and methods

Photographs of specimens (except for Figs 21–25, 42–46, 272–273, 311–313) were taken with Canon EOS 550D and Canon 800D digital cameras with a Canon MP-E 65 mm lens. Images of the same objects at different focal planes were combined using Helicon Focus 7 software.

The examined material is housed in the following collections:

ASCH Andre Skale's collection, Hof, Germany;  
BMNH Natural History Museum, London, United Kingdom (Michael

	Geiser, Maxwell V. L. Barclay);
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, USA (James H. Boone);
HNHM	Hungarian Natural History Museum, Budapest, Hungary (Ottó Merkl);
ISNB	Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium (Pol Limbourg);
IZAS	Institute of Zoology, Academia Sinica, Beijing, China (RuiE Nie);
JBCB	Jan Bezděk's collection, Brno, Czech Republic;
KUEC	Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, Japan (Toshiharu Mita);
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA (Crystal Maier);
MFNB	Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Berlin, Germany (Johannes Frisch, Bernd Jäger, Joachim Willers);
MNHN	Museum National d'Histoire naturelle, Paris, France (Antoine Mantilleri);
MOCP	Michal Ouda's collection, Plasy, Czech Republic;
NHMB	Naturhistorisches Museum, Basel, Switzerland (Christoph Germann, Matthias Borer);
NHMW	Naturhistorisches Museum, Wien, Austria (Harald Schillhammer);
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden (Johannes Bergsten);
NMEG	Naturkundemuseum, Erfurt, Germany (Matthias Hartmann);
NMPC	Národní Muzeum, Praha, Czech Republic (Jiří Hájek, Lukáš Sekerka);
OKCZ	Ondřej Konvička's collection, Zlín, Czech Republic;
PRCS	Pavel V. Romantsov's collection, St. Petersburg, Russia;
RBCN	Ron Beenen's collection, Nieuwegein, Netherlands;
TARI	Taiwan Agricultural Research Institute, Taichung, Taiwan (Chi-Feng Lee);
USNM	National Museum of Natural History, Smithsonian Institution, Washington D.C., USA (Alexander S. Konstantinov);
ZMUH	Zoologisches Institut und Museum, Universität von Hamburg, Hamburg, Germany (Matthias Seidel, Hans Riefenstahl, Kai Schütte);
ZIN	Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia (Alexey G. Moseyko).

The 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 from 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, [y] – yellow label, [g] – grey label, [b] – blue label, and [o] – orange label.

The term aedeagus refers to the entire male copulatory organ, i.e. median lobe (= penis), dorsal process and tegmen. The tegmen is ring-shaped and is not depicted in aedeagus figures.

## Taxonomy

### *Liroetis* Weise, 1889

*Liroëtis* Weise, 1889: 607. Type species: *Liroetis aeneipennis* Weise, 1889, designated by MAULIK (1936).

*Liroëtis*: WEISE (1924): 128 (catalogue); OGLOBLIN (1936): 207 (description).

*Liroetis*: MAULIK (1936): 292 (key), 311 (description); GRESSITT & KIMOTO (1963): 394 (key), 532; KIMOTO (1964): 288 (key); KIMOTO (1965): 374 (noted); WILCOX (1973): 475 (catalogue); SEENO & WILCOX (1982): 111 (catalogue); KIMOTO (1985): 8 (catalogue); KIMOTO (1989a): 6 (key), 82 (noted); KIMOTO & TAKIZAWA (1994): 231 (key), 310 (noted); JOLIVET & HAWKESWOOD (1995): 103 (host

plants); KIMOTO (2005): 56 (catalogue); MEDVEDEV & SPRECHER-UEBERSAX (2005): 314 (key); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 90 (key), 246 (noted).

*Liroëtis*: JACOBY (1890): 215 (noted).

*Siemssenius* Weise, 1922: 73. Type species: *Siemssenius modestus* Weise, 1922, by monotypy. **New junior subjective synonym.**

*Siemssenius*: WEISE (1924): 131 (catalogue); GRESSITT & KIMOTO (1963): 395 (key), 555 (noted); WILCOX (1971): 60 (catalogue); SEENO & WILCOX (1982): 111 (catalogue); KIMOTO (1989a): 5 (key), 73 (noted); JOLIVET & HAWKESWOOD (1995): 103 (host plants); KIMOTO & TAKIZAWA (1997): 297 (key), 379 (noted); KIMOTO (2005): 72 (catalogue); ZHANG et al. (2008b): 126 (description); BEENEN (2010): 488 (catalogue); YANG et al. (2015): 89 (key), 251 (noted).

*Pseudoliroëtis* Laboissière, 1929: 280. Type species: *Liroëtis fulvipennis* Jacoby, 1890, by original designation. **New junior subjective synonym.**

*Pseudoliroëtis*: GRESSITT & KIMOTO (1963): 394 (key), 529 (noted); WILCOX (1973): 477 (catalogue); SEENO & WILCOX (1982): 111 (catalogue, as synonym of *Siemssenius*); KIMOTO & CHU (1996): 70 (noted).

*Pseudoliroëtis*: OGLOBLIN (1936): 204 (description); CHÛJÔ (1962): 15 (key), 176 (description).

*Zangia* Chen, 1976 in CHEN et al. (1976: 208, 220). Type species: *Zangia latispina* Chen, 1976, by original designation. **New junior subjective synonym.**

*Zangia*: SEENO & WILCOX (1982): 112 (catalogue); JIANG (1990): 141 (revision); BEENEN (2010): 490 (catalogue); YANG et al. (2015): 91 (key), 274 (noted).

**Redescription.** Body elongate to elongate oval, convex to moderately flat, body length 5.7–15.0 mm.

**Head.** Eyes moderately large. Labrum and clypeus not modified. Frontal tubercles subtriangular or transversely subtriangular with divergent anterior tips. Antennae thin or filiform, 11-segmented, 0.57–0.96 times as long as body.

**Pronotum** flat to moderately convex, without discal depressions, 1.34–2.00 times as wide as long, broadest in middle or in posterior half. Anterior pronotal border present in whole length, or visible only laterally, or completely absent. Lateral and posterior borders always present. Lateral margins rounded or subparallel. All angles with setigerous pore bearing long seta.

**Elytra.** Surface glabrous or with indistinct scattered erect setae on apical and lateral lobes. Elytra covered with dense fine confused punctures. Humeral calli well developed. Epipleura moderately wide in basal half, then gradually narrowed, disappearing in apical half or before apex. Macropterous.

**Legs** unmodified. Metatibia with apical spine present in both sexes (e.g., *L. aurantiacus* species-group, *L. pallidulus*, *L. violaceipennis*), present in males only (e.g., *L. aeneipennis* species-group, *L. apicicornis*), or absent in both sexes (e.g., *L. flavipennis* species-group, *L. grandis* species-group). Length of metatarsomere I about equal to following two tarsomeres combined. Tarsomeres unmodified. Tarsal claws appendiculate.

**Ventral side.** Anterior coxal cavities open posteriorly, or, rarely, semiopen (*L. aurantiacus* species-group). Male abdomen with last ventrite apically trilobate, incisions deep and narrow, surface with large longitudinal impression in middle. Ventrite IV often with impressed posterior margin forming small subtriangular plates with small median incision, rarely with small hook-like vertical process directed posteriorly (*L. aurantiacus* species-group). Posterior margin of last ventrite in females regularly rounded, or with

V-shaped incision (*L. violaceipennis*), or with large trapezoidal incision (some species of *L. aeneipennis* group).

**Aedeagus** with well developed dorsal process, always shorter than median lobe of aedeagus. Apex folded or not folded. Triangular or subtriangular lateral elevation present in apical eighth to half of aedeagus length, very rarely absent (*L. apicicornis*) or with distinct cavity (*L. aurantiacus* species-group).

**Female genitalia.** Spermatheca with C-shaped cornu, nodulus usually well developed, rarely poorly developed or nearly absent. Sternite VIII very large, well sclerotized, tignum short, 0.15–1.00 times as long as sternite VIII, rarely nearly absent (*L. coeruleipennis* or *L. nigricollis*) or asymmetrical. Gonocoxae reduced.

**Differential diagnosis.** *Liroëtis* can be distinguished from *Coeligetes* by anterior coxal cavities open (closed in *Coeligetes*). Metatibial spurs are present or absent in *Liroëtis* but always absent in *Coeligetes*. Aedeagus of *Liroëtis* species is comparatively longer, with smaller tuft of setae (larger tuft in *Coeligetes*).

The genus *Luperogala* differs from *Liroëtis* in the presence of a large long sword-like process from posterior margin of abdominal ventrite IV directed posteriorly (see BEZDĚK et al. 2014, BEZDĚK 2017), which is absent in all remaining genera of the group.

The representatives of the genus *Liroetoides* have closed anterior coxal cavities (open in *Liroëtis*), posterior margin of abdominal ventrite V in male with three more or less developed subtriangular processes (cf. drawings in BEZDĚK (2013), processes missing in *Liroëtis*), and aedeagus long and narrow, without elevated lateral subtriangular plates (present in *Liroëtis*).

*Coeligetoides trifurcatus* Bezděk, 2016, the only representative of *Coeligetoides* Bezděk, 2016, shares posterior margin of open anterior coxal cavities with *Liroëtis*, but has unspined tibiae (metatibiae with or without spine in *Liroëtis*), very unusual wide and flat median lobe of aedeagus with dorsal process thin and trifurcate (aedeagus of different general structure, see present paper), claws bifid (appendiculate in *Liroëtis*), anterior part of head flat with wide posterior tip (elevated and convex with posterior tip narrower in *Liroëtis*), and spermatheca with poorly delimited nodulus (nodulus usually well developed in *Liroëtis*).

**Etymology.** *Liroëtis* is a word of Greek origin composed of the root *lir-* (λίρός, brave) and masculine suffix *-etis* with the meaning ‘having quality’. In the original description WEISE (1889) did not specify the gender of *Liroëtis* and included two species names (*aeneipennis* and *coeruleipennis*) with common masculine and feminine ending *-is*. Subsequent authors treated *Liroëtis* as either masculine (LOPATIN 2004b, MEDVEDEV 2004), feminine (e.g. OGLOBLIN 1936, GRESSITT & KIMOTO 1963, WILCOX 1973, JIANG 1988, BEENEN 2010, LOPATIN 2013), or used both versions (YANG et al. 2015). However, in agreement with the Article 30.1.2 of the Code (ICZN 1999) the name *Liroëtis* is masculine.

**Comments on proposed synonymies.** In the original description, the genus *Zangia* Chen, 1976 was formally placed in the tribe Luperini without any comparison with

a particular genus nor with any description or drawings of the aedeagus. The presence of the apical spine on posterior tibiae (broad and spoon-shaped in males, thickened and spiniform in females) was stated as the main character to distinguish *Zangia* from other genera (CHEN et al. 1976). JIANG (1990) revised the genus and described additional four species from China, and the drawings of aedeagi of all the species were provided. In their identification key YANG et al. (2015) used the presence (*Zangia*) and absence (*Liroetis* and *Siemssenius*) of metatibial spines as the main diagnostic character to distinguish those genera. However, as shown below, the presence or absence of the metatibial spines is a variable character even within *Liroetis* species groups. I had an opportunity to study paratypes of three species and photographs of the holotypes of all five species with the conclusion that *Zangia* is undoubtedly a synonym of *Liroetis*.

Traditionally, *Siemssenius* Weise, 1922 (= *Pseudoliroetis* Laboissière, 1929) was separated from *Liroetis* by the absence (*Siemssenius*) and presence (*Liroetis*) of the anterior pronotal border (e.g. KIMOTO 1989, YANG et al. 2015). The border on the anterior pronotal margin is a variable character. Some species have this border well developed, while in others it is visible only laterally or completely absent. As there is no difference in the structure of aedeagus, I hereby propose *Siemssenius* as a new synonym of *Liroetis*.

### Check-list of species of *Liroetis*

#### *Liroetis aeneipennis* species-group

- aeneipennis* Weise, 1889: 608 – China (Fujian, Gansu, Guizhou, Henan, Hubei, Hunan, Ningxia, Shaanxi, Sichuan, Zhejiang)  
 = *tiemushannisi* Jiang, 1988: 186, 195, **syn. nov.**  
*coeruleus* Jiang, 1990: 143, 144 (*Zangia*), **comb. nov.** – China (Sichuan)  
*coeruleipennis* Weise, 1889: 609 – Japan  
*ephippiatus* Laboissière, 1930: 346 (*Cneorane*) – China (Yunnan)  
 = *signata* Jiang, 1990: 142, 144 (*Zangia*), **syn. nov.**  
 = *postmaculatus* Lopatin, 2004: 191, **syn. nov.**  
*leechi* Jacoby, 1890: 215 – China (Fujian, Gansu, Hubei, Shaanxi, Sichuan, Zhejiang)  
 = *verticalis* Jiang, 1988: 186, 195, **syn. nov.**  
*nigricollis* Jiang, 1990: 143, 144 (*Zangia*), **comb. nov.** – China (Sichuan)  
 = *unicolor* Zhang, Li & Yang, 2008: 23, **syn. nov.**

#### *Liroetis aurantiacus* species-group

- aurantiacus* **sp. nov.** – China (Yunnan), Thailand, Laos, Vietnam, Cambodia  
*baolocanus* **sp. nov.** – Vietnam

#### *Liroetis flavipennis* species-group

- flavipennis* Bryant, 1954: 547 – China (Yunnan), Myanmar, Vietnam  
 = *leycesteriae* Jiang, 1988: 189, 196, **syn. nov.**  
*humeralis* Jiang, 1988: 192, 197 – China (Yunnan)  
*lonicernis* Jiang, 1988: 190, 197 – China (Yunnan)  
*medvedevi* **nom. nov.** – Nepal, India (West Bengal)  
 = *nigricollis* Medvedev, 2009: 407  
*nepalensis* Chûjô, 1966: 15 – Nepal, Bhutan, India (West Bengal)  
 = *bhutana* Medvedev, 2009: 408, **syn. nov.**  
*prominens* Jiang, 1988: 187, 196 – China (Sichuan)  
*sichuanensis* Jiang, 1988: 188, 196 – China (Gansu, Guizhou, Shaanxi, Sichuan)  
*tibetanus* Jiang, 1988: 191, 197 – China (Xizang), Nepal, India (Arunachal Pradesh)  
*tibialis* Jiang, 1988: 190, 197 – China (Yunnan)  
*zhongdianicus* Jiang, 1988: 189, 196 – China (Fujian, Hunan, Yunnan, Zhejiang)

#### *Liroetis fulvipennis* species-group

- cheni* Lee, 2016: 368 (*Siemssenius*), **comb. nov.** – Taiwan  
*elongatus* Kimoto, 1977: 359 (*Pseudoliroetis*), **comb. nov.** – Bhutan  
*fulvipennis* Jacoby, 1890: 215 (*Liroëtès*) – China (Fujian, Gansu, Guangxi, Guizhou, Hubei, Hunan, Jiangsu, Jiangxi, Shanghai, Sichuan, Zhejiang)  
*jeanvoinei* Laboissière, 1929: 281 (*Pseudoliroetis*), **comb. nov.** – Vietnam, Laos  
*jungchani* Lee, 2016: 375 (*Siemssenius*), **comb. nov.** – Taiwan  
*liui* Lee, 2016: 376 (*Siemssenius*), **comb. nov.** – Taiwan  
*metallipennis* Chûjô, 1962: 181 (*Pseudoliroëtis*), **comb. nov.** – Taiwan  
*modestus* Weise, 1922: 73 (*Siemssenius*), **comb. nov.** – China (Fujian, Zhejiang)  
*nigriceps* Laboissière, 1929: 282 (*Pseudoliroetis*), **comb. nov.** – China (Guizhou, Sichuan)  
*rufipennis* Chûjô, 1962: 178 (*Pseudoliroëtis*), **comb. nov.** – Taiwan  
*sulcipennis* Zhang & Yang, 2008: 127 (*Siemssenius*), **comb. nov.** – China (Sichuan, Yunnan)  
*tsoui* Lee, 2016: 380 (*Siemssenius*), **comb. nov.** – Taiwan  
*yuae* Lee, 2016: 381 (*Siemssenius*), **comb. nov.** – Taiwan

#### *Liroetis grandis* species-group

- alticola* Jiang, 1988: 194, 198 – China (Yunnan)  
*apicalis* Gressitt & Kimoto, 1963: 533 – China (Sichuan)  
*grandis* Chen & Jiang, 1986: 199, 200 – China (Sichuan)  
*nigropictus* Fairmaire, 1889: 76 (*Leptarthra*), **comb. nov.** – China (Sichuan)  
*obliquevirgatus* Lopatin, 2013: 771 – China (Sichuan)  
*octopunctatus* Weise, 1889: 619 (*Mimastra*) – China (Gansu, Sichuan, Qinghai, Xizang)  
*paragrandis* Jiang, 1988: 192, 198 – China (Sichuan, Xizang)  
*suwai* Takizawa, 1988: 14 (*Mimastra*) – Nepal  
*yulongnis* Jiang, 1988: 193, 198 – China (Yunnan)

#### *Liroetis* species currently unassigned to any species-group

- apicicornis* Jacoby, 1896: 282 (*Liroëtès*) – India (Karnataka, Kerala)  
*latispinus* Chen, 1976: 208, 220 (*Zangia*), **comb. nov.** – China (Xizang)  
*pallidulus* Jiang, 1990: 141, 144 (*Zangia*), **comb. nov.** – China (Xizang)  
*reitteri* Pic 1934: 87 (*Merista*) – China (Sichuan, Yunnan)  
 = *trifasciata* Jiang, 1992: 659, 672 (*Pseudoliroetis*), **syn. nov.**  
*violaceipennis* Zhang, Li & Yang, 2008: 24 – China (Sichuan), Vietnam

### Identification key

- 1 Body completely black or metallic. .... 2
- Body at least partly yellow, brown or red. .... 3
- 2 Body violet blue. Dorsal process of aedeagus in lateral view with shallower incision between apex and ventral branch (Fig. 28). Japan. ....  
 ..... *L. coeruleipennis* Weise, 1889
- Body black with indistinct metallic tint. Dorsal process of aedeagus in lateral view with deeper incision between apex and ventral branch (Fig. 31). China (Sichuan). .... *L. nigricollis* (Jiang, 1990)
- 3 Dorsal side partly metallic. .... 4
- Dorsal side not metallic. .... 9
- 4 Head and antennae completely black, legs with black tarsi, tibiae and apical parts of femora. Species from Taiwan. .... 5
- Head completely or partly yellow, brown or red. Antennae with pale basal antennomeres. Legs completely or almost completely pale. Species from continental China and Vietnam. .... 6
- 5 Elytra black with distinct metallic tint. Median lobe of aedeagus in lateral view with less distinct lateral elevation, dorsal process with sharp and distinctly prolonged

- apex (Fig. 185). ..... *L. cheni* (Lee, 2016)
- Elytra greenish- or purplish-bronze. Median lobe of aedeagus in lateral view with more distinct lateral elevation, dorsal process with sharp but not prolonged apex (Fig. 191). ..... *L. metallipennis* (Chûjô, 1962)
- 6 Head with black vertex. .... *L. leechi* Jacoby, 1890
- Head completely yellow, brown or red. .... 7
- 7 Pronotum strongly transverse, twice as wide as long. Aedeagus very peculiar (Fig. 351), with triangular lateral elevation, placed in middle of median lobe length, dorsal process with a pair of narrow branches starting in apical third and directed anteroventrally. ....  
..... *L. violaceipennis* Zhang, Li & Yang, 2008
- Pronotum less transverse, 1.5–1.6 times as wide as long. Aedeagus with lateral elevation placed in anterior part of median lobe length, dorsal process without a pair of narrow branches. .... 8
- 8 Head, pronotum and underside pale brown. Dorsal process of aedeagus not divided into two branches in lateral view (Fig. 26). .... *L. aeneipennis* Weise, 1889
- Head, pronotum and underside pale orange. Dorsal process of aedeagus divided into two branches in lateral view (Fig. 27). .... *L. coeruleus* (Jiang, 1990)
- 9 Elytra bicolour, pale-coloured and black. .... 10
- Elytra unicolour, pale-coloured. .... 22
- 10 Humeral calli without black spot. Elytra with large common rhomboidal black spot with irregular margins (Figs 83, 86). .... *L. humeralis* Jiang, 1988
- Humeral calli black or with black spot. .... 11
- 11 Elytra black with pale spots or stripes. .... 12
- Elytra pale with black pattern. .... 14
- 12 Elytra black with narrow yellow stripes. .... 13
- Elytra black with large preapical pale spot on each elytron (Figs 18, 25). ....  
..... *L. ephippiatus* (Laboissière, 1930) (dark form)
- 13 Elytra with transverse and oblique narrow yellow stripes (Figs 359, 364). .... *L. reitteri* (Pic 1934)
- Elytra with yellow stripe between humeral callus and scutellum and on lateral elytral margin, elytral apex with irregular pale spot (Figs 274, 275). ....  
..... *L. apicalis* Gressitt & Kimoto, 1963
- 14 Elytra with black cross (Figs 14, 17). ....  
..... *L. ephippiatus* (Laboissière, 1930) (pale form)
- Elytral pattern never forming black cross. .... 15
- 15 Elytra with black spot on humeral calli and three black spots preapically on each elytron in transverse row. ...  
..... 16
- Elytra with black pattern in addition to black spots on humeral calli and three black preapical spots. .... 21
- 16 Legs black or black with slightly brownish femora. Pronotum with black spots. Underside black or bicolour. .... 17
- Legs contrastingly bicolour. Pronotum without black spots. Underside completely yellow. .... 19
- 17 Pronotum sparsely covered with very fine punctures. ....  
..... *L. alticola* Jiang, 1988
- Pronotum densely covered with distinct punctures. ....  
..... 18
- 18 Body smaller (7.3–8.8 mm). Pronotum 1.46 times as wide as long. Dorsal process of aedeagus extremely narrow, 9.30 times as long as wide (Fig. 295). ....  
..... *L. octopunctatus* (Weise, 1889)
- Body larger (8.5–11.0 mm). Pronotum 1.54 times as wide as long. Dorsal process of aedeagus wider, 6.68 times as long as wide (Fig. 298). ....  
..... *L. yulongnis* Jiang, 1988
- 19 Scutellum with two small grooves at basal angles (Fig. 280). .... *L. grandis* Chen & Jiang, 1986
- Scutellum without two small grooves. .... 20
- 20 Body smaller (9.9–11.5 mm). Scutellum mostly or partly black. .... *L. suwai* (Takizawa, 1988)
- Body larger (12.0–14.0 mm). Scutellum yellow. ....  
..... *L. paragrandsis* Jiang, 1988
- 21 Pronotum black with yellowish extreme margin around pronotal angles. Elytra with wide median transverse black band prolonged anteriorly along elytral suture towards scutellum (Fig. 282). Underside black. ....  
..... *L. nigropictus* (Fairmaire, 1889)
- Pronotum pale brown with three black spots. Each elytron with wide oblique black stripe, elytral suture brown (Fig. 287). Underside brown. ....  
..... *L. obliquevirgatus* Lopatin, 2013
- 22 Pronotum black. .... 23
- Pronotum pale-coloured. .... 28
- 23 Head and elytra brown, underside brownish black with paler apical margin of last abdominal ventrite. Continental species. .... *L. medvedevi* **nom. nov.**
- Head black, elytra reddish, underside black with reddish abdomen. Species from Taiwan. .... 24
- 24 Dorsal process of aedeagus narrow, subparallel (Figs 189, 197). .... 25
- Dorsal process of aedeagus distinctly widened in anterior half (Figs 190, 194, 196). .... 26
- 25 Apical process of median lobe of aedeagus rounded in lateral view (Fig. 189). .... *L. jungchani* (Lee, 2016)
- Apical process of median lobe of aedeagus sharp in lateral view (Fig. 197). .... *L. yuae* (Lee, 2016)
- 26 Apical process of median lobe of aedeagus very short and rounded in lateral view (Fig. 190). ....  
..... *L. liui* (Lee, 2016)
- Apical process of median lobe of aedeagus distinct, finger-shaped in lateral view (Figs 194, 196). .... 27
- 27 Lateral elevation of median lobe of aedeagus subtriangular in lateral view (Fig. 194). ....  
..... *L. rufipennis* (Chûjô, 1962)
- Lateral elevation of median lobe of aedeagus subquadrangular in lateral view (Fig. 196). ....  
..... *L. tsoui* (Lee, 2016)
- 28 Antennae contrastingly bicolour with antennomeres I–IX orange and X–XI black (Figs 336–338). Southern India. .... *L. apicicornis* Jacoby, 1896
- Antennae completely black, or pale, or gradually darkened. .... 29
- 29 Metatibial spur absent in both sexes. .... 30
- Metatibial spur present at least in males. .... 34
- 30 Apex of male pygidium sharp and forming distinct

- process (complex of several species which are perhaps synonyms). .....  
***L. flavipennis*** Bryant, 1954, ***L. lonicernis*** Jiang, 1988, ***L. tibialis*** Jiang, 1988, ***L. zhongdianicus*** Jiang, 1988  
 – Apex of male pygidium not forming distinct process. .... 31  
 31 Dorsal process of aedeagus with ventral branch (Fig. 115) or subapical collar-like plate (Fig. 112). ..... 32  
 – Dorsal process of aedeagus simple. .... 33  
 32 Dorsal process of aedeagus with ventral branch (Fig. 115). ..... ***L. tibetanus*** Jiang, 1988  
 – Dorsal process of aedeagus with subapical collar-like plate (Fig. 112). ..... ***L. nepalensis*** Chûjô, 1966  
 33 Median lobe of aedeagus with high triangular lateral elevations that are prominent in both lateral and dorsal views, dorsal process with apical part bent downwards in lateral view (Fig. 113). .....  
 . ..... ***L. prominensis*** Jiang, 1988  
 – Median lobe of aedeagus with lower, not prominent subtriangular lateral elevation, dorsal process in lateral view with apical part straight (Fig. 114). .....  
 ..... ***L. sichuanensis*** Jiang, 1988  
 34 Pronotum usually more transverse, 1.7–2.0 times as wide as long. .... 35  
 – Pronotum usually less transverse, 1.3–1.6 times as wide as long. .... 41  
 35 Pronotum with bordered anterior margin. Anterior coxal cavities semiopen posteriorly. Abdominal ventrite IV in male with small vertical hook-like process directed posteriorly. .... 36  
 – Pronotum with unbordered anterior margin. Anterior coxal cavities open posteriorly. Abdominal ventrite IV without small vertical hook-like process. .... 37  
 36 Body brown. Median lobe of aedeagus with apical 2/5 narrow and subparallel (Fig. 65). .....  
 ..... ***L. aurantiacus sp. nov.***  
 – Body yellowish-brown. Median lobe of aedeagus with apical third widely oval (Fig. 70). .....  
 ..... ***L. baolocanus sp. nov.***  
 37 Legs completely black. .... 38  
 – Femora completely or mostly pale. .... 40  
 38 Head black or brownish black, always darker than pronotum and elytra. .... ***L. nigriceps*** (Laboissière, 1929)  
 – Head of same colour as pronotum and elytra. .... 39  
 39 Body brown. Median lobe of aedeagus moderately convergent anteriorly, dorsal process lanceolate and widest in middle (Figs 187). .....  
 ..... ***L. fulvipennis*** Jacoby, 1890  
 – Body reddish brown. Median lobe of aedeagus almost parallel, dorsal process very narrow and parallel (Fig. 188). ..... ***L. jeanvoinei*** (Laboissière, 1929)  
 40 Elytra with deep furrow along lateral and posterior margins (Fig. 256). Femora completely pale. ....  
 ..... ***L. sulcipennis*** (Zhang & Yang, 2008)  
 – Elytra without furrow along lateral and posterior margins. Femora pale with black apical part. ....  
 ..... ***L. modestus*** (Weise, 1922)  
 41 Ventral side of body predominantly black with pale margins of thorax and abdomen (Fig. 345). .....

- ..... ***L. pallidulus*** (Jiang, 1990)  
 – Ventral side of body completely pale. .... 42  
 42 Ventral side of median lobe of aedeagus in lateral view regularly rounded (Fig. 186). .....  
 ..... ***L. elongatus*** (Kimoto, 1977)  
 – Ventral side of median lobe of aedeagus in lateral view bisinuate (Fig. 348). ..... ***L. latispinus*** (Chen, 1976)

### *Liroetis aeneipennis* species-group

**Definition.** Metatibial spur present in males and absent in females. Pronotum convex, 1.37–1.64 times as wide as long, anterior margin narrowly bordered. Male antennae 0.63–0.85 times as long as body. Median lobe of aedeagus with lateral elevation placed in anterior quarter to third of aedeagus length. Female last abdominal ventrite entire or with large trapezoid excision. Sternite VIII with very short or nearly absent tignum. Spermatheca with well developed nodulus.

### *Liroetis aeneipennis* Weise, 1889

(Figs 1–8, 26, 32, 37)

*Liroëtis aeneipennis* Weise, 1889: 608 (original description).

*Liroëtis aeneipennis*: WEISE (1924): 128 (catalogue); OGLOBLIN (1936): 210 (description), 405 (key).

*Liroëtis aeneipennis*: JACOBY (1890): 216 (faunistics).

*Liroetis aeneipennis*: GRESSITT & KIMOTO (1963): 532 (key, faunistics); WILCOX (1973): 475 (catalogue); JIANG (1988): 185 (noted); YANG (1992a): 569 (faunistics); YANG (1992b): 338 (faunistics); YANG et al. (1997): 878 (faunistics); YANG (1998): 311 (faunistics); WANG & YANG (2006): 164 (faunistics); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 248 (noted).

*Liroetis tiemushannis* Jiang, 1988: 186, 195 (original description). **New junior subjective synonym.**

*Liroetis tiemushannis*: YANG (1992a): 569 (faunistics); YANG (1992b): 339 (faunistics); WANG & YANG (1998): 93 (faunistics); YANG (2002): 639 (noted); WANG & YANG (2006): 166 (faunistics); ZHANG et al. (2005): 256 (faunistics); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 250 (noted).

*Liroetis tiemushannis* [sic!, incorrect subsequent spelling]: YANG & LI (1998): 131 (noted).

**Type localities.** *Liroetis aeneipennis*: ‘Kan-ssu’ [= China: Gansu Province]; *Liroetis tiemushannis*: ‘Zhejiang: Mt. Tiemu’ [China: Zhejiang Province: Tianmushan].

**Type material examined.** *Liroetis aeneipennis*: SYNTYPE: 1 ♀ (Figs 1–6), ‘Kan-ssu / 1885 / G. Patanin [w, p] // Zool. Mus. / Berlin [w, p] // *Liroetis* / *aeneipennis* [w, h] // SYNTYPUS / *Liroetis* / *aeneipennis* Weise, 1889 / labelled by MNHUB 2012 [r, p]’ (MFNB).

*Liroetis tiemushannis*: not examined.

**Material examined.** **CHINA:** **GANSU:** Venxian env., 18.–26.vi.1995, 2 ♂♂, Beneš leg. (JBCB). **SHAANXI:** Qin Ling Mts., Xi’an env., Jiwozi, 33°50’933 N 108°48’760 E, 1800 m, 1.vii.2007, 1 ♂, P. Baňar leg. (JBCB); Qin Ling Shan Mts., Ho Zen Zi vill., 30 km SE of Taibai Shan Mt., 1500 m, 26.vi.1998, 2 ♂♂ 1 ♀, O. Šafránek & M. Trýzna leg. (JBCB); Qin Ling Shan Mts., Ho Zen Zi vill., 40 km SE of Taibai Shan Mt., 1200 m, 11.vi.1998, 1 ♀, Z. Jindra leg. (NMPC); Qin Ling Mts., Huo Di Tang, 33°26.223’N 108°26.786’E, 1565 m, 5.vi.2013, 6 ♂♂, A. Konstantinov leg. (USNM). **SICHUAN:** Xiao-Zhaizi Nature Reserve, 4 km NNE of Qingpianxiang, Zhenghecun, 32°3’27”N, 103°59’37”E, 1350–1850 m, 23.–26.vi.2017, 1 ♀, O. Konvička leg. (OKCZ); Xiao-Zhaizi Nature Reserve, 7 km W of Qingpianxiang, Xiaozhaizi, 32°1’25”N 103°56’21”E, 1560–1700 m, 23.–26.vi.2017, 1 ♀, O. Konvička leg. (OKCZ). **ZHEJIANG:** Anji, Longwang Mt., 800–1200 m, 20.vii.1995, 1 ♀, Hong Wu leg. (IZAS); West Tianmu Shan, from ‘Blind Alley’ to ‘Immortal Peak’, 30°20.5–21.0’N 119°25.4–7’E, 1200–1500 m, 27.–28.vi.2017, 2 ♂♂ 2 ♀♀, J. Hájek & J. Růžička leg. (NMPC); Tianmu Shan, 22.vii.1936, 1 ♂, O. Piel leg. (ZMUH).

**Diagnosis.** *Colouration.* Body and legs pale brown, elytra metallic green. Antennae pale brown or terminal antennomeres gradually darkened. Males with darkened or black short protrusions in middle of posterior margin of penultimate abdominal ventrite.

*Body length.* ♂♂: 5.7–8.0 mm, ♀♀: 6.5–8.8 mm (♂♀: 6.0–9.0 mm based on original descriptions).

*Male* (Fig. 7). Antennae 0.78 times as long as body. Pronotum convex, 1.53 times as wide as long, lustrous, almost impunctate, anterior margin with very narrow but complete and well visible border. Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with short narrow median incision. Last abdominal ventrite with longitudinal impression narrowed in middle part (Fig. 8). Protarsomere I widened, subtriangular, metatibial spur short, tubular, with cut apex.

*Aedeagus* (Fig. 26). Median lobe of aedeagus 4.40 times as long as wide; basal half wide, almost parallel, apical half widely constricted, apex widely rounded with small apical incision, apex folded down. Lateral view: median lobe of aedeagus moderately rounded; lateral elevation subtriangular with moderately rounded anterior margin, placed in anterior third of aedeagus length. Dorsal process 6.30 times as long as wide, 0.80 times as long as aedeagus; narrow basally and wider apically, with sharp and bent apex.

*Female.* Metatibial spur absent. Last abdominal ventrite with large trapezoidal excision, posterior margin of excision convex in middle (Fig. 5). Sternite VIII transversely suboval, with three deep narrow incisions surrounding two large denticles, surface with elongate apical impression; tignum very short, 0.22 as long as sternite VIII (Fig. 37). Spermatheca with obliquely oval nodulus, cornu C-shaped with sharp apex, spermathecal duct with subglobular proximal part (Fig. 32).

**Differential diagnosis.** Having metallic green elytra and pale brown pronotum, *Liroetis aeneipennis* is similar to *L. leechi*. Both species can be distinguished by the colouration of head (completely pale brown in *L. aeneipennis* vs. with black vertex in *L. leechi*). Males of both species differ in the structure of median lobe of aedeagus which is, in lateral view, more or less regularly rounded in *L. aeneipennis* (Fig. 26) but with straight middle part in *L. leechi* (Fig. 30). Females of *L. aeneipennis* have last abdominal ventrite with large trapezoidal excision and sternite VIII transversely suboval, with two denticles in middle of posterior margin (Fig. 37), while females of *L. leechi* have last abdominal ventrite with posterior margin entire and sternite VIII heart-shaped with middle part of posterior margin bisinuate (Fig. 40). Another similar species, *L. coeruleus*, has head, pronotum and underside orange, and dorsal process of aedeagus in lateral view apically widely divergent with V-shaped incision (Fig. 27).

**Host plants.** *Salix* sp. (GRESSITT & KIMOTO 1963).

**Distribution.** China: Fujian (WANG & YANG 1998), Gansu (WEISE 1889, WANG & YANG 2006, present paper), Guizhou (YANG 1992b, ZHANG et al. 2005), Henan (YANG 1998), Hubei (JACOBY 1890, GRESSITT & KIMOTO 1963, YANG et

al. 1997), Hunan (YANG 1992a), Shaanxi (present paper), Sichuan (GRESSITT & KIMOTO 1963, YANG et al. 1997, present paper), Zhejiang (JIANG 1988, present paper). YANG et al. (2015) listed it also from China: Ningxia without mentioning particular specimens.

**Comments.** WEISE (1889) did not specify the number of available specimens when describing *Liroetis aeneipennis* but mentioned body length span, so he must have had more than one specimen in hand. Consequently, the female type specimen examined in MFNB is a syntype.

JIANG (1988) mismatched the females of *Liroetis aeneipennis* with some other species. Her description of *L. tiemushannisi* is accompanied with a drawing of female abdomen which perfectly fits the female abdomen of the syntype of *L. aeneipennis*. Although the type specimens of *L. tiemushannisi* were not available for this study, this drawing is sufficient to synonymize *L. tiemushannisi* with *L. aeneipennis* here. The description of *L. tiemushannisi* contains two different spellings: *tiemushannisi* on pp. 184 and 186 and *tiemuchannisi* on p. 195. I hereby fix *tiemushannisi* as the correct original spelling in accordance with the Principle of the First Reviser (Art. 24.2.3., ICZN 1999).

#### *Liroetis coeruleus* (Jiang, 1990) comb. nov.

(Figs 21, 27)

*Zangia coerulea* Jiang, 1990: 143, 144 (original description).

*Zangia coerulea*: BEENEN (2010): 490 (catalogue); YANG et al. (2015): 274 (key), 274 (noted).

**Type locality.** ‘[China:] Sichuan: Emei shan’.

**Type material examined.** HOLOTYPE: ♂ (Fig. 21, only photograph seen), ‘[Sichuan, Mt. Emei, 2100–3100 m / 1955.VI.26. / Zhong-Lin Ge] [in Chinese, w, p] // Омейшань, 2100–3100 м. / Сычуань 26 У1 1955 / Гэ Цун-лин [w, p, Russian version of the previous label] // [No. 12] [in Chinese, w, h] // *Zangia* / *coerulea* / sp. n. / [Identifier: Sheng-Qiao Jiang] [partly in Chinese, w, combined p and h]’ (IZAS).

**Diagnosis.** *Colouration.* Body completely orange except for piceous antennae and metallic blue elytra.

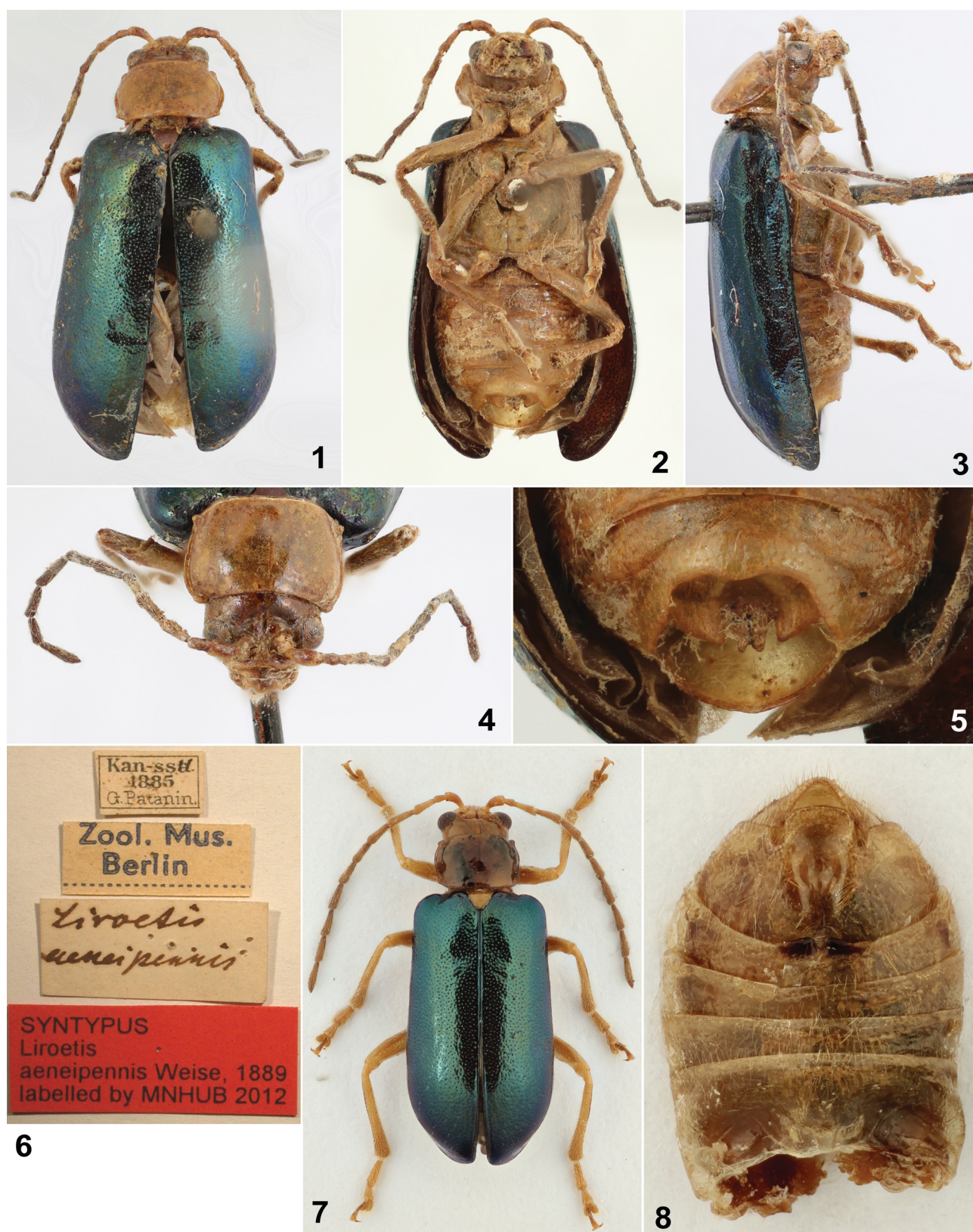
*Body length.* ♂♂: 7.8–8.0 mm.

*Aedeagus* in lateral view as in Fig. 27. Lateral elevation triangular, placed in apical fifth of aedeagus length. Middle part straight, apical and basal parts moderately bent. Dorsal process as long as median lobe of aedeagus, with narrow and bent base, apically widely divergent, apical part with V-shaped incision.

*Female* unknown.

**Differential diagnosis.** Having orange pronotum, head and underside, and metallic blue elytra, *Liroetis coeruleus* is similar to *L. aeneipennis* and *L. violaceipennis*. The males of all three species differ in the structure of aedeagus (cf. Figs 26, 27, 351). Moreover, *L. violaceipennis* has pronotum strongly transverse, twice as wide as long, and *Liroetis aeneipennis* has body pale brown and elytra metallic green.

**Distribution.** China: Sichuan (JIANG 1990).

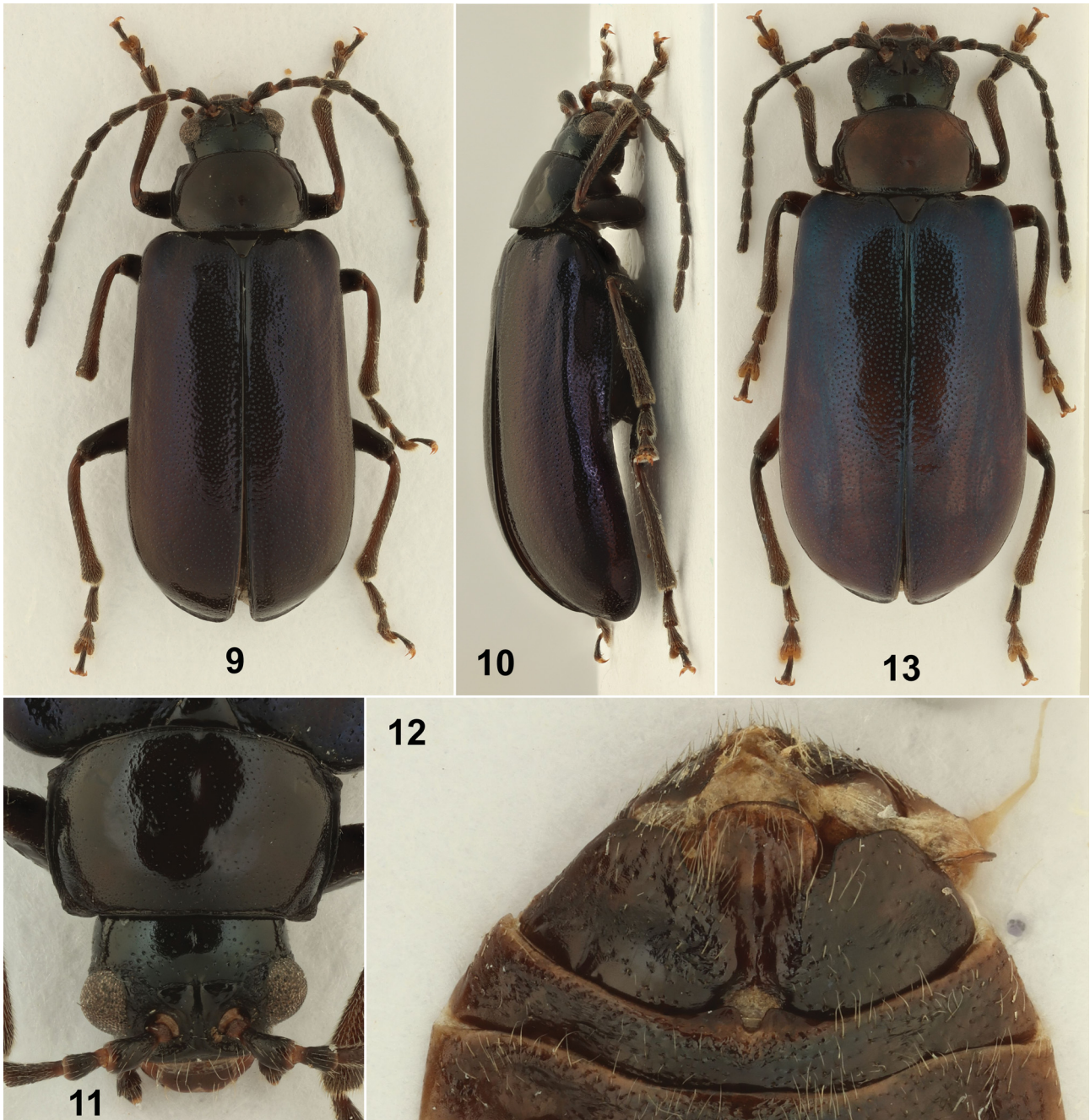


Figs 1–8. *Liroetis aeneipennis* Weise, 1889. 1–6 – Female, syntype (8.2 mm). 1 – dorsal view; 2 – ventral view; 3 – lateral view; 4 – head and pronotum; 5 – apex of abdomen; 6 – labels. 7–8 – Male (6.3 mm). 7 – dorsal view; 8 – abdomen.

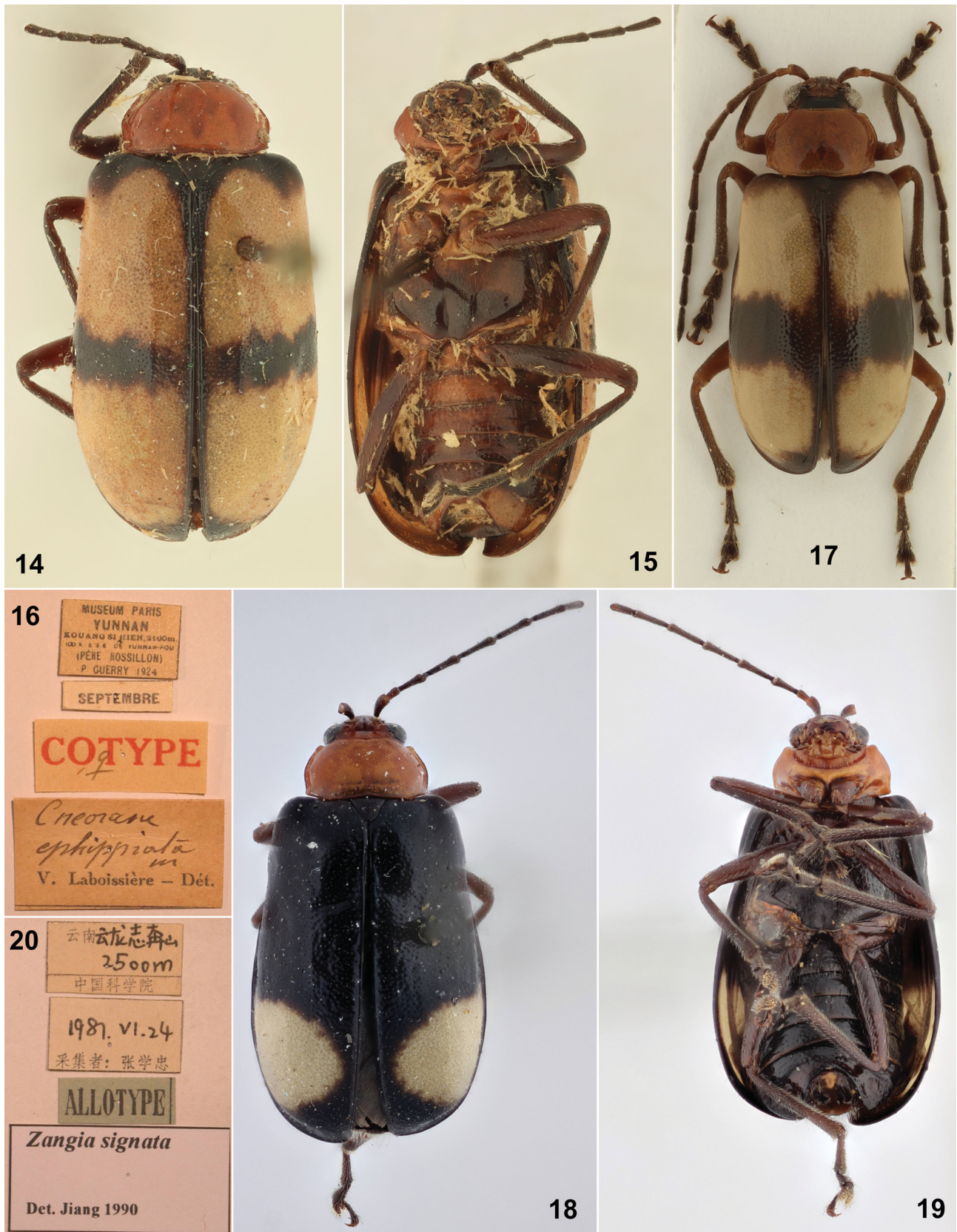


***Liroetis coeruleipennis* Weise, 1889**

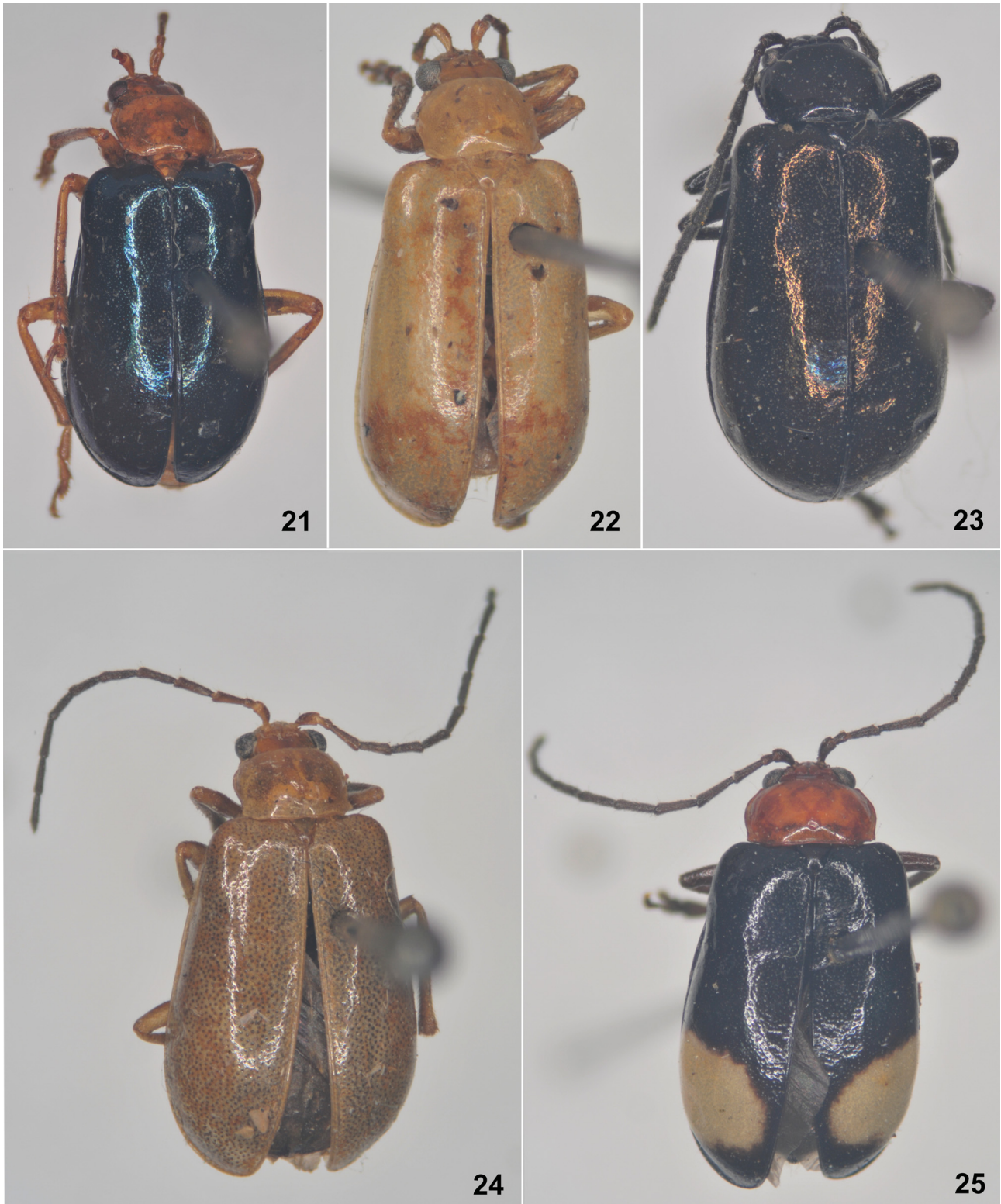
(Figs 9–13, 28, 33, 38)

*Liroetis coeruleipennis* Weise, 1889: 609 (original description).*Liroetis coeruleipennis*: WEISE (1924): 128 (catalogue); OGLOBLIN (1936): 211 (description), 405 (key).*Liroetis coeruleipennis*: GRESSITT & KIMOTO (1963): 532 (key); KIMOTO (1965): 374 (faunistics); KIMOTO & HIURA (1971): 16 (faunistics); WILCOX (1973): 476 (catalogue); KIMOTO (1985): 8 (catalogue); KIMOTO (1993): 95 (faunistics); KIMOTO & TAKIZAWA (1994): 310 (noted); HAYASHI (2002): 115 (faunistics); BEENEN (2010): 478 (catalogue); TAKAHASHI (2012): 313 (faunistics).**Type locality.** 'Hagi, in Japan'.**Type material.** Not examined.**Additional material examined.** JAPAN: ORTA: Kamizue-cho, Shirakusa, 5.v.2013, 3 ♂♂ 1 ♀, H. Suenaga leg. (JBCB). OKAYAMA: Chuka-mura, Maniwa-gun, 7.vii.1954, 1 ♀, M. Chūjō leg. (NMPC).**Diagnosis.** *Colouration.* Body, antennae and legs black, elytra metallic dark violet. Pronotum usually black, rarely brown or reddish-brown. Tibiae, tarsi and ventral side of body can be brownish.*Body length.* ♂♂: 6.5–7.7 mm, ♀: 7.5 mm (♂♀: 7.0–8.5 mm based on the original description).*Male* (Figs 9–12). Antennae 0.63 times as long as body. Pronotum moderately convex, 1.61 times as wide as long, lustrous, covered with fine punctures, anterior margin with complete narrow border (Fig. 11). Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with short V-shaped incision in middle. Last abdominal ventrite with longitudinal impression narrowed in middle part (Fig. 12). Metatibial spur very short.

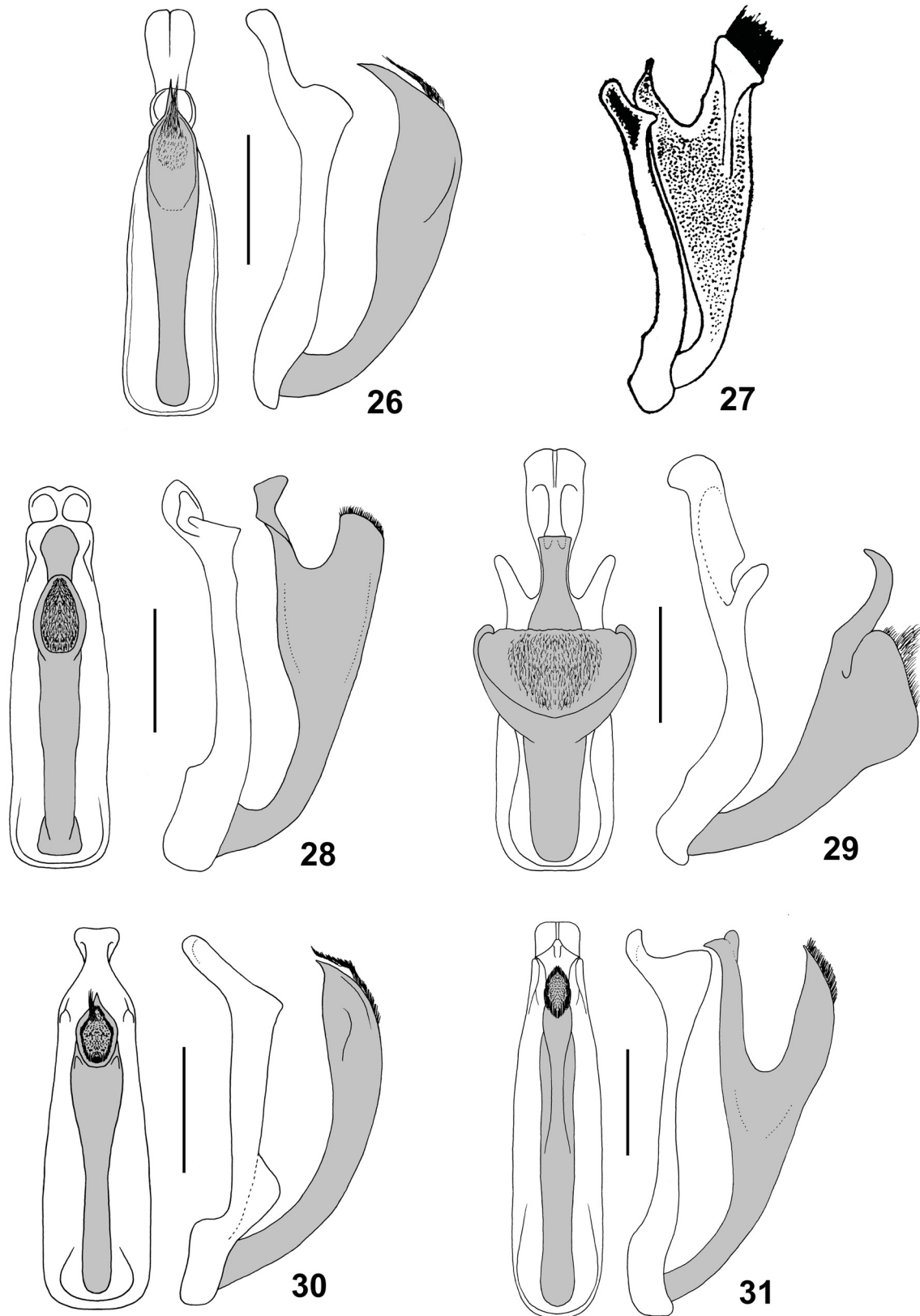
Figs 9–13. *Liroetis coeruleipennis* Weise, 1889. 9–12 – Male (7.5 mm). 9 – dorsal view; 10 – lateral view; 11 – head and pronotum; 12 – apex of abdomen. 13 – Female (7.6 mm), dorsal view.



Figs 14–20. *Liroetis ephippiatus* (Laboissière, 1930). 14–16 – Female, syntype (8.5 mm). 14 – dorsal view; 15 – ventral view; 16 – labels. 17 – Male (6.8 mm). 18–20 – Female, paratype of *Zangia signata* Jiang, 1990 (7.2 mm). 18 – dorsal view; 19 – ventral view; 20 – labels.



Figs 21–25. Type specimens of *Liroetis*, dorsal view. 21 – *L. coeruleus* (Jiang, 1990), male, holotype; 22 – *L. latispinus* (Chen, 1976), male, holotype; 23 – *L. nigricollis* (Jiang, 1990), male, holotype; 24 – *L. pallidulus* (Jiang, 1990), male, holotype; 25 – *L. ephippiatus* (Laboissière, 1930) (holotype of *Zangia signata* Jiang, 1990, male).



Figs 26–31. Aedeagus of *Liroetis*, dorsal and lateral views. 26 – *L. aeneipennis* Weise, 1889; 27 – *L. coeruleus* (Jiang, 1990); 28 – *L. coeruleipennis* Weise, 1889; 29 – *L. ephippiatus* (Laboissière, 1930); 30 – *L. leechi* Jacoby, 1890; 31 – *L. nigricollis* (Jiang, 1990). Fig. 27 reproduced from JIANG (1990). Scale 0.5 mm.

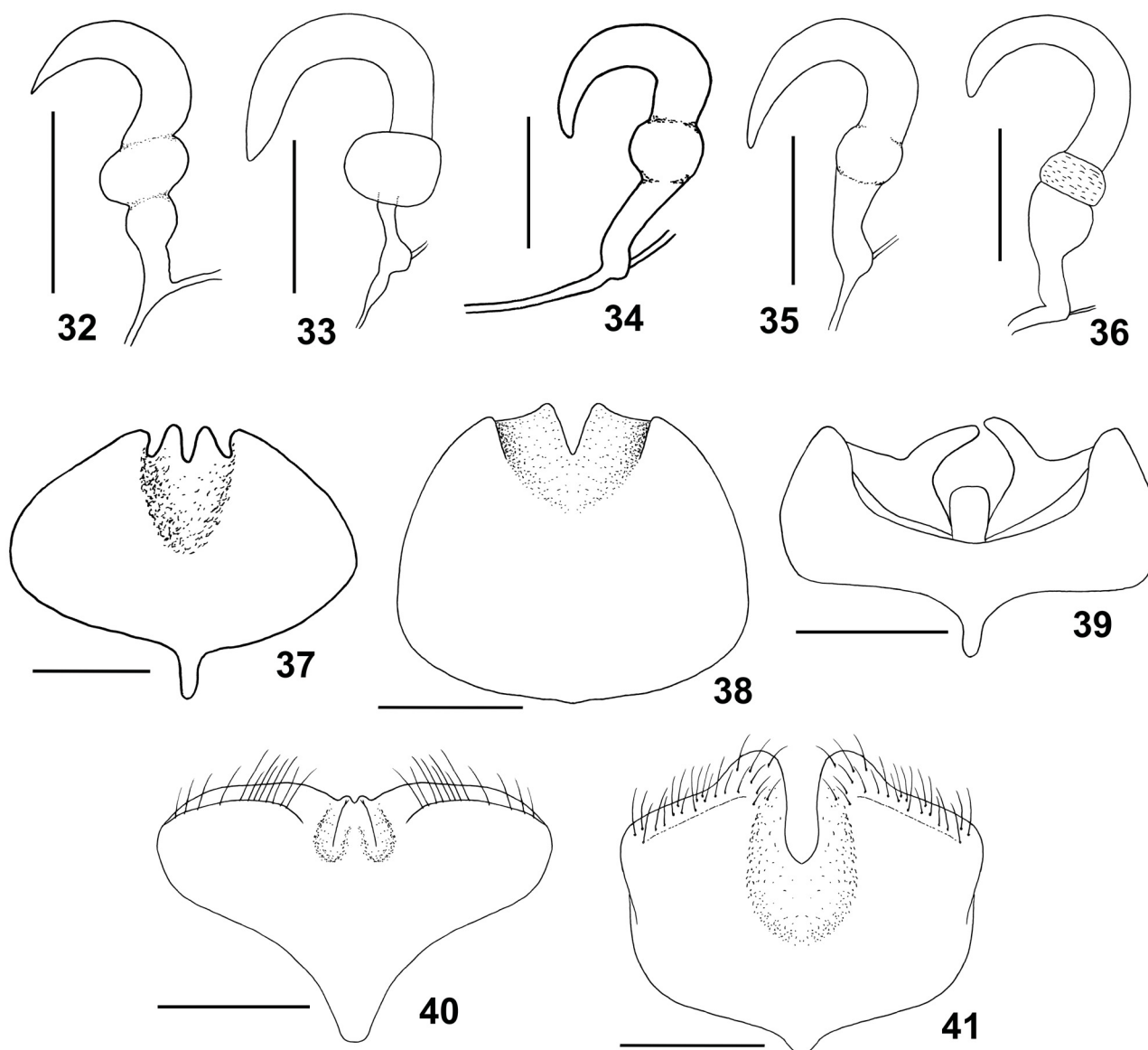
*Aedeagus* (Fig. 28). Median lobe of aedeagus 3.81 times as long as wide; widest in basal half, slightly convergent in apical half, apex wide and moderately rounded, tip with subtriangular incision. Lateral view: median lobe of aedeagus straight in middle part; lateral elevation small, triangular, placed in apical sixth of aedeagus length. Dorsal process 6.10 times as long as wide, 0.86 times as long as median lobe of aedeagus; narrow, subparallel, slightly wider subapically. Lateral view: dorsal process very wide in apical half, with U-shaped apical incision forming two branches, dorsal branch shorter and wider, ventral branch narrow, longer, with apex turned up.

*Female*. Metatibial spur absent. Last abdominal ventrite with large semicircular excision. Sternite VIII oval, slightly convergent posteriorly, posterior margin with V-shaped median incision, surface with wide U-shaped impression along

incision; tignum not developed (Fig. 38). Spermatheca with subspherical nodulus, cornu widely C-shaped (Fig. 33).

**Differential diagnosis.** *Liroetis coeruleipennis* is very similar to *L. nigricollis*. Both species can be distinguished by body colouration which is violet blue in *L. coeruleipennis* and black with indistinct metallic tint in *L. nigricollis*. Dorsal process of aedeagus in lateral view has shallower incision between both branches in *L. coeruleipennis* and deeper incision in *L. nigricollis* (Figs 28, 31). In lateral view, aedeagus of *L. coeruleipennis* is similar to that of *L. coeruleus*. Ventral branch of dorsal process of aedeagus is longer than dorsal branch in *L. coeruleipennis* but equal in length in *L. coeruleus* (Figs 27–28).

**Distribution.** Japan (WEISE 1889, OGLOBLIN 1936, KIMOTO 1965, KIMOTO & HIURA 1971, KIMOTO 1993, HAYASHI 2002, TAKAHASHI 2012, present paper).



Figs 32–41. Spermatheca (Figs 32–36) and sternite VII (Figs 37–41) of *Liroetis*. 32, 37 – *L. aeneipennis* Weise, 1889; 33, 38 – *L. coeruleipennis* Weise, 1889; 34, 39 – *L. ephippiatus* (Laboissière, 1930); 35, 40 – *L. leechi* Jacoby, 1890; 36, 41 – *L. nigricollis* (Jiang, 1990). Scales 0.25 mm for Figs 32–36, 0.5 mm for Figs 37–41.

**Comments.** Depository of type material is unknown to me, no reliable specimens found in MFNB and ZIN.

***Liroetis ephippiatus* (Laboissière, 1930)**

(Figs 14–20, 25, 34, 39)

*Cneorane ephippiata* Laboissière, 1930: 346 (original description).

*Cneorane ephippiata*: GRESSITT & KIMOTO (1963): 547 (key), 549 (noted); WILCOX (1973): 503 (catalogue); BEENEN (2010): 473 (catalogue); MEDVEDEV (2011): 366 (transferred to *Liroetis*).

*Liroetis ephippiata*: YANG et al. (2015): 247 (key), 248 (noted).

*Zangia signata* Jiang, 1990: 142, 144 (original description). **New junior subjective synonym.**

*Zangia signata*: JIANG (1992): 659 (noted); BEENEN (2010): 490 (catalogue); YANG et al. (2015): 274 (key), 275 (noted).

*Liroetis postmaculatus* Lopatin, 2004: 191 (original description). **New junior subjective synonym.**

*Liroetis postmaculatus*: YANG et al. (2015): 247 (key), 249 (noted).

*Liroetis postmaculata*: BEENEN (2010): 478 (catalogue).

**Type localities.** *Cneorane ephippiata*: '[China:] Yunnan: Montzé, Hauts Plateaux; Kouang Si Hien à 100 kil. E. S. E. de Yunnan-Fou'; *Zangia signata*: '[China:] Yunnan: Yunlong'; *Liroetis postmaculatus*: 'China, Yunnan, 5–8 km WSW of Dali'.

**Type material examined.** *Cneorane ephippiata*: SYNTYPES: 1 ♀ (Figs 14–16), 'MUSEUM PARIS / YUNNAN / KOUANG SI HIEN, 2100 m / 100 K ESE DE YUNNAN-FOU / (PÈRE ROSSILLON) / P GUERRY 1924 [w, p] // SEPTEMBRE [w, p] // COTYPE [red letters, w, p] // Cneorane / ephippiata / m [h] / V. Laboissière – Dét. [w, p]' (MNHN); 1 ♂ 1 ♀, 'MUSEUM PARIS / YUNNAN / KOUANG SI HIEN, 2100 m / 100 K ESE DE YUNNAN-FOU / (PÈRE ROSSILLON) / P GUERRY 1924 [w, p] // SEPTEMBRE [w, p]' (MNHN); 1 ♀, 'MUSEUM PARIS / YUNNAN / KOUANG SI HIEN, 2100 m / 100 K ESE DE YUNNAN-FOU / (PÈRE ROSSILLON) / P GUERRY 1924 [w, p]' (MNHN); 1 ♂, 'TYPE [red letters, p] ♂ [w, h] // H<sup>s</sup> plateaux / Mongt-dgi [w, h] // yunnan [sic!], w, h] // Cneorane / ephippiata / m [h] / V. Laboissière -- Dét. [w, p] // Le Moul vend. / via Reinbek / Eing Nr 1, 1957 [w, p]' (ZMUH).

*Zangia signata*: HOLOTYPE: ♂ (Fig. 25, only photograph seen), '[Yunnan, Yunlong, Mt. Zhiben / 2500 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1981.VII.24 / Collector: Xue-Zhong Zhang] [in Chinese, w, combined p and h] // HOLOTYPE [r, p] // *Zangia signata* sp. n. / [identifier: Sheng-Qiao Jiang] [partly in Chinese, w, combined p and h]' (IZAS). PARATYPES: 1 ♀, '[Yunnan, Yunlong, Mt. Zhiben / 2500 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1981.VII.24 / Collector: Xue-Zhong Zhang] [in Chinese, w, combined p and h] // ALLOTYPE [g, p] // *Zangia signata* / Det. Jiang 1990 [w, p]' (IZAS); 1 ♂ 1 ♀, '[Yunnan, Lushui, Laowo / 2430 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1981.VI.19 / Ch 81-63 / Collector: Shu-Yong Wang] [in Chinese, w, combined p and h] // *Zangia signata* / Det. Jiang 1990 [w, p]' (IZAS); 1 ♀, '[in Chinese, w, p and h] // [in Chinese, w, p and h] // Yunnan Yunlong / 2430m 24.VI.1981 / X. Z. Zhang / IZAS CHINA [w, p] // NHM(E) / 2004-153 / S. GE [w, p] // *Zangia signata* Jiang / Det.: Li-Jie ZHANG [w, p] // PARATYPE of / *Zangia signata* / Jiang, 1990 / J. Bezděk det., 2018 [r, p]' (BMNH).

*Liroetis postmaculatus*: Type material not examined.

**Additional material examined.** CHINA: YUNNAN: Ningjing Shan, Wei-Shi, 2200 m, 12.–13.vi.2006, 3 ♂♂ 1 ♀. V. Major leg. (JBCB); Ningjing Shan, Wei-Shi, 27°12'N 99°17'E, 2200 m, 12.vi.2006, 2 ♀♀, V. Major leg. (JBCB); Ningjing Shan, Mekong River, 2100 m, 5.–9.vi.2001, 1 ♀. V. Major leg. (NMPC); Dali env., Cangshan Mts., 2100 m, 22.v.2002, 9 ♂♂ 8 ♀♀, A. Konstantinov & M. Volkovitsh leg. (USNM); road to Bichuan, 1500 m, 8.vi.2002, 1 ♀, A. Konstantinov & M. Volkovitsh leg. (USNM); Dali env., Cangshan Mts., E slope of Zhonghe Shan Mt., 25°41.7'N 100°08.3'E, 2150 m, 13.vi.2007, 1 ♀, J. Hájek & J. Růžička leg. (NMPC); Lunnanchou, without additional data, 1 ♂ 1 ♀ (NMPC); 'Yunnan', without additional data, 2 ♀♀ (NMPC).

**Diagnosis.** *Colouration.* Head and pronotum orange, scutellum black. Elytra variable: 1) yellow with black margins, suture and transverse median band, 2) black with one pale spot behind humeral callus and additional preapical pale

spot, 3) black with large pale preapical spot on each elytron. Antennae and legs brown to black. Ventral side variable from yellowish brown to black.

*Body length.* ♂♂: 6.5–7.1 mm, ♀♀: 7.1–7.8 mm (♂♀: 6.1–8.5 mm based on the original descriptions).

*Male* (Fig. 17). Antennae 0.85 times as long as body. Pronotum 1.61 times as wide as long, lustrous, covered with extremely fine punctures, anterior margin with complete border. Middle part of posterior margin of abdominal ventrite IV slightly impressed, with semicircular median incision. Last abdominal ventrite with longitudinal impression narrowed in middle, lateral parts of ventrite with shallow transverse impression. Metatibial spur very short, robust.

*Aedeagus* (Fig. 29). Median lobe of aedeagus 3.5 times as long as wide; apical part narrow, subparallel, constricted in apical third, basal two thirds wide, subparallel, apically terminated with two divergent processes, apex folded down, with narrow median furrow visible only in apical fifth. Lateral view: ventral side rounded in basal third, apical part straight except for folded apex; lateral elevation absent. Dorsal process 2.14 times as long as wide, 0.75 times as long as median lobe of aedeagus; apex transversely cut, subapically slightly constricted, middle part extremely bulbous. Lateral view: dorsal process with hook-like apical part, middle part bulbous.

*Female.* Metatibial spur absent. Last abdominal ventrite with extremely large U-shaped incision (Fig. 15). Sternite VIII strongly modified, in ventral view transversely U-shaped, posterior half forming vertical lamella with two large hook-like processes; tignum short, 0.3 as long as sternite VIII (Fig. 39). Spermatheca with small globular nodulus, cornu C-shaped, gradually narrowing towards apex (Fig. 34).

**Differential diagnosis.** *Liroetis ephippiatus* has an unique combination of characters within the entire genus: elytra black with two or four large pale spots, head and pronotum orange, underside black (or brownish black), very peculiar structure of aedeagus (Fig. 29) and female with large U-shaped incision on last abdominal ventrite.

**Host plants.** Caprifoliaceae: *Leycesteria* sp., *Lonicera* sp. (JIANG 1990, 1992).

**Distribution.** China: Yunnan (LABOISSIÈRE 1930, GRESSITT & KIMOTO 1963, JIANG 1990, LOPATIN 2004, present paper).

**Comments.** The examination of relevant specimens showed that the species is very variable in elytral colouration. Dark forms with black elytra and large preapical pale spot were described twice independently as *Liroetis postmaculatus* and *Zangia signata*.

The primary type specimens of *Liroetis ephippiatus* and *Zangia signata* were compared with the description of *L. postmaculatus* provided with the drawing of very characteristic aedeagus. Undoubtedly, all three taxa are conspecific and are synonymized here.

***Liroetis leechi* Jacoby, 1890**

(Figs 30, 35, 40, 42–49)

*Liroetis leechi* Jacoby, 1890: 215 (original description).

*Liroetis leechi*: WEISE (1924): 128 (catalogue).

*Liroetis leechi*: GRESSITT & KIMOTO (1963): 532 (key), 534 (faunistics); WILCOX (1973): 476 (catalogue); JIANG (1988): 187 (noted); YANG et al. (1997): 878 (faunistics); WANG & YANG (2006): 165 (faunistics); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 249 (noted).

*Liroetis verticalis* Jiang, 1988: 186, 195 (original description). **New junior subjective synonym.**

*Liroetis verticalis*: YANG et al. (1997): 879 (faunistics); BEENEN (2010): 478 (catalogue); WANG & YANG (1998): 93 (faunistics); YANG et al. (2015): 247 (key), 250 (noted).

*Liroetis verticalis* [sic!, incorrect subsequent spelling]: YANG (2002): 640 (noted).

**Type localities.** *Liroëtis leechi*: 'Chang-Yang' [based on title, = China, Hubei Province, Changyang County]. *Liroetis verticalis*: '[China:] Fujian: Jianyang'.

**Type material examined.** *Liroëtis leechi*: HOLOTYPE: ♀ (Figs 42–46, only photograph seen), 'Chang Yang, / near Ichang, / 4–6000 ft., / V. VII–VIII: [w, p] // Liroëtis / leechi Jac. [b, h] // MCZ ENT / [QR Code] / 00732219 [w, p]' (MCZ).

*Liroetis verticalis*: PARATYPE: 1 ♀ (Figs 47–48), '[Fujian, Jianyang, Huangkeng, Aotou / 900–950 m / Chinese Academy of Sciences] [in Chinese, w, p] // [1960.IV.26. / Collector: Wu-Ji Pu] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967856 [w, p] // Liroetis / verticalis Jiang 1988 / Det. Jiang Shengqiao [w, p]' (IZAS).

**Additional material examined.** CHINA: HUBEI: Changyang, vi.1888, 1 ♀, A. E. Pratt leg. (MCZ). ZHEJIANG: Tienmu Shan, 1 ♀, E. Reitter leg. (NHMB); West Tianmu Shan, from 'Blind Alley' to 'Immortal Peak', 30°20.5–21.0'N 119°25.4–7'E, 1200–1500 m, 27.–28.vi.2017, 1 ♂, J. Hájek & J. Růžička leg. (NMPC).

**Diagnosis.** *Colouration.* Body pale brown, apices of mandibles darkened, vertex black, scutellum dark brown or black, elytra metallic green or bluish green, antennae brown, gradually darkened apically, antennomeres I and II dorsally black, femora and tibiae with dark stripes on outer sides.

*Body length.* ♂: 8.9 mm; ♀: 10.0 mm (♂♀: 8.0–10.0 mm based on the original descriptions).

*Male* (Fig. 49). Antennae 0.85 times as long as body. Pronotum convex, 1.64 times as wide as long, lustrous, very finely punctate, anterior margin with very fine but complete narrow border. Middle part of posterior margin of abdominal ventrite IV with short transverse triangular denticles separated by small U-shaped incision. Last abdominal ventrite with longitudinal impression narrowed in middle part. Protarsomere I narrow, elongate subtriangular, metatibial spur short, flat, with sharp apex.

*Aedeagus* (Fig. 30). Median lobe of aedeagus 3.5 times as long as wide; apex triangular with transversely cut tip, subapically constricted, middle part slightly convergent, basal part parallel. Lateral view: ventral side straight in middle part, apical part straight and oblique; lateral elevation triangular, placed in apical quarter; another triangular elevation placed in basal third. Dorsal process 5.75 times as long as wide, 0.78 times as long as median lobe of aedeagus; widened in apical half, narrow and parallel in basal half, apex sharp. Lateral view: dorsal process moderately bent with apical half slightly wider.

*Female.* Metatibial spur absent. Last abdominal ventrite with posterior margin entire. Sternite VIII heart-shaped, middle part of posterior margin bisinuate, surface with keel along posterior margin bearing long setae, middle part with two small impressions, each impression with oblique keel in middle; tignum wide, triangular, ca. 0.5

times as long as sternite VIII (Fig. 40). Spermatheca with small globular nodulus, cornu C-shaped with sharp apex, apical part of cornu longer than basal part, spermathecal duct slightly bent (Fig. 35).

**Differential diagnosis.** *Liroetis leechi* is characterised by metallic green elytra, pale brown pronotum, head and underside, and black vertex. The most similar species are *L. aeneipennis* and *L. coeruleus*, which differ in completely pale brown or orange head.

**Distribution.** China: Fujian (JIANG 1988, WANG & YANG 1998), Gansu (WANG & YANG 2006), Hubei (JACOBY 1890, YANG et al. 1997, present paper), Sichuan (YANG et al. 1997), Zhejiang (GRESSITT & KIMOTO 1963, present paper). YANG et al. (2015) listed it also from China: Shaanxi without mentioning particular specimens.

**Comments.** JACOBY (1890) described *Liroetis leechi* explicitly based on a single specimen (holotype). In the original description, the holotype was treated as a male with some doubts. The holotype deposited in MCZ is undoubtedly a female with the abdomen shrivelled and resembling a characteristic channel in middle of last abdominal ventrite in *Liroetis* males. The paratype of *Liroetis verticalis* described from Fujian by JIANG (1988) was examined and compared with the holotype of *L. leechi* and additional specimens. No differences were found and *L. verticalis* is synonymized with *L. leechi*.

### *Liroetis nigricollis* (Jiang, 1990) comb. nov.

(Figs 23, 31, 36, 41, 50–56)

*Zangia nigricollis* Jiang, 1990: 143, 144 (original description).

*Zangia nigricollis*: JIANG (1992): 659; BEENEN (2010): 490 (catalogue); YANG et al. (2015): 274 (key), 275 (noted).

*Liroetis unicolor* Zhang, Li & Yang, 2008a: 23 (original description).

**New junior subjective synonym.**

*Liroetis unicolor*: BEENEN (2010): 478 (catalogue); YANG et al. (2015): 246 (key), 250 (noted).

**Type localities.** *Zangia nigricollis*: '[China:] Sichuan: Luding'; *Liroetis unicolor*: 'P. R. China: Sichuan: Luding: Xinxing'.

**Type material examined.** *Zangia nigricollis*: HOLOTYPE: ♂ (Fig. 23, only photograph seen), '[Sichuan, Luding, Xinxing / 2100 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1983.VI.15 / Collector: Yuan-Qing Chen] [in Chinese, w, combined p and h] // HOLOTYPE [r, p] // *Zangia / nigricollis* / sp. n. / [identifier: Sheng-Qiao Jiang] [partly in Chinese, w, combined p and h]' (IZAS). PARATYPE: 1 ♂ (Figs 50–54), '[Sichuan, Luding, Xinxing / 2100 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1983.VI.15 / Collector: Yuan-Qing Chen] [in Chinese, w, combined p and h] // PARATYPE [y, p] // *Zangia nigricollis* / Det. Jiang 1990 [w, p]' (IZAS).

*Liroetis unicolor*: type material not examined.

**Additional material examined.** CHINA: SICHUAN: Moxi env., Hluogou valley, Gonghe vill., 29°37'27"N 102°06'28"E, 1715 m, 17.–21. vi.2014, 1 ♂ 1 ♀, J. Hájek, J. Růžička & M. Tkoč leg. (NMPC).

**Diagnosis.** *Colouration.* Body, antennae and legs completely black, dorsal side with indistinct metallic tint.

*Body length.* ♂: 7.4 mm, ♀: 8.8 mm (♂♀: 6.2–8.0 mm based on the original descriptions).

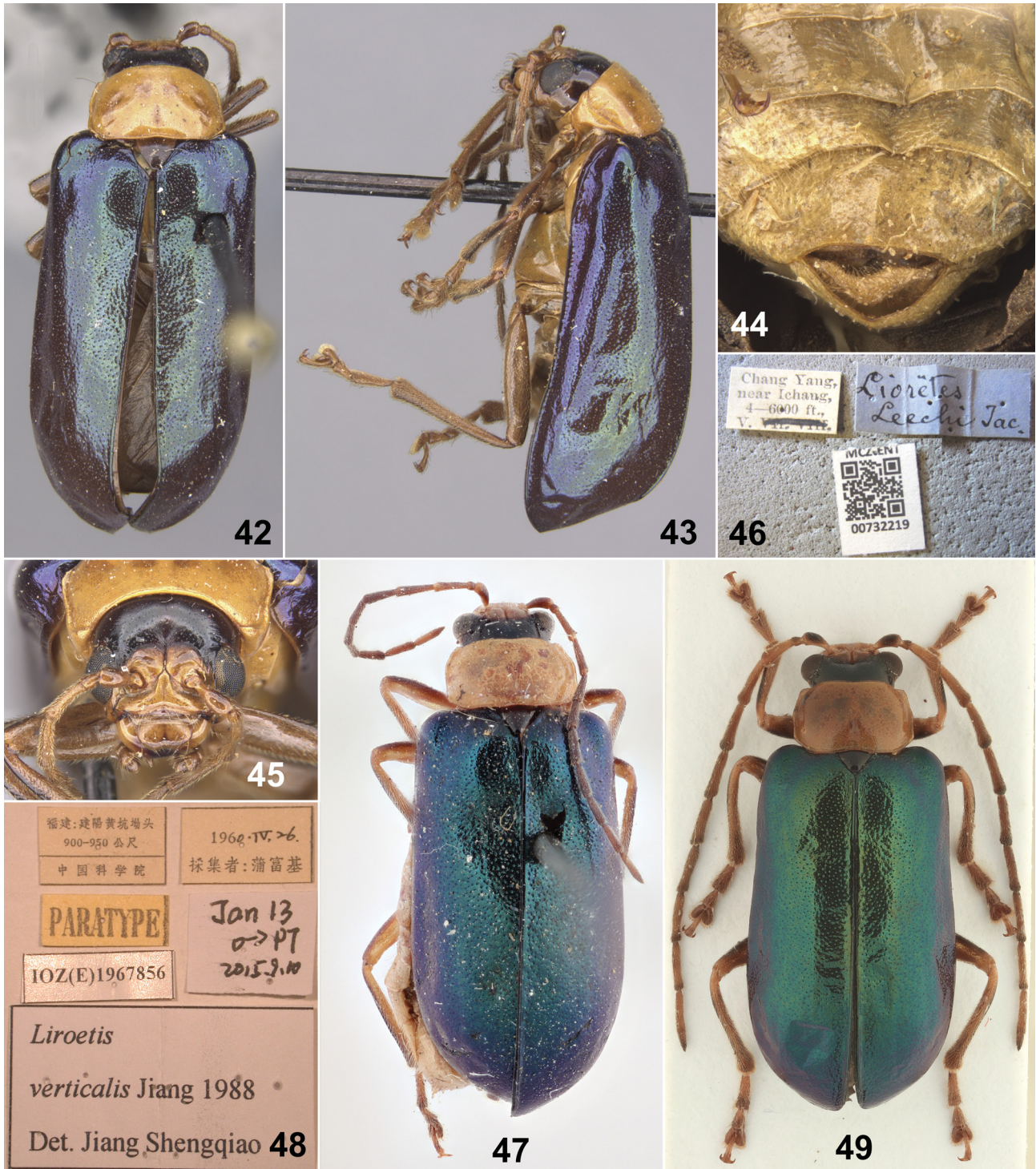
*Male* (Fig. 55). Antennae 0.66 times as long as body. Pronotum 1.48 times as wide as long, lustrous, covered with mixture of extremely fine and sparse larger punctures, anterior margin with complete border. Middle part of posterior margin of abdominal ventrite IV not impressed, forming two small wide subtriangular plates separated by

small U-shaped incision. Last abdominal ventrite with longitudinal impression narrowed in middle, deeper basally and apically. Metatibial spur short and flat.

*Aedeagus* (Fig. 31). Median lobe of aedeagus 4.40 times as long as wide; basal half wide, parallel, apical half slightly convergent, apex relatively wide, transversely cut. Lateral view: middle part very thin, nearly straight, apical part bent, lateral elevation triangular, placed in apical sixth of median lobe length. Dorsal process narrow, 9.33

times as long as wide, 0.86 times as long as median lobe of aedeagus. Lateral view: dorsal process bifurcate, both branches separated by deep U-shaped incision, apex of ventral branch bent down.

*Female* (Fig. 56). Metatibial spur absent. Last abdominal ventrite with very large U-shaped incision. Sternite VIII subhexagonal, posterior margins oblique and slightly concave, in middle with deep incision, surface with indicated keel along posterior margins, setae accumulated between



Figs 42–49. *Liroetis leechi* Jacoby, 1890. 42–46 – Female, holotype. 42 – dorsal view; 43 – lateral view; 44 – apex of abdomen; 45 – head; 46 – labels. 47–48 – Female, paratype of *Liroetis verticalis* Jiang, 1988 (8.1 mm). 47 – dorsal view; 48 – labels. 49 – Male (8.9 mm).



keels and posterior margins, large shallow impression along incision; tignum very short, subtriangular (Fig. 41). Spermatheca with short transverse wrinkled nodulus, cornu U-shaped, narrow, spermathecal duct with wide basal part and narrowed apical part (Fig. 36).

**Differential diagnosis.** *Liroetis nigricollis* is very similar to *L. coeruleipennis*. Both species can be distinguished by body colouration which is completely black with indistinct metallic tint in *L. nigricollis* but violet blue in *L. coeruleipennis*. Dorsal process of aedeagus in lateral view

is similar to that of *L. coeruleipennis* and *L. coeruleus* but the incision between both branches is deeper in *L. nigricollis*, and shallower in *L. coeruleipennis* and *L. coeruleus* (Figs 27–28, 31).

**Distribution.** China: Sichuan (JIANG 1990, ZHANG et al. 2008a, present paper).

**Comments.** *Liroetis unicolor* is synonymized with *L. nigricollis* based on the original description provided with the drawing of very characteristic aedeagus (JIANG 1990). Moreover, both taxa were described from Luding County in Sichuan.



Figs 50–56. *Liroetis nigricollis* (Jiang, 1990). 50–54 – Male, paratype (6.9 mm). 50 – dorsal view; 51 – ventral view; 52 – lateral view; 53 – head and pronotum; 54 – labels. 55 – Male (7.3 mm); 56 – female (9.0 mm).

*Liroetis aurantiacus* species-group

**Definition.** Metatibial spur thin and sharp, present in both sexes. Male antennae 0.57–0.77 times as long as body. Pronotum transverse, ca. twice as wide as long, with bordered anterior margin. Anterior coxal cavities semiopen posteriorly. Abdominal ventrite IV in male with small vertical hook-like process directed posteriorly. Median lobe of aedeagus in lateral view with cavity in middle part.

*Liroetis aurantiacus* sp. nov.

(Figs 57–60, 65–70)

*Liroetis apicicornis* [misidentification]: KIMOTO (1989a): 82 (faunistics).**Type locality.** Thailand, Nan Province, Doi Phu Kha.

**Type material examined.** HOLOTYPE: ♂ (Figs 57–60), 'THAILANDIA (Nan) / Doi Phu Kha nat. res. / 26.IV.1999 / leg. D. Hauck [w, p] // *Liroetis*, prope: / *apicicornis* Jacoby / det. A. Warchalowski [w, p] // ex. coll. A. Warchalowski / National Museum / Prague, Czech Republic [w, p]' (NMPC). PARATYPES: 3 ♀♀, 'THAILANDIA (Nan) / Doi Phu Kha nat. res. / 26.IV.1999 / leg. D. Hauck [w, p] // ex. coll. A. Warchalowski / National Museum / Prague, Czech Republic [w, p]' (NMPC); 1 ♂, 'THAI, N, Mae Hong Son / prov., Soppong env., 600m, / 28.v.–2.vi.1999, / M. Říha leg. [w, p]' (JBCB); 1 ♀, 'Thailand, Kanchanaburi pr. / Phatad Valley, mixed sec. / forests and culture countryside / 14.–15.9.2009, V. Hula lgt. [w, p]' (JBCB); 1 ♀, 'THAILAND, Prov. Prachin / Buri, Sakaerat Ecol. / Research Institue, [w, p] // No. 42, beaten, / 6.VI.2001, E. Horváth & Gy. Sziráki [w, p]' (HNHM); 1 ♂ 1 ♀, 'Thailand, Chiang Mai Prov. 100 / m N from Chiang Mai, Chiang / Dao Hill Resort env. 545–640 m, / N 19°32'47", E 99°04'53" / 17–25.V.2016 A. Zamesov leg. [w, p]' (PRCS); 1 ♀, 'NE Cambodia, / Mondulkiri prov., / Bu Sra waterfall, / xi.2005, R. Tropek leg. [w, p]' (JBCB); 1 ♂ 1 ♀, 'Cambodge / Kompong-Kedey / Vitalis – 191 [w, h] // ex. coll. J. Achard / National Museum / Prague, Czech Republic [w, p]' (NMPC); 1 ♀, 'Cambodge / Kompong-Kedey / Vitalis V–1914 [w, h] // ex. coll. J. Achard / National Museum / Prague, Czech Republic [w, p]' (NMPC); 1 ♂, 'S VIETNAM / Dalat City / 21.–27.4.1994 / Pacholatka & Dembicky [w, p]' (NHMW); 1 ♂, 'Annam / Mus. Pragen- / se [w, p]' (NMPC); 1 ♂, 'Kham Khon / 1923 [w, p] // Indo China / Coll. Dussault [w, p] // *Liroetis* / *apicicornis* / Jacoby [h] / Det. S. Kimoto, 19 [p] 87 [w, h]' (NHMB); 2 ♂♂, 'LAOS: Ban Van Heue / 20 km E of Phou-kow- / kwei, 15–31.V.1965 [w, p] // Native Collector / BISHOP [w, p] // *Liroetis* / *apicicornis* / Jacoby [h] / Det. S. Kimoto, 19 [p] 87 [w, h]' (BPBM); 1 ♂, 'LAOS: Ban Van Heue / 20 km E of Phou-kow- / kwei, 15–31.V.1965 [w, p] // Native Collector / Collector [w, p]' (BPBM); 1 ♂, 'CHINA, Yunnan, Mengla / [in Chinese], Mohan [in Chinese] / hillside, 21°11'14.2"N 101°41'0.2"E, [w, p] // 910 m, swept, / 3.VIII.2012, / leg. Dávid Rédei [w, p]' (HNHM); 1 ♀, 'Chapa [w, h] // Le Moul vend. / via Reinbek / Eing 1–1957 [w, p] // Coeligenes [h] / V. Laboissière – Dét. [w, p]' (ZMUH). The specimens are provided with one printed red label 'HOLOTYPUS, [or PARATYPUS] / *Liroetis* / *aurantiacus* sp. n. / J. Bezděk det., 2020'.

**Description.** *Body length.* ♂♂ 6.2–8.1 mm (holotype 7.8 mm), ♀♀ 7.5–8.3 mm.

*Male* (holotype, Figs 57–60). Body completely orange brown, apices of mandibles black, antennomere XI with black sensilla patch.

*Head* (Fig. 59). Labrum transverse with widely rounded anterior angles, surface with six setigerous pores in transverse row bearing pale seta. Anterior part of head convex, covered with sparse large punctures, setae visible only at anterolateral angles. Space below eyes with deep oblique grooves for insertion of antennomere I. Nasal keel sharp, moderately convex. Interantennal space 0.77 times as wide as antennal insertion. Interocular space 1.77 times as wide as transverse diameter of eye. Frontal tubercles slightly elevated, almost smooth, subpentagonal, with anterior

apices divergent, separated by apex of nasal keel. Vertex impressed behind frontal tubercles, surface covered with fine punctures. Antennae short, 0.75 times as long as body, length ratio of antennomeres I to XI equals 100 : 23 : 77 : 69 : 69 : 69 : 69 : 61 : 54 : 54 : 77. Antennomere I bent, IX–XI distinctly flattened ventrally, XI with black sensilla patch on inner side.

*Pronotum* (Fig. 59) transverse, 1.95 times as wide as long, lustrous, covered with fine punctures and very fine microsculpture. Anterior margin moderately concave, posterior margin rounded, lateral margins rounded (nearly angulate). Anterior and posterior margins thinly bordered, lateral margins widely bordered. Anterior angles triangularly projected, posterior angles obtusangulate, all angles with setigerous pore bearing pale seta. Several small pores with short setae also on lateral margins.

*Scutellum* triangular with rounded tip, surface slightly convex covered with fine punctures on apical half of scutellum, glabrous.

*Elytra* convex, glabrous, 1.80 times as long as wide (measured at humeral calli), 0.71 times as long as body, divergent posteriorly, widest in posterior third, covered with very fine confused punctures. Humeral calli well developed. Epipleura wide in anterior half, gradually narrowed in middle and disappearing in posterior third.

*Underside.* Anterior coxal cavities semiopen posteriorly. Abdominal ventrite IV with semicircular oblique impression and with hook-like lamella directed posteriorly in middle of posterior margin (Fig. 69), ventrite V with large channel-like groove, wider basally, narrower apically, middle part constricted.

*Legs.* Protarsomere I narrow, elongate triangular, length ratio of protarsomeres I–IV equals 100 : 71 : 64 : 100. Mesotarsomere I subtriangular, length ratio of mesotarsomeres I–IV equals 100 : 100 : 72 : 136. Metatarsomere I narrow, subparallel, length ratio of mesotarsomeres I–IV equals 100 : 68 : 47 : 79. Metatibial spur present, thin and sharp. Claws with large appendices.

*Aedeagus* (Fig. 65). Median lobe of aedeagus 3.92 times as long as wide; apical 2/5 narrow, subparallel, apex incised, basal 3/5 wide, parallel. Lateral view: apical part hook-like, basal part almost straight; lateral elevation placed in middle, cavitous. Dorsal process 4.39 times as long as wide, 0.68 times as long as median lobe of aedeagus; parallel, apex slightly wider, transversely cut. Lateral view: dorsal process with hook-like apical part, basal 2/3 straight.

*Female.* Metatibial spur present, thin and sharp. Last abdominal ventrite with wide shallow emargination on posterior margin, pygidium with narrow incision at apex (Fig. 66). Sternite VIII subpentagonal, posterior margin bisinuate in middle part and with short triangular incision in middle, surface covered with long setae in posterior half, tignum 0.5 times as long as sternite VIII (Fig. 68). Spermatheca with nodulus well developed, globular, cornu C-shaped (Fig. 67).

**Differential diagnosis.** *Liroetis aurantiacus* sp. nov. is very similar to *L. baolocanus* sp. nov. The two species form *L. aurantiacus* species-group characterised by metatibial spur present in both sexes, antennae short, pronotum transverse,

with bordered anterior margin, anterior coxal cavities semiopen posteriorly, abdominal ventrite IV in male with small vertical hook-like process directed posteriorly, and peculiar aedeagus structure. *Liroetis aurantiacus* sp. nov. differs from *L. baolocanus* sp. nov. in orange brown body and median lobe of aedeagus with apical 2/5 narrow and subparallel (body yellowish brown and median lobe of aedeagus with apical third wide and oval in *L. baolocanus* sp. nov.). Due to body colouration and transverse pronotum *L. aurantiacus* sp. nov. has been often misidentified as *L. apicicornis* distributed in southern India. *Liroetis apicicornis* is larger (body length 9.5–10.3 mm), has longer antennae with black last two antennomeres and completely different structure of aedeagus (cf. Figs 65 and 347).

**Etymology.** The species name *aurantiacus* (meaning orange) refers to body colouration; adjective.

**Distribution.** Thailand, Laos, Vietnam, Cambodia, China (Yunnan).

**Comments.** The records of *L. apicicornis* from Thailand, Laos and Vietnam (KIMOTO 1989a) refer to *Liroetis aurantiacus* sp. nov. based on the examination of the relevant specimens.

#### *Liroetis baolocanus* sp. nov.

(Figs 61–64, 70–71)

**Type locality.** Vietnam, Lam Dong Province, 14 km SW of Bao Loc.

**Type material examined.** HOLOTYPE: ♂, 'S VIETNAM / 14 km SW Bao Loc / 16.–29.5.1994 / Pacholatko & Dembicky [w, p]' (NHMW). The holotype is provided with one printed red label 'HOLOTYPE, / *Liroetis* / *baolocanus* sp. n. / J. Bezděk det., 2020'.

**Description.** *Body length.* ♂: 7.8 mm (holotype).

*Male* (holotype, Figs 61–64). Body completely yellowish brown, apices of mandibles black, antennomere XI with black sensilla patch.

*Head* (Fig. 63). Labrum transverse with widely rounded anterior angles, surface with six setigerous pores in transverse row bearing pale seta. Anterior part of head convex, covered with sparse large punctures, setae visible only at anterolateral angles. Space below eyes with deep oblique grooves for insertion of antennomere I. Nasal keel sharp, flat. Interantennal space 0.8 time as wide as antennal insertion. Interocular space twice as wide as transverse diameter of eye. Frontal tubercles distinctly elevated, microsculptured, subpentagonal, with anterior apices divergent, separated by apex of nasal keel. Vertex impressed behind frontal tubercles, surface covered with fine punctures. Antennae short, 0.57 times as long as body, length ratio of antennomeres I to XI equals 100 : 20 : 60 : 60 : 53 : 53 : 53 : 46 : 46 : 53 : 66. Antennomere I bent, IX–XI distinctly flattened, XI with black sensilla patch on inner side.

*Pronotum* (Fig. 63) transverse, twice as wide as long, lustrous, covered with fine punctures. Anterior margin moderately concave, thinly bordered, posterior margin rounded, thinly bordered, lateral margins rounded, with wider border. Anterior angles triangularly projected, posterior angles obtusangulate, all angles with setigerous pore bearing pale seta. Several small pores with short setae also on lateral margins.

*Scutellum* triangular with rounded tip, surface slightly convex covered with fine punctures, glabrous.

*Elytra* convex, glabrous, 1.83 times as long as wide (measured at humeral calli), 0.73 times as long as body, divergent posteriorly, widest in posterior third, covered with very fine confused punctures. Humeral calli well developed. Epipleura wide in anterior half, narrowed in middle and disappeared in posterior third.

*Underside.* Anterior coxal cavities semiopen posteriorly. Abdominal ventrite IV with semicircular oblique impression and with hook-like lamella directed posteriorly in middle of posterior margin (Fig. 71), ventrite V with large channel-like groove, wider basally, narrower apically, middle part constricted.

*Legs.* Protarsomere I narrow, almost parallel, length ratio of protarsomeres I–IV equals 100 : 60 : 60 : 86. Mesotarsomere I wider, elongate subtriangular, length ratio of mesotarsomeres I–IV equals 100 : 66 : 73 : 113. Metatarsomere I narrow, elongate subtriangular, length ratio of mesotarsomeres I–IV equals 100 : 60 : 55 : 90. Metatibial spur present, thin and sharp. Claws with large appendices.

*Aedeagus* (Fig. 70). Median lobe of aedeagus 4.11 times as long as wide; apical third oval, apex incised, basal two thirds wide, subparallel. Lateral view: apical part folded; lateral elevation placed in middle, cavitous. Dorsal process 3.69 times as long as wide, 0.65 times as long as median lobe of aedeagus; subparallel, wider at base and in apical third, apex collar-like. Lateral view: dorsal process with basal 2/3 straight, apical part sinuate.

*Female.* Unknown.

**Differential diagnosis.** *Liroetis baolocanus* sp. nov. is very similar to *L. aurantiacus* sp. nov. They differ in body colouration (orange brown in *L. aurantiacus* sp. nov., yellowish brown in *L. baolocanus* sp. nov.) and structure of aedeagus (apical third of median lobe of aedeagus wide and oval in *L. baolocanus* sp. nov. while apical 2/5 narrow and subparallel in *L. aurantiacus* sp. nov., compare Figs 65 and 70).

**Etymology.** The species name *baolocanus* refers to the type locality Bao Loc in Vietnam; adjective.

**Distribution.** Southern Vietnam.

#### *Liroetis flavipennis* species-group

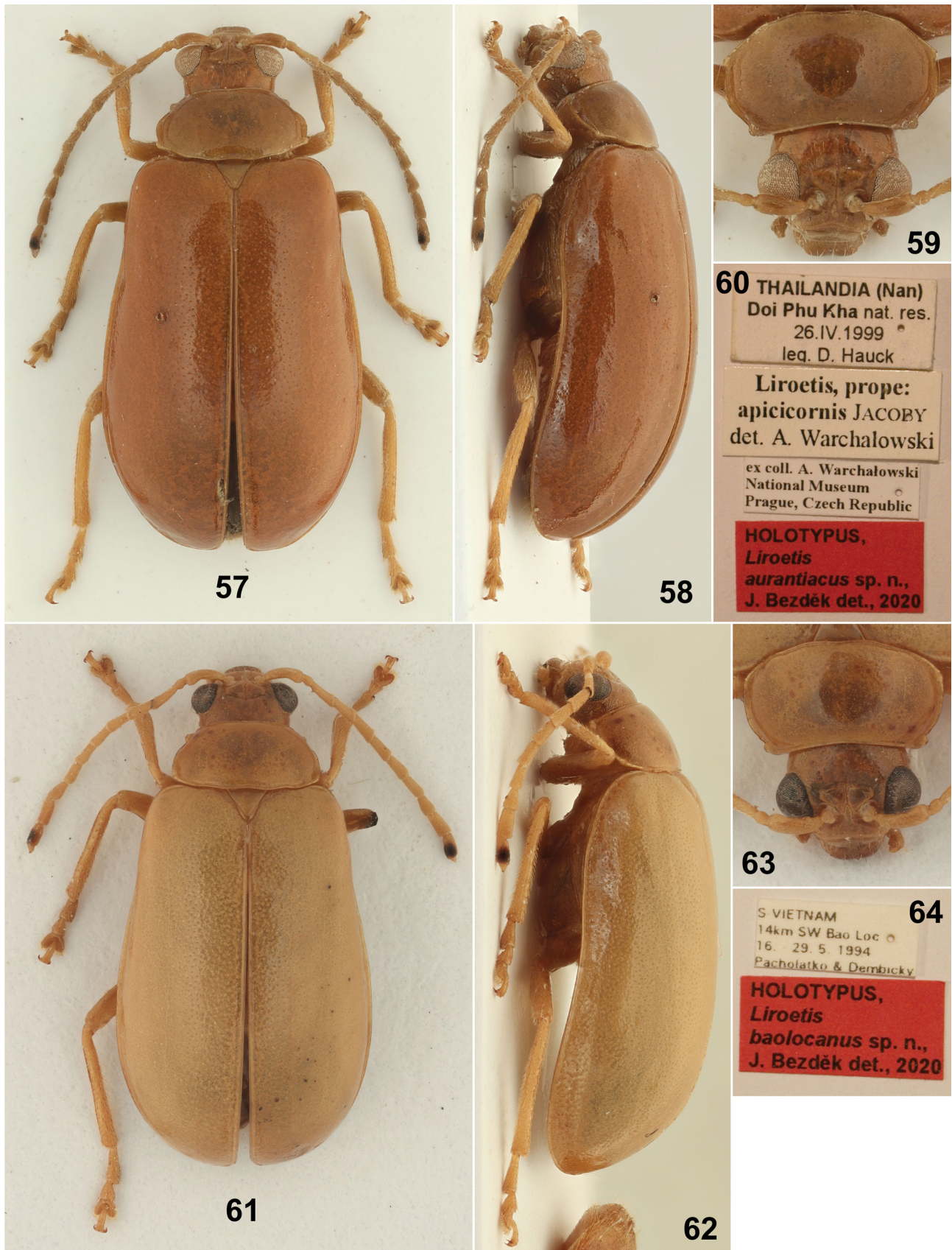
**Definition.** Body elongate, relatively slender, usually pale without black pattern (with exception of *L. humeralis* and *L. medvedevi*). Pronotum relatively narrow, with anterior margin bordered. Antennae long (in males 0.83–0.96 times as long as body), filiform. Metatibial spur absent in both males and females. Median lobe of aedeagus with lateral elevation placed ca. in anterior third of aedeagus length, apical part of median lobe of aedeagus nearly straight and not folded in lateral view. Female sternite VIII umbrella-like without setation or with only few setae.

#### *Liroetis flavipennis* Bryant, 1954

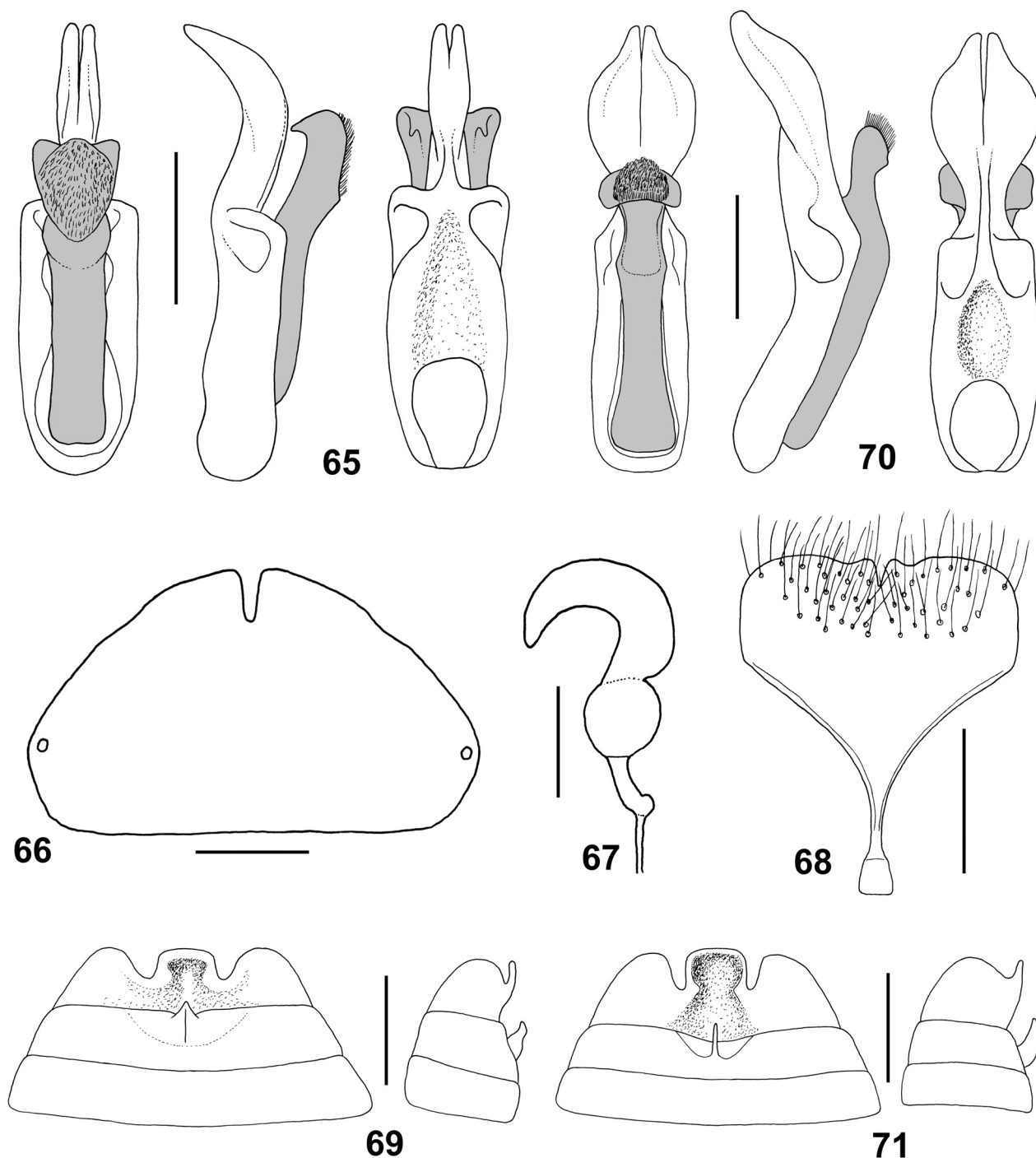
(Figs 72–82, 108, 118, 125)

*Liroetis flavipennis* Bryant, 1954: 547 (original description).

*Liroetis flavipennis*: GRESSITT & KIMOTO (1963): 532 (key), 533 (faun-



Figs 57–64. New species of *Liroetis*. 57–60 – *L. aurantiacus* sp. nov., male, holotype (7.8 mm). 57 – Dorsal view; 58 – lateral view; 59 – head and pronotum; 60 – labels. 61–64 – *L. baolocanus* sp. nov., male, holotype (7.8 mm). 61 – Dorsal view; 62 – lateral view; 63 – head and pronotum; 64 – labels.



Figs 65–71. Details of new species of *Liroetis*. 65–70 – *L. aurantiacus* sp. nov. 65 – Aedeagus in dorsal, lateral and ventral views; 66 – female pygidium; 67 – spermatheca; 68 – sternite VIII; 69 – male abdomen in ventral and lateral views. 70–71 – *L. baolocanus* sp. nov. 70 – Aedeagus in dorsal, lateral and ventral views; 71 – male abdomen in ventral and lateral views. Scales: 0.5 mm for Figs 65–66, 68 and 70, 0.25 mm for Fig. 67; 1 mm for Figs 69, 71.

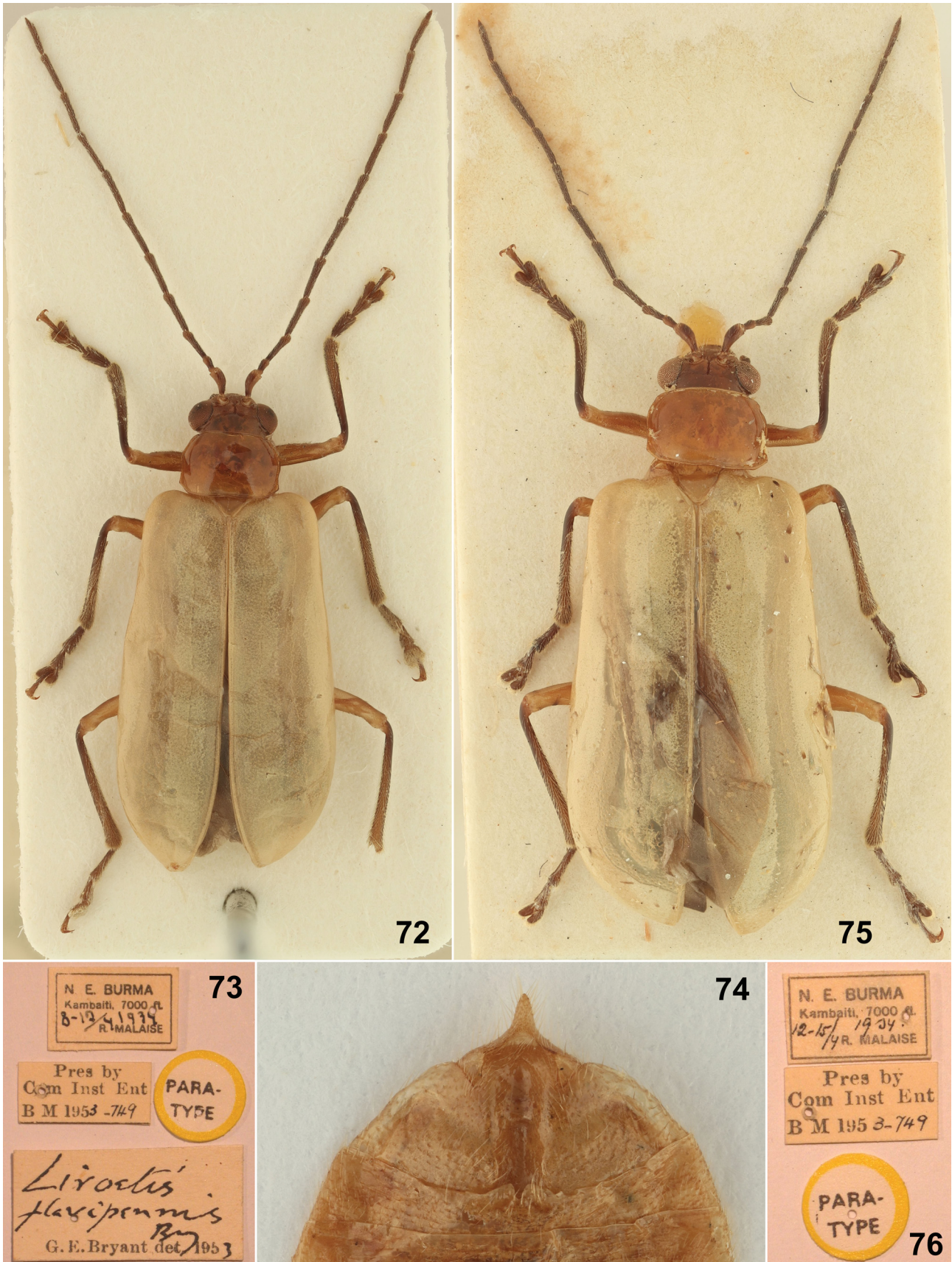
istics); WILCOX (1973): 476 (catalogue); TAKIZAWA & BASU (1987): 272 (noted); BASU (1996): 695 (faunistics); WANG & YANG (2006): 164 (faunistics); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 248 (noted).

*Liroetis leycesteriae* Jiang, 1988: 189, 196 (original description). **New junior subjective synonym.**

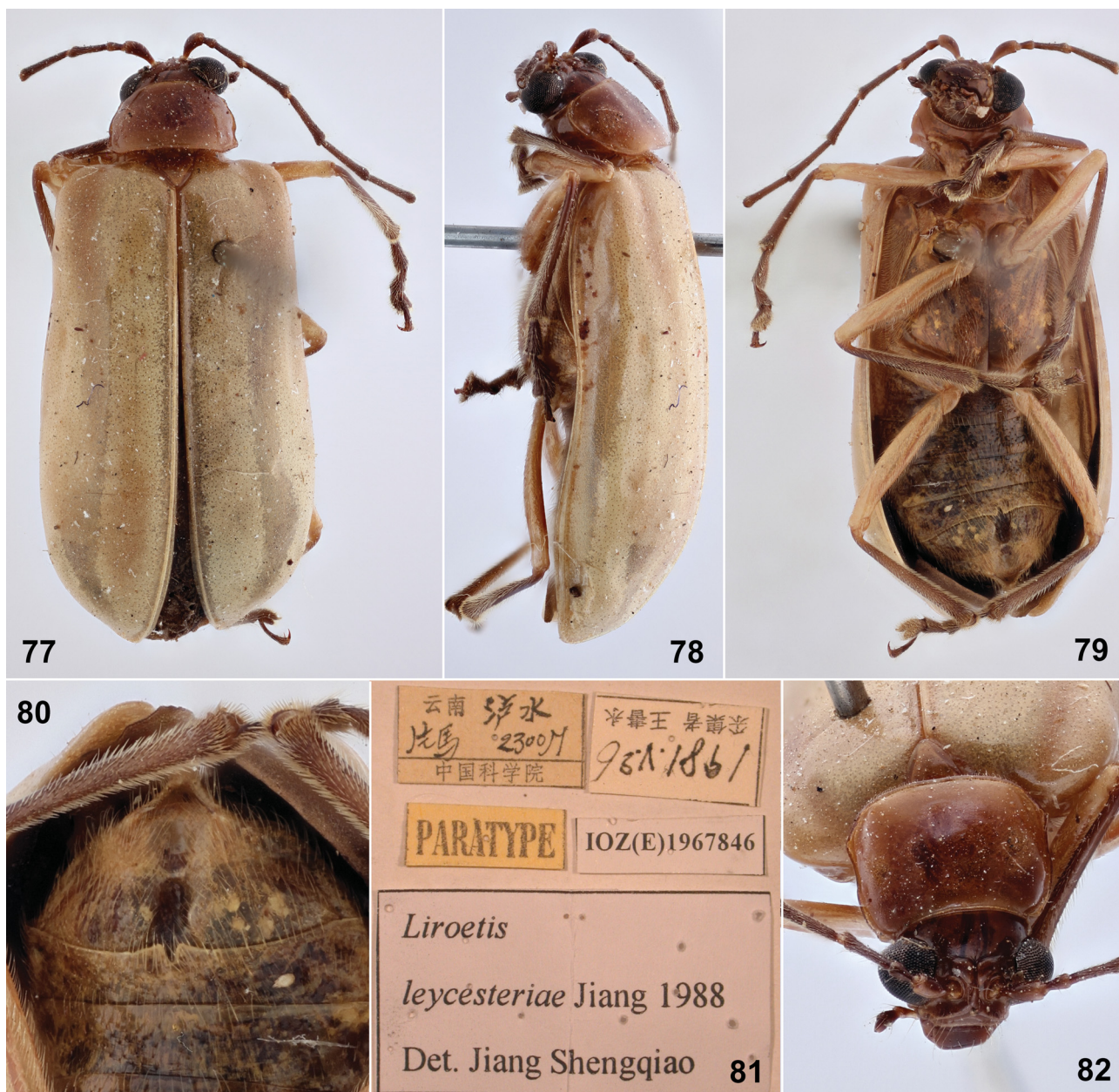
*Liroetis leycesteriae*: JIANG (1992): 658 (noted); YANG (1992b): 339 (faunistics); ZHANG & YANG (2007): 301 (faunistics); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 249 (noted).

**Type localities.** *Liroetis flavipennis*: ‘N. E. Burma: Kambaiti’. *Liroetis leycesteriae*: ‘[China:] Yunnan: Lushui Co.’.

**Type material examined.** *Liroetis flavipennis*: SYNTYPES: 1 ♂, ‘N. E. BURMA / Kambaiti, 7000 ft [p] / 8–12/4 1934 [h] / R. MALAISE [w, p] // Type [white round label with red collar, p] // *Liroetis / flavipennis* / Bryant [h] / G. E. Bryant det. 195 [w, p]’ (NHRS); 1 ♂ (Figs 72–74), ‘N. E. BURMA / Kambaiti, 7000 ft [p] / 8–12/4 1934 [h] / R. MALAISE [w, p] // Pres by / Com Inst Ent / B M 195 [p] 3–749 [w, h] // Para- / type [white round label with yellow collar, p] // *Liroetis / flavipennis* / Bry [h] / G. E. Bryant det. 195 [p] 3 [w, h]’ (BMNH); 1 ♂, ‘Para- / type [white round label with yellow collar, p] // N. E. BURMA / Kambaiti, 7000 ft [p] / 8/4 1934 [h] / R. MALAISE [w, p] // Pres by / Com Inst Ent / B M 195 [p] 3–749 [w, h]’ (BMNH); 1 ♀ (Figs 75–76), ‘N. E. BURMA / Kambaiti, 7000 ft [p] / 12–15/4 1934 [h] / R. MALAISE [w, p] // Pres



Figs 72–76. *Liroetis flavipennis* Bryant, 1954. 72–74 – Male, syntype (10.0 mm). 72 – dorsal view; 73 – labels; 74 – apex of abdomen. 75–76 – Female, syntype (11.8 mm). 75 – dorsal view; 76 – labels.



Figs 77–82. *Liroetis flavipennis* Bryant, 1954 (paratype of *L. leycesteriae* Jiang, 1988, male, 11.4 mm). 77 – dorsal view; 78 – lateral view; 79 – ventral view; 80 – apex of abdomen; 81 – labels; 82 – head and pronotum.

by / Com Inst Ent / B M 195 [p] 3–749 [w, h] // Para- / type [white round label with yellow collar, p]’ (BMNH).

*Liroetis leycesteriae*: PARATYPE: 1 ♂ (Figs 77–82), ‘Yunnan, Lushui / Pianma 2300 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1981.V.26 / Collector Shu-Yong Wang] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967846 [w, p] // *Liroetis / leycesteriae* Jiang 1988 / Det. Jiang Shengqiao [w, p]’ (IZAS). **Additional material examined. VIETNAM: LAO CAI PROV.:** Hoang Lien NP, Tram Ton, 22.3493723°N 103.7704565°E, 1915 m, 8.–11. iv.2010, 2 ♂♂ 1 ♀, L. Papp, L. Pergovits & Z. Soltézs leg. (HNHM).

**Diagnosis. Colouration.** Head and pronotum brownish orange, scutellum, elytra and underside pale brown; antennae dark brown; legs pale brown with tibiae and tarsi dark. Each elytron often with semitransparent longitudinal stripe.

**Body length.** ♂♂: 9.7–11.7 mm, ♀♀: 11.7–12.0 mm.

**Male** (Fig. 72). Antennae 0.88 times as long as body.

Pronotum 1.50 times as wide as long, lustrous, impunctate, anterior margin slightly concave with complete, well visible border, lateral margins sinuate, pronotum widest in anterior third. Posterior margin of abdominal ventrite IV with two small triangular processes separated by small V-shaped incision. Last abdominal ventrite with wide and deep longitudinal impression. Pygidium with prolonged sharp apex (Fig. 74). Metatibial spur absent.

**Aedeagus** (Fig. 108). Median lobe of aedeagus 4.08 times as long as wide; apical quarter narrower, parallel, median lobe gradually widened in second quarter, basal half wide, parallel. Lateral view: median lobe of aedeagus moderately bent; lateral elevation widely triangular, placed in anterior third of aedeagus length. Dorsal process 5.58 times as long as wide, 0.64 times as long as median lobe;

subparallel, shallowly constricted in basal third, apex sharp, triangular. Lateral view: dorsal process slender and moderately bent in basal half, apical half straight and wider, apex pronounced into finger-like process.

**Female.** Metatibial spur absent. Sternite VIII with small rounded convexity in middle of posterior margin, surface with shallow V-shaped impression in middle of posterior part, without setation; tignum 0.55 as long as sternite VIII (Fig. 125). Spermatheca with well developed sphaerical nodulus covered with fine wrinkles, cornu semicircular, gradually narrowing towards apex, spermathecal duct sinuate (Fig. 118).

**Differential diagnosis.** The dorsally unicolour species of *Liroetis flavipennis* species-group are very similar to each other and most of them can be correctly identified based on the structure of aedeagus (cf. Figs 108–117). The males of *Liroetis flavipennis* are characterised also by pygidium with prolonged sharp apex (Fig. 74). Similarly prolonged pygidium is known also in the males of *L. lonicernis*. The two taxa differ only in slightly higher/lower position of the lateral elevation on median lobe of aedeagus and in width of dorsal process (cf. Figs 108 and 110). These differences are, however, so minor that they might be just result of intraspecific variability and the future synonymy of both species cannot be excluded.

**Host plant.** *Leycesteria* sp. (JIANG 1988).

**Distribution.** Myanmar (BRYANT 1954), China: Yunnan (JIANG 1988), Vietnam (present paper).

**Comments.** The type specimens of *Liroetis flavipennis* and *L. leycesteriae* were compared and proved to be conspecific, therefore their synonymy is established.

The species of *Liroetis flavipennis* species-group are very similar to each other externally which leads to their frequent misidentifications. Therefore, in the Distribution section, I present only verified data. The records from China: Gansu (WANG & YANG 2006), Shaanxi (YANG et al. 2015), Guizhou (ZHANG & YANG 2007, YANG 1992b, as *Liroetis leycesteriae*) and India: West Bengal (BASU 1996) must be verified prior to their acceptance. The records from India: Sikkim and West Bengal (TAKIZAWA & BASU 1987) undoubtedly refer to another *Liroetis* species based on the drawing of aedeagus. The record of *L. flavipennis* from Sichuan (GRESSITT & KIMOTO 1963) refer to *L. sichuanensis* Jiang, 1988 (see ZHANG et al. 2008).

### *Liroetis humeralis* Jiang, 1988

(Figs 83–86, 109, 119, 126)

*Liroetis humeralis* Jiang, 1988: 192, 197 (original description).

*Liroetis humeralis* JIANG (1992): 658 (noted); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 248 (noted).

**Type locality.** ‘[China:] Yunnan: Lushui’.

**Type material.** Not examined.

**Additional material examined.** CHINA: YUNNAN: Nujiang pref., Gongshan County, Gaoligong Shan, Danzhu He drainage, N27.63063 E98.62074, 2700 m, 30.vi.–5.vii.2000, 1 ♂, D. H. Kavanaugh, C. E. Griswold, H.-B. Liang, D. Ubick & D.-Z. Dong leg. (IZAS); Deqen, Weixi, Dewei Line right trib. of Mekong R. W. of Ye Se Eli vill., 27°40'45"N 98°56'50"E, 2520 m, 18.vii.2016, 1 ♂, Belousov, Kabak & Davidian leg. (PRCS); Deqen, Weixi, Dewei Line right trib. of Mekong R. W. of Ye Se Eli vill., 27°41'03"N 98°56'39"E, 2305 m, 17.vii.2016, 1 ♀, Belousov, Kabak & Davidian leg. (PRCS).

**Diagnosis.** **Colouration.** Head and pronotum orange; scutellum dark brown; elytra yellow with large median rhomboidal black spot with irregular margins, apical process reaching scutellum, lateral margin black in anterior half of elytra and connected with rhomboidal spot, extreme elytral suture pale, epipleura yellow. Antennae black except for brownish antennomere I. Legs with pale coxae and trochanters, femora brownish, tibiae and tarsi brownish black. Ventral side: prosternum orange, meso- and metasternum brown, abdomen brown with darkened median parts of ventrites I–IV.

**Body length.** ♂♂: 9.0–9.2 mm, ♀: 10.0 mm (♂♀: 8.4–11.0 mm based on the original description).

**Male** (Figs 83–85). Antennae 0.86 times as long as body. Pronotum 1.52 times as wide as long, lustrous, impunctate, anterior margin slightly concave with complete well visible border, lateral margins parallel in basal two thirds, convergent in anterior third. Posterior margin of abdominal ventrite IV with small V-shaped incision, surface around incision impressed and oblique. Last abdominal ventrite with longitudinal impression narrower in middle part. Pygidium with distinct keel. Metatibial spur absent.

**Aedeagus** (Fig. 109). Median lobe of aedeagus 4.67 times as long as wide; apical fifth narrower, parallel, median lobe widest before middle, slightly convergent basally. Lateral view: median lobe moderately bent throughout whole length; lateral elevation triangular with rounded apex, placed in anterior 2/5 of aedeagus length. Dorsal process 7.28 times as long as wide, 0.70 times as long as median lobe; narrow, subparallel, widest in apical part, slightly convergent basally, apex sharp, triangular. Lateral view: dorsal process slender and regularly bent, ventral side of apical part with keel with irregular denticulation.

**Female** (Fig. 86). Metatibial spur absent. Sternite VIII transversely oval with shallow emargination in middle of posterior margin, surface with shallow U-shaped impression in middle of posterior part, with asymmetrically placed two pairs of long setae; tignum asymmetrical, slightly oblique and placed more left, 0.68 as long as sternite VIII (Fig. 126). Spermatheca with well developed transversely oval nodulus, cornu nearly circular, gradually narrowing towards apex, spermathecal duct bent (Fig. 119).

**Differential diagnosis.** *Liroetis humeralis* is unique within the genus in having elytra with large median rhomboidal black spot with irregular margins (Figs 83, 86) (see also drawing in JIANG 1988).

**Distribution.** China: Yunnan (JIANG 1988, present paper).

### *Liroetis lonicernis* Jiang, 1988

(Figs 87–94, 110)

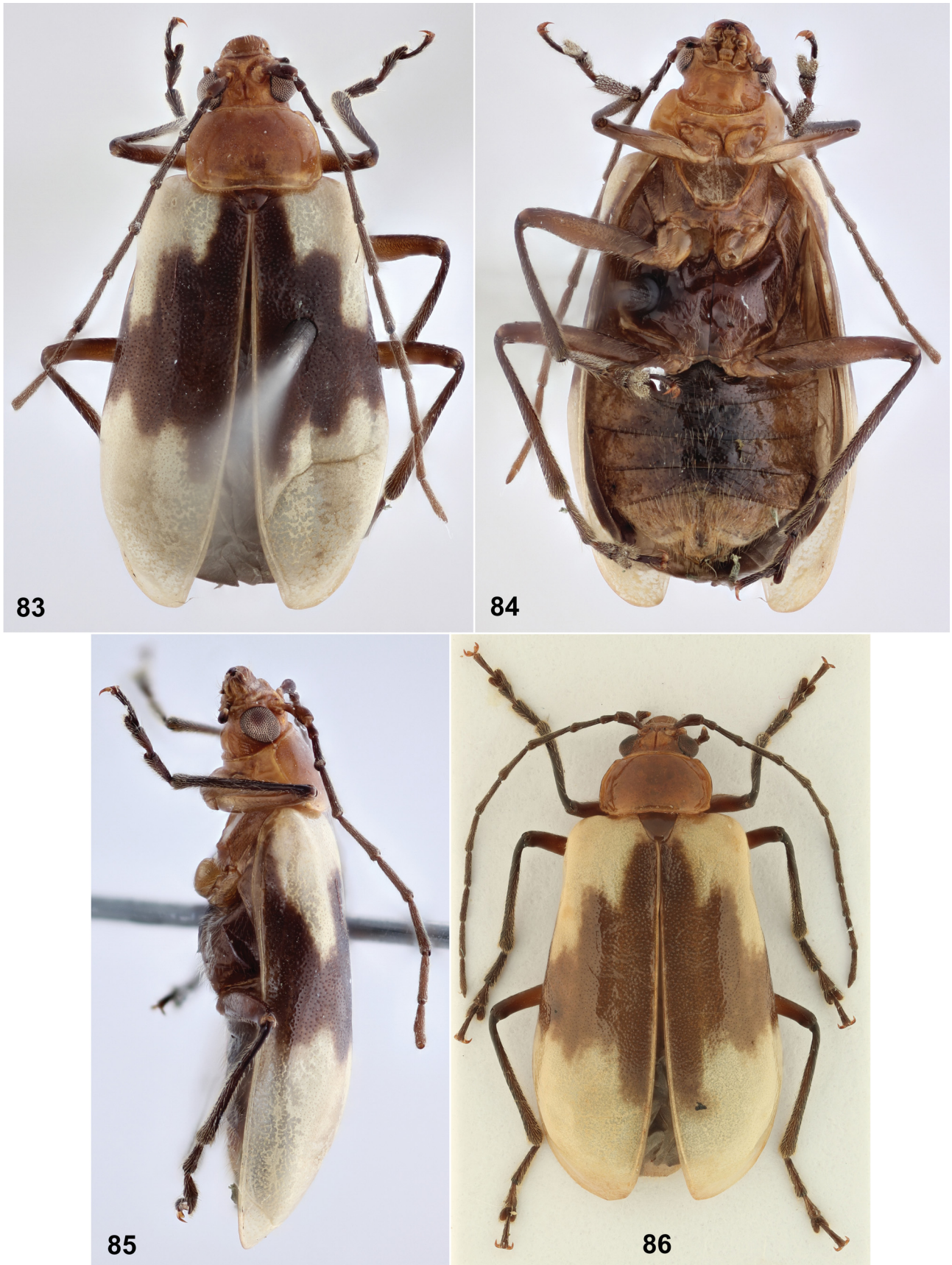
*Liroetis lonicernis* Jiang, 1988: 190, 197 (original description).

*Liroetis lonicernis* JIANG (1992): 658 (noted); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 249 (noted).

**Type locality.** ‘[China:] Yunnan: Weixi Co.’.

**Type material examined.** PARATYPES: 1 ♀ (Figs 91–94), ‘[Yunnan, Weixi, Pantiange / 2900 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1981.VII.21. Collector Shu-Yong Wang] [in Chinese, w, combined p and h] // ALLOTYPE [g, p] // IOZ(E)1967847 [w, p] // *L. lonicernis* [w, h]’ (IZAS); 1 ♂ (Figs 87–90), ‘[Yunnan, Weixi, Pantiange / 2980 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1981.VII.20. Collector Shu-Yong Wang] [in Chinese,





Figs 83–86. *Liroetis humeralis* Jiang, 1988. 83–86. Male, 9.3 mm. 83 – dorsal view; 84 – ventral view; 85 – lateral view. 86 – Female, 10.1 mm, dorsal view.



Figs 87–94. *Liroetis lonicernis* Jiang, 1988. 87–90 – Male, paratype (9.4 mm). 87 – dorsal view; 88 – ventral view; 89 – head and pronotum; 90 – labels. 91–94 – Female, paratype (9.2 mm). 91 – dorsal view; 92 – ventral view; 93 – head and pronotum; 94 – labels.

w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967848 [w, p] // Liroetis / Lonicernis Jiang 1988 / Det. Jiang Shengqiao [w, p] (IZAS).

**Diagnosis.** *Colouration.* Head and pronotum brownish orange, scutellum, elytra and underside pale brown; antennae dark brown; legs pale brown with tibiae and tarsi black.

*Body length.* ♂: 9.4 mm, ♀: 9.2 mm (♂♀: 8.5–11.0 mm based on the original description).

*Male* (Figs 87–89). Pronotum 1.59 times as wide as long, lustrous, impunctate, anterior margin slightly concave with complete well visible border, lateral margins parallel in basal two thirds, convergent in anterior third. Posterior margin of abdominal ventrite IV with small U-shaped incision, surface around incision impressed and oblique. Last abdominal ventrite with longitudinal impression constricted before base. Pygidium pronounced to distinct triangular process. Metatibial spur absent.

*Aedeagus* (Fig. 110). Median lobe of aedeagus 3.44 times as long as wide; gradually convergent apically, apical fifth narrower, parallel, aedeagus gradually widened in second quarter, basal half wide, parallel. Lateral view: median lobe moderately bent; lateral elevation widely triangular, placed in anterior third of aedeagus length. Dorsal process 5.61 times as long as wide, 0.72 times as long as median lobe; subparallel, with slightly sinuate lateral sides, apex sharp, pronounced to long thin process. Lateral view: dorsal process robust and moderately bent, apical half wider, apex pronounced into finger-like process.

*Female* (Figs 91–93). Metatibial spur absent. Genitalia not examined.

**Differential diagnosis.** *Liroetis lonicernis* is very similar to *L. flavipennis* including the presence of a sharp prolongation of the male pygidium. The two taxa differ only in slightly higher/lower position of the lateral elevation on median lobe of aedeagus and in the width of dorsal process (cf. Figs 108 and 110). These differences are, however, so minor that they might be just result of intraspecific variability. Nevertheless, at the moment I treat *L. lonicernis* as a valid species due to lack of additional material to fully evaluate its taxonomic status.

**Host plant.** Caprifoliaceae: *Lonicera* sp. (JIANG 1988).

**Distribution.** China: Yunnan (JIANG 1988).

### *Liroetis medvedevi* nom. nov.

(Figs 95–100, 111, 120, 127)

*Liroetis nigricollis* Medvedev, 2009: 407 (original description). **Junior secondary homonym** of *L. nigricollis* (Jiang, 1990).

*Liroetis nigricollis*: SPRECHER-UEBERSAX (2011): 433 (catalogue).

**Type locality.** 'India, West Bengal, Darjeeling, Tonglu'.

**Type material examined.** HOLOTYPE: ♂ (Figs 95–97), 'INDIA, West Bengal / Darjeeling, Tonglu / 19.–23.v.1998 / 2600–3000m NN / leg. Fabrizi & Ahrens [w, p] // Holotypus / *Liroetis nigricollis* / *L. Medvedev* [r, p]' (NMEG). PARATYPES: 3 ♀♀ (Figs 98–100), 'INDIA, West Bengal / Darjeeling, Tonglu / 19.–23.v.1998 / 2600–3000m NN / leg. Fabrizi & Ahrens [w, p] // PARATYPUS / *Liroetis nigricollis* n. sp. / des. *L. Medvedev* [r, p]' (NMEG).

**Diagnosis.** *Colouration.* Head, scutellum and elytra brown, pronotum brownish black with paler basal part, antennae, legs and underside black, posterior part of last abdominal ventrite pale.

*Body length.* ♂ (holotype): 7.0 mm, ♀♀ (paratypes):

8.7–9.8 mm (♂♀: 7.2–10.0 mm based on the original description).

*Male* (Figs 95, 97). Antennae 0.96 times as long as body. Pronotum convex, 1.53 times as wide as long, lustrous, almost impunctate, anterior margin straight, bordered, anterior angles not projecting. Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with two small subtriangular processes separated by shallow semicircular incision. Last abdominal ventrite with longitudinal impression narrowed subbasally. Metatibial spur absent.

*Aedeagus* (Fig. 111). Median lobe of aedeagus 3.16 times as long as wide; basal quarter wide, subparallel, middle part of median lobe gradually convergent anteriorly, distinctly constricted in anterior quarter, apical part narrow, subparallel with distinct narrow median furrow. Lateral view: median lobe widely rounded; lateral elevation rounded, placed in anterior 2/5 of aedeagus length. Dorsal process 5.00 times as long as wide, 0.65 times as long as median lobe; narrow, widest in middle part, apex narrow and sharp. Lateral view: dorsal process widely regularly rounded, apical part with large U-shaped incision, dorsal branch wide and short, ventral branch long and narrow.

*Female* (Figs 98–99). Metatibial spur absent. Posterior margin of last abdominal ventrite entire. Sternite VIII umbrella-like with shallow emargination in middle of posterior margin, surface without setation; tignum 0.25 times as long as sternite VIII (Fig. 127). Spermatheca with well developed oval nodulus, cornu C-shaped, narrow, gradually narrowing towards sharp apex, spermathecal duct moderately sinuate (Fig. 120).

**Differential diagnosis.** *Liroetis medvedevi* nom. nov. can be distinguished from all other representatives of *L. flavipennis* species-group by brownish black pronotum (pale brown in all other species). Dorsal process of aedeagus in lateral view are bifurcate, dorsal branch wide and short, ventral branch long and narrow, separated with large U-shaped incision (Fig. 111). Similarly modified dorsal process of aedeagus is known also in *L. tibetanus* which, however, has pale brown pronotum and dorsal process of aedeagus with ventral branch shorter than in *L. medvedevi*.

**Distribution.** India: West Bengal, Nepal (MEDVEDEV 2009).

**Comments.** *Liroetis nigricollis* Medvedev, 2009 is a junior secondary homonym of *L. nigricollis* (Jiang, 1990). New substitute name *L. medvedevi* nom. nov. is proposed to replace *L. nigricollis* Medvedev, 2009.

### *Liroetis nepalensis* Chûjô, 1966

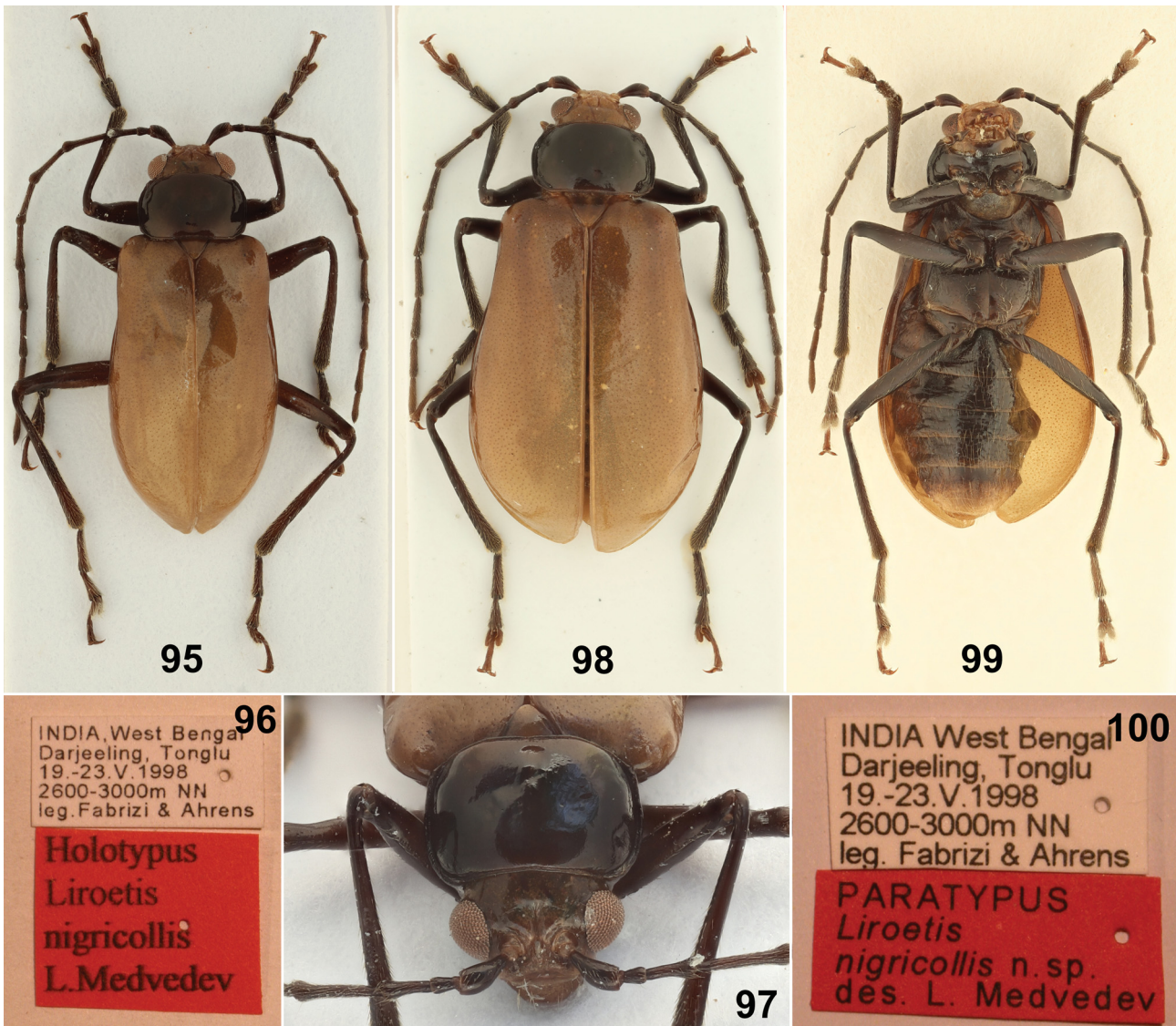
(Figs 101–107, 112, 121, 128)

*Liroetis nepalensis* Chûjô, 1966: 15 (original description).

*Liroetis nepalensis*: KIMOTO (1970): 170 (faunistics); KIMOTO (1977): 364 (faunistics); KIMOTO (1979): 472 (faunistics); MEDVEDEV (1992): 13 (faunistics); BASU (1996): 695 (noted); MEDVEDEV & SPRECHER (1999): 309 (catalogue); SPRECHER-UEBERSAX (1999): 144 (faunistics); KIMOTO (2001): 39 (faunistics); KIMOTO (2005): 56 (catalogue); BEENEN (2010): 478 (catalogue); SPRECHER-UEBERSAX (2011): 433 (catalogue).

*Liroetis nepalensis* ssp. *bhutana* Medvedev, 2009: 408 (original description). **New junior subjective synonym.**

**Type localities.** *Liroetis nepalensis*: 'Chaubas, E. Nepal'; *Liroetis nepalensis* ssp. *bhutana*: 'Bhutan, W. P.: Paro Chiley-La'.



Figs 95–100. *Liroetis medvedevi* nom. nov. (type specimens of *L. nigricollis* Medvedev, 2009). 95–97 – Male, holotype (7.0 mm). 95 – dorsal view; 96 – labels; 97 – head and pronotum. 98–100 – Female, paratype (9.3 mm). 98 – dorsal view; 99 – ventral view; 100 – labels.

**Type material examined.** *Liroetis nepalensis*: HOLOTYPE: ♂ (Figs 101–104), ‘Chaubas 2000m / E. NEPAL / 20.vi.1963 / K. YODA leg. [w, p] // HOLOTYPE [r, h] // *Liroetis / nepalensis* Chûjô [h] / Det. M. CHUJO, 196 [p] 5 [w, h] // [blank yellow label]’ (KUEC).

*Liroetis nepalensis* ssp. *bhutana*: HOLOTYPE: ♂ (Figs 105–107), ‘BHUTAN, W, P: Paro / Chiley-La, 10.–13.VII. / 1990, 3000–3500m / leg. C. Holzschuh [w, p] // HOLOTYPUS [p] / *Liroetis / nepalensis / bhutana* [h] / L. Medvedev [r, p]’ (NMEG). PARATYPES: 1 ♂ 2 ♀♀, ‘BHUTAN, W, P: Paro / Chiley-La, 10.–13.VII. / 1990, 3000–3500m / leg. C. Holzschuh [w, p] // Collection / Naturkunde- / museum Erfurt [y, p] // PARATYPUS / *Liroetis nepalensis / bhutana* ssp. n. / des. L. N. Medvedev, 2008 [r, p]’ (NMEG).

**Additional material examined.** BHUTAN: Thimphu, 16.iv.1972, 1 ♂, Basel expedition leg. (NHMB); same data but 27.iv.1972, 1 ♂ (NHMB); same data but 14.v.1972, 1 ♂ (NHMB). NEPAL: Mechi, 28 km NE of Taplejung, Chittre env., Omje Khola, 27°28′58″N 87°54′45″E, 2300–2400 m, 20.–21.v.2003, 1 ♂, A. Weigel leg. (NMEG); Ganesh Himal, Somathang, 3270 m, 15.vi.1993, 3 ♀♀, M. Hreblay & G. Csorba leg. (HNHM); Solu Khumbu Himal, Lukla, 2800 m, 26.vi.1993, 3 ♀♀, M. Hreblay & G. Csorba leg. (HNHM). The specimens from NHMB were also published by KIMOTO (1977: 364).

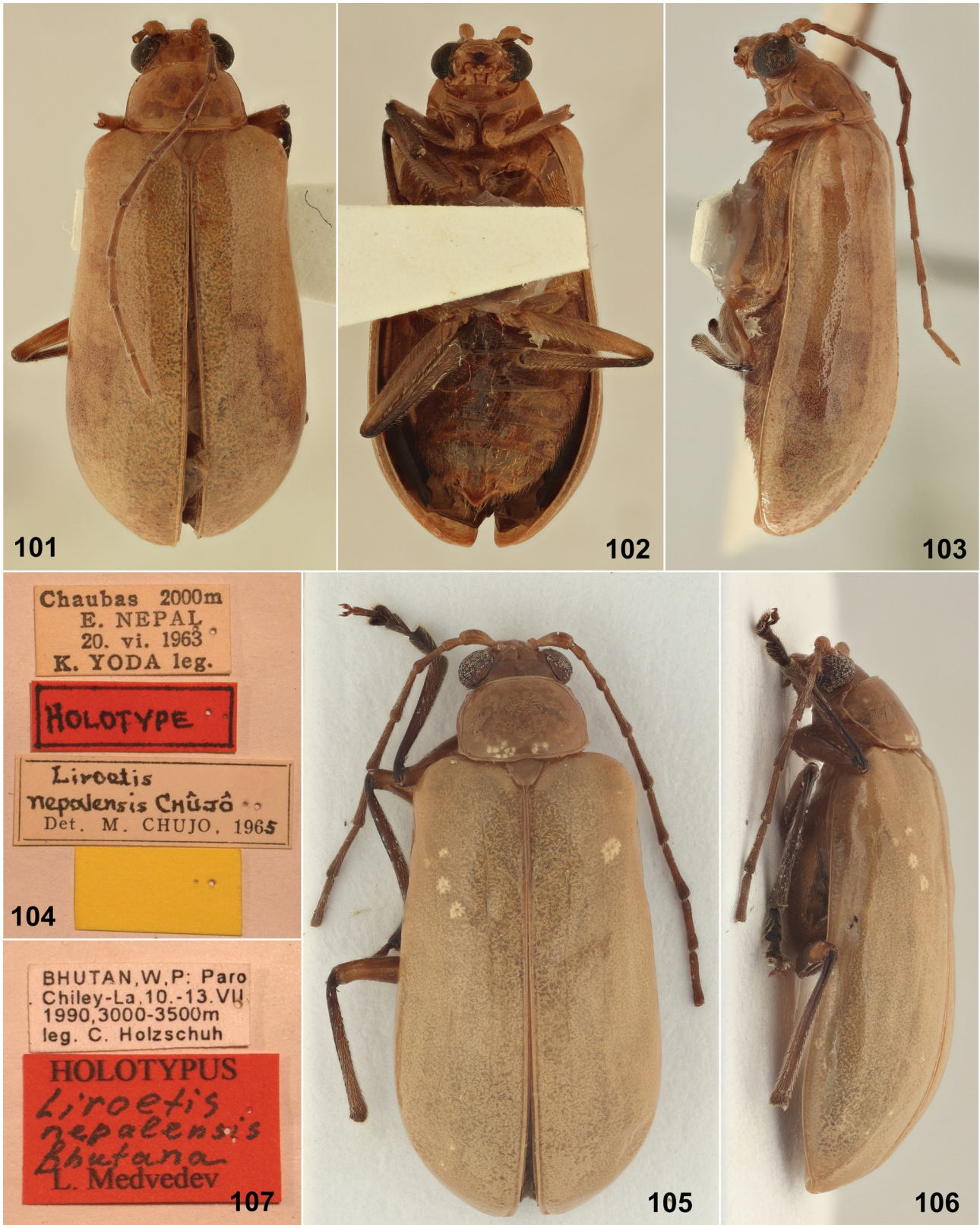
**Diagnosis.** *Colouration.* Body pale brown, apices of

mandibles, tibiae and tarsi black (sometimes tibiae paler, darkened gradually towards base).

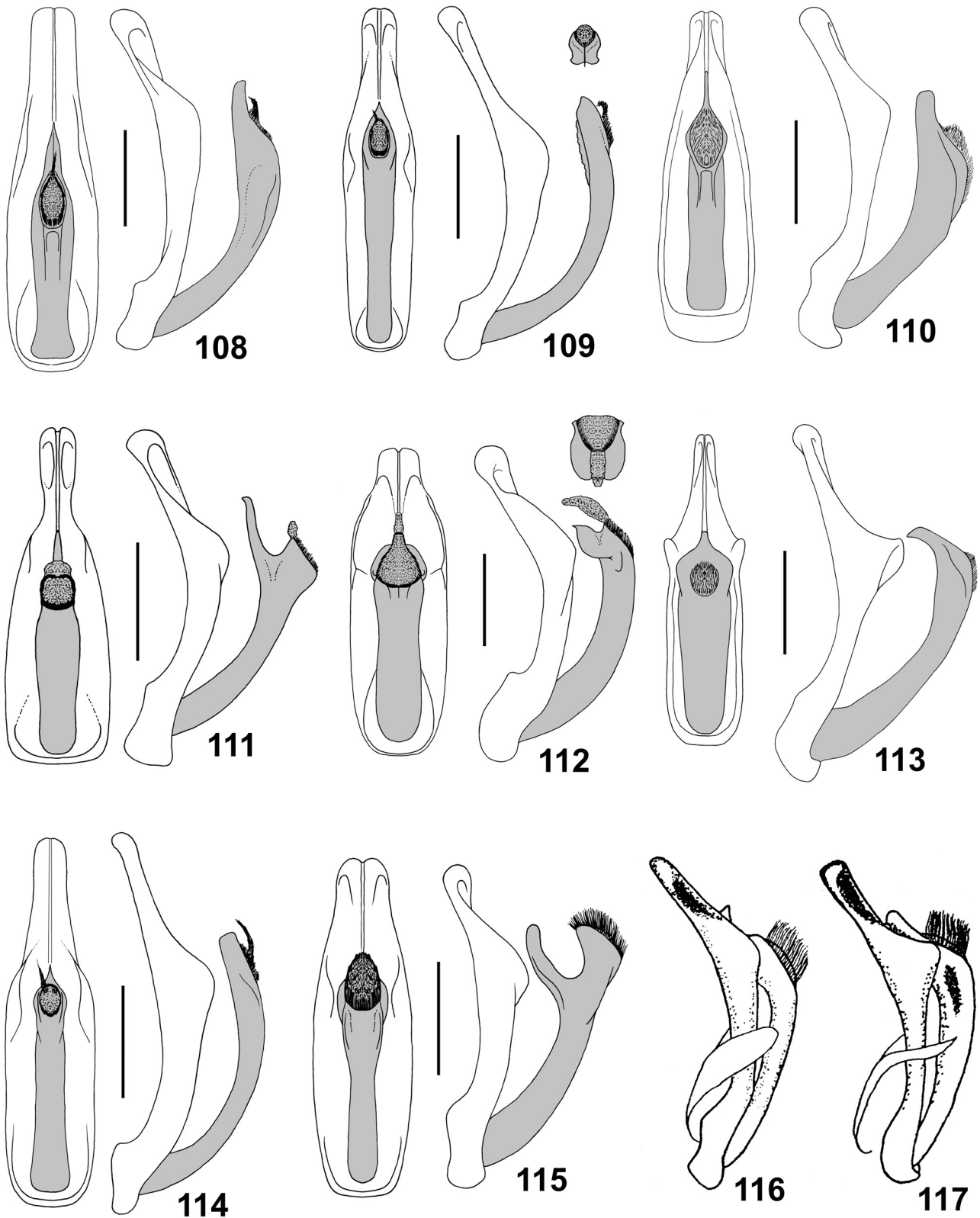
*Body length.* ♂♂: 8.5–9.6 mm, ♀♀: 10.8–11.6 mm.

*Male* (Figs 101–103). Antennae 0.86 times as long as body. Pronotum 1.44 times as wide as long, lustrous, impunctate, anterior margin slightly concave with complete well visible border, lateral margins parallel in basal two thirds, rounded and convergent in anterior third. Posterior margin of abdominal ventrite IV obliquely impressed with small U-shaped incision in middle. Last abdominal ventrite with longitudinal parallel impression slightly widened at base. Metatibial spur absent.

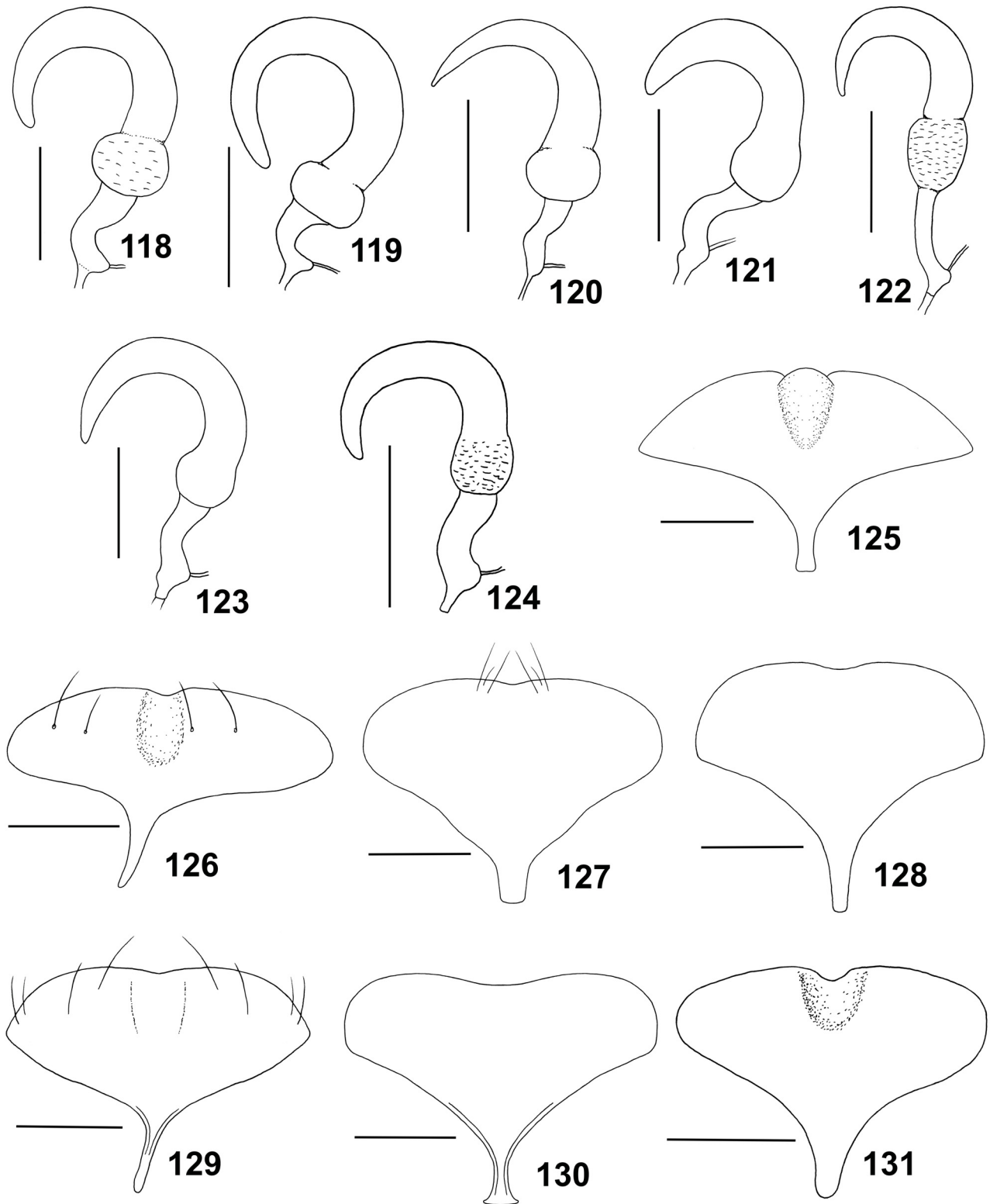
*Aedeagus* (Fig. 112). Median lobe of aedeagus 3.22 times as long as wide; basal 3/5 wide, subparallel, apical fifth ca. 0.5 times as wide as basal part, subapical fifth convergent; in lateral view moderately rounded, lateral elevation widely triangular, placed in 2/5 of aedeagus length. Dorsal process robust, 4.30 times as long as wide, 0.71 times as long as median lobe; subparallel, slightly



Figs 101–107. *Liroetis nepalensis* Chûjô, 1966. 101–104 – Male, holotype (9.6 mm). 101 – dorsal view; 102 – ventral view; 103 – lateral view; 104 – labels. 105–107 – Male, holotype of *L. nepalensis bhutana* Medvedev, 2009 (9.3 mm). 105 – dorsal view; 106 – lateral view; 107 – labels.



Figs 108–117. Aedeagus of *Liroetis*, dorsal and lateral views. 108 – *L. flavipennis* Bryant, 1954; 109 – *L. humeralis* Jiang, 1988; 110 – *L. lonicernis* Jiang, 1988; 111 – *L. medvedevi* nom. nov.; 112 – *L. nepalensis* Chūjō, 1966; 113 – *L. prominens* Jiang, 1988; 114 – *L. sichuanensis* Jiang, 1988; 115 – *L. tibetanus* Jiang, 1988; 116 – *L. tibialis* Jiang, 1988; 117 – *L. zhongdianicus* Jiang, 1988. Figs 116–117 reproduced from JIANG (1988). Scale 0.5 mm.



Figs 118–131. Spermatheca (Figs 118–124) and sternite VII (Figs 125–131) of *Liroetis*. 118, 125 – *L. flavipennis* Bryant, 1954; 119, 126 – *L. humeralis* Jiang, 1988; 120, 127 – *L. medvedevi* nom. nov.; 121, 128 – *L. nepalensis* Chûjô, 1966; 122, 129 – *L. sichuanensis* Jiang, 1988; 123, 130 – *L. tibetanus* Jiang, 1988; 124, 131 – *L. zhongdianicus* Jiang, 1988. Scales 0.25 mm for Figs 118–124, 0.5 mm for Figs 125–131.

concave in middle part; apex surrounded by collar-like folded plate. Lateral view: dorsal process relatively wide, regularly rounded.

**Female.** Pygidium with shallow subtriangular incision. Sternite VIII transversely oval with shallow emargination in middle of posterior margin, surface with two groups of three setae placed close to posterior emargination; tignum with very wide base and short narrow apex, 0.68 times as long as sternite VIII (Fig. 128). Spermatheca with poorly developed but visible nodulus, cornu C-shaped, spermathecal duct moderately bent (Fig. 121).

**Differential diagnosis.** The males of *Liroetis nepalensis* have triangular but not prolonged pygidium. Similar structure of male pygidium can be found also in *L. tibetanus*. Both species can be reliably distinguished only based on the structure of aedeagus. In *L. nepalensis* the apex of dorsal process of aedeagus is surrounded by collar-like folded plate (Fig. 112). Dorsal process of aedeagus of *L. tibetanus* bears long ventral branch (Fig. 115). The females of both species are externally indistinguishable.

**Distribution.** Bhutan (KIMOTO 1977, MEDVEDEV 2009, present paper), Nepal (CHÛJÔ 1966; KIMOTO 1970, 1979, 2001; MEDVEDEV 1992; SPRECHER-UEBERSAX 1999; present paper), India: West Bengal (KIMOTO 1979).

**Comments.** MEDVEDEV (2009) compared his *Liroetis nepalensis* ssp. *bhutana* only with material of the nominotypical subspecies. However, based on the depicted aedeagus the species was misidentified and belongs in fact to *L. tibetanus*. I had the possibility to examine the holotypes of both *L. nepalensis* and *L. nepalensis* ssp. *bhutana* and they have the same morphology of the aedeagi therefore I consider them conspecific. Most of the specimens from Nepal identified in various collections as *L. nepalensis* belong to *L. tibetanus*.

Based on the drawing of *L. nepalensis* aedeagus provided by TAKIZAWA (1990) the record from Sikkim certainly belongs to another species of *Liroetis* but its proper identification is impossible without examination of the respective material.

### *Liroetis prominensis* Jiang, 1988

(Figs 113, 132–139)

*Liroetis prominensis* Jiang, 1988: 187, 196 (original description).

*Liroetis prominensis*: BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 249 (noted).

**Type locality.** '[China:] Sichuan: Mt. Emei'.

**Type material examined.** PARATYPES: 1 ♂ (Figs 137–139), '[Sichuan, Mt. Emei, 2100 m / 1955.VI.24 / Buxike] [in Chinese, w, combined p and h] // Омейшань, 2100 м. / Сычуань 24 У1 1955 / Буцик [in Russian, w, combined p and h] // PARATYPE [y, p] // [No. 16] [in Chinese, w, h] // IOZ(E)1967850 [w, p] // *Liroetis / prominensis* Jiang 1988 / Det. Jiang Shengqiao [w, p]' (IZAS); 1 ♂ (Figs 132–136), '[Sichuan, Mt. Emei, Xixiangchi / 1800–2000 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1957.VII.12 / Collector Fu-Xing Zhu] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967849 [w, p] // *L. prominensis* [w, h]' (IZAS).

**Diagnosis.** *Colouration.* Body pale brown, antennae black, legs pale brown with tibiae and tarsi black.

**Body length.** ♂♂: 9.0–9.2 mm (♀♀: 8.6–11.2 mm based on the original description).

**Male** (Figs 132–135). Pronotum 1.34 times as wide as

long, lustrous, impunctate, anterior margin nearly straight with complete well visible border, lateral margins parallel in basal two thirds, convergent in anterior third. Posterior margin of abdominal ventrite IV with small U-shaped incision, surface around incision impressed. Metatibial spur absent.

**Aedeagus** (Fig. 113). Median lobe of aedeagus 3.71 times as long as wide; apical third convergent with concave margins, with distinct narrow median furrow; basal two thirds parallel. Lateral view: median lobe widely rounded in basal half, almost straight in apical half; lateral elevation triangular, placed in anterior 1/3 of aedeagus length. Dorsal process robust, 3.65 times as long as wide, 0.64 times as long as median lobe, moderately convergent basally, with small constriction subapically; apex pointed to short triangular tip; setose plate relatively small, rounded. Lateral view: dorsal process moderately regularly rounded, narrower in middle part, with hook-like apex.

**Female.** Not examined.

**Differential diagnosis.** *Liroetis prominensis* is very similar in habitus to other species of *L. flavipennis* species-group with pale coloured dorsum. Aedeagus of *L. prominensis* is characterised by high triangular lateral elevations placed in anterior third of its length and which are prominent in both, lateral and dorsal, views (Fig. 113). In other species of this group with pale coloured dorsum the lateral elevations are lower and not prominent in dorsal view (cf. Figs 108–118).

**Distribution.** China: Sichuan (JIANG 1988).

### *Liroetis sichuanensis* Jiang, 1988

(Figs 114, 122, 129, 140–147)

*Liroetis sichuanensis* Jiang, 1988: 188, 196 (original description).

*Liroetis sichuanensis*: JIANG (1992): 657 (noted); WANG & YANG (2006): 165 (faunistics); ZHANG & YANG (2007): 301 (faunistics); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 249 (noted).

**Type locality.** '[China:] Sichuan: Wolong'.

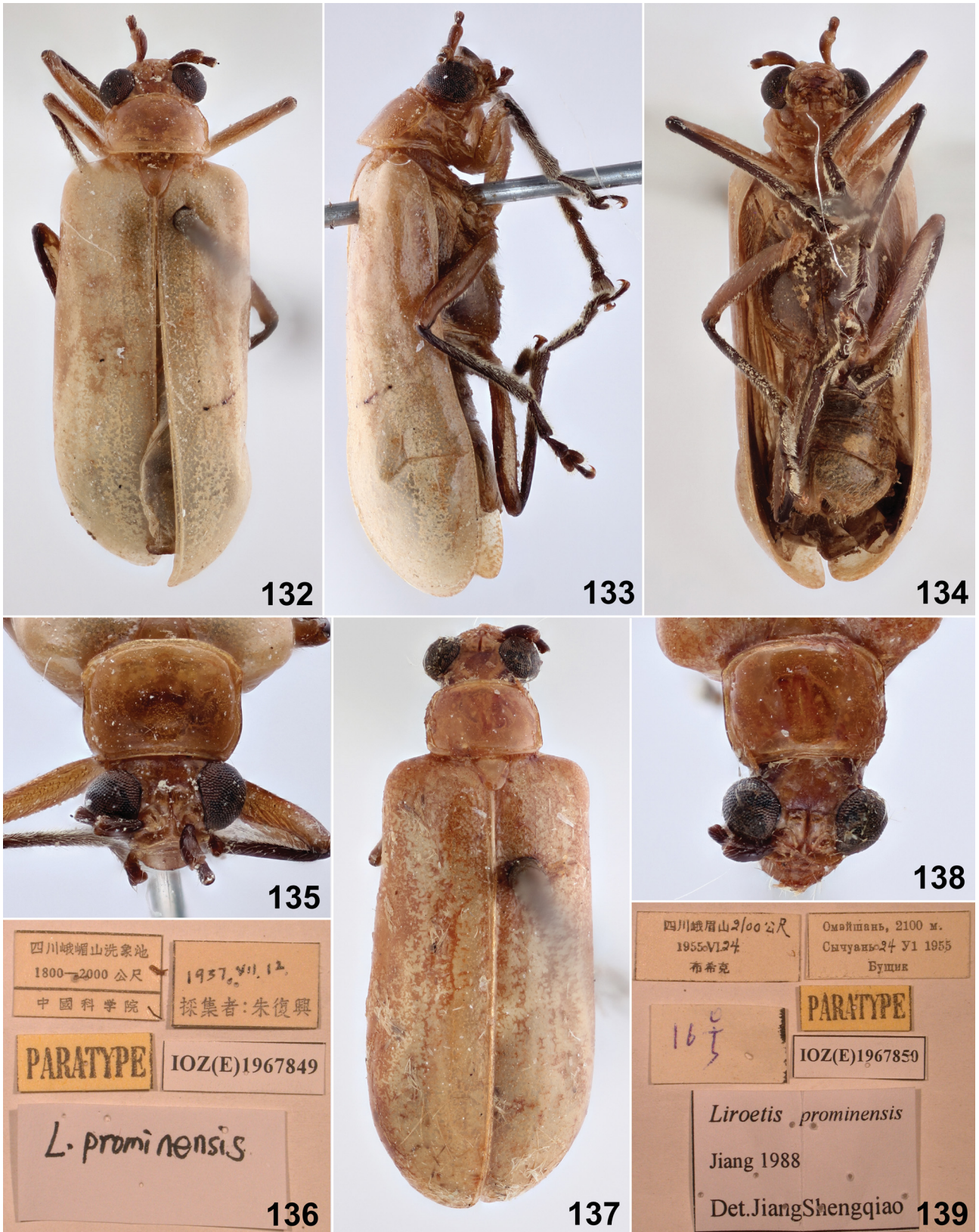
**Type material examined.** PARATYPE: 1 ♀ (Figs 140–144), '[Sichuan, Nanping, Jiuzhaigou / 2300 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1983.IX.6 / Collector Shu-Yong Wang] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967852 [w, p] // *Liroetis / sichuanensis* Jiang 1988 / Det. Jiang Shengqiao [w, p]' (IZAS). **Additional material examined.** CHINA: GUIZHOU: Leishan Co., SE Kli, NE Leishan, Leigong Shan, E slope, env. of pass between Leishan and Fangxiang, 26°22.74'N 108°12.99'E, 1700–1800 m, 14.–24.vi.2001, 1 ♂, H. Schillhammer leg. (NHMW); Leigong, Mt. Leigong, 2.vii.1988, 1 ♂, S.-Y. Wang leg. (IZAS). SHAANXI: Taibashan mts., Houshensi, 33°53'N 107°49'E, 1600 m, ix.1999, 1 ♂ (NMPC). SICHUAN: Jintang, Jiajin Shan, 30°22'451"N 102°16'644"E, 2300 m, 15.vii.2004, 1 ♂, M. Janata leg. (BMNH); Jintang, Jiajin Shan, 30°22'451"N 102°16'644"E, 3400 m, 6.vii.2004, 1 ♂, M. Janata leg. (BMNH); Liziping env., near Shimien, 200 km SW of Ya'an, 27.vi.–3.vii.1991, 1 ♂ 1 ♀, Z. Kejval leg. (JBCB); Gongga Shan Mts., 29°41'N 101°58'E, 2850 m, 14.–19.vi.1999, 3 ♂♂ 2 ♀♀, V. Siniaev & A. Plutenko leg. (JBCB).

**Diagnosis.** *Colouration.* Head and pronotum brownish orange, scutellum, elytra and underside pale brown; antennae dark brown to black; legs pale brown with tibiae and tarsi black.

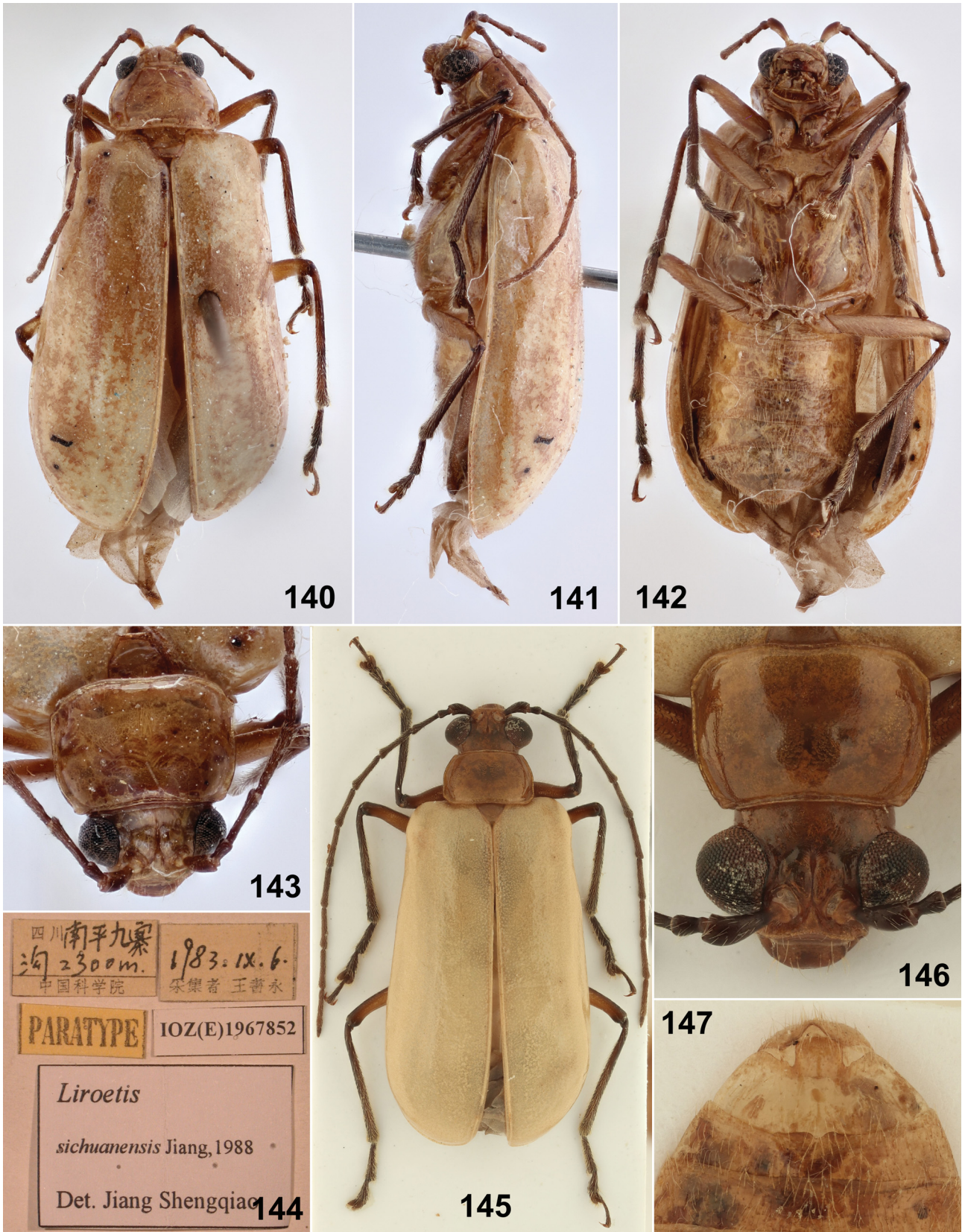
**Body length.** ♂♂: 8.3–9.6 mm, ♀♀: 9.5–11.0 mm.

**Male** (Figs 145–147). Antennae 0.83 times as long as body. Pronotum 1.42 times as wide as long, lustrous, impunctate, anterior margin slightly concave with complete well visible border, lateral margins parallel in basal two





Figs 132–139. *Liroetis prominensis* Jiang, 1988. 132–136 – Male, paratype (9.2 mm). 132 – dorsal view; 133 – lateral view; 134 – ventral view; 135 – head and pronotum; 136 – labels. 137–139 – Male, paratype (9.0 mm). 137 – dorsal view; 138 – head and pronotum; 139 – labels.



Figs 140–147. *Liroetis sichuanensis* Jiang, 1988. 140–144 – Female, paratype (8.7 mm). 140 – dorsal view; 141 – lateral view; 142 – ventral view; 143 – head and pronotum; 144 – labels. 145–147 – Male (8.2 mm). 145 – dorsal view; 146 – head and pronotum; 147 – apex of abdomen.

thirds, rounded and convergent in anterior third. Posterior margin of abdominal ventrite IV with small V-shaped incision, surface around incision impressed and oblique. Last abdominal ventrite with longitudinal impression narrower in middle part. Metatibial spur absent.

**Aedeagus** (Fig. 114). Median lobe of aedeagus 4.11 times as long as wide; apical third slightly convergent, with distinct narrow median furrow; basal two thirds parallel. Lateral view: median lobe straight in apical two thirds, rounded in basal third; lateral elevation triangular with rounded apex, placed in anterior third of aedeagus length. Dorsal process slender, 8.36 times as long as wide, 0.62 times as long as median lobe, subparallel, slightly constricted subapically, apex pointed to short sharp triangular tip. Lateral view: dorsal process moderately regularly rounded.

**Female** (Figs 140–143). Metatibial spur absent. Posterior margin of last abdominal ventrite entire. Sternite VIII umbrella-like, with eight setae along posterior margin, middle part of posterior margin shallowly concave; tignum short, 0.5 times as long as sternite VIII, oblique, directed left (Fig. 129). Spermatheca with well developed subglobular nodulus covered with fine wrinkles, cornu C-shaped, gradually narrowed towards apex, spermathecal duct slightly bent (Fig. 122).

**Differential diagnosis.** *Liroetis sichuanensis* is very similar to other species of *L. flavipennis* species-group with pale coloured dorsum. Dorsal process of the aedeagus of *L. sichuanensis* is, in lateral view, of the same width in its entire length, which distinguishes it from *L. flavipennis*, *L. lonicernis*, *L. prominens*, *L. tibialis* and *L. zhongdianicus* which has the dorsal process widened subapically and apex narrowed (cf. Figs 108, 110, 113–114, 116–117).

**Distribution.** China: Gansu (WANG & YANG 2006), Guizhou (ZHANG & YANG 2007, present paper), Shaanxi (YANG et al. 2015, present paper), Sichuan (JIANG 1988, present paper).

### *Liroetis tibetanus* Jiang, 1988

(Figs 115, 123, 130, 148–154)

*Liroetis tibetana* Jiang, 1988: 191, 197 (original description).

*Liroetis tibetana*: BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 250 (noted).

**Type locality.** [China:] Xizang: Nyalam Co.?

**Type material examined.** PARATYPES: 1 ♀, [Xizang, Nielamu / Zhangmu 2250 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1974.V.12 / Collector Xue-Zhong Zhang] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967854 [w, p] // *Liroetis tibetana* Jiang 1988 / Det. Jiang Shengqiao [w, p] (IZAS); 1 ♂ (Figs 148–151), [Xizang, Nielamu / Zhangmu 2250 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1974.IV.23 / Collector Xue-Zhong Zhang] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967853 [w, p] // *Liroetis tibetana* [w, h] (IZAS).

**Additional material examined.** NEPAL: Chitre, Ghar Khola, 2400 m, 26.–31.v.1984, 1 ♂, C. J. Rai leg. (NHMB); Kathmandu distr., Kakani, 6800 ft, at light, 1.–2.vi.1983, 1 ♂ 1 ♀, M. J. D. Brendell leg. (BMNH); Kathmandu distr., Phulchoki, 8800 ft, at light, 27.–31.v.1983, 5 ♂♂ 2 ♀♀, M. J. D. Brendell leg. (BMNH); Kathmandu distr., Phulchoki Mt., 2300–2730, 14.v.2000, 3 ♂♂ 1 ♀, Konstantinov, Lingafelter & Volkovitch leg. (USNM); Chautara distr., Nauling Lekh, 9500 ft, at light, 11.–20.vi.1983, 2 ♂♂ 1 ♀, M. J. D. Brendell leg. (BMNH). INDIA: Arunachal Pradesh, Tawang Monastery env., 27°35'N 91°51'E, 2700–3000 m, 19.–27.v.2004, 1 ♂, R. Businský leg. (JBCB).

**Diagnosis.** **Colouration.** Head and pronotum brownish orange, scutellum, elytra and underside pale brown; antennae dark brown to black; legs pale brown with tibiae and tarsi black (sometimes tibiae gradually paler apically).

**Body length.** ♂♂: 9.1–10.6 mm, ♀♀: 9.2–11.6 mm (♂♀: 8.5–12.0 mm based on the original description).

**Male** (Figs 148–153). Antennae 0.9 times as long as body. Pronotum 1.35 times as wide as long, lustrous, impunctate, anterior margin bordered, lateral margins slightly sinuate, anterior angles not projecting. Posterior margin of abdominal ventrite IV obliquely impressed in middle, with two small triangular processes separated by shallow semicircular incision. Last abdominal ventrite with deep longitudinal impression. Pygidium without prolonged sharp apex. Metatibial spur absent.

**Aedeagus** (Fig. 115). Median lobe of aedeagus 3.48 times as long as wide; apical sixth parallel, rest wider, regularly widely rounded, widest in middle part. Lateral view: median lobe almost straight in middle part, apical and basal quarters slightly bent; lateral elevation irregularly triangular with rounded apex, placed in anterior third of aedeagus length. Dorsal process subparallel, 5.88 times as long as wide, 0.66 times as long as aedeagus, widest subapically, with hook-like ventral branch, in dorsal view ventral branch slightly wider than dorsal part. Lateral view: dorsal process moderately bent, apex extended; ventral branch starting in apical third, slightly bent up.

**Female** (Fig. 154). Metatibial spur absent. Posterior margin of last abdominal ventrite entire. Sternite VIII transverse, without setation, middle part of posterior margin shallowly concave, lateral margins convergent and slightly concave; tignum short, 0.25 times as long as sternite VIII with apex slightly wider (Fig. 130). Spermatheca with poorly developed subglobular nodulus, cornu long, C-shaped, spermathecal duct sinuated (Fig. 123).

**Differential diagnosis.** *Liroetis tibetanus* is very similar to *L. nepalensis*. Both species share triangular but not prolonged pygidium in males and can be distinguished only based on the structure of aedeagus. Dorsal process of aedeagus of *L. tibetanus* bears long ventral branch (Fig. 115), while *L. nepalensis* has the apex of dorsal process surrounded by collar-like folded plate (Fig. 112). The females of both species are externally indistinguishable.

**Distribution.** China: Xizang (JIANG 1988), Nepal (present paper), India: Arunachal Pradesh (present paper).

### *Liroetis tibialis* Jiang, 1988

(Fig. 116)

*Liroetis tibialis* Jiang, 1988: 190, 197 (original description).

*Liroetis tibialis*: JIANG (1992): 658 (noted); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 250 (noted).

**Type locality.** [China:] Yunnan: Lushui Co.?

**Type material.** Not examined.

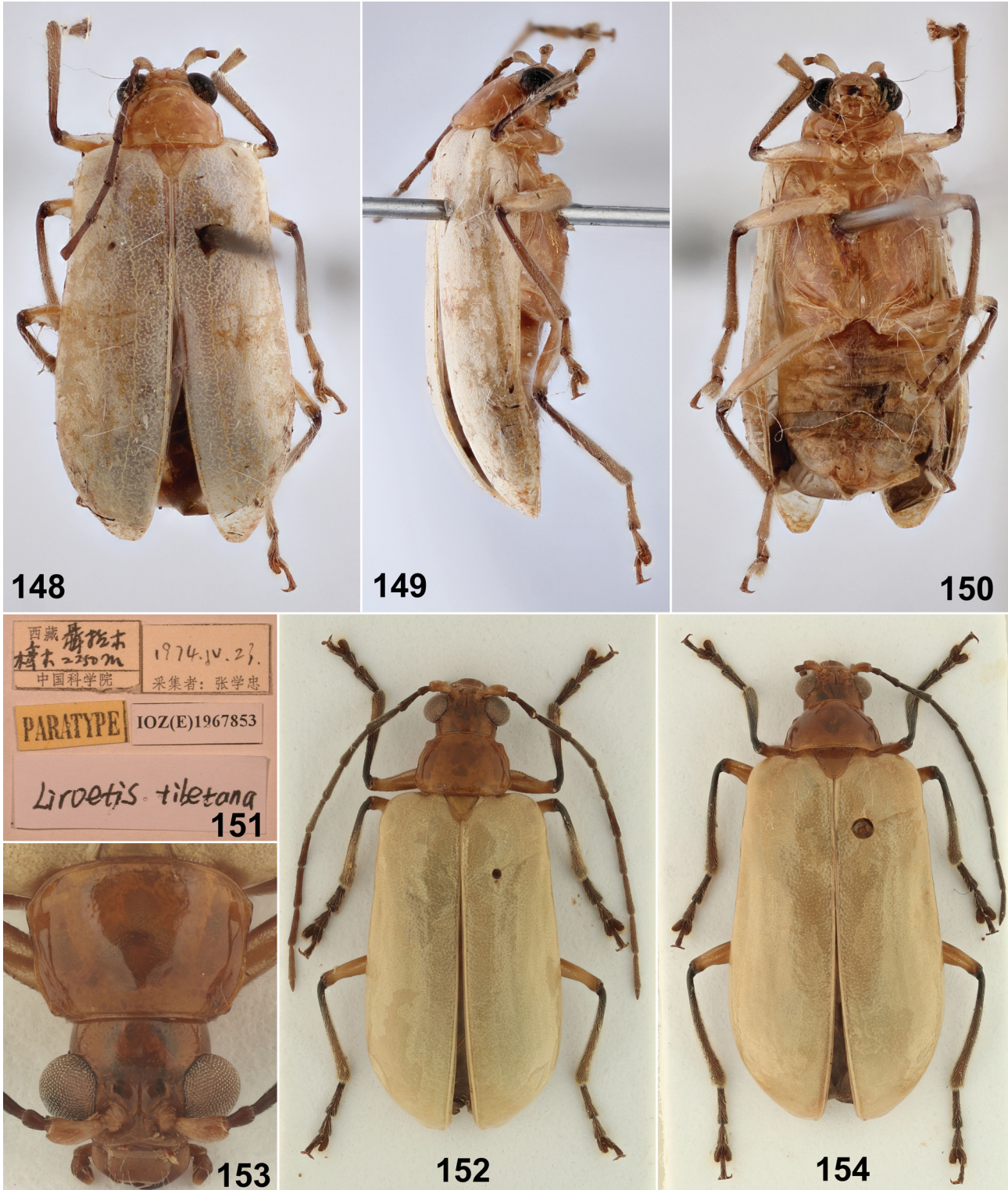
**Diagnosis.** **Body length.** ♂♂: 9.0 mm.

**Aedeagus** in lateral view (Fig. 116): Median lobe slightly regularly bent in apical two thirds; lateral elevation low, placed in anterior third of aedeagus length. Dorsal process in lateral view: basal two thirds narrow, almost straight, apical third wider, apex pronounced to hook-like process directed upwards.

**Differential diagnosis.** I have not have an oportunity to study the type material of *Liroetis tibialis* yet. Based on the original description, *L. tibialis* is very similar to *L. flavipennis*. Both species show only slight differences in the

structure of aedeagus (cf. Figs 108, 116). At the moment, I treat *L. tibialis* as a valid species; however, it might prove to be a synonym of *L. flavipennis* in the future.

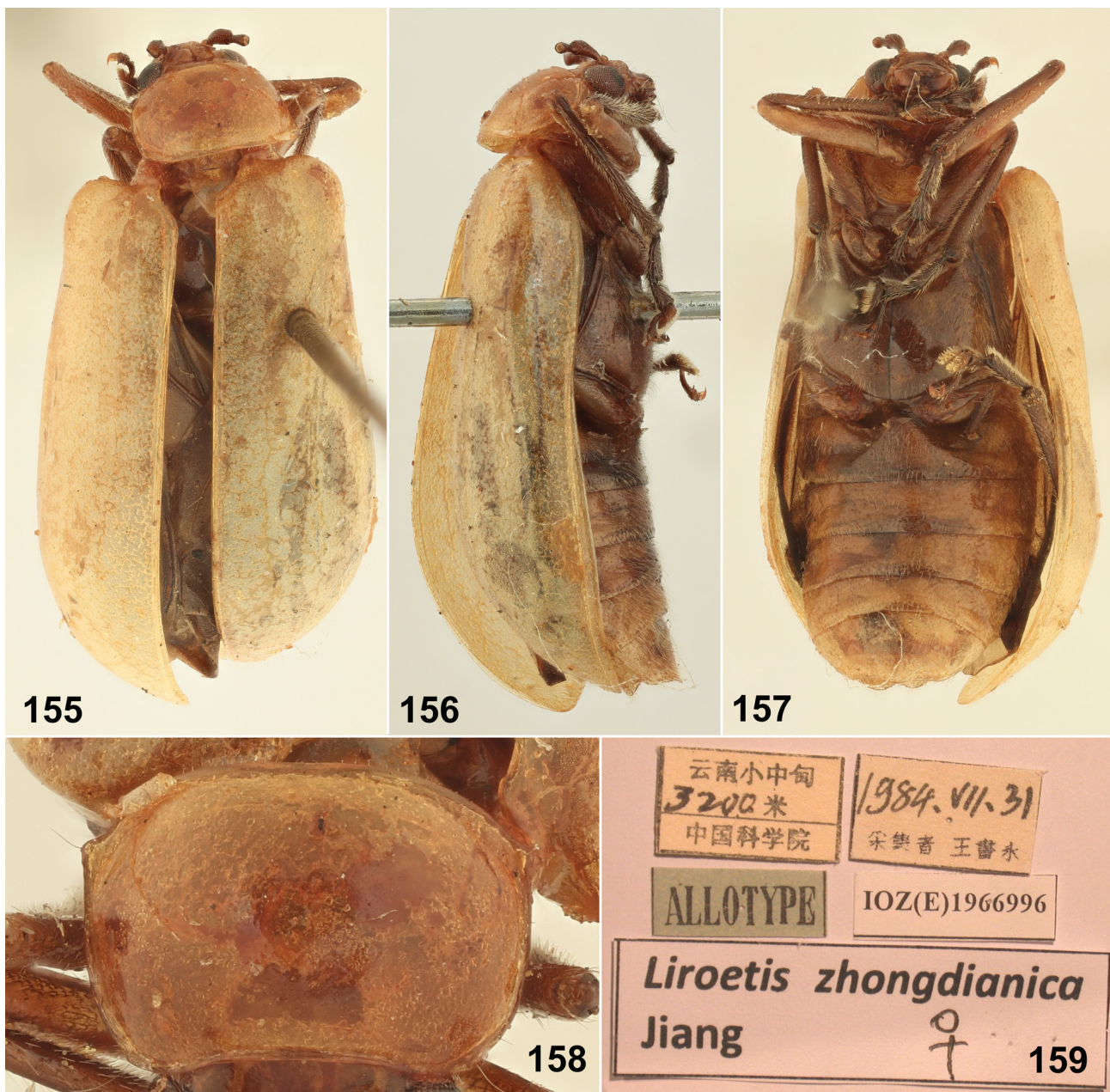
**Distribution.** China: Yunnan (JIANG 1988).



Figs 148–154. *Liroetis tibetanus* Jiang, 1988. 148–151 – Male, paratype (9.6 mm). 148 – dorsal view; 149 – lateral view; 150 – ventral view; 151 – labels. 152–153 – Male (10.5 mm). 152 – dorsal view; 153 – head and pronotum. 154 – Female (11.6 mm), dorsal view.

***Liroetis zhongdianicus* Jiang, 1988**

(Figs 117, 124, 131, 155–159)

*Liroetis zhongdianica* Jiang, 1988: 189, 196 (original description).*Liroetis zhongdianica*: JIANG (1992): 658 (noted); BEENEN (2010): 479 (catalogue); YANG et al. (2015): 247 (key), 250 (noted).**Type locality.** '[China:] Yunnan: Xiaozhongdian'.**Type material examined.** PARATYPE: 1 ♀ (Figs 155–159), '[Yunnan, Xiaozhongdian / 3200 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1984.VII.31. / Collector Shu-Yong Wang] [in Chinese, w, combined p and h] // ALLOTYPE [g, p] // IOZ(E)1966996 [w, p] // *Liroetis zhongdianica* / Jiang [p] ♀ [w, h]' (IZAS).**Diagnosis.** *Colouration.* Dorsal side pale brown, ventral side dark brown with paler abdomen. Legs dark brown with paler profemora. Antennae brown.*Body length.* ♀: 8.5 mm (♂♀: 8.0–9.0 mm based on the original description).*Male.* Not examined.*Aedeagus* in lateral view (Fig. 117). Median lobe slightly regularly bent in apical two thirds; lateral elevation high, placed at anterior third of aedeagus length. Dorsal process in lateral view with basal part narrow, gradually wider apically, apex pronounced to finger-like process.*Female* (Figs 155–158). Pronotum 1.43 times as wide as long, distinctly convex, lustrous, impunctate, anterior margin concave, with well visible thin border, lateral margins widest in anterior third, straight and convergent posteriorly, rounded and convergent anteriorly, posteriorFigs 155–159. *Liroetis zhongdianicus* Jiang, 1988, female, paratype (8.5 mm). 155 – dorsal view; 156 – lateral view; 157 – ventral view; 158 – pronotum; 159 – labels.

margin widely rounded. Metatibial spur absent. Pygidium with wide V-shaped incision. Sternite VIII transversely oval, posterior margin with shallow emargination in middle, surface glabrous, with U-shaped impression in middle of posterior half, tignum subtriangular, short, 0.60 times as long as sternite VIII (Fig. 131). Spermatheca with poorly developed nodulus covered with fine wrinkles, cornu C-shaped, gradually narrowing towards apex, spermathecal duct distinctly bent (Fig. 124).

**Differential diagnosis.** The only examined specimen is a female paratype in poor condition. Based on the drawing of the aedeagus in lateral view in the original description (Fig. 117), the dorsal process of *Liroetis zhongdianicus* is similar to *L. flavipennis* and *L. lonicernis* but the lateral elevation is slightly higher than in those two species. Posterior margin of sternite VIII in *L. zhongdianicus* has a shallow emargination in the middle (Fig. 131), while there is a small rounded convexity in *L. flavipennis*. At the moment, I treat *L. zhongdianicus* as a valid species; however, examination of the holotype and additional specimens are necessary to fully evaluate its taxonomic status.

**Distribution.** China: Yunnan (JIANG 1988). YANG et al. (2015) listed it also from China: Fujian, Hunan and Zhejiang without mentioning particular specimens.

#### *Liroetis fulvipennis* species-group

**Definition.** Body relatively robust. Pronotum transverse, 1.72–1.85 times as wide as long (except for *L. elongatus* with pronotum 1.37 times as wide as long), with anterior margin unbordered. Antennae 0.67–0.80 times as long as body. Metatibial spur present in males, present or absent in females. Aedeagus large, median lobe with lateral elevation placed in anterior fifth to sixth of median lobe length, middle part of ventral side straight or bisinuate in lateral view. Female sternite VIII with two elevated subtriangular plates, long setae accumulated along posterior and partly inner margins of those plates. Spermatheca without or with poorly developed nodulus.

#### *Liroetis cheni* (Lee, 2016) comb. nov.

(Figs 160–163, 185, 198, 209)

*Siemssenius cheni* Lee, 2016: 368 (original description).

**Type locality.** ‘[Taiwan:] Taitung county, Hsiangyang’.

**Type material examined.** PARATYPE: 1 ♂ (Figs 160–163), ‘Taiwan: Taitung (20427) / Hsiangyang ([in Chinese]) / 20.VI.2011, leg. C.-F. Lee [w, p] // Paratypus / Siemssenius / cheni sp. nov. [p] ♂ [h] / des. C.-F. Lee, 2016 [pink label, p]’ (JBCB).

**Diagnosis.** *Colouration.* Head, scutellum and elytra black. Pronotum and underside yellow. Antennae black with last four antennomeres gradually paler. Legs yellow with apices of femora, tibiae and tarsi black.

*Body length.* ♂: 7.4 mm (♂♀: 8.2–9.6 mm based on the original description).

*Male* (Figs 160–162). Antennae 0.92 times as long as body. Pronotum convex, 1.62 times as wide as long, finely punctate, anterior margin concave, unbordered, posterior margin straight in middle part, oblique laterally, thinly bordered, lateral margins straight and parallel in posterior

two thirds, anterior third rounded and convergent, with wider border. Posterior margin of abdominal ventrite IV with two small transverse triangular processes separated by U-shaped incision. Longitudinal impression on last abdominal ventrite wide, parallel, convergent basally. Protarsomere I elongate subtriangular. Metatibial spur thin.

*Aedeagus* (Fig. 185). Median lobe of aedeagus 2.98 times as long as wide, with apical process slightly divergent, then gradually widened towards base. Lateral view: median lobe straight in middle and apical parts; lateral elevation low, rounded, placed in anterior fifth of aedeagus length. Dorsal process 5.81 times as long as wide, 0.92 times as long as median lobe, with triangular apex, apical part with shallowly emarginated sides. Lateral view: dorsal process very wide in apical half, narrow in basal half.

*Female.* Sternite VIII wide, transversely suboval, posterior margin shallowly emarginated, surface laterally with two elevated plates, long setae accumulated along posterior and inner margins of those plates, tignum short, 0.25 times as long as sternite VIII, slightly asymmetrical to right (Fig. 209). Spermatheca without visible nodulus, cornu C-shaped, apical part longer and narrower than basal part, spermathecal duct sinuate (Fig. 198).

**Differential diagnosis.** *Liroetis cheni* is very close to *L. metallipennis*. Both species differ in the colouration of elytra which are black with metallic tint in *L. cheni* but metallic greenish or purplish bronze in *L. metallipennis*. Aedeagi of both species are very similar (Figs 185, 191).

**Host plant.** Caprifoliaceae: *Lonicera acuminata* Wall. (LEE 2016).

**Distribution.** Taiwan (LEE 2016).

#### *Liroetis elongatus* (Kimoto, 1977) comb. nov.

(Figs 164–171, 186)

*Pseudoliroetis elongata* Kimoto, 1977: 359 (original description).

*Siemssenius elongatus*: KIMOTO (2005): 72 (catalogue); ZHANG et al. (2008b): 127 (key); BEENEN (2010): 488 (catalogue).

**Type locality.** ‘[Bhutan:] Gidaphu’.

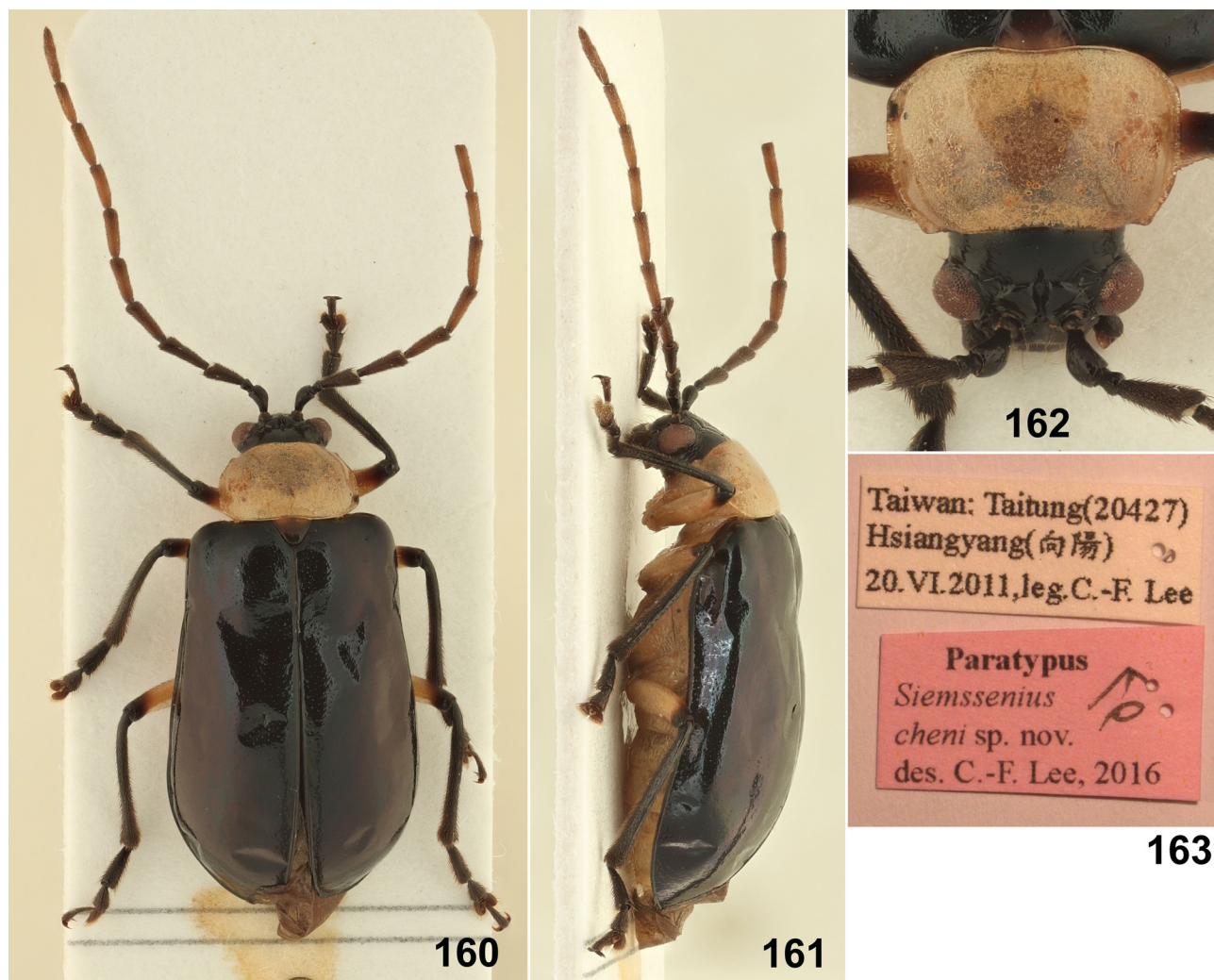
**Type material examined.** HOLOTYPE: ♀ (Figs 164–167, only photographs examined), ‘Gidaphu 2300 m / 2.6.1972 [w, p] // Nat.-Hist. Museum / Basel – Bhutan / Expedition 1972 [w, p] // HOLOTYPE [r, p] // Pseudoliroetis / elongata / Kimoto, n. sp. [w, h]’ (NHMB). PARATYPE: 1 ♂ (Figs 168–171), ‘Dorjula [p] 26 [h] 00 m [p] / 6.6 [w, h] // Nat.-Hist. Museum / Basel – Bhutan / Expedition 1972 [w, p] // PARATYPE [w, p] // Pseudoliroetis / elongata / Kimoto, n. sp. [w, h]’ (NHMB).

**Diagnosis.** *Colouration.* Dorsal side, antennae and legs yellow. Pro- and mesoventrite yellow, metaventrite brownish black, abdomen dark with pale last abdominal ventrite.

*Body length.* ♂: 6.8 mm (♂♀: 6.5–7.0 mm based on the original description).

*Male* (Figs 164–166). Antennae 0.67 times as long as body. Pronotum 1.37 times as wide as long, lustrous, covered with very fine, almost indistinct punctures, anterior margin without visible border. Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with small semicircular median incision. Last abdominal ventrite with wide longitudinal impression only in posterior half. Pro- and mesotarsomeres I large, triangular, metatibial spur short, flat, with cut apex.

*Aedeagus* (Fig. 186). Median lobe of aedeagus 4.08 times as long as wide; slightly convergent anteriorly with



Figs 160–163. *Liroetis cheni* (Lee, 2016), male, paratype (7.4 mm). 160 – dorsal view; 161 – lateral view; 162 – head and pronotum; 163 – labels.

slight emarginations in anterior and posterior thirds, apex narrow, parallel. Lateral view: ventral side almost straight in basal two thirds, moderately bent in apical third; lateral elevation forming isosceles triangle, placed in anterior quarter of median lobe length. Dorsal process 5.72 times as long as wide, 0.70 times as long as median lobe; subparallel, subapically narrowed. Lateral view: dorsal process with straight ventral side, moderately bent apically and basally, base narrow, gradually widened apically, apex sharp.

*Female* (Figs 168–170). Metatibial spur present. Genitalia not examined.

**Differential diagnosis.** *Liroetis elongatus* differs from other species of *L. fulvipennis* species-group in pronotum only 1.37 times as wide as long, while other species of this group have pronotum more transverse, 1.60–2.00 times as wide as long. In habitus, *L. elongatus* seems to be very similar to *L. latispinus* (currently unassigned to any group as only a photograph of the holotype was examined). Aedeagi of both species in lateral view are very similar, they differ more or less only in ventral side of median lobe bisinuate (Fig. 348) in *L. latispinus* or regularly rounded (Fig. 186) in *L. elongatus*. There is a possibility that these

characters are only subject of intraspecific variability and the two taxa might prove to be conspecific.

**Distribution.** Bhutan (KIMOTO 1977).

**Comments.** *Liroetis elongatus* is included in *L. fulvipennis* species-group with some doubts. All species of *L. fulvipennis* species-group have strongly transverse pronotum and body relatively robust, while pronotum of *L. elongatus* is only 1.37 times as wide as long and body is less robust. On the other hand, anterior margin of pronotum is not bordered, both males and females have metatibial spur and aedeagus resembles aedeagi of other species of *L. fulvipennis* species-group.

#### *Liroetis fulvipennis* Jacoby, 1890

(Figs 172–177, 187, 199, 210)

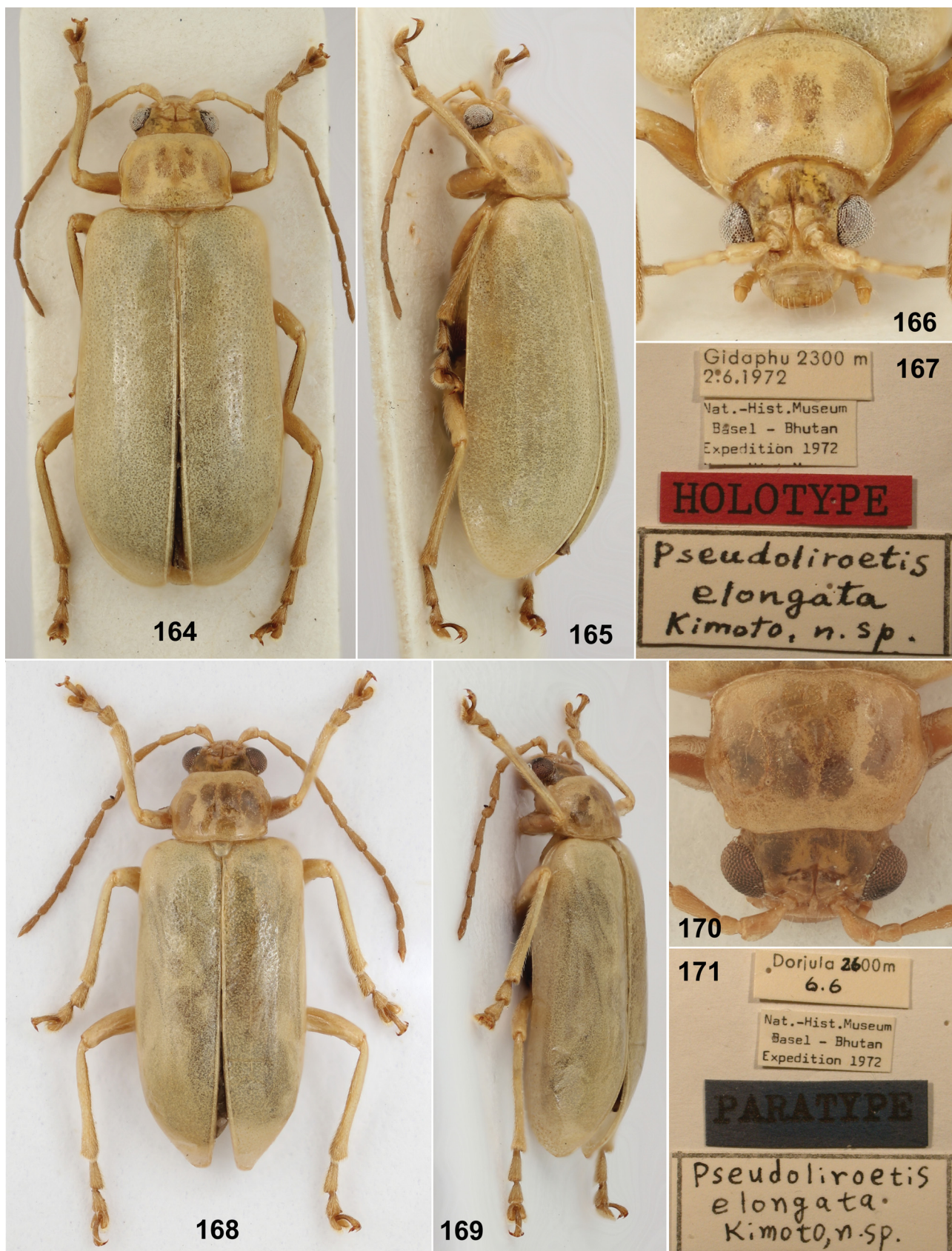
*Liroëtis fulvipennis* Jacoby, 1890: 215 (original description).

*Liroëtis fulvipennis*: WEISE (1924): 128 (catalogue).

*Pseudoliroëtis fulvipennis*: LABOISSIÈRE (1929): 281; GRESSITT & KIMOTO (1963): 530 (key, faunistics); WILCOX (1973): 478 (catalogue).

*Pseudoliroëtis fulvipennis*: OGLOBLIN (1936): 206 (faunistics).

*Siemssenius fulvipennis*: KIMOTO (1989a): 74 (transferred to *Siemssenius*); LI & YANG (2002): 303 (faunistics); YANG (1992a): 569 (faunistics); YANG (1992b): 337 (faunistics); YANG (1993): 341 (faunistics);



Figs 164–171. *Liroetis elongatus* (Kimoto, 1977). 164–167 – Female, holotype (8.4 mm). 164 – dorsal view; 165 – lateral view; 166 – head and pronotum; 167 – labels. 168–171 – Male, paratype (7.8 mm). 168 – dorsal view; 169 – lateral view; 170 – head and pronotum; 171 – labels.

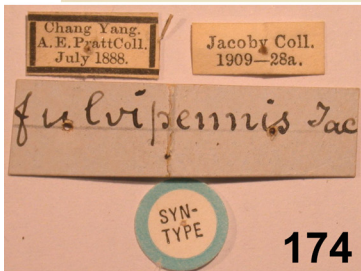




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Figs 172–177. *Liroetis fulvipennis* Jacoby, 1890. 172–174 – Female, syntype (10.1 mm). 172 – dorsal view; 173 – ventral view; 174 – labels. 175–176 – Male (9.6 mm). 175 – dorsal view; 176 – head and pronotum. 177 – Female (12.4 mm), dorsal view.

YANG (1995): 260 (faunistics); YANG et al. (1997): 876 (faunistics); WANG & YANG (1998): 91 (noted); YANG & LI (1998): 130 (noted); YANG (2002): 638 (noted); ZHANG et al. (2005): 256 (faunistics); WANG & YANG (2006): 167 (faunistics); ZHANG & YANG (2007): 301 (faunistics); ZHANG et al. (2008b): 127 (key); BEENEN (2010): 488 (catalogue); YANG et al. (2015): 251 (key), 251 (noted).

**Type locality.** ‘Chang-Yang’ [based on title, = China, Hubei Province, Changyang County].

**Type material examined.** SYNTYPES: 1 ♀ (Figs 172–174), ‘Chang Yang / A. E. Pratt Coll. / July 1888. [w, p] // Jacoby Coll. / 1909–28a. [w, p] // fulvipennis Jac [pale blue-grey label, h] // SYN- / TYPE [round white label with blue collar, p]’ (BMNH); 1 ♀, ‘Chang Yang / A. E. Pratt Coll. / July 1888. [w, p] // Jacoby Coll. / 1909–28a. [w, p] // Liroëtis / Weise [w, h] // L. / fulvipennis / Jac [h] / Det. G. E. Bryant. [w, p] // SYN- / TYPE [round white label with blue collar, p]’ (BMNH); 1 ♀, ‘Chang Yang / A. E. Pratt Coll. / July 1888. [w, p] // Jacoby Coll. / 1909–28a. [w, p] // SYN- / TYPE [round white label with blue collar, p]’ (BMNH).

**Additional material examined.** CHINA: FUJIAN: Wu-Yi Shan, Tongmu, 27°48.763'N 117°42.598'E, 31.v.2014, 1 ♀, A. Konstantinov leg. (USNM); Wuyishan Mts. NNR: Sangang vill., 27°45.0'N 117°40.7'E, 720 m, 23.v. + 3.vi.2018, 4 ♀♀, J. Hájek, D. Král, J. Růžička & L. Sekerka leg. (NMPC); Wuyishan Mts. NNR: Guadun vill., 27°44.0–2'N 117°38.3–7'E, 1075–1250 m, 25. + 29.v.2018, 1 ♂ 1 ♀, J. Hájek, D. Král, J. Růžička & L. Sekerka leg. (NMPC). GUIZHOU: 20 km NW of Jiangkou, Fanjing Shan, Kuaichang, 27.v.–3.vi.1995, 1 ♀, E. Jendek & O. Šauša leg. (JBCB). JIANGXI: Jinggang Shan, Liping, 2.–14.vi.1994, 2 ♂♂ 4 ♀♀, E. Jendek & O. Šauša leg. (JBCB). ZHEJIANG: Teinmushan, 6 ♂♂ 13 ♀♀, Reitter leg. (NHMB-Frey coll., NMPC, JBCB).

**Diagnosis.** *Colouration.* Body completely pale brown except for dark apices of mandibles and black antennae and legs.

*Body length.* ♂♂: 8.0–10.0 mm, ♀♀: 10.3–12.5 mm.

*Male* (Figs 175–176). Antennae 0.79 times as long as body. Pronotum convex, 1.76 times as wide as long, covered with very fine punctures, anterior margin slightly concave, unbordered, lateral margins rounded, convergent anteriorly, posterior margin widely rounded, slightly sinuate, lateral and posterior margins thinly bordered. Posterior margin of abdominal ventrite IV narrowly vertically impressed, with wide shallow emargination in middle. Longitudinal impression on last abdominal ventrite wide and deep in posterior two thirds, narrowed in basal third. Protarsomere I elongate triangular. Metatibial spur short, narrow.

*Aedeagus* (Fig. 187). Median lobe of aedeagus 3.02 times as long as wide; widest in basal quarter, moderately narrowed anteriorly, apical seventh narrow, slightly divergent anteriorly. Lateral view: median lobe almost straight in middle part, apical part bent; lateral elevation triangular, placed in anterior fifth of aedeagus length. Dorsal process lanceolate, widest in middle, 3.73 times as long as wide, 0.78 times as long as median lobe, apex sharp. Lateral view: dorsal process rounded in basal half, apical half wide, basal half narrow, surface of apical quarter covered with several oblique furrows.

*Female.* Antennae 0.70 times as long as body. Metatibial spur absent. Last abdominal ventrite with posterior margin entire. Sternite VIII subtriangular, posterior margin nearly straight with middle part convex and small incision in middle, lateral margins slightly rounded, middle part of posterior half impressed, lateral parts separated from middle part by distinct keel, lateral parts of posterior margin and margins of median impressions covered with long setae;

tignum short, 0.20 times as long as sternite VIII (Fig. 210). Spermatheca with poorly developed nodulus, cornu large, C-shaped (Fig. 199).

**Differential diagnosis.** *Liroetis fulvipennis* is similar to *L. jeanvoinei* and *L. nigriceps*. Both, *L. fulvipennis* and *L. nigriceps* have brown dorsum but the head is black (or darkened) in *L. nigriceps* and brown in *L. fulvipennis*. In *L. fulvipennis* metatibial spur is present in males but absent in females, while metatibial spur is present in both sexes in *L. nigriceps*. Dorsal process of aedeagus is lanceolate and widest in middle in *L. fulvipennis* but wider and subparallel in anterior two thirds in *L. nigriceps* (Figs 187, 193). Dorsum of *L. jeanvoinei* is reddish brown and median lobe of aedeagus is almost parallel, with dorsal process very narrow and parallel (Fig. 188). Another similar species is *L. modestus* which differs in bicolour legs and dorsal process of aedeagus (Fig. 192) widest in anterior third (legs black and dorsal process of aedeagus widest in middle in *L. fulvipennis*).

**Host plants.** Altingiaceae: *Liquidambar formosana*, Caprifoliaceae: *Lonicera* sp. (GRESSITT & KIMOTO 1963), Coriariaceae: *Coriaria* sp. (YANG et al. 2015).

**Distribution.** China: Fujian (GRESSITT & KIMOTO 1963, YANG 1993, present paper), Gansu (WANG & YANG 2006), Guangxi (OGLOBLIN 1936), Guizhou (YANG 1992b, LI & YANG 2002, ZHANG et al. 2005, ZHANG & YANG 2007, present paper), Hubei (JACOBY 1890, GRESSITT & KIMOTO 1963, YANG et al. 1997), Hunan (YANG 1992a), Jiangxi (present paper), Shanghai (LABOISSIÈRE 1939), Sichuan (GRESSITT & KIMOTO 1963, YANG et al. 1997), Zhejiang (YANG 1995). YANG et al. (2015) listed it also from China: Jiangsu without mentioning particular specimens.

***Liroetis jeanvoinei* (Laboissière, 1929), stat. restit., comb. nov.**

(Figs 178–184, 188, 200, 211)

*Pseudoliroetis jeanvoinei* Laboissière, 1929: 281 (original description). *Pseudoliroetis jeanvoinei*: GRESSITT & KIMOTO (1963): 530 (key); WILCOX (1973): 478 (catalogue); KIMOTO (1989a): 74 (synonymized with *Siemsenius fulvipennis*).

**Type locality.** ‘Tonkin: Chapa [= Vietnam: Lao Cai Province: Sa Pa]’.

**Type material examined.** SYNTYPES: 1 ♂ (Figs 178–181), ‘Chapa / Tonkin / Jeanvoine [w, h] // Coll. / V. LABOISSIÈRE [w, p] // COTYPE [w, p, red letters] // Pseudoliroetis / Jeanvoinei / m [h] / V. Laboissière – Dét. [w, p]’ (MNHN); 1 ♀, ‘Tonkin / Chapa / Jeanvoine [w, h] // Coll. / V. LABOISSIÈRE [w, p] // COTYPE [w, p, red letters] // Pseudoliroetis / Jeanvoinei / m [h] / V. Laboissière – Dét. [w, p]’ (MNHN); 1 ♀, ‘Chapa / Tonkin / Jeanvoine [w, h] // Coll. / V. LABOISSIÈRE [w, p] // COTYPE [w, p, red letters]’ (MNHN); 1 ♂, ‘Chapa [w, h] // TYPE [p, red letters] / ♂ [w, h] // Pseudoliroetis / Jeanvoinei / m [h] / V. Laboissière – Dét. [w, p] // Le Moulte vend. / via Reinbek / Eing. Nr. 1, 1957 [w, p]’ (ZMUH); 1 ♀, ‘Chapa / Tonkin [w, h] // Pseudoliroetis / Jeanvoinei / m. [h] / V. Laboissière – Dét. [w, p] // Para- / type [o, p] // cf. Ann. Soc. Ent. / Fr. [p] 1929 / p. 281–282, fig. 13 [w, h] // R. Mus. Hist. Nat. / Belg. I. G. 12.752 [w, p]’ (ISNB).

**Additional material examined.** VIETNAM: LAO CAI: Hoang Lien NP, Tram Ton, 22°21.197'N 103°46.513'E, 13.–16.v.2015, 1 ♂ 1 ♀, A. Skale leg. (JBCB); Hoang Lien NP, Tram Ton, 22.3493723°N 103.7704565°E, 1915 m, 8.–11.iv.2010, 1 ♀, L. Papp, L. Pergovits & Z. Soltézs leg. (HNHM); Chapa, 2 ♂♂ 4 ♀♀, without name of collector (ZMUH). LAI CHAU: Sin Chai vill., Cat Cat river, 22.33862°E 103.81015°E, 1442 m, 2.v.2013, 1 ♂, Prosvirov leg. (PRCS). LAOS: HUA PHAN: Ban Saluei, Phu Pan Mt., 20°13'N 103°59'E, 1300–2000 m, 6.–18.v.2004, 1 ♀,

F. & L. Kantner leg. (JBCB); Ban Saluei, Phu Pan Mt., 20°12'–13.5'N 103°59.5'–104°01'E, 1340–1870 m, 15.iv.–15.v.2008, 1 ♀, Lao collectors leg. (NMPC); Ban Saluei, Phu Pan Mt., 20°12'N 104°01'E, 1300–1900 m, 3.–30.iv.2014, 16 ♂♂ 32 ♀♀, C. Holzschuh leg. (BMNH).

**Diagnosis. Colouration.** Body completely reddish brown, except for mandibles, maxillary palpi, antennae and legs black.

**Body length.** ♂♂: 10.5–12.5 mm, ♀♀: 12.0–13.5 mm (♂♀: 11.0–14.0 mm based on the original description).

**Male** (Figs 182–183). Antennae 0.76 times as long as body. Pronotum 1.73 times as wide as long, covered with fine punctures, anterior margin slightly concave, unbordered, lateral margins rounded, convergent anteriorly, pronotum widest in posterior quarter. Posterior margin of abdominal ventrite IV with two small transverse triangular processes separated by small U-shaped incision. Longitudinal impression on last abdominal ventrite wide and deep in posterior half, narrower in basal half. Pygidium with triangular apex. Metatibial spur short, wide and flat.

**Aedeagus** (Fig. 188). Median lobe of aedeagus 3.46 times as long as wide; wide and parallel, apical part transversely cut, with short apical process, with distinct very narrow median furrow. Lateral view: median lobe bisinuate, moderately rounded in basal two thirds; lateral elevation triangular, placed in anterior fifth of aedeagus length. Dorsal process narrow, 7.50 times as long as wide, 0.80 times as long as median lobe, subparallel, apex sharp. Lateral view: dorsal process regularly rounded, very wide, constricted in basal third, apex sharp, surface of apical two thirds covered with several oblique deep furrows.

**Female** (Fig. 184). Metatibial spur absent. Last abdominal ventrite with posterior margin entire. Sternite VIII subrhomboidal, posterior margin with small triangular incision followed by long keel, surface with two elevated triangular plates, long setae accumulated along posterior and partly inner margins of those plates; tignum 0.40 times as long as sternite VIII (Fig. 211). Spermatheca without visible nodulus, cornu C-shaped, gradually narrowed towards apex, spermathecal duct distinctly bent (Fig. 200).

**Differential diagnosis.** Due to similar colouration and robust body, *Liroetis jeanvoinei* is similar to *L. fulvipennis* and *L. nigriceps*. While dorsum of *L. fulvipennis* and *L. nigriceps* is brown (in *L. nigriceps* moreover with black or darkened head), *L. jeanvoinei* is reddish brown dorsally. While in *L. jeanvoinei* and *L. fulvipennis* metatibial spur is present in males but absent in females, in *L. nigriceps* metatibial spur is present in both sexes. Median lobe of aedeagus of *L. jeanvoinei* is almost parallel, with dorsal process very narrow and parallel (Fig. 188), contrary to moderately convergent median lobe of aedeagus and dorsal process lanceolate in *L. fulvipennis*, and aedeagus with dorsal process wider and subparallel in anterior two thirds in *L. nigriceps* (Figs 187, 193).

**Distribution.** Vietnam (LABOISSIÈRE 1929, present paper), Laos (present paper).

**Comments.** *Pseudoliroetis jeanvoinei* was synonymized with *Siemssenius fulvipennis* by KIMOTO (1989a). I examined the primary type material of both taxa and undoubtedly, they are not conspecific (see Differential

diagnosis). *Pseudoliroetis jeanvoinei* is resurrected from synonymy with *Siemssenius fulvipennis* and transferred to the genus *Liroetis*.

***Liroetis jungchani* (Lee, 2016) comb. nov.**

(Figs 189, 201, 212, 220–223)

*Siemssenius jungchani* Lee, 2016: 375 (original description).

**Type locality.** '[Taiwan:] Pingtung county, Tahanshan'.

**Type material examined.** PARATYPE: 1 ♂ (Figs 220–223), 'Taiwan: Pingtung / Tahanshan ([in Chinese]) / 31.III.2012, leg. W.-C. Liao [w, p] // Paratypus / Siemssenius [p] ♂ [h] / jungchani sp. nov. / des. C.-F. Lee, 2016 [pink label, p]' (JBCB).

**Diagnosis. Colouration.** Body black, except for reddish brown elytra and abdomen.

**Body length.** ♂: 10.4 mm.

**Male** (Figs 220–223). Antennae 0.95 times as long as body. Pronotum convex, 1.65 times as wide as long, finely punctate, anterior margin slightly concave, with thin border visible laterally and disappearing in middle part, posterior margin straight in middle part, oblique and with two points laterally, thinly bordered, lateral margins straight and parallel in posterior two thirds, anterior third rounded and convergent, with wider border. Scutellum with several distinct punctures. Protarsomere I elongate subtriangular. Metatibial spur short, wide, with rounded apex.

**Aedeagus** (Fig. 189). Median lobe of aedeagus 5.43 times as long as wide, with apical process short, narrow and parallel, then suddenly widened, rest of median lobe almost parallel. Lateral view: median lobe bisinuate in middle part, apical part slightly bent; lateral elevation large, widely subtriangular, placed in anterior fifth of aedeagus length. Dorsal process 7.11 times as long as wide, 0.79 times as long as median lobe, lanceolate, with sharp apex. Lateral view: dorsal process slightly regularly rounded, slightly wider subapically, apex sharp.

**Female.** Sternite VIII subpentagonal, posterior margin shallowly concave, surface laterally with two elevated plates, long setae accumulated along posterior and inner margins of those plates, tignum short, 0.20 times as long as sternite VIII (Fig. 212). Spermatheca with well developed nodulus, cornu C-shaped, spermathecal duct bent (Fig. 201).

**Differential diagnosis.** Having black body and reddish brown elytra and abdomen, *Liroetis jungchani* is very similar to other Taiwanese species *L. liui*, *L. rufipennis*, *L. tsoui*, and *L. yuae*. These species can be reliably identified only based on the structure of aedeagus (Figs 189–190, 194, 196–197). Median lobe of aedeagus of *L. jungchani* has lateral elevation large, widely subtriangular, dorsal process narrowly lanceolate and in lateral view only slightly extended subapically (Fig. 189).

**Distribution.** Taiwan (LEE 2016).

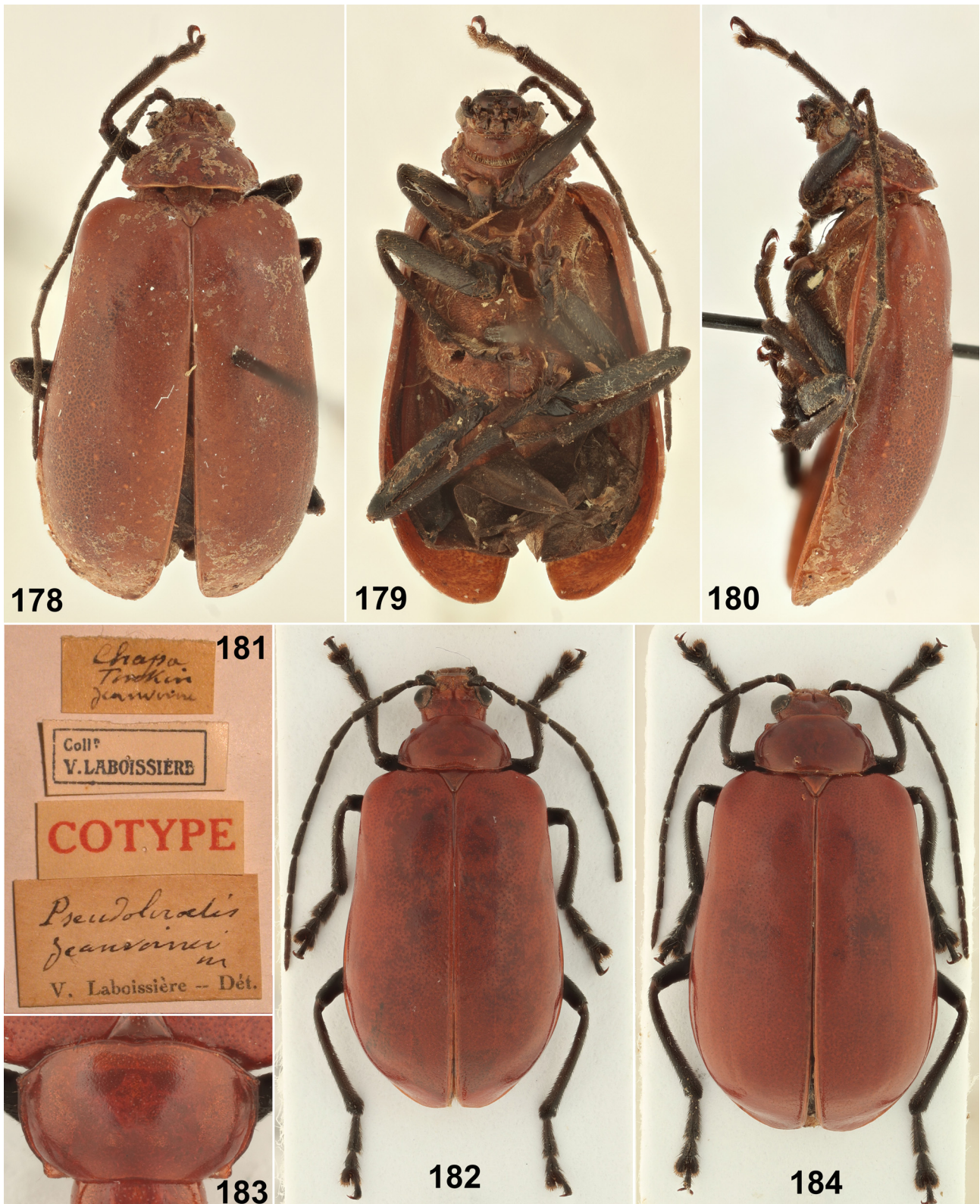
***Liroetis liui* (Lee, 2016) comb. nov.**

(Figs 190, 202, 213, 224–227)

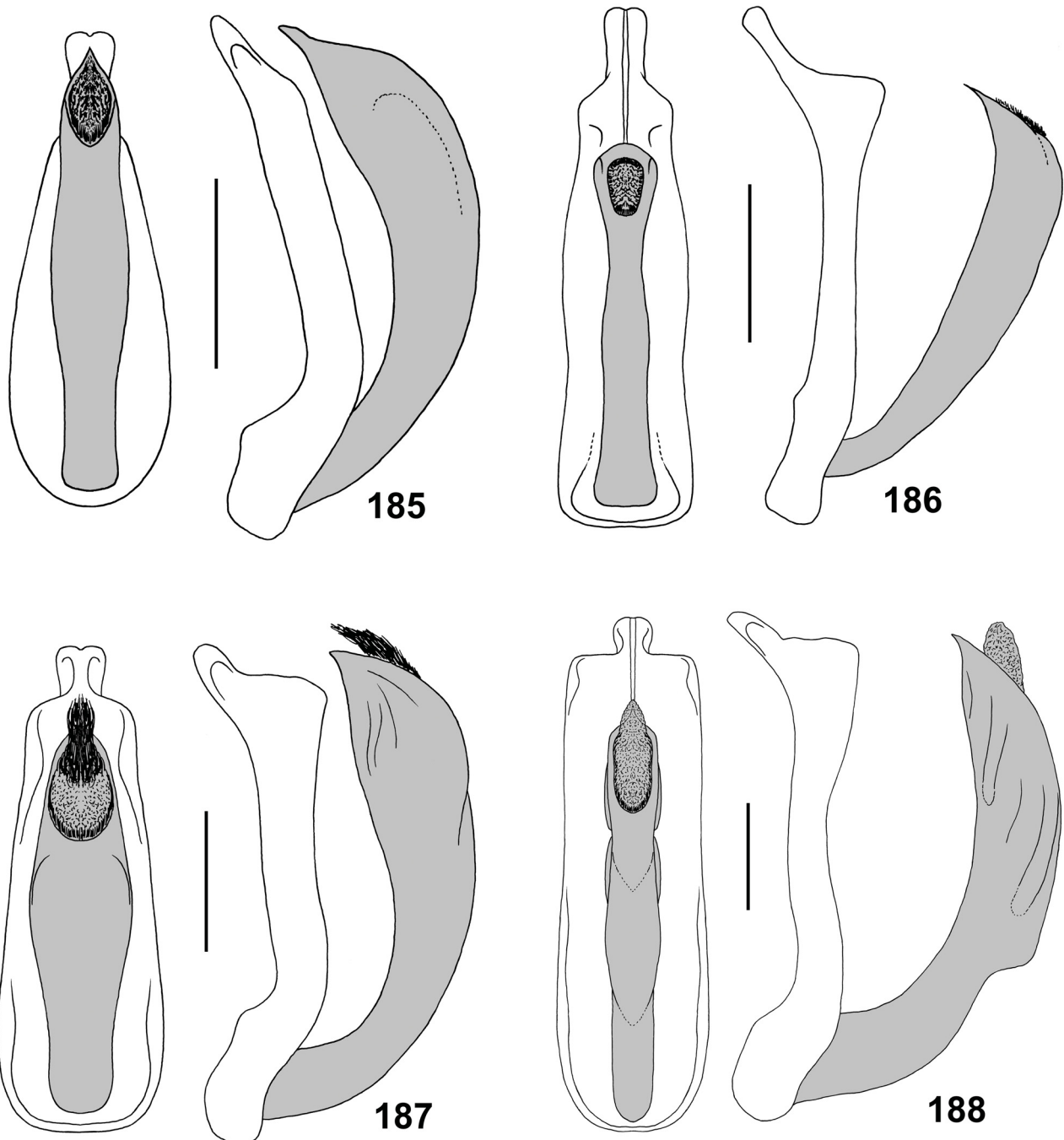
*Siemssenius liui* Lee, 2016: 376 (original description).

**Type locality.** '[Taiwan:] Ilan county, Taipingshan'.

**Type material examined.** PARATYPES: 1 ♂ (Figs 224–225), 'Taiwan: Ilan (#28285) / Taipingshan ([in Chinese]) / 21.V.2016, leg. H. Lee [w, p] // Paratypus / Siemssenius / liui sp. nov. [p] ♂ [h] / des. C.-F. Lee, 2016 [pink



Figs 178–184. *Liroetis jeanvoinei* (Laboissière, 1929). 178–181 – Male, syntype (11.1 mm). 178 – dorsal view; 179 – ventral view; 180 – lateral view; 181 – labels. 182–183 – Male (11.0 mm). 182 – dorsal view; 183 – pronotum. 184 – Female (12.0 mm), dorsal view.



Figs 185–188. Aedeagus of *Liroetis*, dorsal and lateral views. 185 – *L. cheni* (Lee, 2016); 186 – *L. elongatus* (Kimoto, 1977); 187 – *L. fulvipennis* Jacoby, 1890; 188 – *L. jeanvoinei* (Laboissière, 1929). Scale 0.5 mm.

label, p]’ (JBCB); 1 ♀ (Figs 226–227), ‘Taiwan: Ilan (6015) / Taipingshan ([in Chinese]) / 19.VI.2008, leg. S.-Y. Wu [w, p] // Paratypus / Siemssenius / liui sp. nov. [p] ♀ [h] / des. C.-F. Lee, 2016 [pink label, p]’ (JBCB).

**Diagnosis.** *Colouration.* Body black, except for reddish brown elytra and abdomen.

*Body length.* ♂: 7.9 mm, ♀: 10.1 mm.

*Male* (Fig. 224). Antennae 0.91 times as long as body. Pronotum convex, 1.69 times as wide as long, finely punctate, anterior margin slightly concave, unbordered but with indistinct traces of border near anterior angles, posterior margin straight in middle part, oblique and with two points laterally, thinly bordered, lateral margins

straight and parallel in posterior two thirds, anterior third rounded and convergent, with wider border. Scutellum with several distinct punctures. Protarsomere I elongate, parallel, convergent at base. Metatibial spur short, wide, with rounded apex.

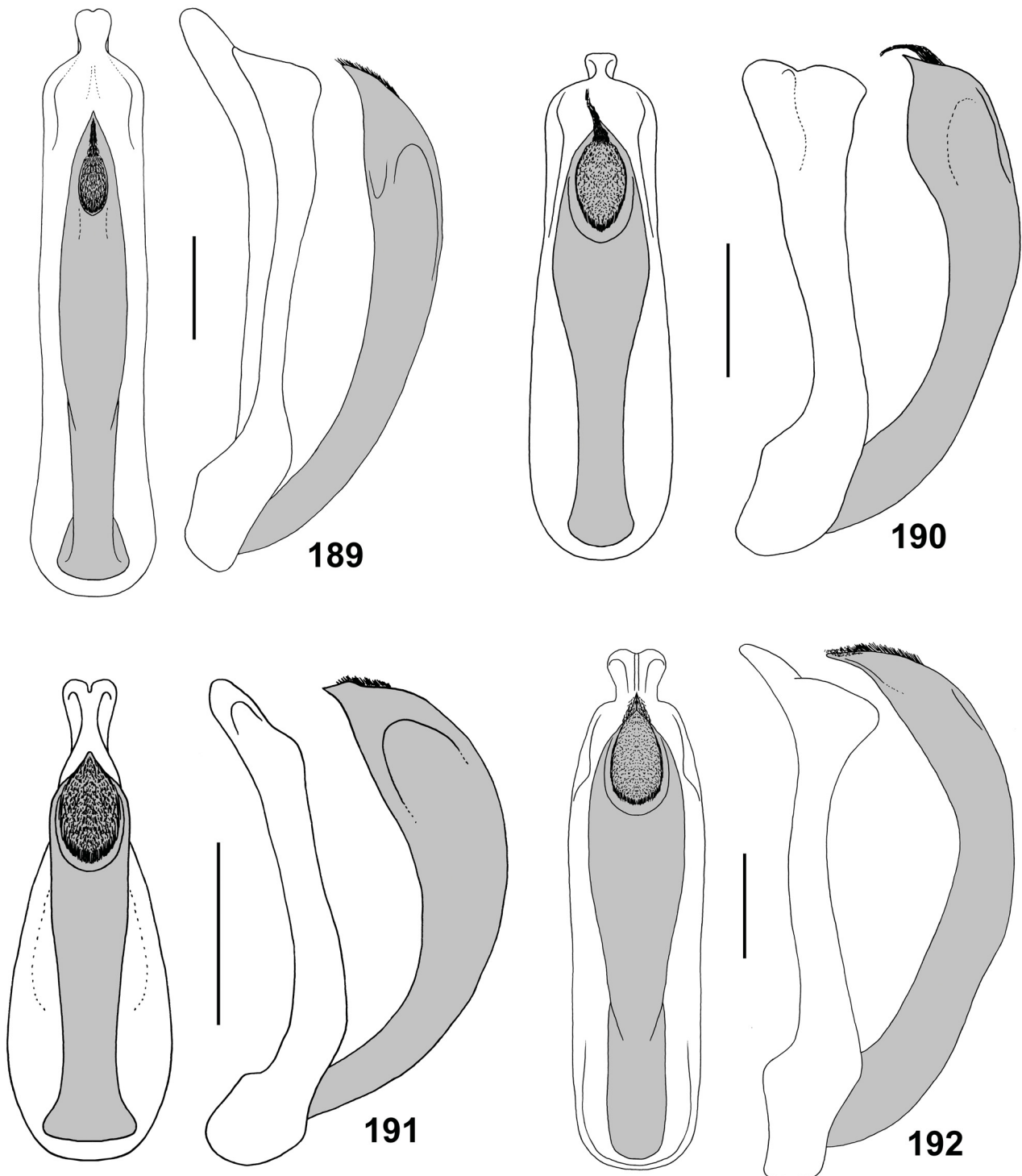
*Aedeagus* (Fig. 190). Median lobe of aedeagus 3.65 times as long as wide, with apical process very short and narrow, then suddenly widened. Lateral view: median lobe straight in middle part, apical part slightly bent; lateral elevation large, rounded, placed in anterior sixth of aedeagus length. Dorsal process 4.39 times as long as wide, 0.83 times as long as median lobe, wide, apical half lanceolate,

basal half narrow, subparallel. Lateral view: dorsal process very wide in apical half, narrow in basal half.

*Female* (Fig. 226). Posterior margin of last abdominal ventrite straight in middle. Sternite VIII wide, posterior margin rounded with shallow emargination in middle, surface laterally with two elevated plates, long setae accumulated along posterior and inner margins of those plates, tignum short and wide, 0.25 times as long as sternite VIII

(Fig. 213). Spermatheca with poorly developed nodulus, cornu C-shaped with sharp apex, spermathecal duct long, slightly bent (Fig. 202).

**Differential diagnosis.** Having black body and reddish brown elytra and abdomen, *Liroetis liui* is very similar to other Taiwanese species *L. jungchani*, *L. rufipennis*, *L. tsoui*, and *L. yuae*. These species can be reliably identified only based on the structure of aedeagus (Figs 189–190,



Figs 189–192. Aedeagus of *Liroetis*, dorsal and lateral views. 189 – *L. jungchani* (Lee, 2016); 190 – *L. liui* (Lee, 2016); 191 – *L. metallipennis* (Chûjô, 1962); 192 – *L. modestus* (Weise, 1922). Scale 0.5 mm.

194, 196–197). Median lobe of aedeagus of *L. liui* has apical process extremely short, lateral elevation large, subtriangular with rounded anterior margin, dorsal process widely lanceolate and in lateral view distinctly extended subapically (Fig. 190).

**Host plant.** Caprifoliaceae: *Lonicera acuminata* Wall. (LEE 2016).

**Distribution.** Taiwan (LEE 2016).

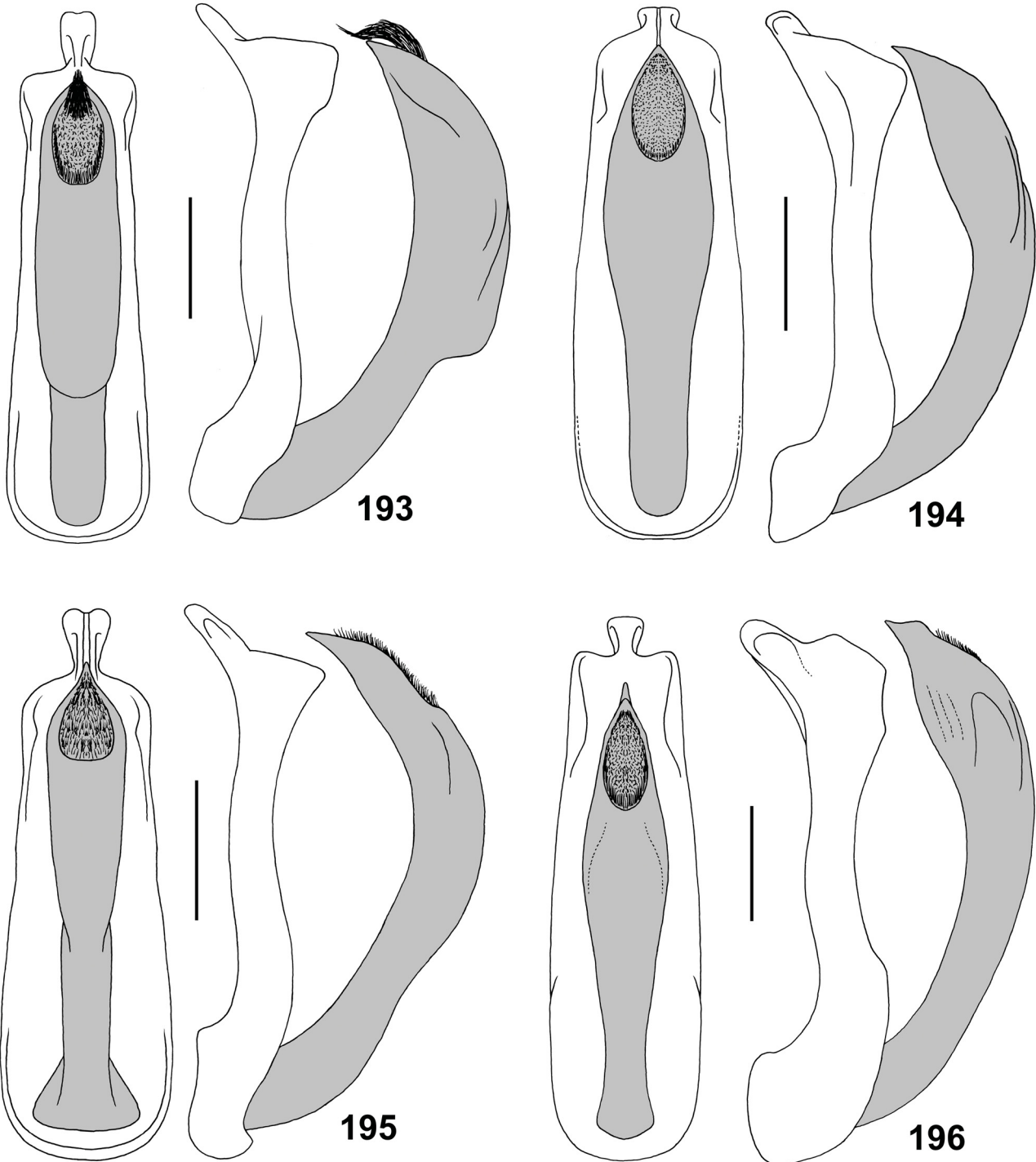
***Liroetis metallipennis* (Chûjô, 1962) comb. nov.**

(Figs 191, 203, 214, 228–231)

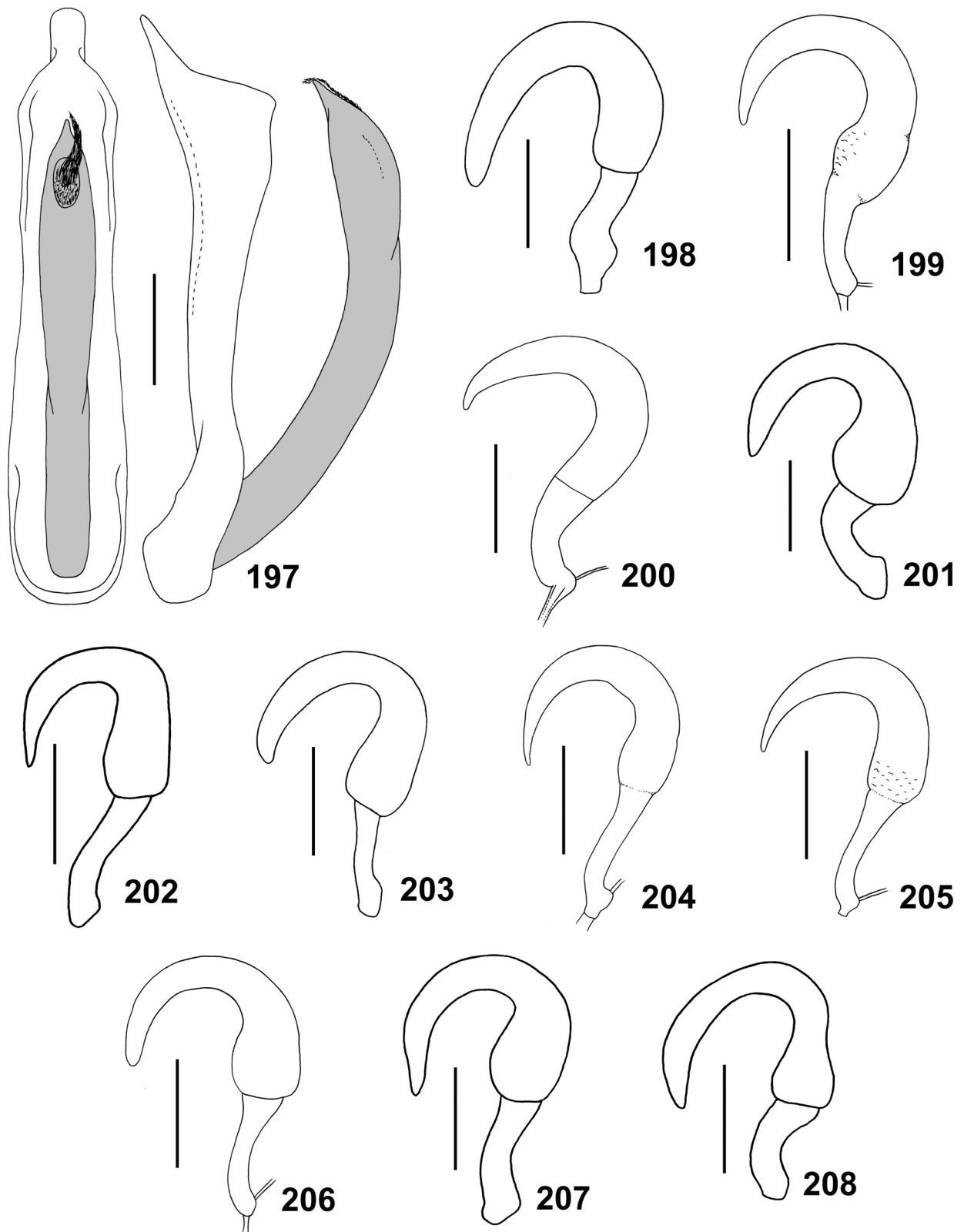
*Pseudoliroëtis metallipennis* Chûjô, 1962: 181 (original description).

*Pseudoliroëtis metallipennis*: WILCOX (1973): 478 (catalogue); KIMOTO (1969): 36 (faunistics); TAKIZAWA et al. (1995): 12 (faunistics); KIMOTO & CHU (1996): 70 (noted).

*Siemssenius metallipennis*: KIMOTO & TAKIZAWA (1997): 379 (noted); ZHANG et al. (2008b): 127 (key); BEENEN (2010): 488 (catalogue); TAKAHASHI (2012): 324 (faunistics); YANG et al. (2015): 251 (key), 251 (noted); LEE et al. (2016): 130 (noted); LEE (2016): 371 (re-description), 383 (key).

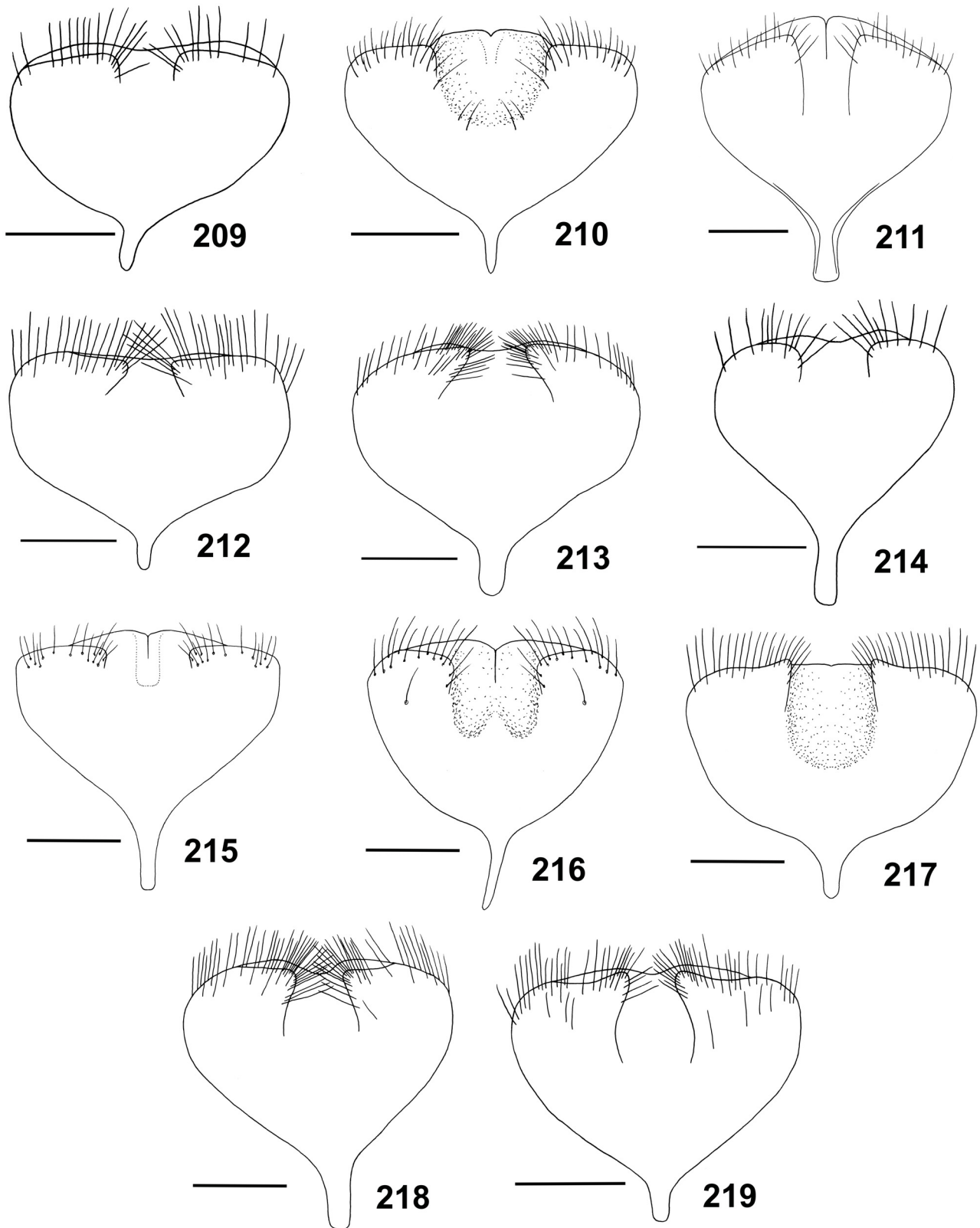


Figs 193–196. Aedeagus of *Liroetis*, dorsal and lateral views. 193 – *L. nigriceps* (Laboissière, 1929); 194 – *L. rufipennis* (Chûjô, 1962); 195 – *L. sulcipennis* (Zhang & Yang, 2008); 196 – *L. tsoui* (Lee, 2016). Scale 0.5 mm.

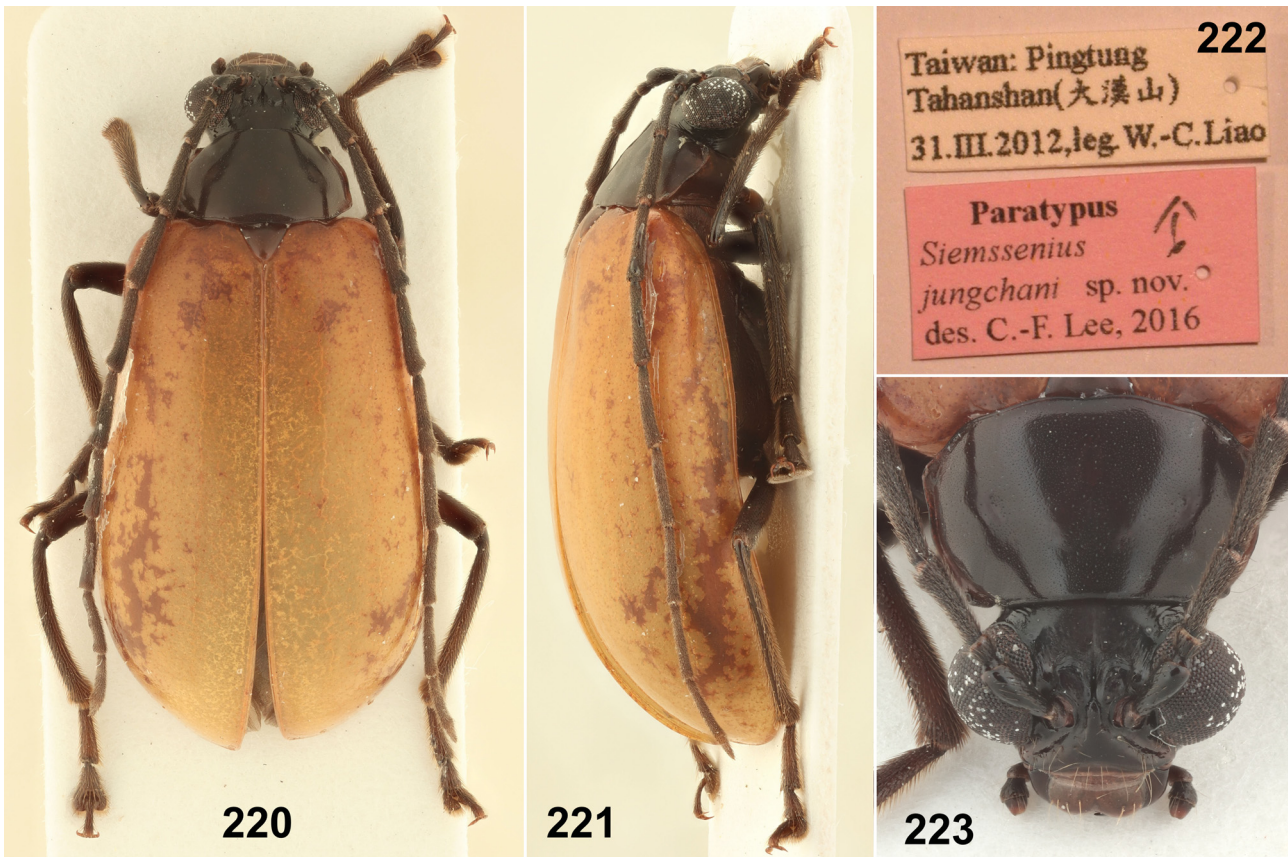


Figs 197–208. 197 – Aedeagus of *Liroetis yuae* (Lee, 2016), dorsal and lateral views. 198–208 – Spermatheca. 198 – *L. cheni* (Lee, 2016); 199 – *L. fulvipennis* Jacoby, 1890; 200 – *L. jeanvoinei* (Laboissière, 1929); 201 – *L. jungchani* (Lee, 2016); 202 – *L. liui* (Lee, 2016); 203 – *L. metallipennis* (Chûjô, 1962); 204 – *L. modestus* (Weise, 1922); 205 – *L. nigriceps* (Laboissière, 1929); 206 – *L. rufipennis* (Chûjô, 1962); 207 – *L. tsoui* (Lee, 2016); 208 – *L. yuae* (Lee, 2016). Figs 198, 201–203, 207–208 reproduced from LEE (2016). Scales: 0.5 mm for Fig. 197, 0.25 mm for Figs 198–208.





Figs 209–219. Sternite VIII. 209 – *L. cheni* (Lee, 2016); 210 – *L. fulvipennis* Jacoby, 1890; 211 – *L. jeanvoinei* (Laboissière, 1929); 212 – *L. jungchani* (Lee, 2016); 213 – *L. liui* (Lee, 2016); 214 – *L. metallipennis* (Chûjô, 1962); 215 – *L. modestus* (Weise, 1922); 216 – *L. nigriceps* (Laboissière, 1929); 217 – *L. rufipennis* (Chûjô, 1962); 218 – *L. tsoui* (Lee, 2016); 219 – *L. yuae* (Lee, 2016). Figs 209, 212–214, 218–219 reproduced from LEE (2016). Scale 0.5 mm.



Figs 220–223. *Liroetis jungchani* (Lee, 2016), male, paratype (10.4 mm). 220 – dorsal view; 221 – lateral view; 222 – labels; 223 – head and pronotum.

**Type locality.** ‘Formosa, Mt. Arisan, Tainan Syū [= Taiwan, Chiayi County, Alishan Mt.]’.

**Type material.** Not examined.

**Additional material examined.** TAIWAN: Nantou, Tatachia, 18.v.2010, 1 ♂ 1 ♀, M.-H. Tsou leg. (JBCB); Nantou, Tatachia, 9.vii.2014, 1 ♀, C.-L. Lee leg. (JBCB); Chiayi, Yushan, 1.vii.2015, 1 ♂, J.-C. Chen leg. (JBCB).

**Diagnosis.** *Colouration.* Head and scutellum black, elytra metallic greenish bronze. Pronotum and underside yellow. Antennae black. Legs yellow with apices of femora, tibiae and tarsi black.

*Body length.* ♂♂: 6.9–7.5 mm, ♀♀: 8.3–8.5 mm.

*Male* (Figs 228–231). Antennae 0.95 times as long as body. Pronotum convex, 1.77 times as wide as long, very finely punctate, anterior margin nearly straight, unbordered, posterior margin straight in middle part, oblique laterally, thinly bordered, lateral margins moderately rounded, with wider border. Scutellum covered with several distinct punctures. Protarsomere I elongate, parallel, convergent basally. Metatibial spur narrow.

*Aedeagus* (Fig. 191). Median lobe of aedeagus 2.91 times as long as wide, with apical process wide, then gradually widened towards base. Lateral view: median lobe straight in middle part, apical part slightly bent; lateral elevation small, rounded, placed in anterior sixth of aedeagus length. Dorsal process 4.03 times as long as wide, 0.81 times as long as median lobe, wide, with widely rounded apex. Lateral view: dorsal process very wide in apical half, gradually narrowed basally.

*Female.* Protarsomere I slightly narrower than in males. Sternite VIII heart-shaped, posterior margin rounded with

shallow emargination in middle, surface laterally with two elevated plates, long setae accumulated along posterior and inner margins of those plates, tignum short, 0.30 times as long as sternite VIII, slightly asymmetrical to left (Fig. 214). Spermatheca with poorly developed nodulus, cornu C-shaped, spermathecal duct nearly straight (Fig. 203).

**Differential diagnosis.** *Liroetis metallipennis* can be distinguished from similar *L. cheni* by the colouration of elytra which are metallic greenish or purplish bronze in *L. metallipennis* but black with metallic tint in *L. cheni*. Aedeagi of both species are very similar (Figs 185, 191).

**Host plant.** Caprifoliaceae: *Lonicera acuminata* Wall. (LEE 2016).

**Distribution.** Taiwan (KIMOTO 1969, TAKIZAWA et al. 1995, TAKAHASHI 2012, LEE 2016, present paper).

#### *Liroetis modestus* (Weise, 1922) comb. nov.

(Figs 192, 204, 215, 232–238)

*Siemssenius modestus* Weise, 1922: 73 (original description).

*Siemssenius modestus*: WEISE (1924): 131 (catalogue); GRESSITT & KIMOTO (1963): 555 (noted); WILCOX (1971): 60 (catalogue); WANG & YANG (1998): 91 (noted); YANG (2002): 638 (noted); ZHANG et al. (2008b): 127 (key); BEENEN (2010): 488 (catalogue); YANG et al. (2015): 251 (key), 251 (noted).

**Type locality.** ‘Fokien [= China: Fujian]’.

**Type material examined.** SYNTYPES: 1 ♀ (Figs 232–236), ‘China / Prov. Fokien / G. Siemssen vend. / 14.11.1903 [w, p] // J. Weise determ. / 1919. [w, h] // Siemssenius / modestus / Cotype! [w, h] // Siemssenius / modestus / Ws [r, h]’ (USNM); 1 ♀, ‘China / Prov. Fokien / G. Siemssen vend. / 14.11.1903 [w, p] // J. Weise determ. / 1919. [w, h]’ (USNM).

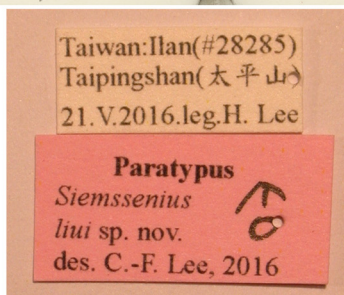
**Additional material examined.** CHINA: FUJIAN: Wuyishan Mts. NNR, Taoyuan valley, 27°43.7'N 117°42.8'E, 575 m, 1 ♂ 1 ♀, J. Hájek,



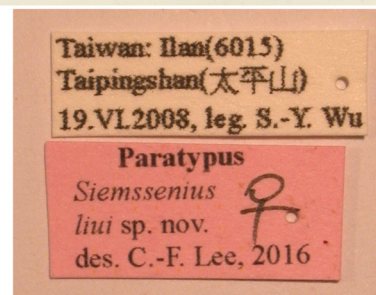
224



226



225



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Figs 224–227. *Liroetis liui* (Lee, 2016). 224–225 – Male, paratype (7.9 mm). 224 – dorsal view; 225 – labels. 226–227 – Female, paratype (10.1 mm). 226 – dorsal view; 227 – labels.

D. Král, J. Růžička & L. Sekerka leg. (NMPC). ZHEJIANG: Tienmu Shan, 1 ♂, E. Reitter leg. (NHMB).

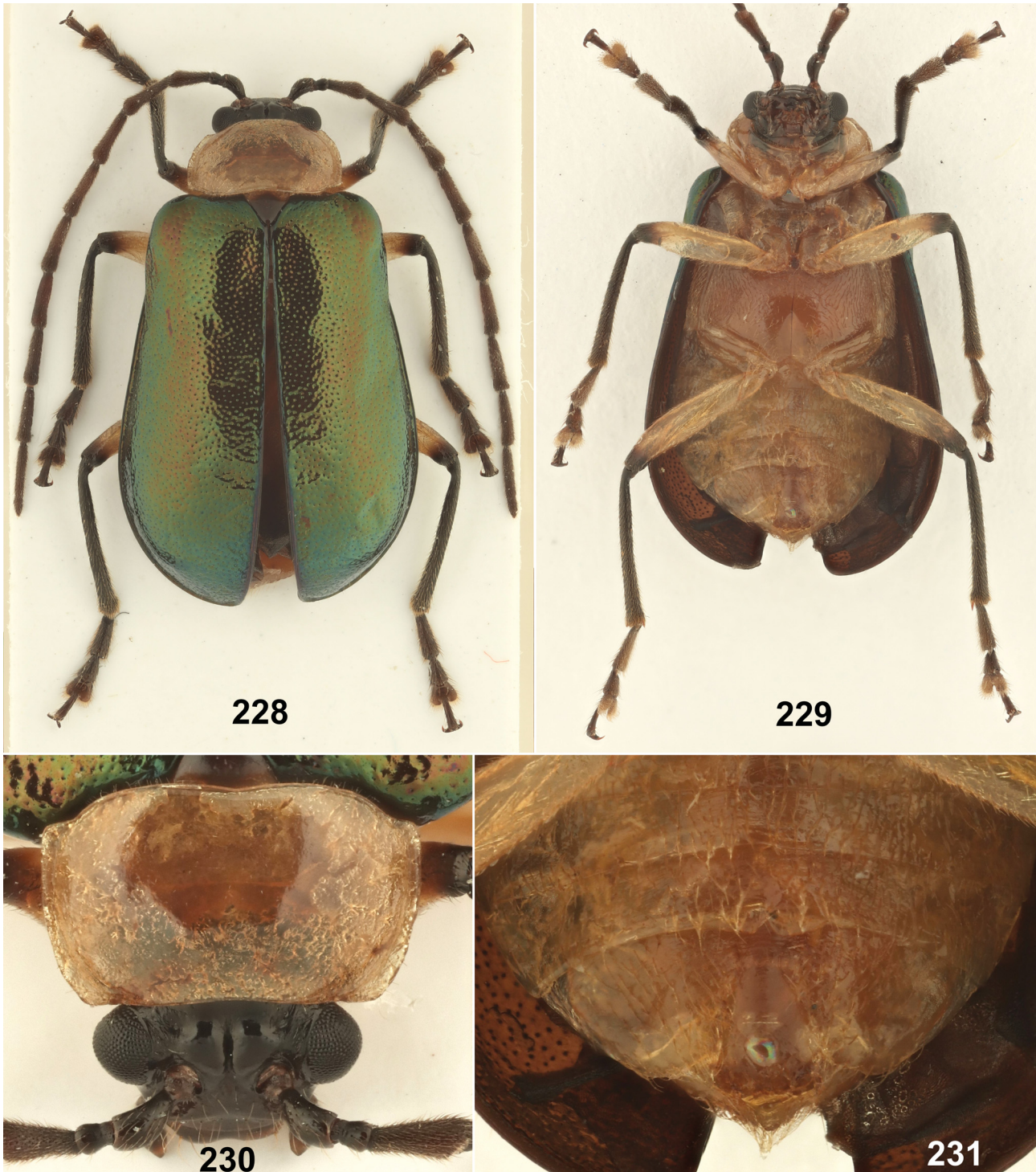
**Diagnosis.** *Colouration.* Body pale brown except for darkened apices of mandibles, black antennae and legs with black tibiae, tarsi and apices of femora. Male from Zhejiang have paler basal and apical antennomeres and basal parts of tibiae.

*Body length.* ♂: 10.7 mm, ♀♀: 9.8–12.0 mm.

*Male* (Fig. 237). Antennae 0.72 times as long as body. Pronotum 1.77 times as wide as long, covered with fine punctures, anterior margin moderately concave, unbordered, posterior margin thinly bordered, lateral margins parallel in posterior half, rounded and convergent anteriorly, with wider border. Posterior margin of abdominal ventrite IV with two transverse triangular processes separated by

U-shaped incision. Longitudinal impression on last abdominal ventrite very wide and deep, constricted subbasally. Pygidium with elevated keel in posterior half. Metatibial spur wide, flat, with oblique apex.

*Aedeagus* (Fig. 192). Median lobe of aedeagus 3.77 times as long as wide; apical tenth narrower, divergent apically, basal three quarters subparallel. Lateral view: median lobe bisinuate, apical quarter gradually bent; lateral elevation triangular, placed in anterior sixth of aedeagus length. Dorsal process long, 5.00 times as long as wide, 0.89 times as long as median lobe; basal third narrow, parallel, apical two thirds wider, lanceolate, with sharp apex. Lateral view: dorsal process wide, subparallel in apical and basal halves, bent in middle part, apex sharp, slightly bent downwards.

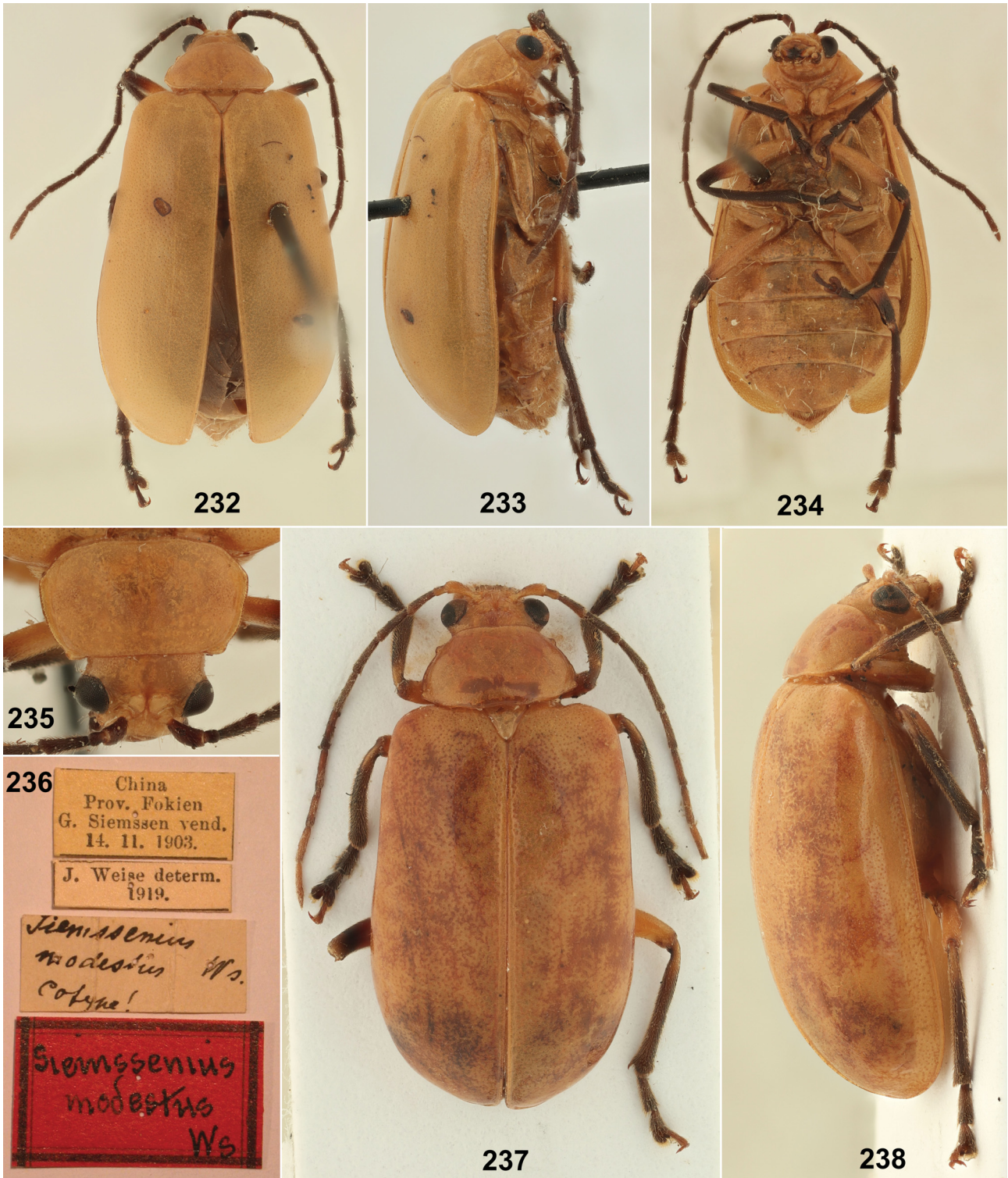


Figs 228–231. *Liroetis metallipennis* (Chūjō, 1962), male (6.9 mm). 228 – dorsal view; 229 – ventral view; 230 – head and pronotum; 231 – abdomen.

*Female* (Fig. 238). Metatibial spur absent. Pygidium with blunt median keel. Sternite VIII subhexagonal, posterior margin with small wide triangular incision followed by short keel, surface laterally with two elevated plates, long setae accumulated along posterior margins of those plates; tignum 0.50 times as long as sternite VIII (Fig. 215). Spermatheca with slightly indicated nodulus, cornu C-shaped, gradually narrowed towards sharp apex, spermathecal duct relatively long and straight (Fig. 204).

**Differential diagnosis.** *Liroetis modestus* is very similar to *L. fulvipennis*. Both species can be distinguished by the colouration of legs (bicolour in *L. modestus*, black in *L. fulvipennis*) and by dorsal process of aedeagus widest in anterior third in *L. modestus* but widest in the middle in *L. fulvipennis* (Figs 187, 192).

**Distribution.** China: Fujian (WEISE 1922, present paper), Zhejiang (present paper).



Figs 232–238. *Liroetis modestus* (Weise, 1922). 232–236 – Female, syntype (9.8 mm). 232 – dorsal view; 233 – lateral view; 234 – ventral view; 235 – head and pronotum; 236 – labels. 237–238 – Male (10.7 mm). 237 – dorsal view; 238 – lateral view.

***Liroetis nigriceps* (Laboissière, 1929) comb. nov.**

(Figs 193, 205, 216, 239–244)

*Pseudoliroetis nigriceps* Laboissière, 1929: 282 (original description).  
*Pseudoliroetis nigriceps*: GRESSITT & KIMOTO (1963): 530 (key); WILCOX (1973): 478 (catalogue).

*Pseudoliroëtis nigriceps*: OGLOBLIN (1936): 206 (description).

*Siemssenius nigriceps*: ZHANG et al. (2008b): 127 (key); BEENEN (2010): 488 (catalogue); YANG et al. (2015): 251 (key), 252 (noted).

**Type locality.** ‘Thibet: Moupin [= China, Sichuan Province, Baoxing].’

**Type material examined.** SYNTYPE: 1 ♂ (Figs 239–242), ‘MUS. HIST. NAT. / A. DAVID / Moupin (Thibet) / 1871 [w, p] // TYPE [p, red letters] / ♂ [w, h] // Pseudoliroetis / nigriceps / m [h] / V. Laboissière – Dét. [w, p] // Le Moulte vend. / via Reinbek / Eing. Nr. 1, 1957 [w, p]’ (ZMUH); 1 ♀, ‘MUS. HIST. NAT. / A. DAVID / Moupin (Thibet) / 1871 [w, p] // TYPE [red letters, w, p] // Pseudoliroetis / nigriceps / m [h] / V. Laboissière – Dét. [w, p]’ (MNHN); 1 ♀, ‘MUS. HIST. NAT. / A. DAVID / Moupin (Thibet) / 1871 [w, p] // Pseudoliroetis / nigriceps / m [h] / V. Laboissière – Dét. [w, p]’ (MNHN).

**Additional material examined.** CHINA: GUIZHOU: ‘Kiautschau’, 1 ♂ (NHMB – Frey coll.); Leishan Co., SE Kli, NE Leishan, Leigong Shan, E slope, env. of pass between Leishan and Fangxiang, 26°22.74'N 108°12.99'E, 1700–1800 m, 14.–24.vi.2001, 1 ♂ 2 ♀♀, H. Schillhammer leg. (NHMW). SICHUAN: Bifeng env., 30°04.112'N 102°59.427'E, 1140 m, 17.–24.v.2017, 2 ♂♂, W. Grosser leg. (JBCB).

**Diagnosis.** *Colouration.* Head black with brownish vertex, pronotum, scutellum, elytra and abdomen pale brown, meso- and metaventrite, antennae and legs black. The specimens from Guizhou have pale brown head and underside.

*Body length.* ♂♂: 9.5–10.9 mm, ♀♀: 10.1–11.1 mm.

*Male* (Figs 243–244). Antennae 0.79 times as long as body. Pronotum convex, 1.72 times as wide as long, almost impunctate, anterior margin nearly straight, unbordered, posterior margin rounded, thinly bordered, lateral margins with wider border. Posterior margin of abdominal ventrite IV with two obliquely impressed transverse triangular processes separated by U-shaped incision. Longitudinal impression on last abdominal ventrite very wide and deep, narrowed basally. Pygidium with triangularly pointed apex. Protarsomere I parallel. Metatibial spur wide, flat, with oblique apex.

*Aedeagus* (Fig. 193). Median lobe of aedeagus 3.76 times as long as wide; apical eighth narrow, parallel, rest wide, slightly narrowed in apical 2/8, basal 3/4 slightly convergent anteriorly. Lateral view: median lobe bisinuate; lateral elevation high, triangular, placed in anterior fifth of aedeagus length. Dorsal process 5.21 times as long as wide, 0.84 times as long as median lobe; apical two thirds elongate oval, apex sharp, basal third narrower, parallel. Lateral view: ventral side of dorsal process regularly widely rounded, dorsal side with distinct hump behind middle.

*Female.* Metatibial spur present, thin and sharp. Sternite VIII subsemicircular, posterior margin with small wide triangular incision followed by short keel, surface laterally with two elevated plates, long setae accumulated along posterior and inner margins of those plates, one isolated seta placed in middle of lateral part, middle part of surface with W-shaped impression; tignum 0.40 times as long as sternite VIII, narrow, asymmetrical, directed slightly to left (Fig. 216). Spermatheca with slightly indicated nodulus covered with fine wrinkles, cornu C-shaped, gradually narrowed towards sharp apex, spermathecal duct relatively long, straight basally and bent apically (Fig. 205).

**Differential diagnosis.** *Liroetis nigriceps* differs from similar *L. fulvipennis* in black or dark head and presence of metatibial spur in females (head brown and metatibial spur absent in females in *L. fulvipennis*). Dorsal process of aedeagus is wider and subparallel in anterior two thirds in *L. nigriceps* but widest in middle in *L. fulvipennis* (Figs 187, 193). Another similar species, *L. jeanvoinei*, has dorsum reddish brown and median lobe of aedeagus almost parallel, with dorsal process very narrow and parallel (Fig. 188).

**Distribution.** China: Sichuan (LABOISSIÈRE 1929, present paper), Guizhou (present paper).

***Liroetis rufipennis* (Chûjô, 1962) comb. nov.**

(Figs 194, 206, 217, 245–249)

*Pseudoliroëtis rufipennis* Chûjô, 1962: 178 (original description).

*Pseudoliroetis rufipennis*: GRESSITT & KIMOTO (1963): 530 (key); KIMOTO (1969): 36 (faunistics); WILCOX (1973): 478 (catalogue); TAKIZAWA et al. (1995): 12 (faunistics); KIMOTO & CHU (1996): 70 (noted).

*Siemssenius rufipennis*: KIMOTO (1989b): 252 (faunistics); KIMOTO & TAKIZAWA (1997): 379 (noted); LEE & CHENG (2007): 124 (noted); ZHANG et al. (2008b): 127 (key); BEENEN (2010): 488 (catalogue); TAKAHASHI (2012): 324 (faunistics); YANG et al. (2015): 251 (key), 252 (noted); LEE (2016): 378 (redescription), 383 (key).

**Type locality.** ‘Formosa, Mt. Arisan, Tainan-Syû [= Taiwan, Chiayi County, Alishan Mt.]’

**Type material.** Not examined.

**Additional material examined.** TAIWAN: Alishan, 2400 m, 17.–26.vi.1995, 2 ♂♂, Dalihod leg. (MOCP); Taichung County, Anmashan region, 1650 m, 20.vi.1997, 1 ♀, B. Herczig & L. Ronkay leg. (HNHM); Taichung County, 17 km SW of Lishanm Techu vill., 1500 m, 26.–27.v.1997, 1 ♀, Gy. M. László & G. László leg. (HNHM); Taichung County, Hui Sun Exp. Forest, Guandashi LTER site, 24°04'49"N 121°02'08"E, 950 m, 12.–13.iv.1997, 1 ♀, Peregovits & Kun leg. (HNHM); Taichung, Lishan, 5.vi.2016, 1 ♂ 1 ♀, J.-C. Chen leg. (JBCB); Nantou, Huakang, 17.vi.2016, 1 ♀, J.-C. Chen leg. (JBCB).

**Diagnosis.** *Colouration.* Body black, except for reddish brown elytra and abdomen.

*Body length.* ♂♂: 9.1–9.2 mm, ♀♀: 11.8–12.2 mm.

*Male* (Figs 245–247). Antennae 0.80 times as long as body. Pronotum convex, 1.85 times as wide as long, finely punctate, anterior margin nearly straight, unbordered, posterior margin straight in middle part, oblique laterally, thinly bordered, lateral margins straight and parallel in posterior two thirds, anterior third rounded and convergent, with wider border. Posterior margin of abdominal ventrite IV with two small transverse triangular processes separated by U-shaped incision. Longitudinal impression on last abdominal ventrite wide and deep, constricted subbasally. Protarsomere I elongate subtriangular. Metatibial spur wide, flat, with rounded apex.

*Aedeagus* (Fig. 194). Median lobe of aedeagus 3.16 times as long as wide; apical process very short, basal half very wide, parallel, apical half slightly convergent. Lateral view: median lobe bisinuate, apical quarter oblique; lateral elevation triangular, placed in anterior sixth of aedeagus length. Dorsal process long, 4.84 times as long as wide, 0.87 times as long as median lobe; lanceolate, with basal third narrower, subparallel, widest in anterior third, apex sharp. Lateral view: basal half regularly bent, slightly narrower, apical half wider, with ventral side slightly convex, apex sharp.

*Female* (Figs 248–249). Metatibial spur absent. Sternite



Figs 239–244. *Liroetis nigriceps* (Laboissière, 1929). 239–242 – Male, syntype (9.5 mm). 239 – dorsal view; 240 – ventral view; 241 – head and pronotum; 242 – labels. 243–244 – Male (10.3 mm). 243 – dorsal view; 244 – lateral view.

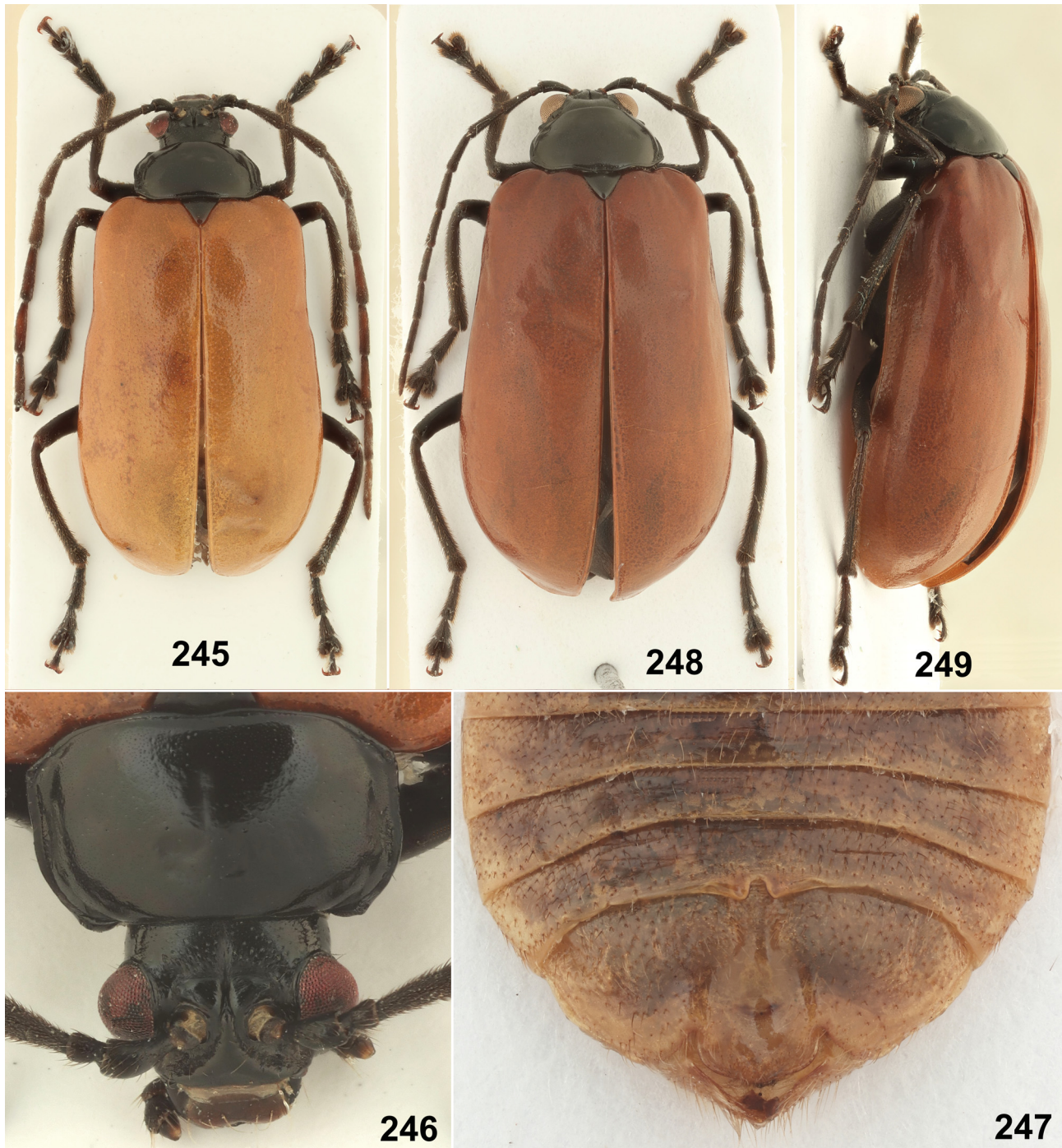
VIII subpentagonal, posterior margin with elevated keel terminated with small triangular process, long setae accumulated along posterior margins, middle part of surface with U-shaped impression; tignum 0.30 times as long as sternite VIII (Fig. 217). Spermatheca with poorly developed nodulus, cornu C-shaped, narrow, spermathecal duct slightly bent (Fig. 206).

**Differential diagnosis.** Having black body and reddish brown elytra and abdomen, *Liroetis rufipennis* is very similar to other Taiwanese species *L. jungchani*, *L. liui*, *L. tsoui*, and *L. yuae*. These species can be reliably identified

only based on the structure of aedeagus (Figs 189–190, 194, 196–197). Median lobe of aedeagus of *L. rufipennis* has lateral elevation large, triangular, dorsal process widely lanceolate and in lateral view slightly extended subapically (Fig. 194).

**Host plants.** Caprifoliaceae: *Lonicera acuminata* Wall., Hypericaceae: *Hypericum nagasawae* Hayata (LEE 2016).

**Distribution.** Taiwan (CHÛJÔ 1962; KIMOTO 1969, 1989b; TAKIZAWA et al. 1995; TAKAHASHI 2012; LEE 2016; present paper).



Figs 245–249. *Liroetis rufipennis* (Chûjô, 1962). 245–247 – Male (9.0 mm). 245 – dorsal view; 246 – head and pronotum; 247 – abdomen. 248–249 – Female (11.9 mm). 248 – dorsal view; 249 – lateral view.



***Liroetis sulcipennis* (Zhang & Yang, 2008) comb. nov.**

(Figs 195, 250–256)

*Siemssenius sulcipennis* Zhang & Yang, 2008 in ZHANG et al. (2008b): 127 (original description, key).*Siemssenius sulcipennis*: BEENEN (2010): 488 (catalogue); YANG et al. (2015): 251 (key), 252 (noted).**Type locality.** '[China:] Yunnan: Yuxi'.**Type material examined.** PARATYPE: 1 ♂ (Figs 250–256), '[Jiulaodong / 1800–1900 m / Collector Fuxing Zhu] [in Chinese, w, combined p and h] // [Sichuan / Mt. Emeishan / 1957.VII.8 / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1966999 [w, p] // *Siemssenius sulcipennis* / Zhang [w, p]' (IZAS).**Diagnosis. Colouration.** Body pale brown. Antennae black with brownish antennomere I. Legs brown with black tibiae and tarsi.**Body length.** ♂: 9.4 mm (paratype) (♂♂: 10.0–10.5 mm based on the original description).**Male** (Figs 250–256). Pronotum convex, 1.56 times as wide as long, finely punctate, anterior margin slightly concave, with border visible only near anterior angles, posterior margin straight in middle part, laterally oblique and with two points, thinly bordered, lateral margins straight, subparallel in posterior two thirds, anterior third rounded and convergent, with wider border. Elytra with sulcus along lateral and apical margins. Posterior margin of abdominal ventrite IV with two small triangular processes separated by U-shaped incision. Longitudinal impression on last abdominal ventrite wide and deep, convergent basally. Protarsomere I elongate, subtriangular. Metatibial spur thin.**Aedeagus** (Fig. 195). Median lobe of aedeagus 3.26 times as long as wide; widest basally, slightly convergent anteriorly and abruptly constricted in apical tenth, apex narrow, subtriangular, apically widened, with distinct narrow median furrow. Lateral view: median lobe slightly bisinuate; lateral elevation widely triangular, placed in anterior fifth of aedeagus length. Dorsal process 5.95 times as long as wide, 0.85 times as long as median lobe; apical half slightly wider, apex triangular and sharp. Lateral view: dorsal process widely regularly rounded.**Female** unknown.**Differential diagnosis.** *Liroetis sulcipennis* differs from all species in *L. fulvipennis* species-group in having elytra with deep furrow along lateral and posterior margins (Fig. 256).**Distribution.** China: Yunnan, Sichuan (ZHANG et al. 2008b).***Liroetis tsoui* (Lee, 2016) comb. nov.**

(Figs 196, 207, 218, 257–260)

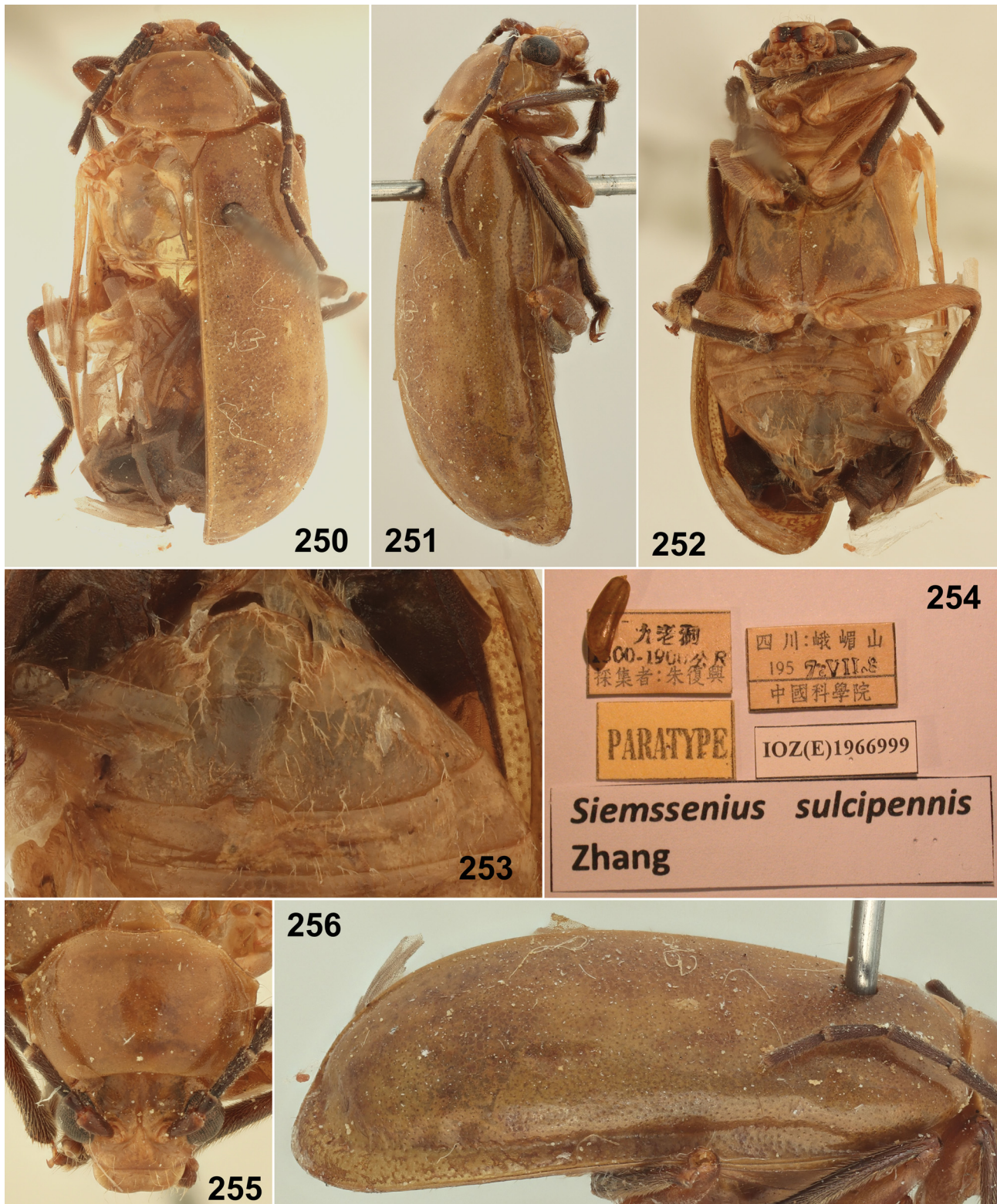
*Siemssenius tsoui* Lee, 2016: 380 (original description).**Type locality.** '[Taiwan:] New Taipei city, Hsinhsien'.**Type material examined.** PARATYPES: 1 ♂ (Figs 257–258), 'Taiwan: Taipei (22759) / Tsaikungkengshan ([in Chinese]) / 02.V.2012, leg. S.-F. Yu [w, p] // Paratypus / *Siemssenius* / *tsoui* sp. nov. [p] ♂ [h] / des. C.-F. Lee, 2016 [pink label, p]' (JBCB); 1 ♀ (Figs 259–260), 'Taiwan: Taipei / Erhtzuping ([in Chinese]) / 29.IV.2016, leg. C.-F. Lee [w, p] // Paratypus / *Siemssenius* / *tsoui* sp. nov. [p] ♀ [h] / des. C.-F. Lee, 2016 [pink label, p]' (JBCB).**Diagnosis. Colouration.** Body black, except for reddish brown elytra and abdomen.**Body length.** ♂: 10.0 mm, ♀: 11.1 mm.**Male** (Fig. 257). Antennae 0.95 times as long as body. Pronotum convex, 1.71 times as wide as long, very finely

punctate, anterior margin nearly straight, unbordered, posterior margin moderately rounded, thinly bordered, lateral margins slightly convergent in posterior two thirds, anterior third rounded and more distinctly convergent, with wider border. Protarsomere I elongate, subtriangular. Metatibial spur short, robust, subtubular, with transversely cut apex.

**Aedeagus** (Fig. 196). Median lobe of aedeagus 3.68 times as long as wide, with apical process narrow, separated from lateral elevations by V-shaped incisions, rest of median lobe subparallel. Lateral view: median lobe bisinuate, very narrow in middle part; lateral elevation quadrangular, placed in anterior fifth of aedeagus length. Dorsal process 5.31 times as long as wide, 0.83 times as long as median lobe, lanceolate. Lateral view: dorsal process widely regularly rounded, apical half slightly wider, apex sharp.**Female** (Fig. 259). Antennae shorter, 0.75 times as long as body. Protarsomeres narrower than in males. Metatibial spur short, narrow, with moderately rounded apex. Sternite VIII heart-shaped, posterior margin rounded with shallow emargination in middle, surface laterally with two elevated plates, long setae accumulated along posterior and inner margins of those plates, tignum short, 0.30 times as long as sternite VIII, slightly asymmetrical to right (Fig. 218). Spermatheca with poorly developed nodulus, cornu C-shaped, spermathecal duct slightly bent (Fig. 207).**Differential diagnosis.** Having black body and reddish brown elytra and abdomen, *Liroetis tsoui* is very similar to other Taiwanese species *L. jungchani*, *L. liui*, *L. rufipennis*, and *L. yuae*. These species can be reliably identified only based on the structure of aedeagus (Figs 189–190, 194, 196–197). Median lobe of aedeagus of *L. tsoui* has apical process extremely short, lateral elevation large, quadrangular, dorsal process moderately lanceolate and in lateral view distinctly extended subapically (Fig. 196).**Host plants.** Caprifoliaceae: *Lonicera hypoglauca* Miq., Saxifragaceae: *Hydrangea angustipetala* Hayata (LEE 2016).**Distribution.** Taiwan (LEE 2016).***Liroetis yuae* (Lee, 2016) comb. nov.**

(Figs 197, 201, 219, 261–264)

*Siemssenius yuae* Lee, 2016: 381 (original description), 383 (key).**Type locality.** '[Taiwan:] Nantou county, Huisunlinchang'.**Type material examined.** PARATYPES: 1 ♂ (Figs 261–262), 'Taiwan: Nantou / Huisunlinchang ([in Chinese]) / 26.IV.2014, leg. B.-X. Guo [w, p] // Paratypus / *Siemssenius* / *yuae* sp. nov. [p] ♂ [h] / des. C.-F. Lee, 2016 [pink label, p]' (JBCB); 1 ♀ (Figs 263–264), 'Taiwan: Nantou / Huisunlinchang ([in Chinese]) / 26.IV.2014, leg. B.-X. Guo [w, p] // Paratypus / *Siemssenius* / *yuae* sp. nov. [p] ♂ [h] / des. C.-F. Lee, 2016 [pink label, p]' (JBCB).**Additional material examined. TAIWAN:** Ilan prov., Suyuan-yakou, near Pinan, 1550 m, 6.vi.1997, 1 ♂, B. Herczig & L. Ronkay leg. (HNHM).**Diagnosis. Colouration.** Body black, except for reddish brown elytra and abdomen.**Body length.** ♂: 11.0 mm, ♀: 12.9 mm.**Male** (Fig. 261). Antennae 0.89 times as long as body. Pronotum convex, 1.73 times as wide as long, very finely punctate, anterior margin slightly concave, unbordered, posterior margin moderately rounded, thinly bordered, lateral margins slightly convergent in posterior two thirds,



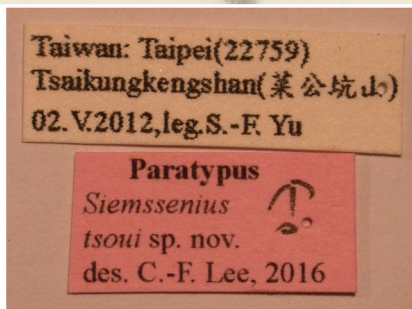
Figs 250–256. *Liroetis sulcipennis* (Zhang & Yang, 2008), male, paratype (9.4 mm). 250 – dorsal view; 251 – lateral view; 252 – ventral view; 253 – apex of abdomen; 254 – labels; 255 – head and pronotum; 256 – elytron, lateral view.



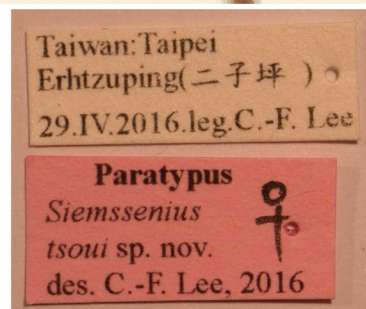
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Figs 257–260. *Liroetis tsoui* (Lee, 2016). 257–258 – Male, paratype (10.0 mm). 257 – dorsal view; 258 – labels. 259–260 – Female, paratype (11.1 mm). 259 – dorsal view; 260 – labels.

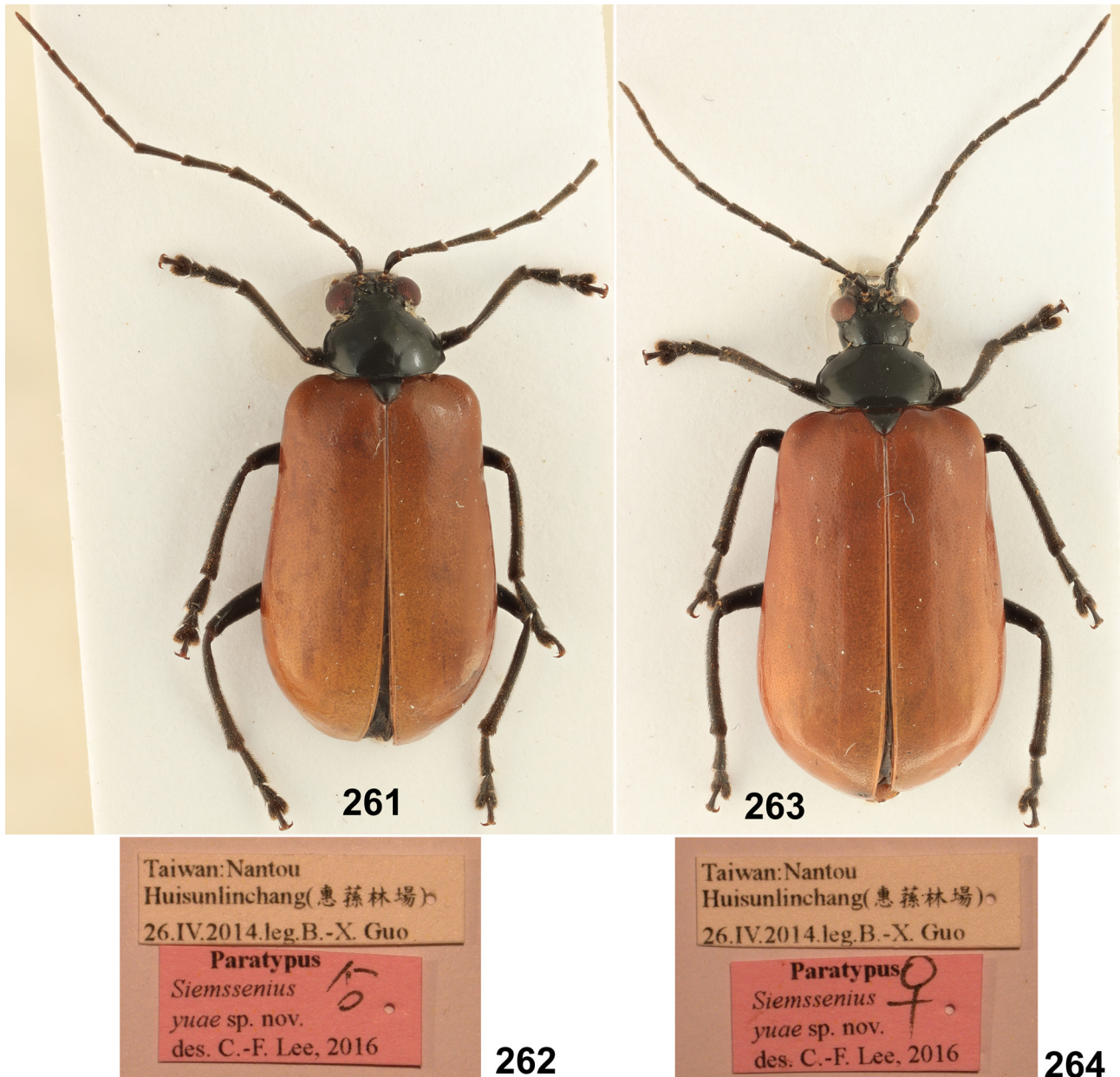
anterior third rounded and more distinctly convergent, with wider border. Protarsomere I subparallel in apical two thirds, convergent basally. Metatibial spur wide, flat, with rounded apex.

**Aedeagus** (Fig. 197). Median lobe of aedeagus 5.24 times as long as wide; apical tenth narrow, parallel, with rounded apex, extended in second tenth, rest wide, subparallel, sides slightly subparallel. Lateral view: median lobe bisinuate; lateral elevation triangular, placed in anterior fifth of aedeagus length. Dorsal process narrow, 8.28 times as long as wide, 0.76 times as long as median lobe; apical half lanceolate and slightly wider, apex triangular and sharp, basal half parallel. Lateral view: dorsal process widely regularly rounded, apex sharp.

**Female** (Fig. 263). Antennae shorter, 0.66 times as long as body. Protarsomeres narrower than in males. Metatibial spur absent. Sternite VIII with rounded posterior margin

with shallow emargination in middle, surface laterally with two elevated plates, long setae accumulated along posterior and inner margins of those plates, tignum short, 0.20 times as long as sternite VIII (Fig. 219). Spermatheca with poorly developed nodulus, cornu C-shaped, narrow, apical part longer than basal part, spermathecal duct bent (Fig. 201). **Differential diagnosis.** Having black body and reddish brown elytra and abdomen, *Liroetis jungchani* is very similar to other Taiwanese species *L. jungchani*, *L. liui*, *L. rufipennis*, and *L. tsoui*. These species can be reliably identified only based on the structure of aedeagus (Figs 189–190, 194, 196–197). Median lobe of aedeagus of *L. yuae* has apical process sharp in lateral view, lateral elevation widely subtriangular, dorsal process narrow, slightly lanceolate and in lateral view not extended subapically (Fig. 197).

**Distribution.** Taiwan (LEE 2016, present paper).



Figs 261–264. *Liroetis yuae* (Lee, 2016). 261–262 – Male, paratype (11.0 mm). 261 – dorsal view; 262 – labels. 263–264 – Female, paratype (12.9 mm). 263 – dorsal view; 264 – labels.

***Liroetis grandis* species-group**

**Definition.** Dorsal side yellow, each elytron with black spot on humerus and three preapical small black spots in transverse row (or with derived black pattern). Pronotum with anterior margin bordered. Male antennae 0.59–0.77 times as long as body. Metatibial spur absent in both males and females. Median lobe of aedeagus with folded apex, lateral elevation low, placed in anterior third or in middle of aedeagus length, apex of dorsal process with pair of denticles ventrally. Female sternite VIII heart-shaped.

***Liroetis alticola* Jiang, 1988**

(Figs 265–271, 291, 299, 305)

*Liroetis alticola* Jiang, 1988: 194, 198 (original description).*Liroetis alticola*: JIANG (1992): 658; BEENEN (2010): 478 (catalogue); YANG et al. (2015): 248 (key), 248 (noted).**Type locality.** '[China:] Yunnan: Deqen'.**Type material examined.** PARATYPE: 1 ♂ (Figs 265–269), '[Yunnan, Deqin, Meili / Xueshan East slope 4100 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1982.VII 30 / Collector: Huai-Cheng Chai] [in Chinese, w, combined p and h] // PARATYPE [y, p] // [No. 23] [in Chinese, w, h] // IOZ(E)1966990 [w, p] // *Liroetis alticola* / Jiang [w, p]' (IZAS).**Material examined.** CHINA: YUNNAN: N Weixi, Luozhua, 7.75 km E of Nianjua Mt., 27°44'09"N 98°57'03"E, 4080 m, 15.vi.2015, 1 ♂ 1 ♀, Belousov, Kabak & Davidian leg. (PRCS).

**Diagnosis.** *Colouration.* Head black with frontal tubercles and anterior part of vertex brownish. Pronotum yellowish brown with three black spots and two very small brownish spots laterally in transverse row; middle black spot heart-shaped, lateral black spots comma-like. Scutellum black. Elytra yellowish brown with large black spot on humeral callus and three smaller black spots in transverse row on each elytron in three quarters of elytral length. Antennae and legs black. Meso- and metaventrite black, abdomen yellow with more or less distinct dark triangular spots laterally on each abdominal ventrite (only poorly indicated in paratype).

*Body length.* ♂♂: 7.9–8.0 mm, ♀: 8.2 mm (♂♀: 8.0–9.0 mm based on the original description).

*Male* (Figs 265–268, 270). Antennae 0.68 times as long as body. Pronotum 1.52 times as wide as long, lustrous, covered with fine punctures, anterior margin with complete well visible border. Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with narrow median incision. Last abdominal ventrite with wide longitudinal impression. Protarsomere I large, subtriangular, metatibial spur absent.

*Aedeagus* (Fig. 291). Median lobe of aedeagus 5.43 times as long as wide; apical third narrower, parallel, with distinct very narrow median furrow, apex folded down, rounded, with small incision on tip; basal two thirds wider, with lateral margins slightly concave. Lateral view: ventral side straight except for folded apex and base; lateral elevation widely rounded, placed in middle of aedeagus length. Dorsal process 7.00 times as long as wide, 0.64 times as long as median lobe; narrow, gradually narrowing toward apex which is slightly extended subapically, apex rounded. Lateral view: dorsal process straight in basal two thirds, bent in apical third, ventral side of apical third slightly

convex, apex on ventral side pointed. Apex in frontal view with two short processes directed downwards and separated by U-shaped incision.

*Female* (Fig. 271). Metatibial spur absent. Last abdominal ventrite with posterior margin entire. Sternite VIII heart-shaped, middle part with triangular impression, lateral parts of posterior margin covered with large setae; tignum very short, 0.8 times as long as sternite VIII (Fig. 305). Spermatheca with well separated but relatively narrow nodulus, cornu U-shaped with long apical part, spermathecal duct sinuate (Fig. 299).

**Differential diagnosis.** Within *Liroetis grandis* species-group *L. alticola* is characterised by black legs and presence of black pattern on pronotum. Habitually similar species *L. octopunctatus* and *L. yulongnis* differ from *L. alticola* in pronotum covered with dense distinct punctures (pronotum lustrous, covered with very fine punctures in *L. alticola*).

**Distribution.** China: Yunnan (JIANG 1988, present paper).

**Comments.** The description of *L. alticola* contains two different spellings: *alticola* on pp. 194 and *allicola* on p. 198. The spelling *alticola* was fixed as the correct original spelling by the original author (JIANG 1992) who is deemed to be the First Reviser based on Art. 24.2.4. (ICZN 1999). The names proposed with *-cola* ending are nouns in apposition (e.g. HARBACH 2018).

***Liroetis apicalis* Gressitt & Kimoto, 1963**

(Figs 272–276, 292, 300, 306)

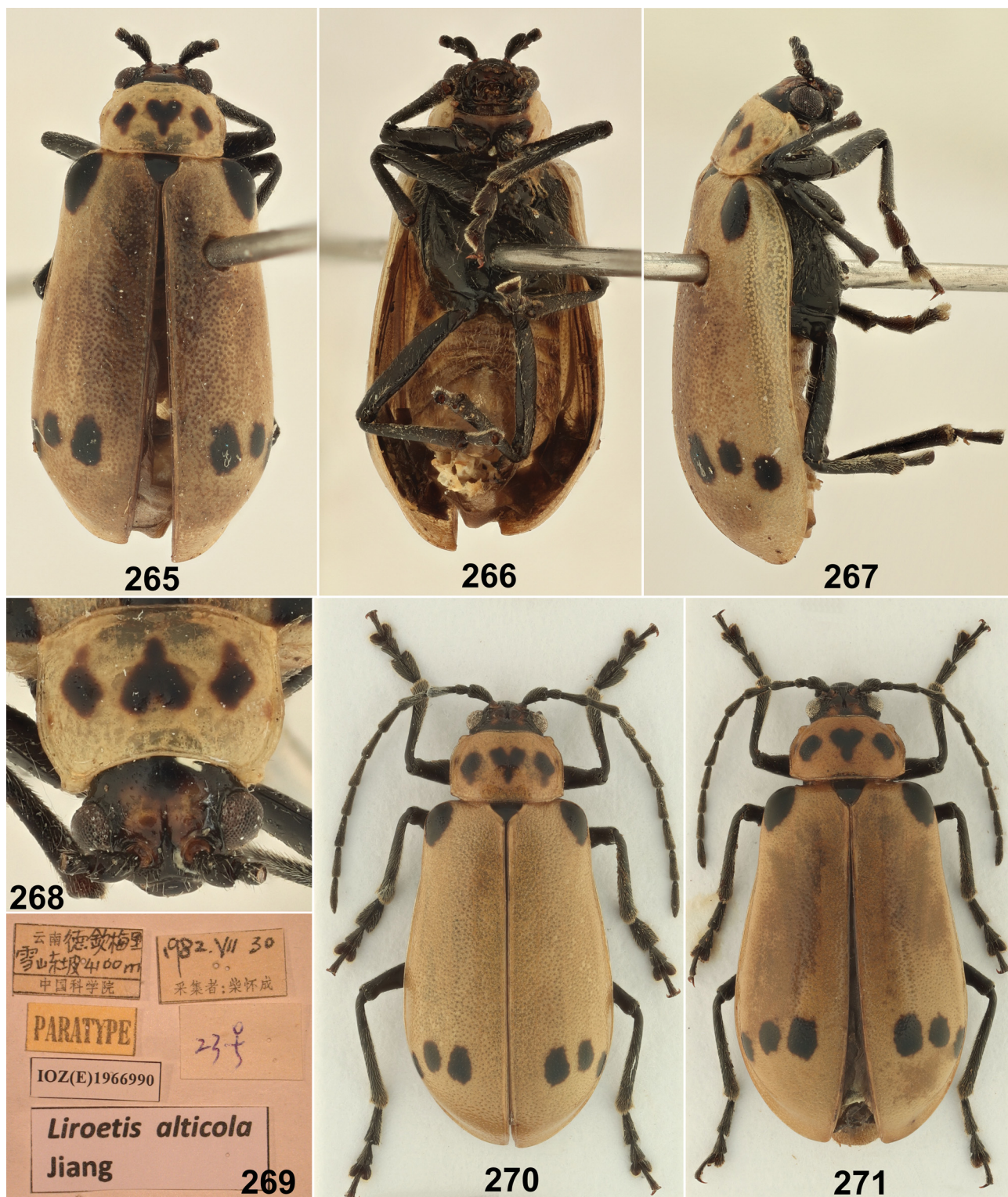
*Liroetis apicalis* Gressitt & Kimoto, 1963: 532 (key), 533 (original description).*Liroetis apicalis*: WILCOX (1973): 476 (catalogue); JIANG (1988): 192 (noted); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 248 (noted).**Type locality.** '[China:] Se-long, San-kiang-kou, Wassuland, E. Sikang Prov. [= Sichuan Province]'.**Type material examined.** HOLOTYPE: ♀, 'Selong 4000 m / 7.–8.1934 / Wassuland [w, p] // W. Szechuan China / Sankiangkou / leg. Friedrich [w, p] // Museum Frey / Tutzing [w, p] // HOLOTYPE [p] / *Liroetis* ♀ / *apicalis* [h] / Gressitt & Kimoto [r, p] // *Liroetis* / *apicalis* / sp. 1 [h] / Det. S. Kimoto [p] '61 [w, h]' (NHMB).**Material examined.** CHINA: SICHUAN: Mts. 12 km SSE of Rilong, Dong He River-source area, 30°54'N 102°53'E, 4100 m, 18.–20.vi.2013, 2 ♂♂ 1 ♀, J. Kaláb leg. (BMNH).

**Diagnosis.** *Colouration.* Body black except for yellow anterior pronotal angles, longitudinal stripe between humeral callus and scutellum, irregular apical elytral spot, lateral margin in middle of elytra, and extreme posterior margins of abdominal ventrites I–IV.

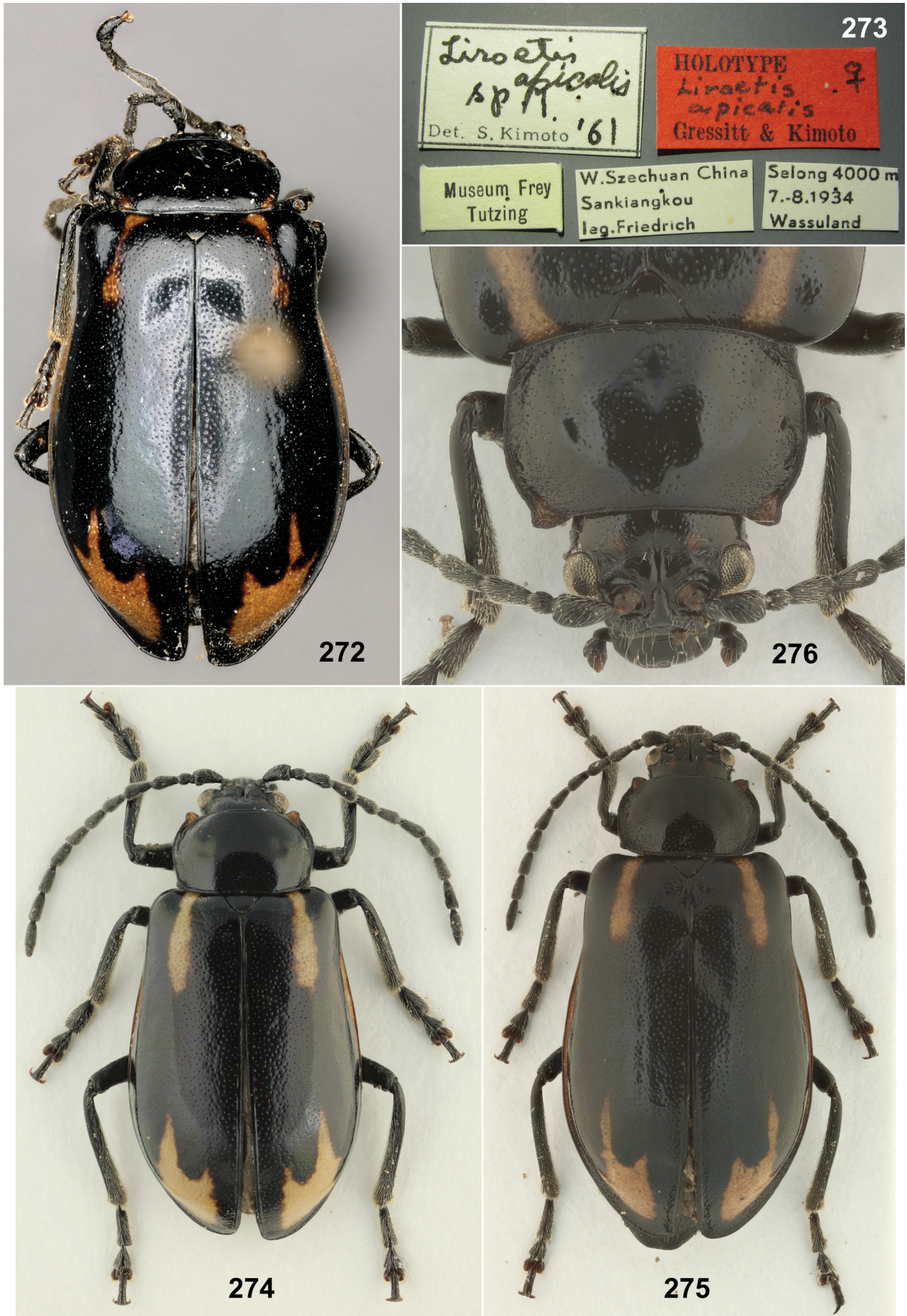
*Body length.* ♂♂: 6.8–7.2 mm, ♀: 8.2 mm.

*Male* (Fig. 274). Antennae 0.65 times as long as body. Pronotum 1.63 times as wide as long, lustrous, covered with fine punctures, anterior margin with complete well visible border. Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with narrow median incision. Last abdominal ventrite with longitudinal median impression and sinuate impression along posterior margin. Protarsomere I enlarged, subtriangular, metatibial spur absent.

*Aedeagus* (Fig. 292). Median lobe of aedeagus flat, 5.00 times as long as wide; apical half subparallel, slightly narrower than basal half; apex folded down. Lateral view:



Figs 265–271. *Liroetis alticola* Jiang, 1988. 265–269 – Male, paratype (7.9 mm). 265 – dorsal view; 266 – ventral view; 267 – lateral view; 268 – head and pronotum; 269 – labels. 270 – Male (8.0 mm), dorsal view; 271 – Female (8.2 mm), dorsal view.



Figs 272–276. *Liroetis apicalis* Gressitt & Kimoto, 1963. 272–273 – Female, holotype. 272 – dorsal view; 273 – labels. 274 – Male (7.1 mm), dorsal view. 275–276 – Female (8.3 mm). 275 – dorsal view; 276 – head and pronotum.

ventral side straight except for folded apex and base; lateral elevation indistinct. Dorsal process 8.50 times as long as wide, 0.68 times as long as median lobe; very narrow, gradually narrowing apically, apex with two small lateral subtriangular protuberances. Lateral view: dorsal process straight in basal two thirds, bent in apical third and before base, ventral side of apical third with two small triangular processes subapically, apex in frontal view with two small divergent denticles directed downwards.

**Female** (Figs 275–276). Metatibial spur absent. Last abdominal ventrite with posterior margin entire. Sternite VIII heart-shaped, middle part with triangular impression, lateral parts of posterior margin with very long setae; tignum 0.80 times as long as sternite VIII, with bifurcate apex forming two thin divergent processes (Fig. 306). Spermatheca without visible nodulus, cornu C-shaped (Fig. 300).

**Differential diagnosis.** *Liroetis apicalis* can be distinguished from other species of *L. grandis* species-group by having black elytra with yellow stripe between humeral callus and scutellum, on lateral elytral margin, and with irregular yellow spot at elytral apex (Figs 274–275). Other species in this group have yellow elytra with black spot on humeral calli and three black spots preapically on each elytron in transverse row (rarely with additional black pattern).

**Distribution.** China: Sichuan (GRESSITT & KIMOTO 1963, present paper).

### *Liroetis grandis* Chen & Jiang, 1986

(Figs 277–281)

*Liroetis grandis* Chen & Jiang, 1986: 199, 200 (original description).

*Liroetis grandis*: JIANG (1988): 192 (noted); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 248 (noted).

**Type locality.** '[China:] Sichuan: Mt. Emei'.

**Type material examined.** PARATYPE: 1 ♀ (Figs 277–281), '[Sichuan, Mt. Emei / 1957.8.29. / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [Jiulao cave / Collector: You-Cai Lu] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1966991 [w, p] // *Liroetis grandis* / Chen [w, p]' (IZAS).

**Diagnosis.** *Colouration.* Body yellow, each elytron with black spot on humeral callus and three small black spots preapically in transverse row, antennae black, femora yellow with black apical part, tibiae and tarsi black.

**Male** unknown.

**Body length.** ♀ (paratype): 13.8 mm (♀♀: 15.0 mm based on the original description).

**Female** (Figs 277–280). Pronotum convex, 1.35 times as wide as long, lustrous, impunctate, anterior margin unbordered. Scutellum with small grooves at basal angles (Fig. 280). Metatibial spur absent. Female genitalia not examined.

**Differential diagnosis.** Having completely pale coloured pronotum and bicolor legs *L. grandis* is very similar to *L. suwai* and *L. paragrandsis*. *Liroetis grandis* can be distinguished by presence of two small grooves at basal angles of scutellum (Fig. 280) which are missing in *L. suwai* and *L. paragrandsis*.

**Distribution.** China: Sichuan (CHEN & JIANG 1986).

### *Liroetis nigropictus* (Fairmaire, 1889) comb. nov.

(Figs 282–286, 293)

*Leptarthra nigropicta* Fairmaire, 1889: 76 (original description).

*Leptarthra nigropicta*: GRESSITT & KIMOTO (1963): 655 (misidentification, = *L. reitteri*); WILCOX (1971): 212 (catalogue); BEENEN (2010): 461 (catalogue); YANG et al. (2015): 183 (noted).

**Type locality.** 'Moupin'. [= China, Sichuan Province: Baoxing].

**Type material examined.** SYNTYPE: 1 ♂ (Figs 282–286), '700 [w, h] // MUS. HIST. NAT. / A. David / Moupin (Thibet.) / 1871 [w, p] // *Leptarthra / nigropicta / Fairm [w, h] // TYPE [r, p]'* (MNHN).

**Diagnosis.** *Colouration.* Head black with paler anterior part of vertex. Pronotum black with paler angles and anterior parts of lateral margins. Scutellum black. Elytra yellow with black markings as follows: large black spot on humeral callus, transverse median black band pronounced anteriorly around elytral suture to scutellum, and three large, partly connected black spots in transverse preapical row on each elytron. Antennae (except for brownish base on antennomere I) and legs black. Ventral side black, except for paler extreme posterior margins of abdominal ventrites and lateral margins of median impression on last abdominal ventrite.

**Body length.** ♂: 8.8 mm (syntype).

**Male** (Figs 282–285). Pronotum 1.53 times as wide as long, lustrous, covered with fine punctures, anterior margin with complete fine border, lateral margins subparallel in posterior half, rounded in anterior half, pronotum widest in anterior third. Middle part of posterior margin of abdominal ventrite IV vertically impressed, with short parallel incision in middle. Longitudinal impression on last abdominal ventrite slightly constricted before base, at base wider and shallower. Metatibial spur absent.

**Aedeagus** (Fig. 293). Median lobe of aedeagus 4.25 times as long as wide; apical third narrower, parallel, with distinct very narrow median furrow, apex rounded, folded down; basal two thirds moderately rounded laterally, wider than apical third. Lateral view: median lobe straight in apical third, moderately rounded in basal two thirds; lateral elevation moderately rounded, placed in anterior third of aedeagus length. Dorsal process narrow, 7.45 times as long as wide, 0.65 times as long as median lobe; parallel, moderately constricted in apical quarter; apex rounded. Lateral view: dorsal process moderately regularly rounded, ventral side with indistinct tooth subapically and on ventral apical angle. Apex in frontal view with small incision.

**Female** unknown.

**Differential diagnosis.** *Liroetis nigropictus* has, besides black humerus and three black preapical spots on each elytron, also wide median transverse black band prolonged anteriorly along elytral suture towards scutellum, and black pronotum (Fig. 282). It can be confused only with *L. obliquevirgatus* which has pronotum pale brown with three black spots and each elytron with wide oblique black stripe, not connected at elytral suture (Fig. 287). All other representatives of *L. grandis* species-group differ in pronotum completely or predominantly pale and each elytron only with black spot on humerus and three black preapical spots.

**Distribution.** China: Sichuan (FAIRMAIRE 1889).

**Comments.** Based on the accompanying figure, the record of *Leptarthra nigropicta* from Sikang (GRESSITT & KIMOTO 1963) refers to *L. reitteri*.



***Liroetis obliquevirgatus* Lopatin, 2013**

(Figs 287–290, 294)

*Liroëtis obliquevirgata* Lopatin, 2013: 771 (original description).*Liroëtis obliquevirgata*: YANG et al. (2015): 249 (noted).**Type locality.** '[China:] Sichuan Province, near pass btw. Pingchuan & Yanyuan, 27°31'16"N 101°44'07"E'.**Type material examined.** HOLOTYPE: ♂ (Figs 287–290), 'China, Sichuan Prov., near / pass btw Pingchuan & Yanyuan / 27 31 16 N / 101 44 07 E / H=3555 m, 21.07.2011 / Belousov, Kabak leg. [w, p] // Holotypus [r, h] // *Liroëtis / obliquevirgatus / sp. n. [h] / det. I. Lopatin, 201 [p] 2 [w, h]*' (ZIN).**Diagnosis.** *Colouration.* Dorsal side pale brown, vertex black medially and laterally, pronotum with three black spots (middle heart-shaped, two lateral elongate), scutellum brown, each elytron with small black spot on humeral callus, three preapical small black spots in transverse row and large oblique median spot not touching suture. Antennae black with reddish antennomeres I and II. Legs brown to black. Prosternum pale brown, mesosternum pale in middle and darkened laterally, metasternum almost black with brown anterior margin, abdomen pale brown with darkened patches.

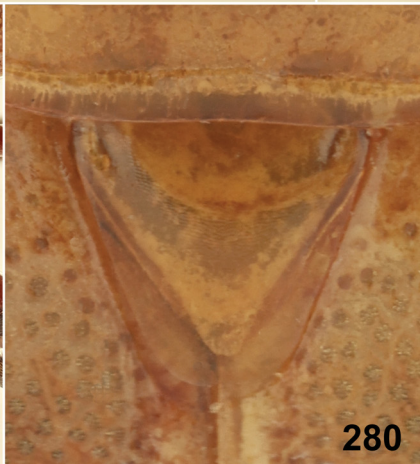
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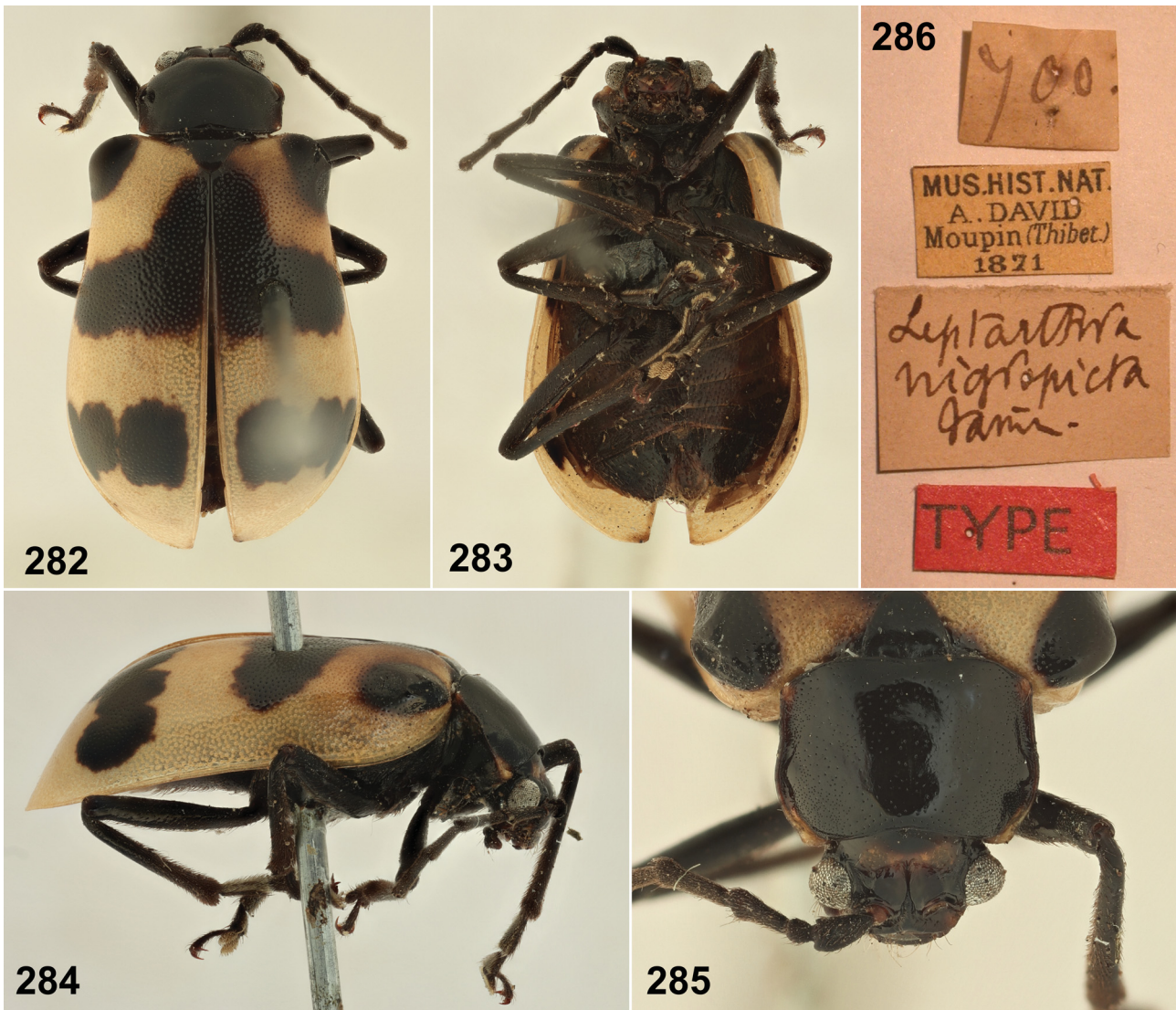


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Figs 277–281. *Liroetis grandis* Chen & Jiang, 1986, female, paratype (13.3 mm). 277 – dorsal view; 278 – ventral view; 279 – head and pronotum; 280 – scutellum; 281 – labels.



Figs 282–286. *Liroetis nigropictus* (Fairmaire, 1889), male, syntype (8.8 mm). 282 – dorsal view; 283 – ventral view; 284 – lateral view; 285 – head and pronotum; 286 – labels.

*Body length.* ♂: 8.9 mm (holotype).

*Male* (Figs 287–289). Dorsum dull. Antennae 0.68 times as long as body. Pronotum 1.62 times as wide as long, covered with distinct punctures, anterior margin straight with thin border, lateral margins rounded in anterior half, straight and convergent posteriorly, anterior angles pronounced to distinct teeth. Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with small median U-shaped incision. Last abdominal ventrite with median longitudinal impression constricted before base. Protarsomere I subtriangular, metatibial spur absent.

*Aedeagus* (Fig. 294). Median lobe of aedeagus 4.86 times as long as wide; apical third narrower, parallel, with distinct very narrow median furrow, apex rounded, strongly folded down; basal two thirds wider, slightly convergent basally. Lateral view: median lobe almost straight (except for turned apex and base); lateral elevation small, subtriangular with rounded tip, placed in anterior two fifths of aedeagus length; ventral side with small angulation subapically. Dorsal process 5.93 times as long as wide, 0.65 times as long as median lobe; narrow, subparallel,

slightly wider subapically. Lateral view: dorsal process narrow, almost straight, with bent apical part, apical part with triangular lamella ventrally.

*Female* unknown.

**Differential diagnosis.** *Liroetis obliquevirgatus* differs from almost all other representatives of *L. grandis* species-group by presence of additional wide oblique black stripe on each elytron, not connected at elytral suture (Fig. 287). Similar elytral pattern can be found only in *L. nigropictus* which has wide median transverse black band prolonged anteriorly along elytral suture towards scutellum, and black pronotum (Fig. 282).

**Distribution.** China: Sichuan (LOPATIN 2013).

#### *Liroetis octopunctatus* (Weise, 1889)

(Figs 295, 301, 307, 311–316)

*Mimastra 8-punctata* Weise, 1889: 619 (original description).

*Liroëtis octopunctata*: OGLOBLIN (1936): 208 (description), 405 (key).

*Liroetis octopunctata*: GRESSITT & KIMOTO (1963): 532 (key), 534 (faunistics); WILCOX (1973): 476 (catalogue); CHEN & JIANG (1981): 480 (faunistics); JIANG (1988): 194 (noted); JIANG (1992): 658 (noted); WANG & YANG (2006): 165 (faunistics); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 248 (key), 249 (noted).



Figs 287–290. *Liroëtis obliquevirgatus* Lopatin, 2013, male, holotype (8.9 mm). 287 – dorsal view; 288 – ventral view; 289 – lateral view; 290 – labels.

**Type locality.** ‘Sze-tschuan [= China, Sichuan Province]’.

**Type material examined.** HOLOTYPE: ♀ (Figs 311–313), ‘Sze-tschuan / 1885 / G. Patanin [w, p] // [small round gold label] // offen [w, h] // unicum [w, h] // Mimastra / 8-punctata / Ws. [w, h] // Liroëtis / octopunctata / Ws. [h] D. Ogloblin det. [w, p]’ (ZIN).

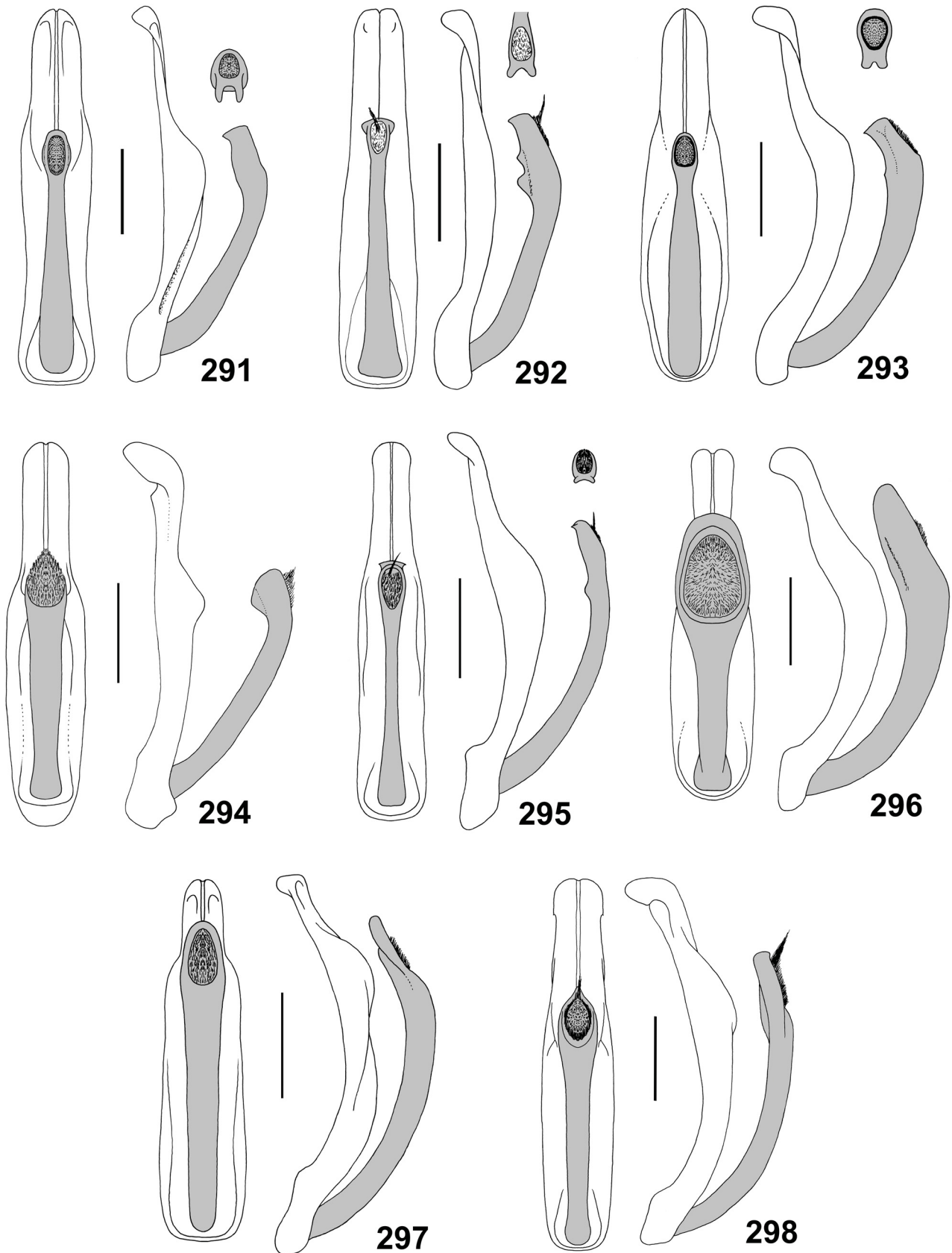
**Additional material examined.** CHINA: GANSU: Xiahe env., 35°11.5'N, 102°30.6'E, 2940 m, 19.–22.vi.2005, 1 ♂, J. Hájek, D. Král & J. Růžička leg. (JBCB). SICHUAN: Ngan Yang Ba, W of Chetu pass, near Tatsienlu, 18.vii.1923, 1 ♀, D. C. Graham leg. (USNM); Omei Shan, Shin Kai Si, near Kiating, viii.1921, 1 ♂, D. C. Graham leg. (USNM).

**Diagnosis.** *Colouration.* Head black, vertex with two brown spots behind frontal tubercles. Pronotum yellowish brown with three black spots and two very small brownish

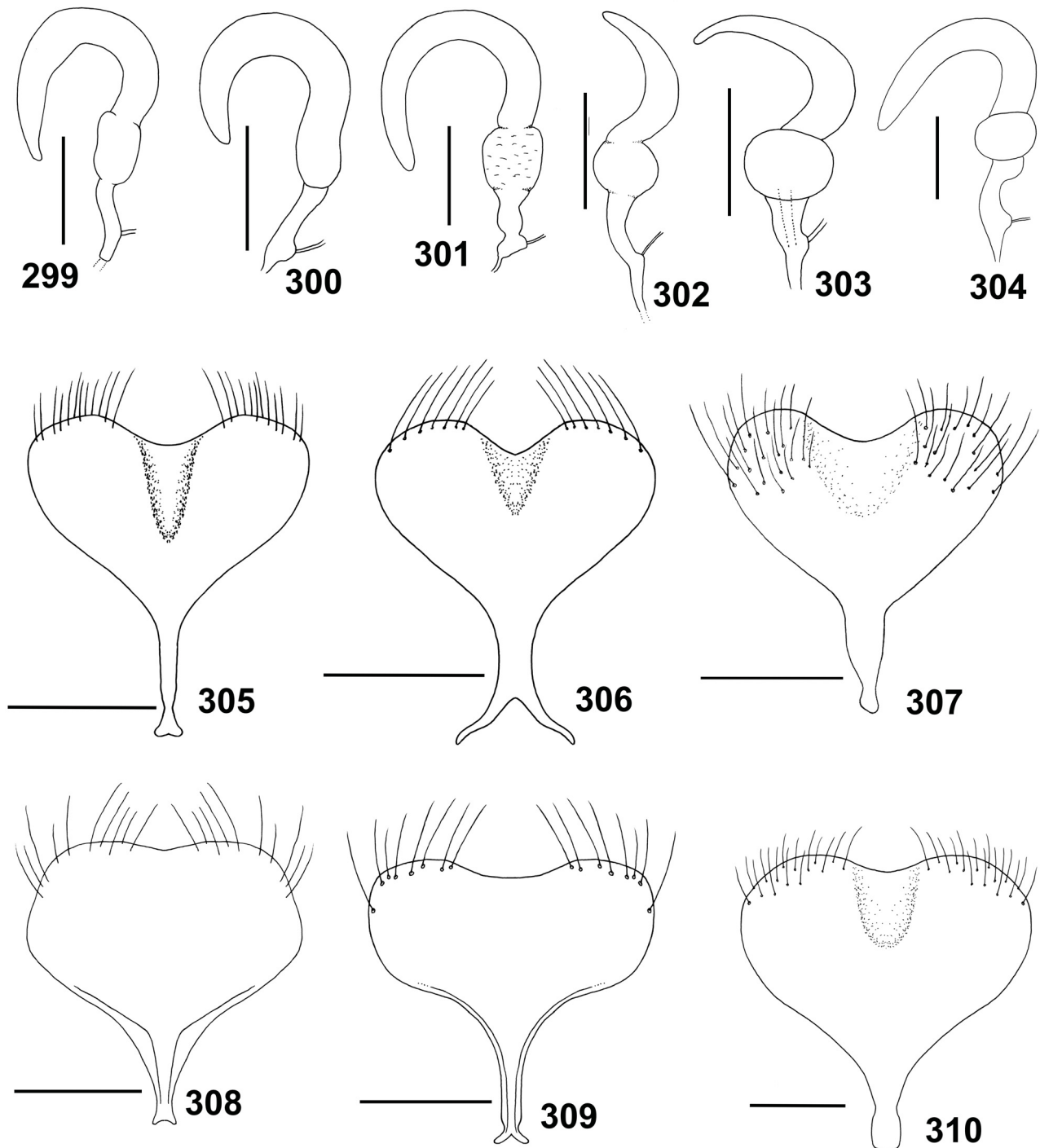
spots laterally in transverse row; middle black spot heart-shaped. Scutellum black. Elytra yellowish brown with large black spot on humeral callus and three smaller black spots in transverse row on each elytron in three quarters of elytral length. Antennae and legs black. Meso- and metaventrite black, abdomen yellow with more or less distinct dark triangular spots laterally on each abdominal ventrite. Both specimens deposited in USNM are extremely pale with almost completely pale brown head and legs and reduced black pattern on pronotum.

*Body length.* ♂♂: 7.3–7.4 mm, ♀: 8.8 mm.

*Male* (Figs 314–316). Antennae 0.59 times as long



Figs 291–298. Aedeagus of *Liroetis*, dorsal and lateral views, apex of dorsal process in frontal view. 291 – *L. alticola* Jiang, 1988; 292 – *L. apicalis* Gressitt & Kimoto, 1963; 293 – *L. nigropictus* (Fairmaire, 1889); 294 – *L. obliquevirgatus* Lopatin, 2013; 295 – *L. octopunctatus* (Weise, 1889); 296 – *L. paragrandsis* Jiang, 1988; 297 – *L. suwai* (Takizawa, 1988); 298 – *L. yulongnis* Jiang, 1988. Scale 0.5 mm.



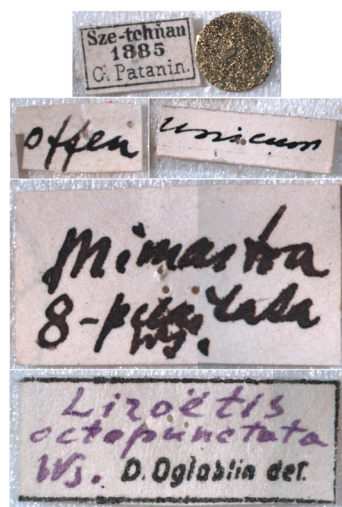
Figs 299–310. Spermatheca (Figs 299–304) and sternite VII (Figs 305–310) of *Liroetis*. 299, 305 – *L. alticola* Jiang, 1988; 300, 306 – *L. apicalis* Gressitt & Kimoto, 1963; 301, 307 – *L. octopunctatus* (Weise, 1889); 302, 308 – *L. paragrandsis* Jiang, 1988; 303, 309 – *L. suwai* (Takizawa, 1988); 304, 310 – *L. yulongnis* Jiang, 1988. Scales 0.25 mm for Figs 299–304, 0.5 mm for Figs 305–310.

as body. Pronotum 1.46 times as wide as long, lustrous, covered with distinct punctures, anterior margin slightly concave, with complete well visible border, lateral margins slightly rounded, posterior margin rounded, anterior angles prominent, posterior angles nearly rectangular. Middle part of posterior margin of abdominal ventrite IV obliquely impressed, with narrow median incision. Last abdominal ventrite with longitudinal median impression. Protarsomere I enlarged, subpentagonal, metatibial spur absent.

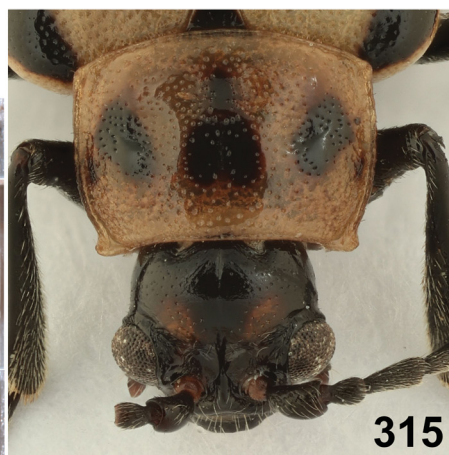
*Aedeagus* (Fig. 295). Median lobe of aedeagus 5.72 times as long as wide; apical third narrower, subparallel, with

distinct narrow median furrow, apex rounded, folded down; basal two thirds wider, parallel. Lateral view: median lobe slightly sinuate; lateral elevation low, widely rounded, placed in anterior two fifths of aedeagus length; apex with two small divergent denticles. Dorsal process 9.30 times as long as wide, 0.65 times as long as median lobe; very narrow, slightly wider basally and apically, apex with bent border. Lateral view: dorsal process narrow, regularly bent, subapically on ventral side with small angulation.

*Female* (Figs 311–312). Sternite VIII heart-shaped, middle part with subtriangular impression, long setae



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316



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Figs 311–316. *Liroetis octopunctatus* (Weise, 1889). 311–313 – Female, holotype. 311 – dorsal view; 312 – ventral view; 313 – labels. 314–316 – Male (7.4 mm): 314 – dorsal view; 315 – head and pronotum; 316 – abdomen.

accumulated on lateral parts of surface; tignum 0.50 times as long as sternite VIII, with slightly asymmetrical apex (Fig. 307). Spermatheca with subspherical nodulus, cornu long and narrow, C-shaped, spermathecal duct twice constricted (Fig. 301).

**Differential diagnosis.** *Liroetis octopunctatus* has black legs and black pattern on densely punctate pronotum. It can be distinguished from very similar *L. yulongnis* by smaller body (7.3–8.8 mm) and extremely narrow, 9.30 times as long as wide, dorsal process of aedeagus (Fig. 295). *Liroetis yulongnis* is larger (8.5–11.0 mm) and has wider dorsal process of aedeagus, 6.68 times as long as wide (Fig. 298). Similarly coloured *L. alticola* differs in lustrous pronotum covered with very fine punctures.

**Host plants.** Gentianaceae: *Gentiana* sp., Asteraceae: *Ligularia* sp. (WANG & YANG 2006).

**Distribution.** China: Gansu (WANG & YANG 2006, present paper), Sichuan (WEISE 1889, GRESSITT & KIMOTO 1963, present paper), Qinghai (OGLOBLIN 1936), Xizang (CHEN & JIANG 1981).

### *Liroetis paragrandidis* Jiang, 1988

(Figs 296, 302, 308, 317–323)

*Liroetis paragrandidis* Jiang, 1988: 192, 198 (original description).

*Liroetis paragrandidis*: BEENEN (2010): 478 (catalogue); YANG et al. (2015): 248 (key), 249 (noted).

**Type locality.** '[China:] Xizang: Medog Co.'

**Type material examined.** PARATYPE: 1 ♀ (Figs 317–320), '[Xizang, Motuo, Tiqin / 3400 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1982.IX.7 / Collector Yin-Heng Han] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1966993 [w, p] // *Liroetis paragrandidis* / Jiang [p] ♀ [w, h]' (IZAS).

**Additional material examined.** CHINA: SICHUAN: Wenchuan, Wolong, 1600 m, 26.vii.1983, 1 ♂, S.-Y. Wang leg. (IZAS). XIZANG: Zayul, Atakang, 9000 ft, 9.vi.1933, 1 ♀, F. Kingdon Ward & R. J. H. Kaulback leg. (BMNH).

**Diagnosis.** *Colouration.* Dorsal side yellow, each elytron with small black spot on humeral callus and three small black preapical spots in transverse row. Antennae black. Legs orange, tarsi, tibiae and apical parts of femora black.

*Body length.* ♂: 12.0 mm, ♀♀: 12.7–14.0 mm.

*Male* (Figs 321–322). Pronotum 1.34 times as wide as long, lustrous, impunctate, anterior margin slightly concave, with complete thin border, lateral margins sinuate, pronotum widest in anterior third. Posterior margin of abdominal ventrite IV obliquely impressed forming two small triangular processes separated by small V-shaped incision. Last abdominal ventrite with longitudinal impression moderately constricted in middle. Scutellum without small grooves at basal angles. Metatibial spur absent.

*Aedeagus* (Fig. 296). Median lobe of aedeagus 4.20 times as long as wide; basal half wide, almost parallel, apical quarter ca. twice narrower than basal half, subparallel, second quarter gradually narrower anteriorly, apex folded down. Lateral view: median lobe bisinuate, second quarter distinctly wider than basal half; lateral elevation widely rounded, indistinct. Dorsal process 3.74 times as long as wide, 0.79 times as long as median lobe; basal half narrow, apical half elongate oval, ca. twice wider than basal half, with large elongate setose plate, in lateral view

widely regularly rounded.

*Female* (Fig. 323). Pronotum with indistinct border on anterior margin. Metatibial spur absent. Sternite VIII subpentagonal, posterior margin shallowly emarginated, long setae accumulated along posterior and partly also lateral margins; tignum 0.50 times as long as sternite VIII, apex slightly wider and shallowly emarginated (Fig. 308). Spermatheca with well developed spherical nodulus, cornu short, only slightly bent, spermathecal duct moderately bent (Fig. 302).

**Differential diagnosis.** *Liroetis paragrandidis* can be distinguished from very similar *L. suwai* by larger body (12.0–14.0 mm) and yellow scutellum, while *L. suwai* has body smaller (9.9–11.5 mm) and scutellum mostly or partly black. Dorsal process of aedeagus in *L. paragrandidis* is widely extended in apical part (Fig. 296), while dorsal process in *L. suwai* is almost parallel in whole length (Fig. 297). Similarly coloured *L. grandis* differs in scutellum with two small grooves at basal angles (Fig. 280).

**Distribution.** China: Xizang (JIANG 1988), Sichuan (present paper).

### *Liroetis suwai* (Takizawa, 1988)

(Figs 297, 303, 309, 324–325)

*Mimastra suwai* Takizawa, 1988: 14 (original description).

*Mimastra suwai*: MEDVEDEV & SPRECHER (1999): 312 (catalogue); KIMOTO (2005): 62 (catalogue); ZHANG et al. (2006): 203 (catalogue).

*Liroetis suwai*: HARTMANN & MEDVEDEV (2003): 168 (transferred to *Liroetis*, faunistics); BEENEN (2010): 478 (catalogue); SPRECHER-UEBERSAX (2011): 433 (catalogue).

**Type locality.** '[Nepal:] Beding, Rolwaling valley, Janakpur'.

**Type material.** Not examined.

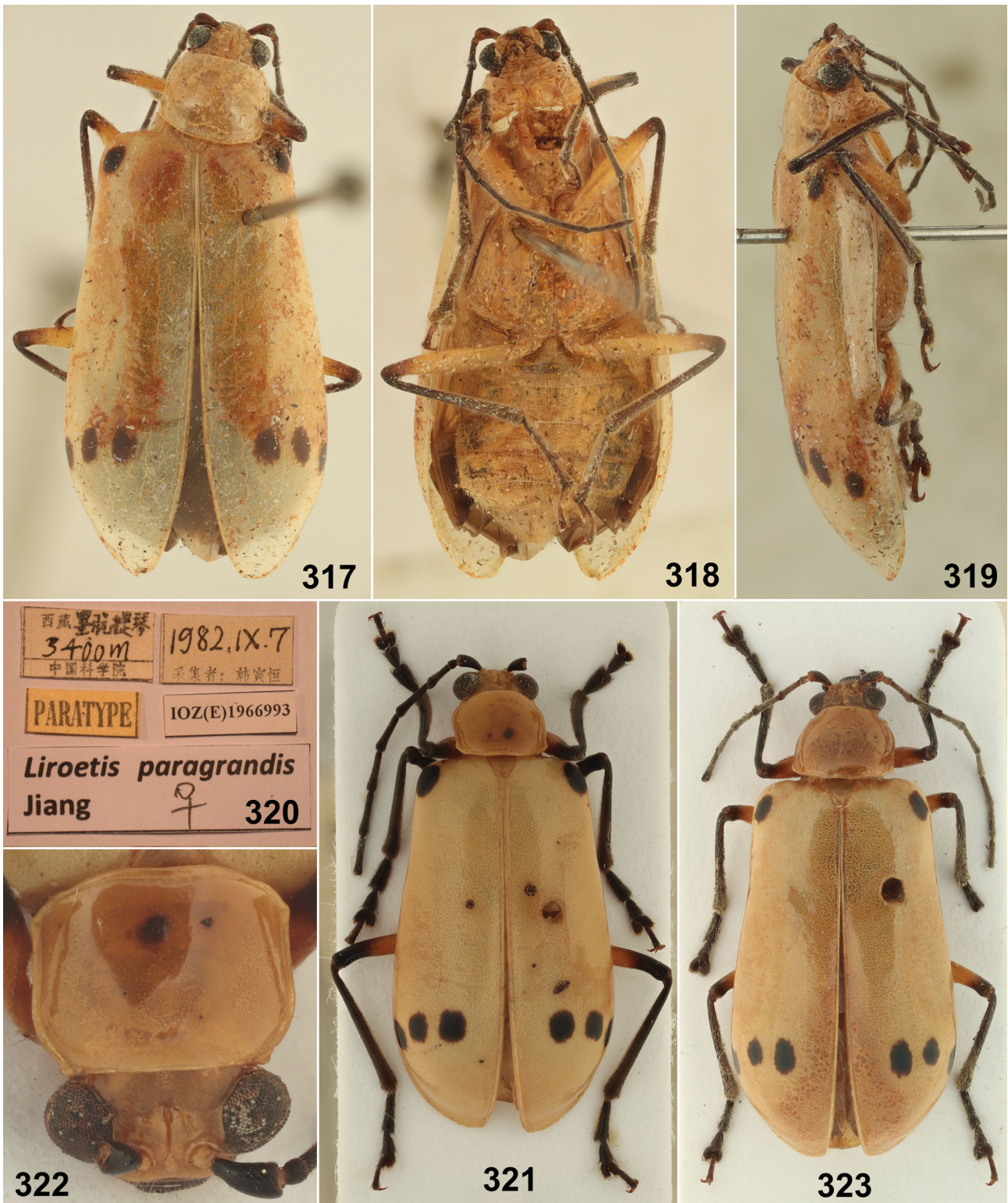
**Additional material examined.** NEPAL: Chautara distr., Choche Lekh, viii.1983, 2 ♂♂, M. G. Allen leg. (BMNH); Dhaulagiri SE slope, Dwari village, upper Rahugat Khola valley, 2500 m, 13.–15.v.2002, 1 ♀, J. Schmidt leg. (NMEG); Karnali prov., Churta E Hochtal, 3500–3800 m, 2.vi.2007, 1 ♀, F. Creutzburg leg. (NMEG).

**Diagnosis.** *Colouration.* Body yellow, scutellum dark with paler apical half, each elytron with small black spot on humeral callus and three small black spots preapically in transverse row, antennae black except for antennomere I yellow with darkened dorsal side, femora yellow with black apex, tibiae and tarsi black. Ventral side variable: meso- and metaventrites yellow to black with brown spots, abdomen yellow or yellow with black lateral parts of ventrites.

*Body length.* ♂♂: 9.9–10.2 mm, ♀♀: 9.3–10.3 mm (♀♀: 10.0–11.5 mm based on the original description).

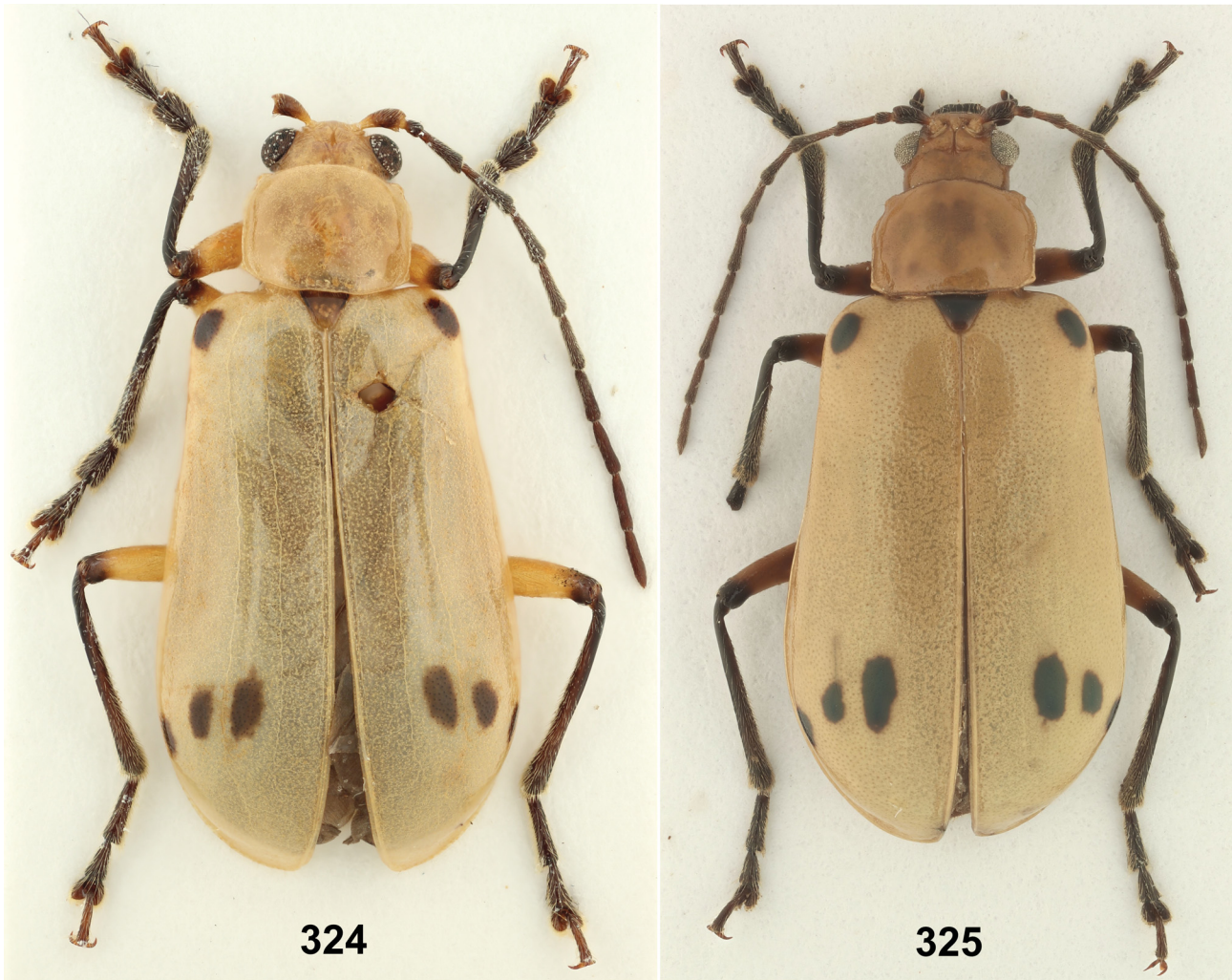
*Male* (Figs 324). Antennae 0.72 times as long as body. Pronotum subquadrangular, 1.32 times as wide as long, lustrous, almost impunctate, anterior margin thinly bordered, lateral margins subparallel. Scutellum nearly impunctate, without small grooves at basal angles. Middle part of posterior margin of abdominal ventrite IV vertically impressed. Longitudinal impression on last abdominal ventrite parallel. Protarsomere I wide, subpentagonal. Metatibial spur absent.

*Aedeagus* (Fig. 297). Median lobe of aedeagus 4.39 times as long as wide; apical fifth narrower, parallel, with distinct very narrow median furrow, apex rounded, folded down; basal four fifths wider, subparallel, slightly



Figs 317–323. *Liroetis paragrandsis* Jiang, 1988. 317–320 – Female, paratype (13.8 mm). 317 – dorsal view; 318 – ventral view; 319 – lateral view; 320 – labels. 321–322 – Male (12.2 mm): 321 – dorsal view; 322 – head and pronotum. 323 – Female (12.7 mm).





Figs 324–325. *Liroetis suwai* (Takizawa, 1988). 324 – Male (9.6 mm), dorsal view. 325 – Female (10.3 mm), dorsal view.

convergent apically. Lateral view: median lobe widely rounded; lateral elevation widely rounded, placed in anterior quarter of aedeagus length. Dorsal process 6.88 times as long as wide, 0.85 times as long as median lobe; narrow, subparallel, slightly wider subapically. Lateral view: dorsal process moderately regularly rounded, apical part slightly folded down.

**Female** (Fig. 325). Metatibial spur absent. Sternite VIII heart-shaped, middle part of posterior margin widely concave, lateral parts of posterior margin covered with large setae; tignum as long as sternite VIII with apex shortly bifurcated (Fig. 309). Spermatheca with well developed subglobular nodulus, cornu C-shaped, spermathecal duct gradually widened basally (Fig. 303).

**Differential diagnosis.** *Liroetis suwai* is very similar to *L. paragrandidis*. Both species differ in body length (9.9–11.5 mm in *L. suwai*, 12.0–14.0 mm in *L. paragrandidis*), colour of scutellum (mostly or partly black in *L. suwai*, yellow in *L. paragrandidis*), and shape of dorsal process of aedeagus (almost parallel in whole length in *L. suwai*, widely extended in apical part in *L. paragrandidis*, cf. Figs 296–297).

Similarly coloured *L. grandis* differs in scutellum with two small grooves at basal angles (Fig. 280).

**Distribution.** Nepal (TAKIZAWA 1988, HARTMANN & MEDVEDEV 2003, present paper).

### *Liroetis yulongnis* Jiang, 1988

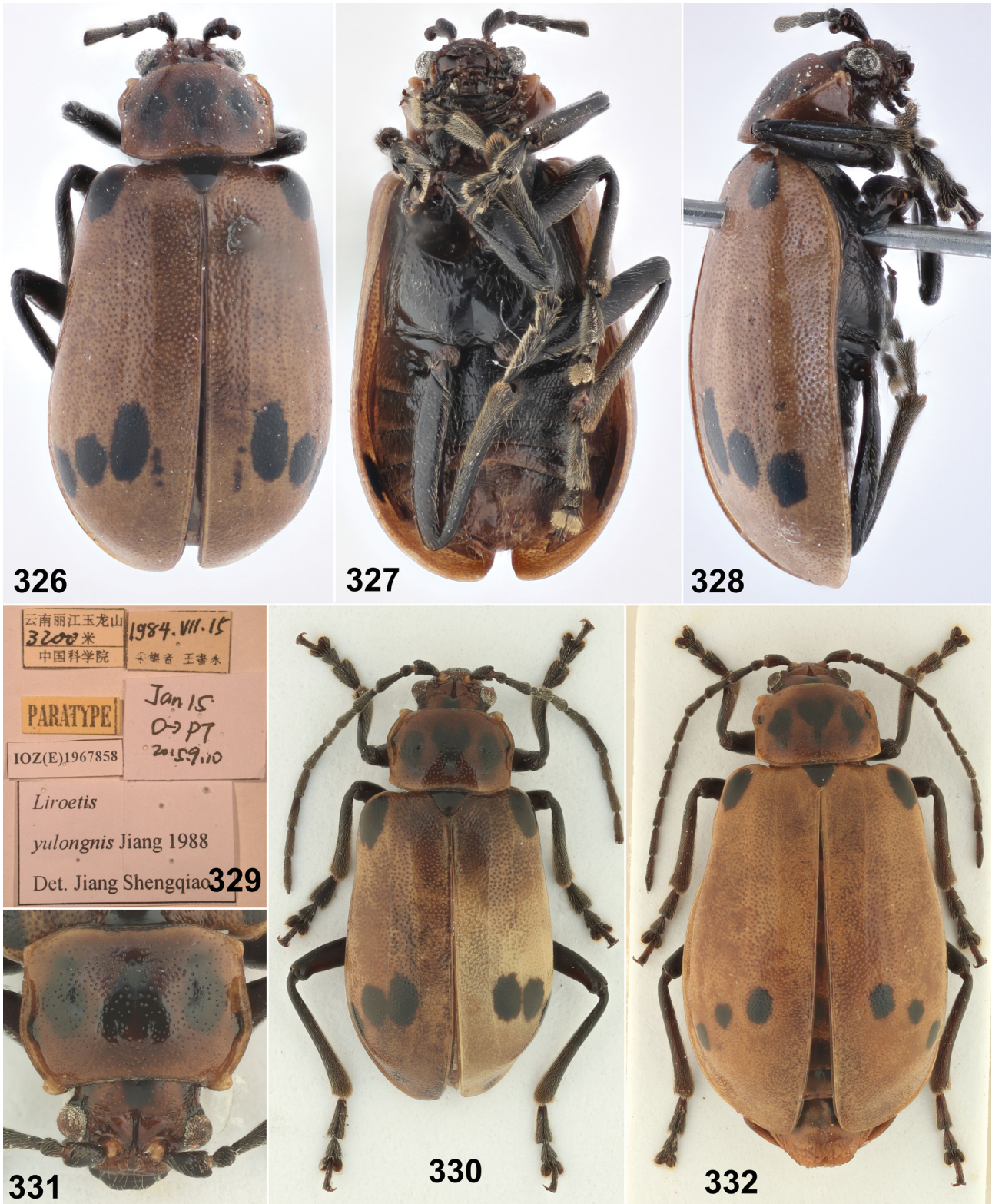
(Figs 298, 304, 310, 326–332)

*Liroetis yulongnis* Jiang, 1988: 193, 198 (original description).

*Liroetis yulongnis*: JIANG (1992): 658 (noted); BEENEN (2010): 479 (catalogue); YANG et al. (2015): 248 (key), 250 (noted).

**Type locality.** '[China:] Yunnan: Lijiang'.

**Type material examined.** PARATYPE: 1 ♂ (Figs 326–329), '[Yunnan, Lijiang, Mt. Yulong / 3200 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1984.VII.15. / Collector Shu-Yong Wang] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1967858 [w, p] // *Liroetis / yulongnis* Jiang 1988 / Det. Jiang Shengqiao [w, p]' (IZAS). **Additional material examined.** CHINA: YUNNAN: Yulong Xueshan, N of Lijiang, Yungshaping, 3100–3300 m, 25.vii.2006, 1 ♂, T. Tichý leg. (JBCB); Daju, 50 km N of Lijiang, 27.vi.1992, 1 ♀, E. Jendek leg. (JBCB); Yulongxueshan NP, near Baishui, ca. 30 km N of Lijiang, 2900–3200 m, 7.–11.vii.1994, 1 ♂, H. Schilhammer leg. (NHMW); Lijiang, Yulongshan, 27°08'20"N 100°14'06"E, 2800 m, 29.v.2002, 1 ♂, A. Konstantinov & M. Volkovitsh leg. (USNM); Yulongshan NP, 27°10.096'N 100°14.631'E, 3445 m, 27.vii.2011, 1 ♂, A. Konstantinov leg. (USNM); Lijiang, 27.–28.vi.1996, 1 ♂ 1 ♀, without collector's name (RBCN).



Figs 326–332. *Liroetis yulongnis* Jiang, 1988. 326–329 – Male, paratype (9.2 mm). 326 – dorsal view; 327 – ventral view; 328 – lateral view; 329 – labels. 330–331 – Male (10.1 mm): 330 – dorsal view; 331 – head and pronotum. 332 – Female (12.0 mm).

**Diagnosis. Colouration.** Head dark brown, vertex with basal median and two lateral black spots. Pronotum dark brown with five black spots in transverse row: large heart-shaped middle spot, nearby two large elongate spots and laterally two very small spots. Scutellum black. Elytra brown, each elytron with one black spot on humeral callus and three preapical black spots in transverse row (inner spot largest). Ventral side black, abdomen variable (completely pale brown, black with brown lateral margins or black except for brown last ventrite. Legs and antennae black.

**Body length.** ♂♂: 9.2–9.6 mm, ♀♀: 9.3–12.0 mm (♂♀: 8.5–11.0 mm based on the original description).

**Male** (Figs 326–328, 330–331). Antennae 0.64 times as long as body. Pronotum subquadrangular, 1.54 times as wide as long, lustrous, distinctly punctate, anterior margin slightly concave, thinly bordered, lateral margins with wide border, posterior margin bisinuate, thinly bordered, anterior angles swollen and pointed. Scutellum impunctate. Middle part of posterior margin of abdominal ventrite IV vertically impressed, with small incision in middle. Longitudinal impression on last abdominal ventrite constricted in middle part. Protarsomere I wide, elongate subpentagonal. Metatibial spur absent.

**Aedeagus** (Fig. 298). Median lobe of aedeagus 5.10 times as long as wide; apical quarter subparallel, laterally with small angulation, apex rounded, strongly folded down, rest of median lobe slightly wider, widest in middle part. Lateral view: apical two thirds almost straight, basal third rounded; lateral elevation low and rounded, placed in anterior 2/5 of aedeagus length. Dorsal process 6.68 times as long as wide, 0.70 times as long as median lobe; narrow, apical part widest, apex triangular, sharp. Lateral view: dorsal process narrow, regularly rounded, ventral side subapically with distinct keel.

**Female** (Fig. 332). Sternite VIII heart-shaped, posterior margin shallowly emarginated in middle, surface with shallow U-shaped impression in middle of posterior half; long setae accumulated laterally along posterior margins; tignum 0.50 times as long as sternite VIII, slightly constricted before apex (Fig. 310). Spermatheca with well developed sphaerical nodulus, cornu short, only slightly bent, spermathecal duct moderately bent (Fig. 304).

**Differential diagnosis.** Having black legs and black pattern on densely punctate pronotum, *Liroetis yulongnis* is very similar to *L. octopunctatus*. Both species can be distinguished by the shape of dorsal process of aedeagus which is distinctly wider, 6.68 times as long as wide in *L. yulongnis* (Fig. 298) but extremely narrow, 9.30 times as long as wide, in *L. octopunctatus* (Fig. 295). *Liroetis yulongnis* is on average larger (8.5–11.0 mm), while *L. octopunctatus* is smaller (7.3–8.8 mm). Similarly coloured *L. alticola* differs in lustrous pronotum covered with very fine punctures.

**Distribution.** China: Yunnan (JIANG 1988, present paper).

## *Liroetis* species currently unassigned to any species-group

### *Liroetis apicicornis* Jacoby, 1896

(Figs 333–338, 347, 352, 355)

*Liroëtis apicicornis* Jacoby, 1896: 282 (original description).

*Liroëtis apicicornis*: WEISE (1924): 128 (catalogue).

*Liroetis apicicornis*: MAULIK (1936): 311; WILCOX (1973): 476 (catalogue); KIMOTO (1989a): 82 (misidentification, = *L. aurantiacus*).

**Type locality.** ‘Kanara, S. Bombay [= India: Karnataka: Karavali (former Northern Kanara)]’.

**Type material examined.** SYNTYPE: 1 ♂ (Figs 333–335), ‘Type / H. T. [white round label with red collar, p] // Kanara [w, p] // Jacoby Coll. / 1909–28a [w, p] // Liroëtis / apicicornis / Jac. [b, h] // SYN- / TYPE [white round label with blue collar, p]’ (BMNH).

**Material examined.** INDIA: KERALA: Kallar valley, 15 km SW of Munnar, 1250 m, 1.–9.v.1997, 1 ♂ 1 ♀, R. Peša leg. (JBCB).

**Diagnosis. Colouration.** Body, legs and antennae completely pale brown, except two apical antennomeres black.

**Body length.** ♂♂: 9.5–9.7 mm, ♀: 10.3 mm.

**Male** (Figs 336–337). Antennae 0.62 times as long as body. Pronotum 1.95 times as wide as long, lustrous, almost impunctate, anterior margin bordered. Abdominal ventrite IV with small subtriangular process in middle of posterior margin, surrounding surface slightly impressed. Last abdominal ventrite with longitudinal impression narrower in posterior part, wider basally. Protarsomere I narrow, metatibial spur short, very thin.

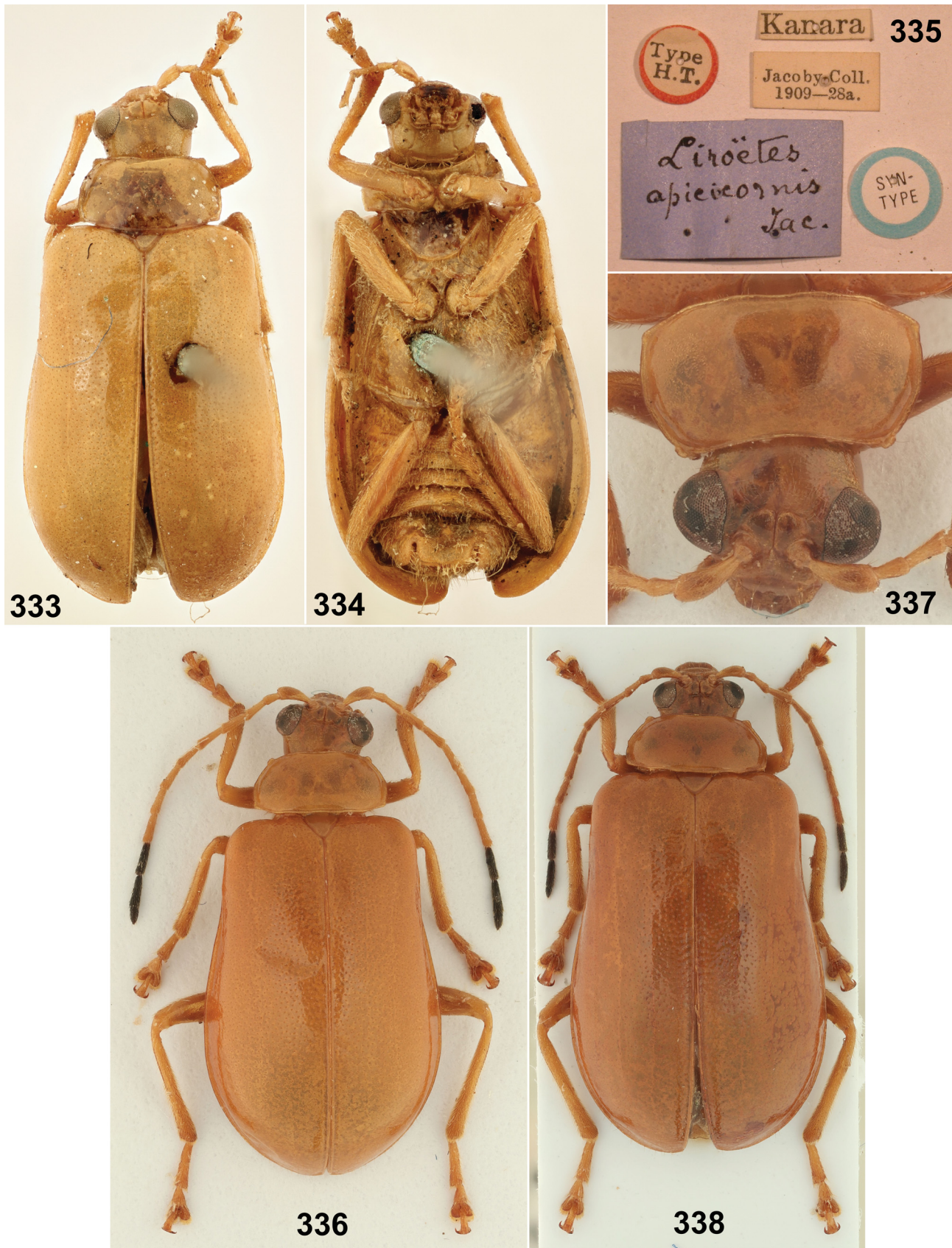
**Aedeagus** (Fig. 347). Median lobe of aedeagus flat, lanceolate, 2.47 times as long as wide, widest in middle part; apical part subtriangular with incised tip. Lateral view: slightly bent, lateral elevation absent. Dorsal process short, 1.66 times as long as wide, 0.36 times as long as median lobe; apical part wide, covered with very long setae, in middle with wing-like structure; in lateral view Y-shaped.

**Female.** Metatibial spur absent. Last abdominal ventrite with posterior margin entire. Sternite VIII transversely suboval with triangular median process, posterior half of sternite VIII and median process covered with very long setae; tignum as long as sternite VIII, with asymmetrical oblique apex (Fig. 355). Spermatheca with suboval nodulus covered with traces of transverse wrinkles, cornu short C-shaped (Fig. 352).

**Differential diagnosis.** *Liroetis apicicornis* is characterised by body, legs and antennae completely orange brown, with exception of two apical antennomeres that are black, median lobe of aedeagus flat and wide, with dorsal process short, and by pronotum nearly twice as wide as long. It is the only known species of *Liroetis* inhabiting south-eastern India and its distribution is disjunct from other species of the genus (the nearest species occur in Himalayas and easternmost India). *Liroetis aurantiacus* sp. nov. and *L. baolocanus* sp. nov. from SE Asia have similarly transverse pronotum and similar colouration but they differ in completely brown antennae and very different structure of aedeagus (cf. Figs 65, 70, 347).

**Distribution.** India: Karnataka (JACOBY 1896), Kerala (present paper).

**Comments.** In the original description, JACOBY (1896) indicated that only the ultimate antennomere is black. The



Figs 333–338. *Liroetis apicicornis* Jacoby, 1896. 333–335 – Male, syntype (9.7 mm). 333 – dorsal view; 334 – ventral view; 335 – labels. 336–337 – Male (9.5 mm): 336 – dorsal view; 337 – head and pronotum. 338 – Female (10.3 mm).

two additional specimens examined are identical with the type specimens including the aedeagus but have the two last antennomeres black. Unfortunately, the antennae of the syntype are largely missing. I am unable to determine whether JACOBY (1896) made a mistake in the original description or whether there is variability in colouration of the apical antennomeres.

*Liroetis apicicornis* has metatibial spur present in males and absent in females, pronotum ca. twice as wide as long with anterior margin narrowly bordered and median lobe of aedeagus flat and wide, without lateral elevation. Such combination of characters is unique within the genus *Liroetis* and thus *L. apicicornis* is for now not assigned to any of the species groups herein proposed.

The records from Thailand, Laos and Vietnam (KIMOTO 1989a) evidently refer to another species (at least part of them to *Liroetis aurantiacus* sp. nov.). The specimens published from Nepal (MEDVEDEV & SPRECHER-UEBERSAX 1998, 1999) were later described as *L. brancuccii* Medvedev, 2007 (MEDVEDEV 2007), now classified as *Hesperopenna brancuccii* (see BEZDĚK 2016b).

***Liroetis latispinus* (Chen, 1976) comb. nov.**

(Figs 22, 348)

*Zangia latispina* Chen, 1976 in CHEN et al. (1976): 208, 220 (original description).

*Zangia latispina*: CHEN & JIANG (1981): 476 (noted); CHEN & JIANG (1987): 53 (noted); CHEN & JIANG (1988): 343 (noted); JIANG (1990): 142, 144 (key); BEENEN (2010): 490 (catalogue); YANG et al. (2015): 274 (key), 275 (noted).

**Type locality.** ‘Tibet: Chayu’ [= China: Xizang Province: Zayü].

**Type material examined.** HOLOTYPE: ♂ (Fig. 22, only photograph seen), ‘[Xizang, Chayu, Zhala bridge / 2300 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1973.VII.4. / Collector: Fu-Sheng Huang] [in Chinese, w, combined p and h] // HOLOTYPE [r, p] // *Zangia* / ♂ *latispina* / [Identifier: Sicien Chen] 19 [partly in Chinese, w, combined p and h]’ (IZAS).

**Diagnosis. Colouration.** Body, legs and antennae yellow.

**Body length.** ♂♀: 6.5–7.5 mm.

**Male** (Fig. 22). Pronotum 1.32 times as wide as long. Metatibial spur present.

**Aedeagus** in lateral view (Fig. 348). Lateral elevation triangular, placed in apical quarter of aedeagus length. Middle part slightly convex, apical part oblique, basal part moderately bent. Dorsal process slightly shorter than median lobe, middle part nearly straight, slightly wider, apical part bent downwards.

**Female** not examined.

**Differential diagnosis.** The limited information about the morphology of *Liroetis latispinus* as only a photograph of the holotype was available makes the differential diagnosis more difficult. The presence of metatibial spur in males distinguishes *L. latispinus* from all dorsally pale species of *L. flavipennis* species-group. In habitus, the holotype of *L. latispinus* is very similar to *L. elongatus*. Also the aedeagi in lateral view are similar and they differ more or less only in ventral side of median lobe bisinuate (Fig. 348) in *L. latispinus* or regularly rounded (Fig. 186) in *L. elongatus*. I cannot exclude the possibility that the two taxa will be synonymized in the future.

**Distribution.** China: Xizang (CHEN et al. 1976).

**Comments.** I examined only a photograph of the holotype in dorsal view. JIANG (1990) published drawing of aedeagus in lateral aspect. Available information does not allow me to assign *L. latispinus* to a particular species group with certainty.

***Liroetis pallidulus* (Jiang, 1990) comb. nov.**

(Figs 24, 339–346, 349, 353, 356)

*Zangia pallidula* Jiang, 1990: 141, 144 (original description).

*Zangia pallidula*: BEENEN (2010): 490 (catalogue); YANG et al. (2015): 274 (key), 275 (noted).

**Type locality.** ‘[China:] Xizang: Bemi’.

**Type material examined.** HOLOTYPE: ♂ (Fig. 24, only photograph seen), ‘[Xizang, Bemi, Yigong / 2300 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1983.VIII.22 / Collector: Yin-Heng Han] [in Chinese, w, combined p and h] // HOLOTYPE [r, p] // *Zangia* / *pallidula* / [identifier:] Jiang [partly in Chinese, w, combined p and h]’ (IZAS). PARATYPES: 1 ♂ (Figs 339–343), ‘[Xizang, Bemi, Yigong / 2300 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1983.VIII.20 / Collector: Yin-Heng Han] [in Chinese, w, combined p and h] // PARATYPE [y, p] // IOZ(E)1966997 [w, p] // *Zangia pallidula* / Jiang [p] ♂ [w, h]’ (IZAS); 2 ♀♀ (Figs 344–346), ‘[Xizang, Bemi, Yigong / 2300 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1983.VIII.18 / Collector: Zai Lin] [in Chinese, w, combined p and h] // PARATYPE [y, p] // *Zangia pallidula* / Det. Jiang 1990 [w, p]’ (IZAS).

**Additional material examined.** CHINA: XIZANG: N of Brahmaputra great bend, 30°00–07’N 94°52’–95°09’E, 2050–2400 m, 16.–20.vii.1992, 1 ♂, L. & R. Businský leg. (NHMW).

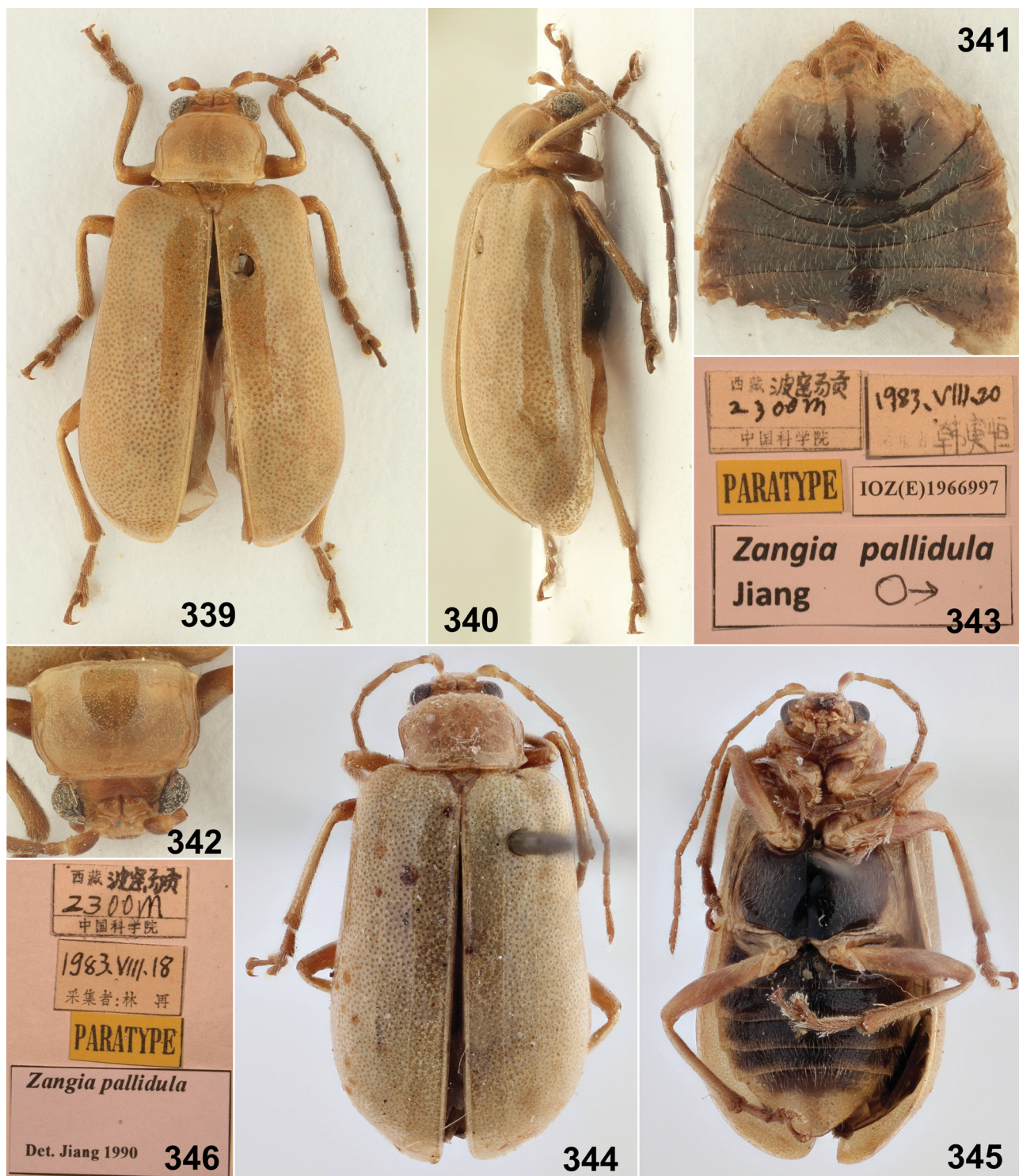
**Diagnosis. Colouration.** Body pale brown, apices of mandibles darkened, metaventricle black with brown lateral parts, abdomen black with lateral parts narrowly brown, last abdominal ventrite with brown apical half.

**Body length.** ♂: 6.9 mm, ♀♀: 7.5–7.7 mm (♂♀ 6.8–8.5 mm based on the original description).

**Male** (Figs 339–342). Antennae 0.74 times as long as body. Pronotum 1.40 times as wide as long, lustrous, covered with very fine punctures, widest in anterior third, anterior margin slightly concave, lateral margins subparallel, sinuate, posterior margin widely rounded, shallowly emarginated in middle, all margins thinly bordered. Middle part of posterior margin of abdominal ventrite IV almost vertically impressed, with narrow parallel incision in middle. Last abdominal ventrite with shallow impression on median process, followed by deep longitudinal impression, narrowed in middle. Metatibial spur short, flat, with rounded apex.

**Aedeagus** (Fig. 349). Median lobe of aedeagus 6.55 times as long as wide, subparallel, shallowly constricted in basal third, apex rounded. Lateral view: apical half slightly convex, basal half regularly rounded; lateral elevation widely triangular, placed just before aedeagus midlength. Dorsal process narrow, slightly constricted in apical third, 9.30 times as long as wide, 0.64 times as long as median lobe, apex triangular. Lateral view: apical two thirds wide, basal third narrow.

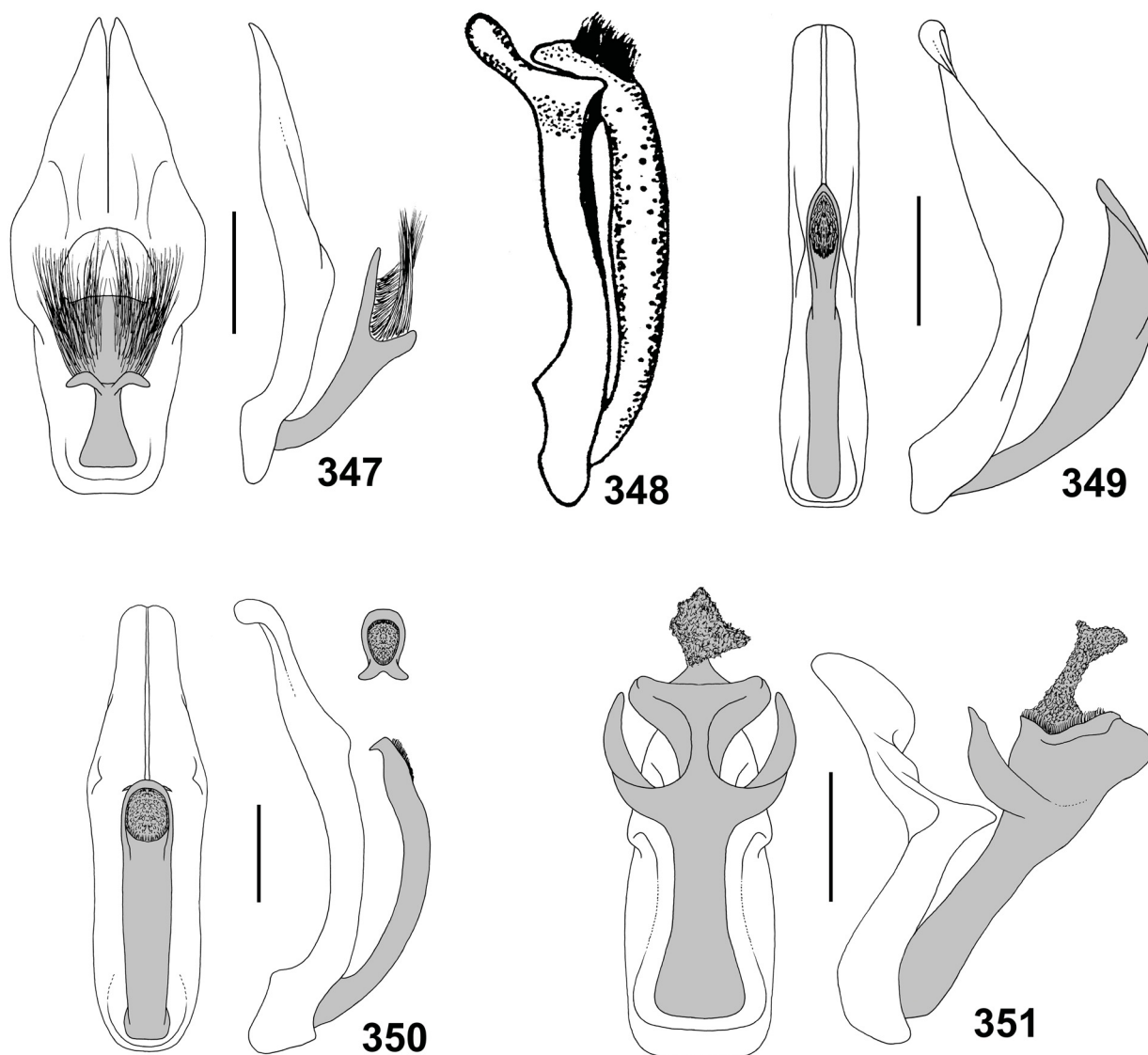
**Female.** Metatibial spur present, slightly narrower than in male. Last abdominal ventrite subtriangular. Pygidium with transversely cut apex and shallow emargination laterally. Sternite VIII subheart-shaped, middle of posterior margin with two small denticles separated with V-shaped



Figs 339–346. *Liroetis pallidulus* (Jiang, 1990). 339–343 – Male, paratype (6.9 mm). 339 – dorsal view; 340 – lateral view; 341 – abdomen; 342 – head and pronotum; 343 – labels. 344–346 – Female, paratype (7.7 mm): 344 – dorsal view; 345 – ventral view; 346 – labels.

incision, surface with distinct keel along posterior margin interrupted in middle part, long setae accumulated on keels, middle part of surface with large U-shaped impression; tignum 0.30 times as long as sternite VIII, wide, with subtriangular apex (Fig. 356). Spermatheca with well developed globular nodulus, cornu C-shaped, gradually narrowed towards sharp apex, apical part twice longer than basal part, spermathecal duct straight (Fig. 353).

**Differential diagnosis.** *Liroetis pallidulus* is similar to *L. elongatus* and *L. latispinus*. Ventral side of body is predominantly black with pale margins of thorax and abdomen in *L. pallidulus*, while ventral side of body is completely pale in *L. elongatus* and *L. latispinus*. All three species differ also in the structure of aedeagus (cf. Figs 186, 348, 349). **Distribution.** China: Xizang (JIANG 1990, present paper). **Comments.** *Liroetis pallidulus* is left unassigned to any



Figs 347–351. Aedeagus of *Liroetis*, dorsal and lateral views, apex of dorsal process in frontal view. 347 – *L. apicicornis* Jacoby, 1896; 348 – *L. latispinus* (Chen, 1976); 349 – *L. pallidulus* (Jiang, 1990); 350 – *L. reitteri* (Pic, 1934); 351 – *L. violaceipennis* Zhang, Li & Yang, 2008. Fig. 348 reproduced from JIANG (1990). Scale 0.5 mm.

species-group. The combination of the following characters is unique within *Liroetis*: metatibial spur present in both males and females, pronotum convex, 1.42 times as wide as long, anterior margin bordered, median lobe almost parallel, lateral elevation placed just before aedeagus mid-length (Fig. 349). The representatives of *L. aeneipennis* species-group have metatibial spur present in males and absent in females. *Liroetis aurantiacus* species-group is characterised by transverse pronotum (twice as wide as long), abdominal ventrite IV in male with small vertical hook-like process directed posteriorly, and median lobe of aedeagus in lateral view with cavity in middle part. The species in *L. flavipennis* species-group are elongate, relatively slender, antennae are long, filiform and metatibial spur is absent in both males and females. The representatives of *L. fulvipennis* species-group are relatively robust, anterior pronotal margin is unbordered, median lobe of aedeagus is large, with lateral elevation placed in anterior fifth to sixth of aedeagus length, middle part of ventral side straight or

bisinate in lateral view. The species in *L. grandis* species-group have elytra with black pattern and metatibial spur is absent in both males and females.

#### *Liroetis reitteri* (Pic, 1934)

(Figs 350, 357, 359–366)

*Merista reitteri* Pic 1934: 87 (original description).

*Merista reitteri*: OGLOBLIN (1936): 336 (synonymized with *Meristoides touzalini* Laboissière, 1922); LABOISSIÈRE (1940): 23 (synonymy with *M. touzalini* rejected).

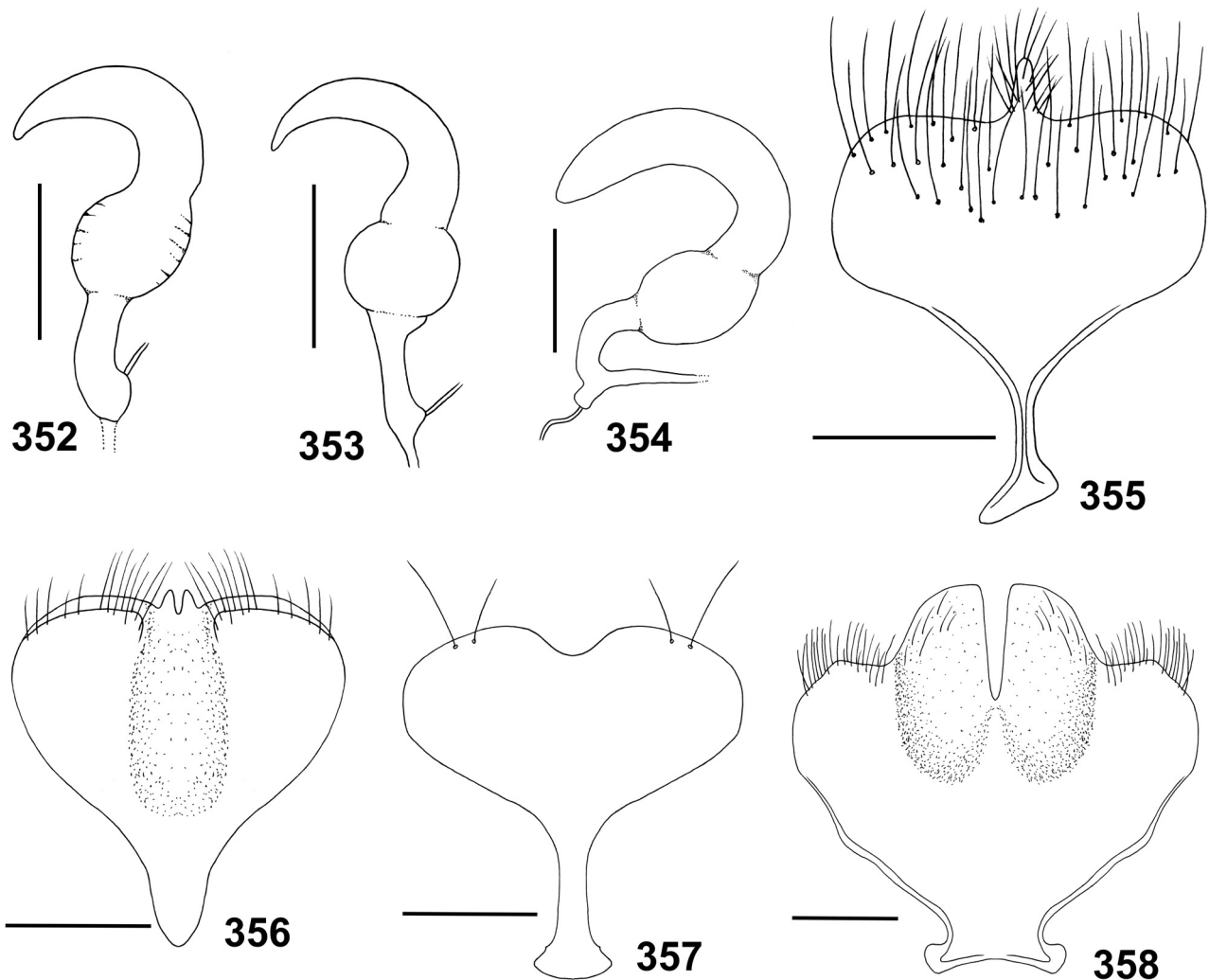
*Liroetis reitteri*: GRESSITT & KIMOTO (1963): 532 (key), 534 (noted); WILCOX (1973): 476 (catalogue); JIANG (1988): 192 (noted); BEENEN (2010): 478 (catalogue); YANG et al. (2015): 247 (key), 249 (noted). *Pseudoliroetis trifasciata* Jiang, 1992: 659, 672 (original description).

#### New junior subjective synonym.

*Siemssenius trifasciatus*: ZHANG et al. (2008b): 127 (key, transferred to *Siemssenius*); BEENEN (2010): 488 (catalogue); YANG et al. (2015): 251 (key), 252 (noted).

*Leptarthra nigropicta* [misidentification]: GRESSITT & KIMOTO (1963): 655 (key, faunistics, fig.).

**Type localities.** *Merista reitteri*: ‘Tatsienlu-Kiulung’ [= China: Sichuan



Figs 352–358. Spermatheca (Figs 352–354) and sternite VII (Figs 355–358) of *Liroetis*. 352, 355 – *L. apicicornis* Jacoby, 1896; 353, 356 – *L. pallidulus* (Jiang, 1990); 354, 358 – *L. violaceipennis* Zhang, Li & Yang, 2008; 357 – *L. reitteri* (Pic, 1934). Scales 0.25 mm for Figs 352–354, 0.5 mm for Figs 355–358.

Province: Kangding]; *Pseudoliroetis trifasciata*: ‘[China:] Yunnan: Lijiang, Yulong shan’.

**Type material examined.** *Merista reitteri*: SYNTYPES: 1 ♂ (Figs 359–363), ‘Tatsienlu-Kiulung / China Reitter [w, p] // type [w, h] // TYPE [r, p] // Merista / Reitteri n sp / (desirè) [w, h]’ (MNHN); 1 ♀, ‘Tatsienlu-Kiulung / China Reitter [w, p] // type [w, h] // Merista / Reitteri n sp [w, h]’ (MNHN); 1 ♀, ‘Tatsienlu-Kiulung / China Reitter [w, p]’ (MNHN); 1 ♀ (Figs 364–365), ‘Tatsienlu-Kiulung / China Reitter [w, p] // Cotypus [r, p] // Coll. E. Reitter. / B. M. 1934–449. [w, p] // Merista / Reitteri / n sp. Pic / Cotypus [y, h]’ (BMNH).

*Pseudoliroetis trifasciata*: not examined.

**Diagnosis.** *Colouration.* Body completely black except for brownish base of antennomere I, brownish posterior part of frontal tubercles and anterior part of vertex, and yellow pattern on elytra as follows: epipleura, round stripe from lateral margin to scutellum, transverse postmedian stripe and shortened oblique stripe from elytral apex.

*Body length.* ♂: 11.0 mm, ♀♀: 12.0–12.5 mm (♂♀: 12.0–14.0 mm based on the original description).

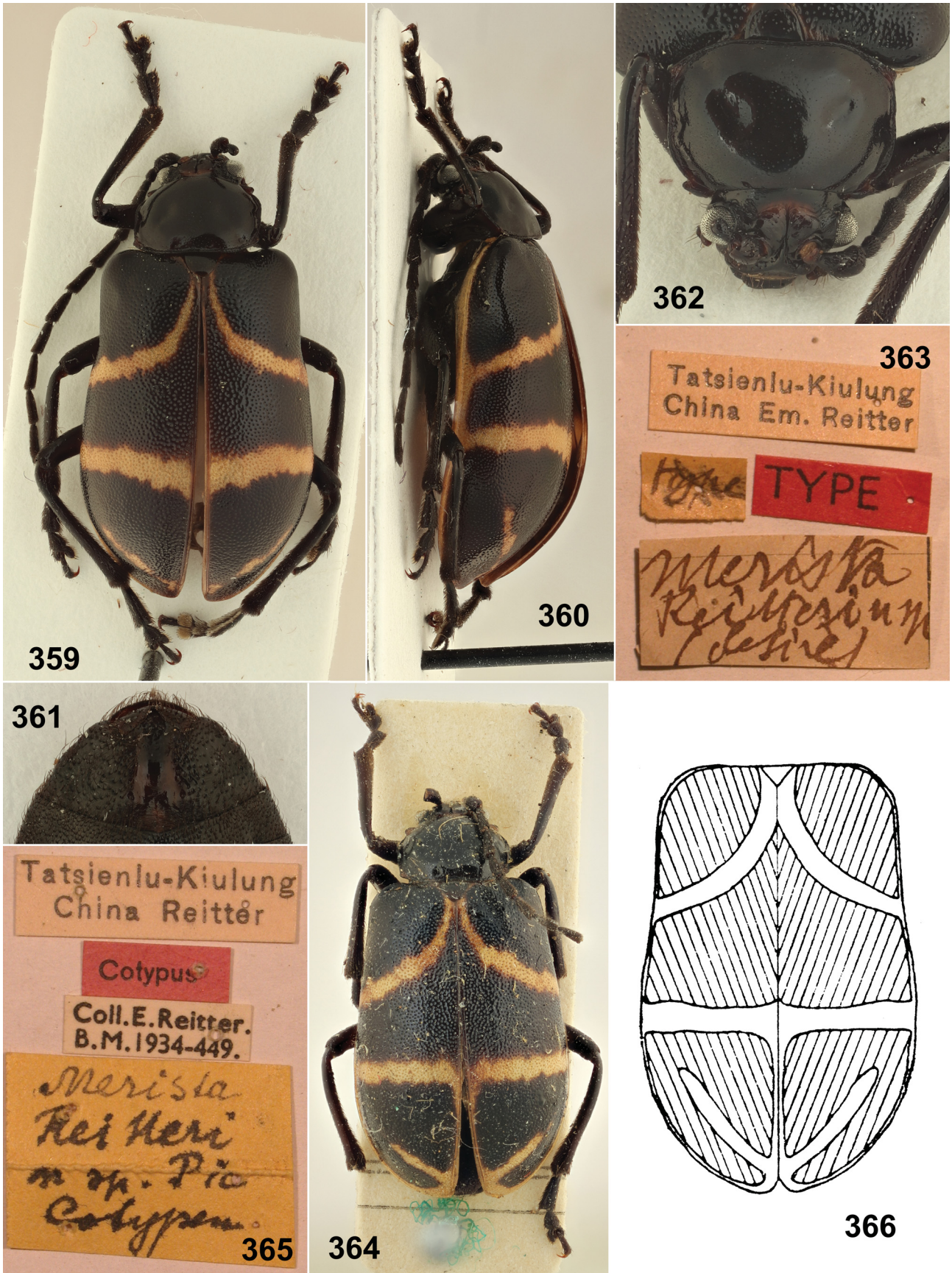
*Male* (Figs 359–362). Antennae 0.77 times as long as body. Pronotum 1.60 times as wide as long, lustrous, covered with fine punctures, anterior margin unbordered, lateral margins subparallel, in anterior third rounded and convergent. Scutellum distinctly punctate. Middle part of

posterior margin of abdominal ventrite IV vertically impressed. Longitudinal impression on last abdominal ventrite parallel, at base wider and shallower. Protarsomere I wide, subtriangular. Metatibial spur absent.

*Aedeagus* (Fig. 350). Median lobe of aedeagus 3.72 times as long as wide; apical 2/5 convergent, slightly concave, with distinct very narrow median furrow, apex rounded, folded down; basal 3/5 thirds subparallel. Lateral view: median lobe bisinuate, widely rounded in basal half; lateral elevation subtriangular with rounded apex, placed in anterior 2/5 of aedeagus length. Dorsal process small, narrow, 5.37 times as long as wide, 0.57 times as long as median lobe; parallel with apex rounded. Lateral view: dorsal process moderately regularly rounded, with hook-like apex. Apex in frontal view with two divergent processes.

*Female* (Fig. 364). Metatibial spur absent. Sternite VIII transversely oval, posterior margin with distinct emargination in middle, surface glabrous except for two pairs of setae laterally on posterior margin; tignum 0.9 times as long as sternite VIII, with subtriangularly widened apical part, apex slightly rounded (Fig. 357). Spermatheca not examined.





Figs 359–366. *Liroetis reitteri* (Pic, 1934). 359–363 – Male, syntype (11.2 mm). 359 – dorsal view; 360 – lateral view; 361 – abdomen; 362 – head and pronotum; 363 – labels. 364–365 – Female, syntype (11.3 mm): 364 – dorsal view; 365 – labels. 366 – *Pseudoliroetis trifasciata* Jiang, 1992, drawing of elytra (reproduced from JIANG 1992).

**Differential diagnosis.** Based on very characteristic colouration (body completely black with yellow narrow stripes on elytra), *Liroetis reitteri* cannot be confused with any other *Liroetis* species.

**Distribution.** China: Sichuan (PIC 1934, GRESSITT & KIMOTO 1963), Yunnan (JIANG 1992).

**Comments.** The type specimens of *Pseudoliroetis trifasciata* were not examined. The proposed synonymy with *Liroetis reitteri* is based on the drawing of elytral pattern published in the original description (Fig. 366). Spermatheca of *Liroetis reitteri* was not examined because the dissected female syntype has abdomen partly damaged by Dermestidae.

For now, I leave *Liroetis reitteri* unassigned to any species-group. Robust body with transverse pronotum and unbordered anterior pronotal margin would suggest the affiliation with *L. fulvipennis* species-group, while colouration, absence of metatibial spur in both males and females, and structure of aedeagus (Fig. 350) with very low lateral elevations and apex of dorsal process terminated with two small divergent processes are shared with *L. grandis* species-group.

### *Liroetis violaceipennis* Zhang, Li & Yang, 2008

(Figs 351, 354, 358, 367–373)

*Liroetis violaceipennis* Zhang, Li & Yang, 2008a: 24 (original description).

*Liroetis violaceipennis*: BEENEN (2010): 479 (catalogue); YANG et al. (2015): 246 (key), 250 (noted).

**Type locality.** 'P. R. China: Sichuan: Wenchuan: Wolong'.

**Type material examined.** POSSIBLE HOLOTYPE: ♂ (Figs 367–371), '[Sichuan, Wenchuan, Wolong / 1920 m / Chinese Academy of Sciences] [in Chinese, w, combined p and h] // [1983.VII.23. / Collector: Huang-Cheng Chai] [in Chinese, w, combined p and h] // ♂ [w, h] // *Liroetis* / *violaceipennis* [h] / Det ZHANG 2008 [w, p] // IOZ(E)1967857 [w, p]' (IZAS).

**Additional material examined.** VIETNAM: LAO CAI PROV.: Hoang Lien NP, Ban Khoang, 22°22.780'N 103°47.640'E, 2064 m, 15.v.2015, 1 ♀, A. Skale leg. (ASCH); Hoang Lien NP, 20°21.009'N 105°35.870'E, 1888 m, 5.v.2016, 1 ♂, S. Saluk leg. (USNM).

**Diagnosis.** *Colouration.* Head and pronotum orange-red, scutellum dark with reddish base, elytra metallic dark violet, underside yellowish orange, antennae black with orange antennomeres I–III, femora yellowish orange, tibiae black with orange inner basal part, tarsi black.

*Body length.* ♂♂: 8.9–10.0 mm, ♀: 14.5 mm (♂: 10.5 mm based on the original description).

*Male* (Figs 367–370, 372). Antennae 0.80 times as long as body. Pronotum 2.05 times as wide as long, lustrous, covered with very fine punctures, anterior margin moderately concave, bordered, lateral margins moderately rounded, anterior angles projected. Middle posterior part of abdominal ventrite IV with semicircular impression, middle part of posterior margin elevated. Last abdominal ventrite with longitudinal impression narrower posteriorly, wider basally. Metatibial spur present, robust.

*Aedeagus* (Fig. 351). Median lobe of aedeagus 2.66 times as long as wide; apical half subtriangular, basal half subparallel. Lateral view: median lobe with ventral side widely subtriangular; lateral elevation triangular, placed in middle of aedeagus length. Dorsal process 1.95 times as

long as wide, 0.96 times as long as median lobe; transversely extended subapically and with pair of narrow branches starting in apical third and directed anteroventrally. Lateral view: apical half club-shaped, basal half narrower, parallel.

*Female* (Fig. 373). Metatibial spur present, short and thin. Last abdominal ventrite with posterior margin entire. Posterior margin of last abdominal ventrite with U-shaped incision. Pygidium covered with large punctures, posterior margin with U-shaped incision. Sternite VIII subrhomboidal, apex with very deep and narrow incision, posterolateral sides with deep, almost rectangular emargination, anterolateral sides uneven, surface with two large elongate impressions in posterior half, setae accumulated along posterolateral margins; tignum very short, 0.15 times as long as sternite VIII, wide, constricted in basal half, anterior margin concave (Fig. 358). Spermatheca with well developed elongate nodulus, cornu C-shaped with short basal part and longer apical part, spermathecal duct strongly bent (Fig. 354).

**Differential diagnosis.** Having completely brown or red head and pronotum in combination with metallic elytra, *Liroetis violaceipennis* is similar to *L. aeneipennis* and *L. coeruleus* (both belonging to the *L. aeneipennis* species-group). *Liroetis violaceipennis* has strongly transverse pronotum, twice as wide as long, while pronotum of other two species is about 1.5 times as wide as long. All three species differ also in the structure of aedeagus (cf. Figs 26, 27 and 351).

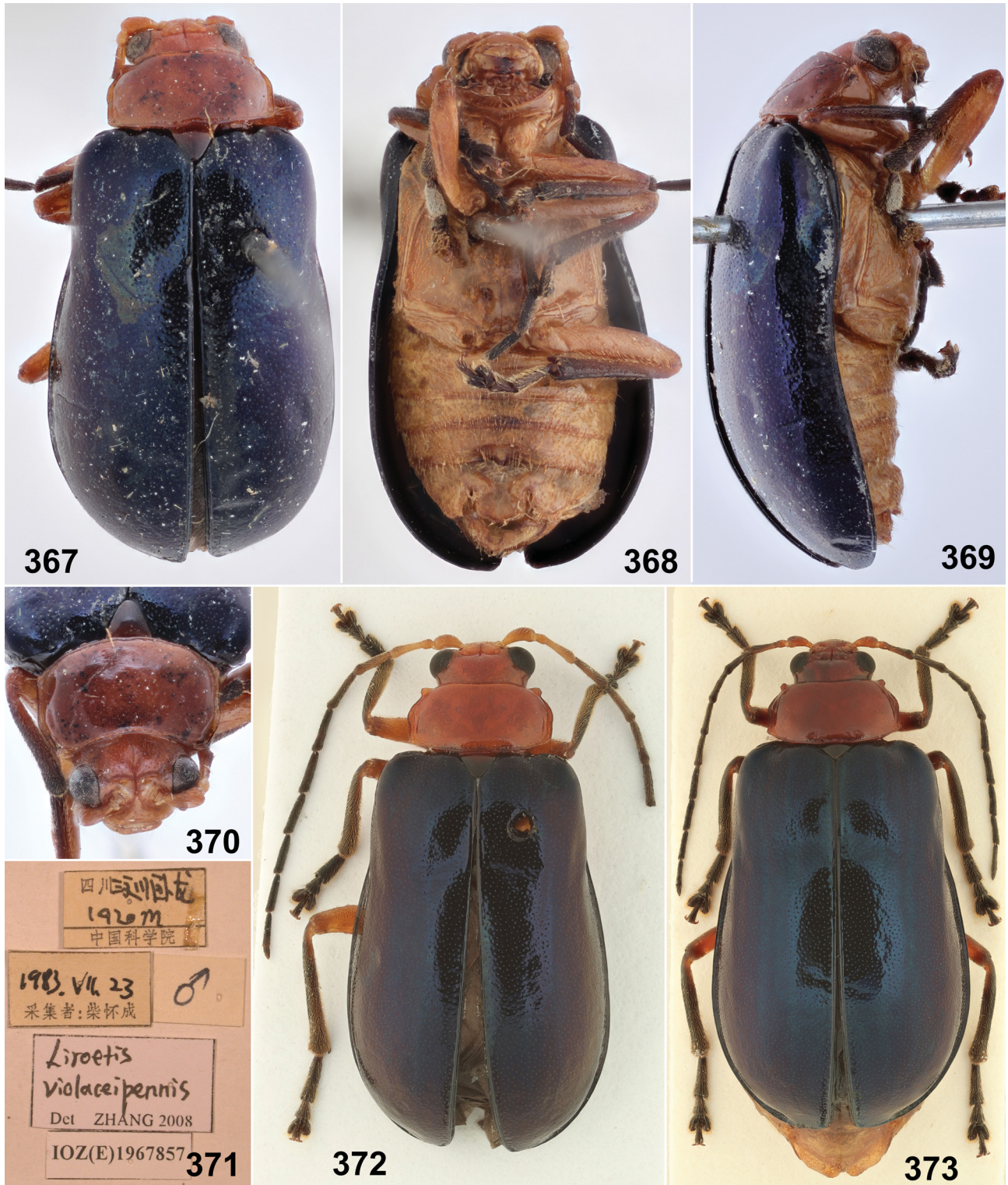
**Distribution.** China: Sichuan (ZHANG et al. 2008a), Vietnam (present paper).

**Comments.** Locality data of the specimen borrowed from IZAS agree with those indicated for the holotype in the original description (ZHANG et al. 2008a); however, the specimen is provided only with a plain identification label. Possibly it is the holotype without the holotype label.

*Liroetis violaceipennis* is characterised by the combination of the following characters: pronotum transverse, twice as wide as long, with anterior margin bordered, metatibial spur present in both sexes (wide in male, narrow in female), female with deep V-shaped incision in middle of posterior margin of last visible abdominal ventrite, aedeagus of very peculiar structure (Fig. 351). Such combination of characters is unique within the genus *Liroetis* and for now *L. violaceipennis* is not assigned to any of the proposed species-groups.

## Discussion

The group of genera characterized by the aedeagus with the dorsal process starting near the base of the median lobe of aedeagus was tentatively defined by BEZDĚK (2013) and besides *Liroetis* it also contains the genera *Coeligetes* Jacoby, 1884; *Luperogala* Medvedev & Samoderzhenkov, 1989; *Liroetoides* Kimoto, 1989 and *Coeligetoides* Bezdek, 2016. The definition of these genera is complicated by unusual variability of several characters traditionally used in the taxonomy of Galerucinae: presence/absence of metatibial spurs and bordered/unbordered anterior margin of pronotum (BEZDĚK 2016a). As was shown in the revision of *Luperogala* by BEZDĚK et al. (2014), the presence/ab-



Figs 367–373. *Liroetis violaceipennis* Zhang, Li & Yang, 2008. 367–371 – Male, possible holotype (8.9 mm). 367 – dorsal view; 368 – ventral view; 369 – lateral view; 370 – head and pronotum; 371 – labels. 372 – Male (10.5 mm), dorsal view. 373 – Female (14.5 mm), dorsal view.

sence of metatibial spurs can be variable not only within the genus but also in males and females of a single species.

The mentioned variability of characters led to the descriptions of the genera *Siemsenius*, *Pseudoliroetis* and *Zangia*. However, at the moment it is not possible to classify the species in genera with certainty as the characters widely overlap. The inconsistent classification can be demonstrated by the different positions of these genera in identification keys. *Liroetis* and *Siemsenius* are always keyed among the genera without metatibial spur (KIMOTO 1989, MEDVEDEV & SPRECHER-UEBERSAX 2005, YANG et al. 2015), with the exception of GRESSITT & KIMOTO (1963) who classified *Liroetis* and *Pseudoliroetis* in the genera without metatibial spur and *Siemsenius* with metatibial spur. *Zangia* is found only in the key by YANG et al. (2015) within the genera with metatibial spur. *Liroetis* is always placed among the genera with bordered anterior pronotal margin, while *Siemsenius* and *Pseudoliroetis* without.

I examined the primary type specimens of most taxa classified in the genera *Liroetis*, *Zangia*, *Siemsenius* and *Pseudoliroetis*. The species can be divided into five more or less defined species groups which only partially match the species arrangement in the mentioned genera. Moreover, several peculiar species are left unassigned to any of the species-groups. It cannot be excluded that these species groups or at least some of them will be classified as independent genera in the future. However, I have decided to avoid doing that in the present paper due to the absence of molecular data which would support (or not) the position and monophyly of the species-groups at genus level. At the moment, I prefer to accumulate all the species in one genus (*Liroetis*) and classify them in species groups.

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