

GEOGRAPHIC DISTRIBUTION OF *LISPOCEPHALA* POKORNY  
(DIPTERA: MUSCIDAE), WITH DESCRIPTIONS OF  
NEW SPECIES FROM CHINA

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The figure of male genitalia of *Lispocephala* POKORNY, 1893 is given in this paper, with some of its structural elements named for the first time. The geographic distribution of *Lispocephala* is discussed and a taxonomic key to Chinese species of *Lispocephala* is provided. Fifteen new species are described and illustrated: *L. bomiensis* sp. n., *L. dynatophallus* sp. n., *L. valva* sp. n., *L. flaviscutella* sp. n., *L. parciseta* sp. n., *L. applicatilibata* sp. n., *L. apicichamata* sp. n., *L. longihirsuta* sp. n., *L. apertura* sp. n., *L. curvilobata* sp. n., *L. subcurvilobata* sp. n., *L. mucronata* sp. n., *L. nigriala* sp. n., *L. leschenaulti* sp. n. and *L. setilobata* sp. n.

Key words: Diptera, geographic distribution, *Lispocephala*, Muscidae, new species

## INTRODUCTION

The genus *Lispocephala* POKORNY, 1893 belongs to dipteran family Muscidae, subfamily Coenosiinae. It is the second largest genus in the tribe Coenosiini. COURI and PONT (1999, 2000) recognized the genus *Lispocephala* and proposed *Pectiniseta* STEIN, 1919 as a junior synonym of *Lispocephala* POKORNY, 1893. The genus has wide distribution in all zoogeographical realms but the Neotropical realm (CARVALHO *et al.* 2005). There were 18 Palaearctic species (HENNIG 1961, PONT 1986), 7 Nearctic (HUCKETT 1965), 18 Oriental (PONT 1977), 3 Afrotropical (PONT 1980), and 105 Australasian and Oceanian (PONT 1989, HARDY 1981). Based on the present knowledge (HARDY 1981, PONT 2001, SHINONAGA 2003, XUE *et al.* 2006a, b, SHINONAGA & HUANG 2007), the genus comprises, worldwide, about 173 species, two subspecies, including 39 Palaearctic, 12 Nearctic, 27 Oriental, 4 Afrotropical and 103 Australasian and Oceanian. China is rich in fly biodiversity since it spans Palaearctic and Oriental realms. At present, 24 endemic species (not including the 15 new species) have been identified in China.

## MATERIAL AND METHODS

The genitalia figure was drawn based on previous studies (XUE *et al.* 2006a), and available specimens, which can be used to guide taxonomy of this genus.

The morphological terminology follows that of MCALPINE (1981) and STUCKENBERG (1999). Absolute measurements are used for the body length in millimeters (mm). Abbreviations used for setae are: *prst acr* = presutural acrostichal setae; *prst dc* = presutural dorsocentral setae; *dc* = dorso-central setae; *ial* = intra-alar setae; *acr* = acrostichal setae; *pra* = prealar setae; *p* = posterior bristles; *v* = ventral bristles; *ad* = anterodorsal setae; *pd* = posterodorsal setae; *av* = anteroventral setae; *pv* = posteroventral setae and Mt. = mountain.

Based on distribution data, using the GIS software ArcView 3.2, species geographical distributions are mapped.

The type specimens of the new species are deposited in the Diptera collection of the Institute of Entomology, Shenyang Normal University (IESNU).

### DIAGNOSIS OF THE GENUS *LISPOCEPHALA*

Male frons length longer than width; 2 orbital setae, usually lower one longer than upper; 2 frontal setae, lower one longer than upper; scutellum with developed basal and apical setae; 3 katatergite setae, placed in the points of a imaginary triangle; costa reaching tip of the M; mid tibia without *av*.

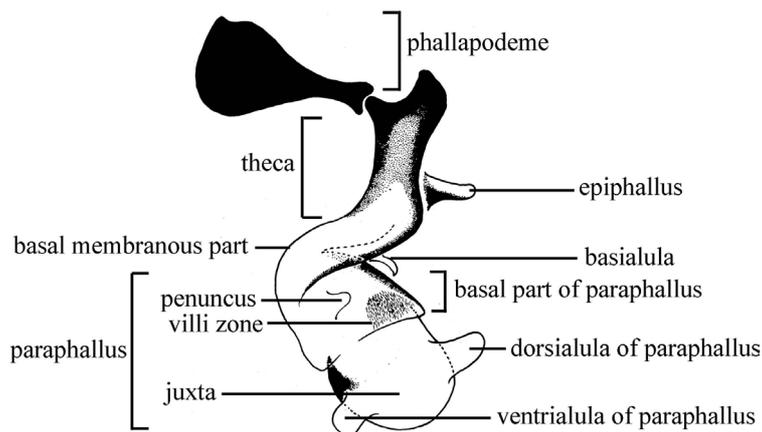
### RESULT

#### *Lispocephala bomiensis* sp. n.

(Figs 2–7)

Holotype: male, Bomi County (29°55'N, 95°45'E), Tibet Autonomous Region, 2300 m, 13. vi. 1978, collected by Fasheng Li.

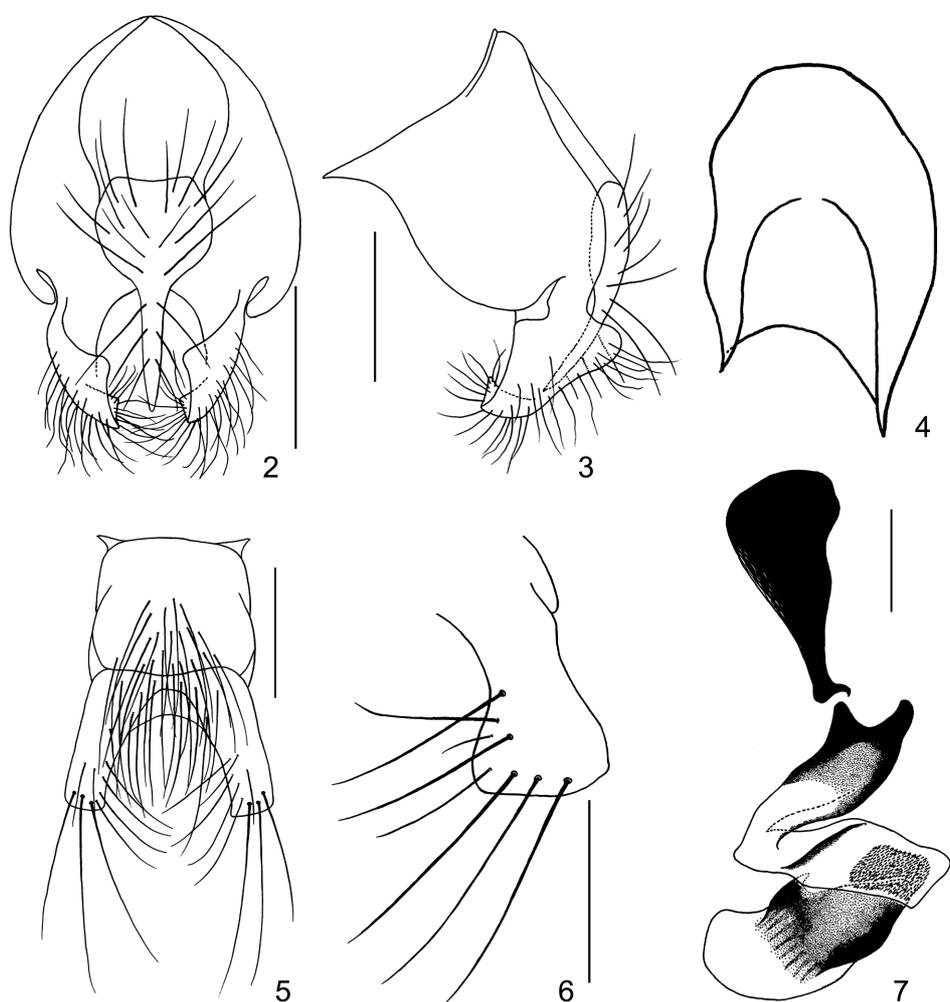
Paratypes: 2 males, same data as holotype.



**Fig. 1.** Male genitalia figure of *Lispocephala*

Male: Body length 2.4–3.3 mm.

Head: Eyes bare, lower posterior margin not concave. Frons about 0.35 times as wide as head, lateral margins parallel, narrowing towards lunule. Frontal vitta black, with faint yellow-gray pruinosity. Frontal triangle with yellow-gray pruinosity, reaching anterior margin of frons. Ocellar seta as long as or longer than frons width. Outer vertical seta 1.5 times as long as posterior vertical, shorter than ocellar. Fronto-orbital plate with yellow-gray pruinosity. Distance between orbital setae longer than that between frontal setae. With 1–2 small hairs between frontal setae and eyes. Face and gena dark in ground colour, with pale pruinosity. Parafacial brown-yellow in ground colour, with faint yellow pruinosity, about 0.25 times as wide as flagellum 1. Gena about 1/12–1/16 of eye height.



**Figs 2–7.** *Lispocephala bomiensis* sp. n.: 2 = cerci, posterior view (scale bar: 0.2 mm); 3 = terminalia, profile view (scale bar: 0.2 mm); 4 = paramere (scale bar: 0.1 mm); 5 = sternite 5 (scale bar: 0.2 mm); 6 = lobe of sternite 5, profile view (scale bar: 0.2 mm); 7 = phallosome (scale bar: 0.2 mm)

With 2 short and fine hairs above vibrissa. Profrons not projecting. Basal third of flagellum 1 red-yellow, apical 2/3 black-brown; flagellum 1 twice as long as pedicel; distance between end of antenna and epistoma about 2/5 of flagellum 1 length; arista short ciliated in basal 1/3, the longest hair about 2/3 of flagellum 1 width, bare in apical 2/3. Occiput black in ground colour, with gray pruinosity and black hairs. Palpi red-yellow, prementum black-brown.

Thorax: Black in ground colour, with gray pruinosity, with 3 faint brown vittae. *Acr* in two rows. 2+3 *dc*, anterior *prst dc* about 1/2 of posterior one length. 0+2 *ial*. 2 proepisternal setae; 2 proepimeral.

Wings: Faint brown, veins dark brown. Costal spine distinct. Calypters faint yellow. Lower calypter about 1.5 times as long as upper. Halteres yellow.

Legs: Coxa and femur dark brown, with faint gray pruinosity; trochanter, tibia and tarsi yellow-brown, tarsomere 1 dark yellow. Mid femur with 1 row of long *av* (3–4 times as long as the diameter of mid tibia in basal half), 2–3 rows of anterior long bristle in basal half, shorter than *av*, 1 supra-median *a*, 2 subapical *pd*, 4–6 *pv* in basal half. Mid tibia with 1 median *pd*, about twice as long as the diameter of tibia. Hind femur with 1 row of *av* and *ad*, 1 subapical *pv*, 2 *pv* in basal 1/3. Hind tibia with 1 *av*, 2 *ad*, 2 *pd* (supra-median one as long as tibia diameter). Pulvilli small, oval, shorter than claws, claws about 1/5 of tarsomere 5 length.

Abdomen: Black-brown in ground colour, with dense gray pruinosity. Long-oviform in dorsal view, longer than thorax, widening backward half in lateral view. With faint median vitta, tergite 4 with 1 pair of faint lateral spots; tergite 5 with 1 pair of black and rounded lateral spots, in dorsal view, spot width about 1/3 of tergite 5 length, 4 discal and 4 marginal setae, developed. Tergite 8 with 2 discal setae. Lateral lobes of sternite 5 red-yellow, with dense long hairs. Sternite 1 bare, sternites 2–5 with long hairs in ventral surfaces.

Female: Unknown.

Etymology: The new species is named after the county of the type locality.

Remarks: Resembles *L. securo* MA, 1981, but can be recognised by the scape and pedicel dark brown; face and facial ridge dark in ground color; abdominal tergite 3 without lateral spots; in posterior view, free part of cerci short (Fig. 2).

### ***Lispocephala dynatophallus* sp. n.**

(Figs 8–13)

Holotype: male, Diaokou (36°25'N, 111°4'E), Pu County, Shanxi Province, 11. x. 1980, collected by Mingfu Wang.

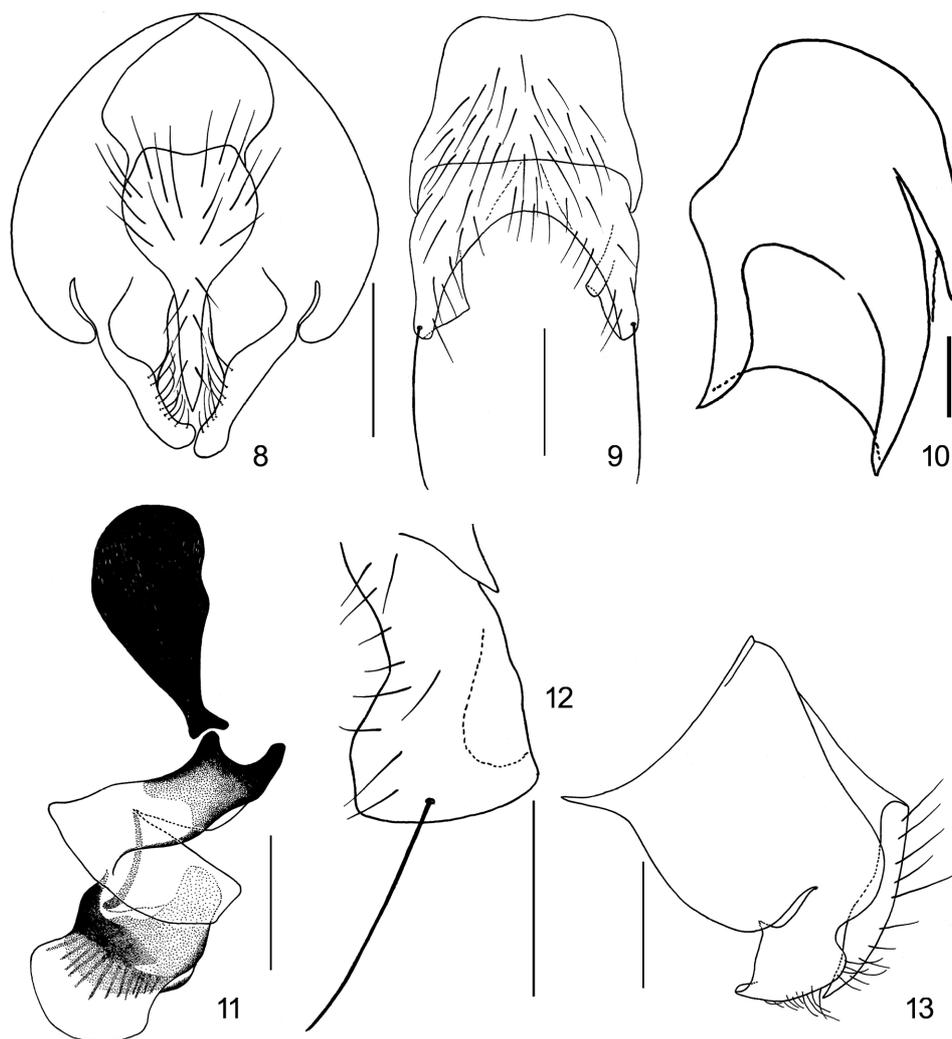
Paratype: male, same data as holotype.

Male: Body length 4.5 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.33 times as wide as head, lower part wider. Frontal vitta dark brown, without gray pruinosity. Frontal triangle with gray-yellow pruinosity, reaching anterior margin of frons. Ocellar developed, about as long as upper orbital seta. Outer vertical seta longer than posterior vertical and shorter than ocellar. Face with gray-white pruinosity. Parafacial with faint yellow pruinosity, 2/5 of flagellum 1 width. Apical 2/3 of flagellum 1 dark brown, basal third brown-yellow. flagellum 1 twice as long as pedicel; distance between end of antenna and epistoma about 1/3 of flagellum 1 length; arista short ciliated in basal half,

the longest hair about 1.3 times as long as arista basal diameter, bare in apical half. Profrons projecting. Gena black in ground colour, with gray pruinosity, about 1/14 of eye height. Occiput dark in ground colour, with black hairs and gray-white pruinosity. Palpi red-yellow, about 1.2–1.4 times as long as prementum. Prementum black-brown, about 2.2 times as long as high. Labella with 1 pair of big teeth in each side, 4/5 of fore claws length.

Thorax: Black in ground colour, with gray-white pruinosity; dorsal surface of scutum and scutellum with gray-brown pruinosity, without vitta. *Acr* in two rows, hair-like. 2+3 *dc*, anterior *prst dc* about 1/2 of posterior one length. 0+2 *ial*. 2 proepisternal setae; 2 proepimeral.



**Figs 8–13.** *Lispocephala dynatophallus* sp. n.: 8 = cerci, posterior view (scale bar: 0.2 mm); 9 = sternite 5 (scale bar: 0.2 mm); 10 = paramere (scale bar: 0.1 mm); 11 = phallosome (scale bar: 0.2 mm); 12 = lobe of sternite 5, profile view (scale bar: 0.2 mm); 13 = terminalia, profile view (scale bar: 0.2 mm)

Wings: Faint brown. Basicosta yellow. Costal spine longer than crossvein r-m. Calypters faint yellow. Lower calypter about 1.3 times as long as upper. Halteres yellow.

Legs: Mid and hind coxa black-brown, remaining brown-yellow. Mid femur with 1 supra-medial *a*, 2 subapical *pd*, 2 *pv* in basal 2/5. Mid tibia with 1 median *pd*, without *ad*. Hind femur with 1 row of *av* and *ad*, 2–3 *pv* in basal 2/5. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*. Pulvilli oval, small, shorter than claws, claws about 2/3 of tarsomere 5 length.

Abdomen: In ventral view, basal half yellow-brown, lateral lobes of sternite 5 yellow, remaining black-brown, with gray-white pruinosity. Long-oviform in dorsal view, longer than thorax, back half wider in lateral view, without median vitta, tergites 3–5 each with 1 pair of black-brown rounded lateral spots (spots of tergite 3 faint), spot width about 2/5 of tergite length respectively. Tergite 5 with 4 discal and 4 marginal setae. Tergite 8 with 2 setae. Aedeagus thick and strong, curving forward.

Female: Unknown.

Etymology: The species name is from the Greek words *dynatos* meaning muscular, *phallos* meaning aedeagus, referring to the thick and strong aedeagus (Fig. 11).

Remarks: Resembles *L. bomiensis* sp. n., but can be recognised by the pedicel red-yellow; femur yellow; mid femur without fine and long hairs; basal part of paraphallus without villi zone (Fig. 1), juxta broad; in lateral view, apical part of surstyli broad.

### ***Lispocephala valva* sp. n.**

(Figs 14–18)

Holotype: male, Shilu County (36°9'N, 111°46'E), Yangchun City, Guangdong Province, 15. iii. 1982, collected by MINGQUAN LIU.

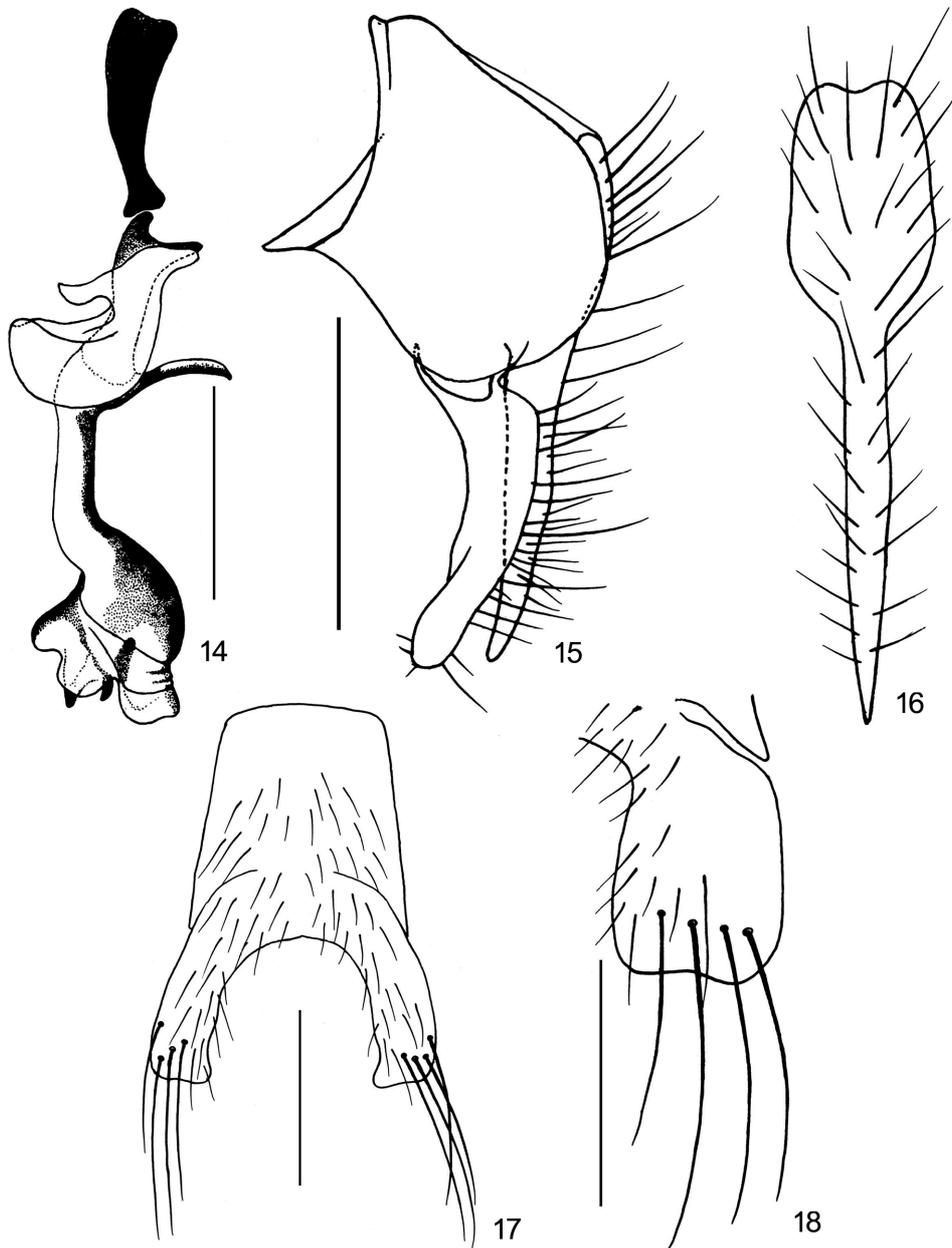
Paratype: male, same data as holotype.

Male: Body length 4.0 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.36 times as wide as head, lower part wider. Frontal vitta black-brown in ground colour, lower 1/3 red-brown, with thin brown-yellow pruinosity. Frontal triangle with yellow-gray pruinosity, reaching anterior margin of frons. Ocellar developed, longer than frons width. Outer vertical seta longer than posterior vertical, about 2/3 of ocellar. Fronto-orbital plate with yellow-gray pruinosity. Face black in ground colour, with gray-white pruinosity. Parafacial yellow, about 1/3 of flagellum 1 width. Gena with yellow pruinosity, about 1/10 of eye height. Occiput dark, with gray pruinosity. Antenna wide and short, pedicel and basal third of flagellum 1 red-yellow, apical 2/3 of flagellum 1 black, about twice as long as pedicel. Distance between end of antenna and epistoma about as long as of flagellum 1. Arista short ciliated in basal 2/3, the longest hair about 1/3 of flagellum 1 width, arista bare in apical 1/3. Palpi yellow. Prementum brown, slightly projecting in lateral view.

Thorax: Dark black in ground colour, lateral and ventral surfaces with gray pruinosity, dorsal surface with yellow-gray pruinosity, without vitta. *Acr* in two rows. 2+3 *dc*, anterior *prst dc* shorter than posterior. 0+2 *ial*. 2 proepisternal setae; 2 proepimeral.

Wings: Hyaline, veins yellow. Costal spine well marked. Calypters yellow to white, lower calypter about 1.7 times as long as upper. Halteres yellow.



**Figs 14–18.** *Lispocephala valva* sp. n.: 14 = phallosome; 15 = terminalia, profile view; 16 = cerci, posterior view; 17 = sternite 5; 18 = lobe of sternite 5, profile view. (Scale bars 0.2 mm each)

Legs: Mid and hind coxae dark brown, with gray pruinosity, remaining yellow. Mid femur with 1 row of *av*, seta-like, longer than tibia diameter, 1 supra-median *a*, 2 subapical *d*, 2 *pv* in basal 2/5. Mid tibia with 1 medial *pd*, twice as long as tibia diameter. Hind femur with 3 developed *av* in apical 3/5, 2 seta-like *av* (about as long as hind tibia diameter) in basal 2/5, 1 subapical *d*, 1 *pv*, 2 short setae in basal 2/5, shorter than hind tibia diameter. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*. Pulvilli big, fore pulvilli longer than tarsomere 4.

Abdomen: Long-oviform in dorsal view, longer than thorax. Syntergite 1+2, lateral ventral surface of tergite 3 and sternites 1–3 yellow, lateral lobes of sternite 5 brown-yellow, remaining dark brown, with gray pruinosity. Tergites 1–5 each with marked median vitta, tergites 3–4 each with 1 pair of trigonal lateral spots, spot width about 3/5–1/2 of tergite length respectively. Tergite 5 with rounded black lateral spots, spot width about 1/3 of tergite length respectively, discal and marginal setae developed, tergite 8 with 4 marked discal setae. Aedeagus long, end petal-like (Fig. 14).

Female: Unknown.

Etymology: The specific name refers to male valvular juxta. *Valvate* means valvular in Latin.

Remarks: Resembles *L. cothurnata* XUE *et al.* 2006, but can be recognised by scutum with vittae along *dc* rows; fore coxa dark brown; femora hazel; male genitalia long, with valvular juxta (Fig. 14).

### ***Lispocephala flaviscutella* sp. n.**

(Figs 19–23)

Holotype: male, Xiaomengyang (22°36'N, 101°50'E), Xishuangbanna, Yunnan Province, 850 m, 9. ix. 1958, collected by YIRAN ZHANG.

Paratype: male, same data as holotype.

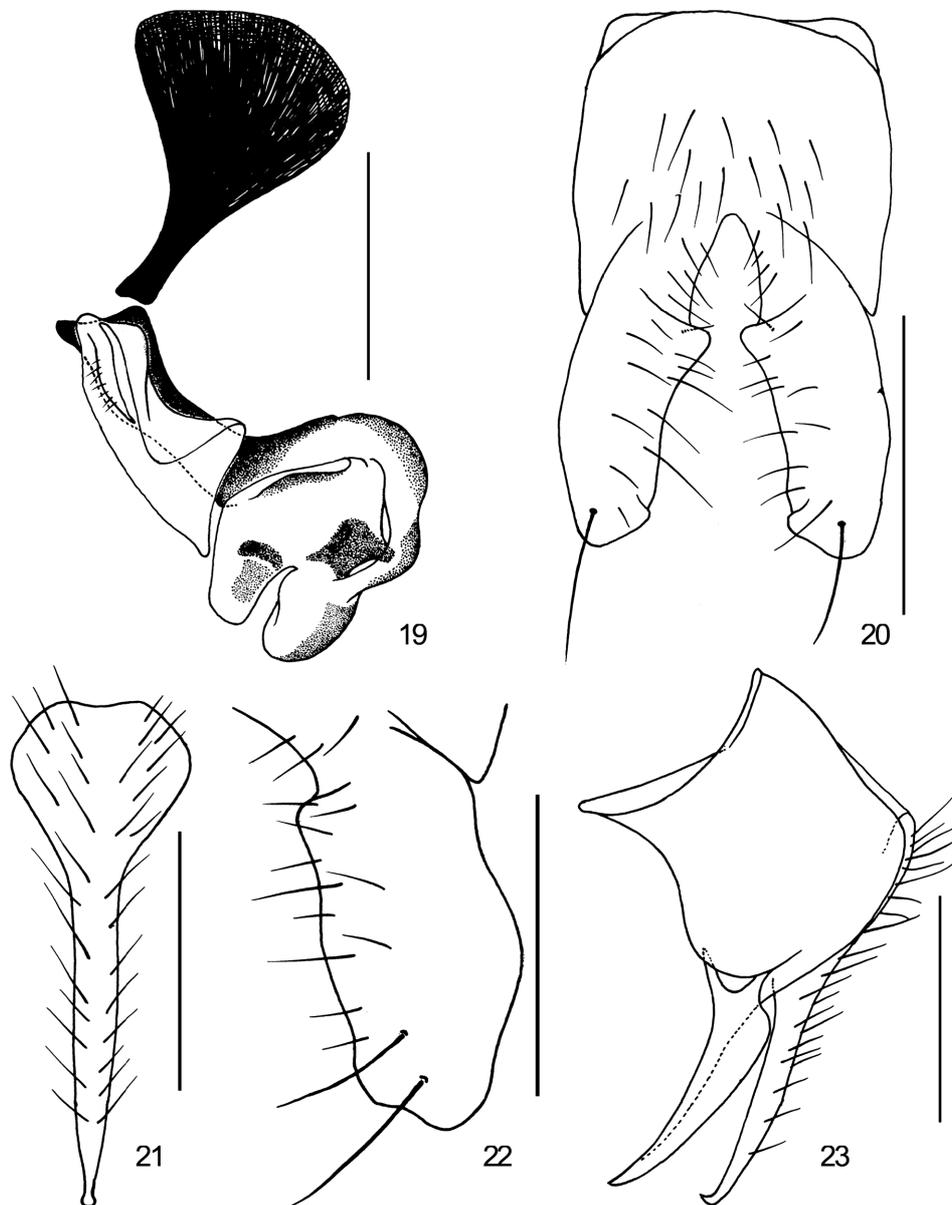
Male: Body length 3.3 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.32 times as wide as head, becoming wide towards lunule. Frontal vitta black in ground-color, with faint gray pruinosity (lower part red-yellow). Frontal triangle wide, with faint gray pruinosity, reaching to anterior margin of frons. Profrons projecting, frontal angle obtuse. Ocellar seta not developed, shorter than frons width, longer than outer vertical. Fronto-orbital plate with faint gray pruinosity. Face and parafacial yellow. Parafacial about 1/5 of flagellum 1 width. Gena yellow, about 1/10 of eye height. Occiput black in ground colour, with faint gray pruinosity. Antenna yellow, flagellum 1 about twice as long as pedicel. Distance between end of antenna and epistoma about 1/3 of flagellum 1 length; arista plumose, the longest hair as long as flagellum 1 width. Palpi yellow, haustellum brown-yellow.

Thorax: Dark in ground colour, faint gray dusted, without distinct vitta. *Acr* in 2 rows. 2+3 *dc*. 0+2 *ial*. Scutellum red-yellow in distal part. 2 proepisternal setae; 2 proepimeral.

Wings: Hyaline, veins yellow. Costal spine distinct. Calypters faint yellow. Lower calypter about 1.3 times as long as upper. Halteres yellow.

Legs: Entirely yellow (mid legs absent). Hind femur with 5 *av* (2 subbasal distinct short), 1 row of *ad*, 1 subapical *pd*, 2 *pv* in basal half, 1 subapical *pv*. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*. Pulvilli big, oval.



**Figs 19–23.** *Lispocephala flaviscutella* sp. n.: 19 = phallosome; 20 = sternite 5; 21 = cerci, posterior view; 22 = lobe of sternite 5, profile view; 23 = terminalia, profile view. (Scale bars 0.2 mm each)

Abdomen: Cylindric, longer than thorax, lateral and dorsal surfaces of tergites 4–5 dark brown in ground colour, with gray pruinosity, remaining yellow, without median vitta, abdominal tergites 3–5 each with 1 pair of rounded brown patches (the diameter of patch about 1/3–1/2 of tergite length). Tergite 5 with developed discal and marginal setae. Tergite 8 with 2 discal bristles. Posterior margin of paramere with spinous hairs (Fig. 19). End of cerci with process forwards (Fig. 23).

Female: Unknown.

Etymology: The specific name refers to male scutellum red-yellow in distal part. *Flavus* means yellow and *scutella* means scutellum in Latin.

Remarks: Resembles *L. boops* (THOMSON, 1869), but can be recognised by scutellum red-yellow in distal part; surstyli short; end of cerci with process.

**Lispocephala parciseta** sp. n.  
(Figs 24–29)

Holotype: male, Mengsong (21°08'N, 99°56'E), Xishuangbanna, Yunnan Province, 1600 m, 24. iv. 1958, collected by Yiran Zhang.

Paratype: male, same data as holotype.

Male: Body length 3.5 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.34 times as wide as head, lateral margins nearly parallel. Frontal vitta black in ground color, without pruinosity. Frontal triangle with dense gray-white pruinosity, reaching to anterior margin of frons. Without ocellar seta, only with 3 short setae in ocellar triangle, about 1/4 of frons width. Outer vertical seta 1.7 times as long as posterior vertical, shorter than frons width. Fronto-orbital plate with gray-white pruinosity. Profrons not projecting. Face and parafacial dark in ground colour, with gray-white pruinosity. Parafacial about 1/3 of flagellum 1 width. Gena dark, about 1/20 of eye height. Occiput dark in ground colour, with faint gray pruinosity. Antenna red-yellow; flagellum 1 about twice as long as pedicel. Distance between end of antenna and epistoma about 1/3 of flagellum 1 length; arista plumose in basal half, the longest hair as long as flagellum 1 width, bare in apical half. Palpi yellow, prementum brown.

Thorax: Dark in ground colour, with dense gray-white pruinosity, without vitta (yellow along *dc* in postsutural area of scutum). *Acr* in 2 rows. 2+3 *dc*, anterior *prst dc* about 3/5 of posterior. 0+2 *ial*. 2 proepisternal setae, 2 proepimeral.

Wings: Hyaline, veins yellow. Costal spine distinct. Calypters yellow-white. Lower calypter about 1.8 times as long as upper.

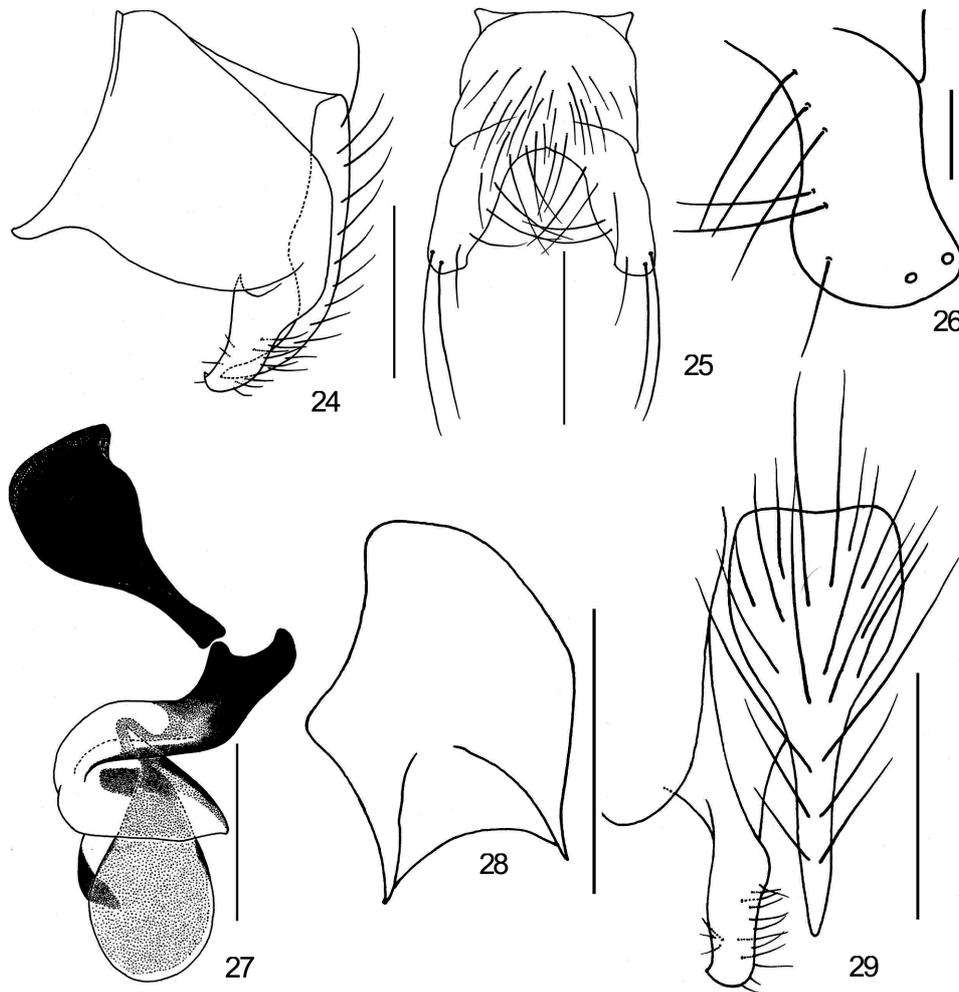
Legs: Mid and hind coxa dark brown, tarsi dark, remaining red-yellow. Mid femur with 1 row of *av*, short seta-like, longer than in basal half, 1 supra-median *a*, 2 subapical *p*, 2 *pv* in basal 1/3, 2–3 subapical *pv*, seta-like, longer than mid tibia diameter. Mid tibia with 1 medial *pd*, twice as long as tibia diameter. Hind femur with 1 row of *av* and *ad*, developed, 1 subapical *pd*, 3 *pv* in basal 1/3, 1 subapical *pv*, seta-like. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*. Pulvilli small, oval.

Abdomen: Cylindric, oval in dorsal view, longer than thorax. Most of syntergite 1+2, lateral margins of tergite 3 and posterior margins of tergites 3–4 yellow, remaining dark brown in ground colour, with gray-white pruinosity. Tergites 3–4 each with faint median vitta, tergites 3–5 each with 1

pair of rounded black lateral spots, spot width about  $1/2$ – $3/5$  of tergite length respectively. Tergite 5 with developed discal and marginal setae. Tergite 8 with 2 discal setae.

Female: Unknown.

Etymology: The specific name refers to male species without ocellar seta. *Parcus* means absent in Latin.



**Figs 24–29.** *Lispocephala parciseta* sp. n.: 24 = terminalia, profile view (scale bar: 0.2 mm); 25 = sternite 5 (scale bar: 0.1 mm); 26 = lobe of sternite 5, profile view (scale bar: 0.05 mm); 27 = phallosome (scale bar: 0.2 mm); 28 = paramere (scale bar: 0.2 mm); 29 = cerci, posterior view (scale bar: 0.2 mm)

Remarks: Resembles *L. curvivesica* (XUE *et al.* 1998), but can be recognised by male without ocellar seta; antenna red-yellow; fore femora entirely yellow; distal part of lateral lobe of sternite 5 narrow; juxta long and big (Fig. 27).

### ***Lispocephala applicatilibata* sp. n.**

(Figs 30–35)

Holotype: male, Tuqiang town (53°28'N, 122°22'E), Heilongjiang Province, 28. iv. 1979, collected by Changyuan Cui.

Paratype: male, same data as holotype.

Male: Body length 4.7 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.37 times as wide as head, lateral margins nearly parallel. Frontal vitta black. Frontal triangle with faint gray pruinosity, reaching anterior margin of frons. Ocellar developed, longer than frons width. Outer vertical seta as long as posterior vertical, about 2/3 of ocellar. Profrons projecting. Frontal angle nearly right-angle. Face in the lower 1/3 and facial ridge red-yellow. Lower part of parafacial red-yellow, parafacial with faint gray pruinosity, 2/5 of flagellum 1 width. Vibrissa with 2 setae. Gena red-yellow on foreside, about 1/6 of eye height. Occiput black in ground colour, with faint gray pruinosity. Pedicel red-yellow, flagellum 1 black-drown. Flagellum 1 twice as long as pedicel. Distance between end of antenna and epistoma about 1/2 of flagellum 1 length. Arista short ciliated in basal half, the longest hair as long as arista basal diameter, bare in apical half. Palpi red-yellow, prementum black-brown.

Thorax: Dark in ground colour, with faint gray pruinosity, without vitta. *Acr* in two rows, 2+3 *dc*, anterior *prst dc* as long as posterior. 0+2 *ial*. 2 proepisternal setae, 2 proepimeral.

Wings: Veins yellow. Basicosta brown. Costal spine distinct. Area around crossvein r-m and dm-cu brown clouded. Calypters white, margin red-yellow. Lower calypter about 1.5 times as long as upper. Halteres red-yellow.

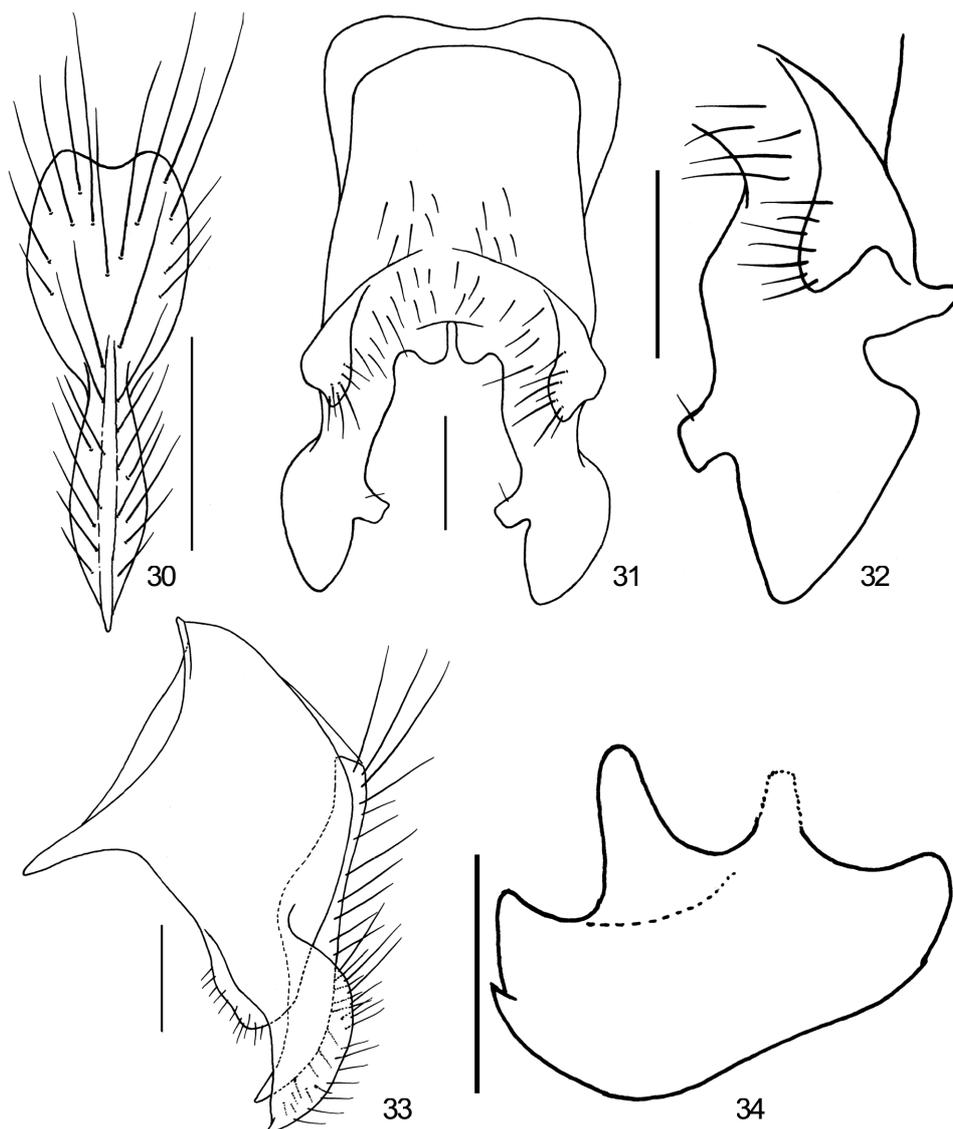
Legs: Coxa and femur black, with faint gray pruinosity. Trochanter, tibia and tarsi red-yellow (apical part of tarsi brown). Mid femur with 1 row of *av*, twice as long as mid tibia diameter, 1 supra-median *a*, 2 subapical *p*, 1 row of developed *pv* (9–10). Mid tibia with 1 supra-median *pd*, 2.5 times as long as tibia diameter. Hind femur with 1 row of *av*, *ad* and *pv*, all developed and completed, 1 subapical *pd*. Hind tibia with 2 *av*, 2 *ad*, 2 *pd*, 1 subapical *d*, long, about 3/5 of hind tibia length. Claws and pulvilli big, long-rounded, about 4/5 of tarsomere 5 length.

Abdomen: Oval in dorsal view, longer than thorax, in ventral view, tail half widening. Syntergite 1+2, posterior margins of tergites 3–4 yellow, remaining black, with faint gray pruinosity, without median vitta, tergites 3–5 each with 1 pair of black rounded lateral spots, spot width about 2/5–1/3 of tergite length respectively. Tergite 5 with developed discal and posterior marginal setae, lateral setae dense and long, most longer than tergite. Tergites 7–8 each with 6 developed marginal setae. Basal part of lateral lobe of sternite 5 projecting (Figs 31–32). In posterior view, cerci with narrow longitudinal ridge in apical 2/3 (Fig. 30). Basal lateral process of apical distiph developed, dorsal process strip-like (Fig. 35).

Female: Unknown.

Etymology: The specific name refers to male basal part of lateral lobe of sternite 5 projecting. *Applicatus* means attached and *lobatus* means lobed in Latin.

Remarks: Resembles *L. securisocialis* (XUE *et al.* 1998), but can be recognised by face in the lower 1/3 and facial ridge red-yellow; foreside of gena red-yellow; flagellum 1 black-brown; mid femur with 1 row of developed *pv* (9–10); basal



**Figs 30–34.** *Lispocephala applicatilibata* sp. n.: 30 = cerci, posterior view (scale bar: 0.2 mm); 31 = sternite 5 (scale bar: 0.2 mm); 32 = lobe of sternite 5, profile view (scale bar: 0.2 mm); 33 = terminalia, profile view (scale bar: 0.2 mm); 34 = paramere (scale bar: 0.1 mm)

part of hind femur black; hind tibia with 2 *av*; abdominal epandrium projecting backwards; basal part of lateral lobe of sternite 5 with process; in posterior view, cerci with narrow longitudinal ridge in apical 2/3, in lateral view, posterior margin of cerci straight in middle part.

***Lispocephala apicighamata* sp. n.**  
(Figs 36–41)

Holotype: male, Mengzhe (21°56'N, 100°26'E), Xishuangbanna, Yunnan Province, 1750 m, 29. vi. 1958, collected by Shuying Wang.

Paratype: male, same data as holotype.

Male: Body length 3.7 mm.

Head: Eyes bare, lower posterior margin straight. Frons about 0.33 times as wide as head, lateral margins parallel. Frontal vitta black, without pruinosity. Frontal triangle with gray-white pruinosity, reaching to anterior margin of frons. Ocellar seta developed, longer than frons width. Outer vertical seta 1.5 times as long as posterior vertical, distinctly shorter than ocellar. Fronto-orbital plate with gray-white pruinosity. Profrons projecting, frontal angle obtuse. Face, parafacial and gena brown-yellow in ground colour, with yellow-gray pruinosity. Parafacial narrow, about 1/4 of

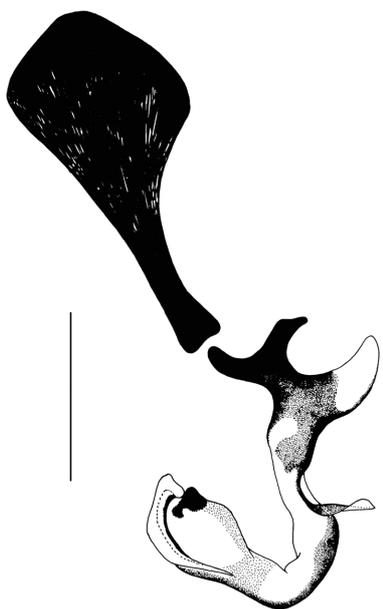
flagellum 1 width. Gena hair black, about 1/17 of eye height. Occiput black in ground colour. Antenna entirely yellow, flagellum 1 about twice as long as pedicel. Distance between end of antenna and epistoma about 1/3 of flagellum 1 length. Arista short ciliated in basal half, the longest hair about 1/3 of flagellum 1 width, bare in apical half. Palpi yellow, prementum dark brown.

Thorax: Dark black in ground colour, with faint gray pruinosity, without vitta. *Acr* in two rows, seta-liked; 2+3 *dc*, anterior *prst dc* about 2/3 of posterior one length. 0+2 *ial*. 2 proepisternal setae; 2 proepimeral.

Wings: Hyaline, veins brown-yellow. Costal spine short. Calypters light yellow. Lower calypter about 1.5 times as long as upper. Halteres yellow.

Legs: Entirely yellow. Hind femur with 1 row of *av* and *ad*, completed, 1 subapical *p*, 2 basal half *pv*, 1 subapical *pv*. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*, 1 submedial *av*, long, 1/2 of tibia length, 1 submedial *pd*, as long as tibia diameter, pulvilli small.

Abdomen: Cylindrical, longer than thorax, long-oviform in dorsal view. Tergites 4–5 and basal half of sternite 5 dark brown, remaining yellow. Tergites 3–4 with faint median vittae respectively; tergites 3 with brown lateral spots, faint. Tergites 4–5

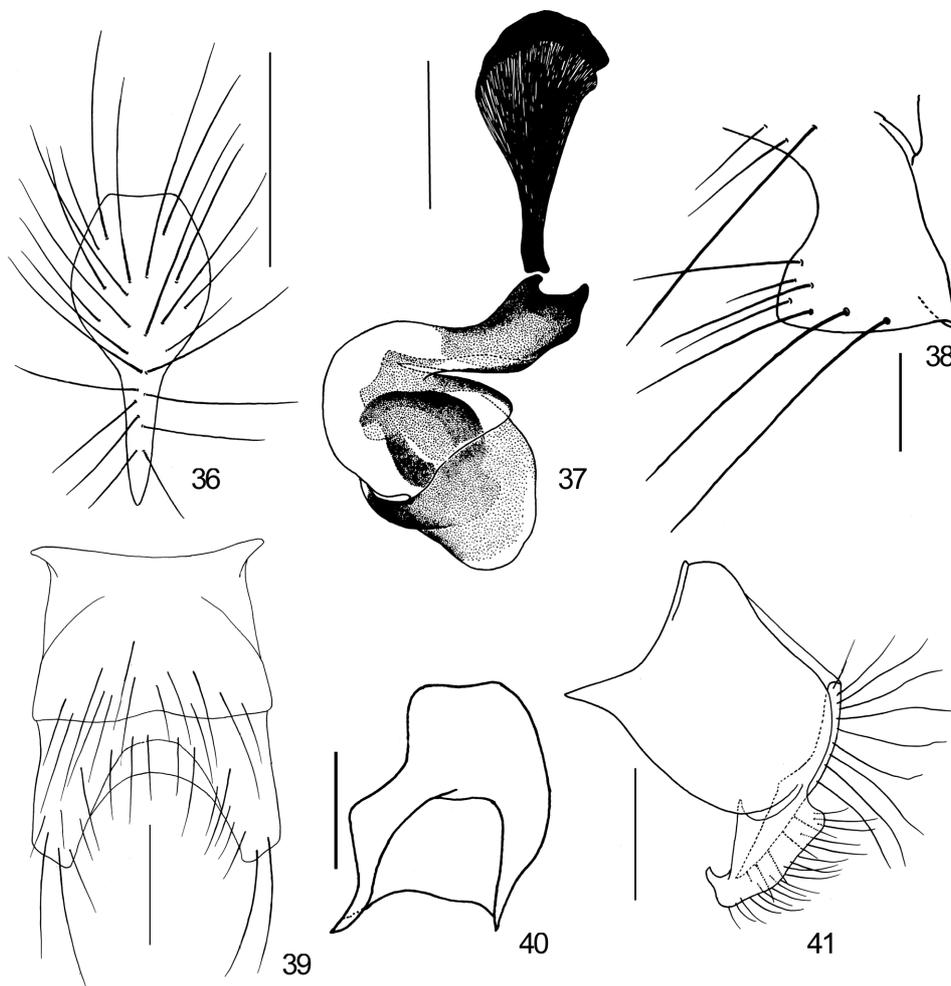


**Fig. 35.** *Lispocephala applicatilobata* sp. n.: phallosome (scale bar: 0.2 mm)

with each 1 pair of rounded brown lateral spots, spot width about  $1/3-1/2$  of tergite length respectively. Tergite 5 with developed discal and posterior marginal setae, lateral setae undeveloped, tergite 8 with 2 pairs of discal setae. Surstyli with apical spinous process forward (Fig. 41). Cerci upper apical part straight (Fig. 36).

Female: Unknown.

Etymology: The specific name refers to male apical hamulus of surstyli. *Apicis* means apical and *hamatus* means falcate in Latin.



**Figs 36–41.** *Lispocephala apicimata* sp. n.: 36 = cerci, posterior view (scale bar: 0.2 mm); 37 = phallosome (scale bar: 0.2 mm); 38 = lobe of sternite 5, profile view (scale bar: 0.1 mm); 39 = sternite 5 (scale bar: 0.2 mm); 40 = paramere (scale bar: 0.1 mm); 41 = terminalia, profile view (scale bar: 0.2 mm)

Remarks: Resembles *L. ungulitigris* (FENG et XUE, 1997), but can be recognised by flagellum 1 yellow in apical half; abdominal tergite 3 entirely yellow; abdominal syntergite 1+2 without spot; lateral lobe of sternite 5 less than twice of basal lobe in length; cerci without apical hamulus; surstyli with apical hamulus.

***Lispocephala longihirsuta* sp. n.**  
(Figs 42–46)

Holotype: male, Kuerle city (41°40'N, 86°3'E), Xinjiang, 1080 m, 16. vii. 1958, collected by CHANGQING LI.

Paratype: male, same data as holotype.

Male: Body length 2.9 mm.

Head: Eyes bare, lower posterior margin not concave. Frons about 0.38 times as wide as head, lateral margins parallel. Frontal vitta dark in ground colour, with dense gray-white pruinosity. Frontal triangle faint, with faint gray pruinosity, reaching anterior margin of frons. Ocellar longer than frons width. Outer vertical seta as long as posterior vertical, about 1/2 of ocellar seta length. Fronto-orbital plate dark, with faint gray-white pruinosity. 2 orbital setae, lower one longer than upper one. 2 frontal setae, lower one about 1/2 of upper one. With 2 hairs between frontal setae and eye. Distance between orbital setae longer than that between frontal setae. Profrons projecting. Face, Parafacial and dark, with faint gray-white pruinosity. Parafacial narrow, 1/4 of flagellum 1 width. Gena dark, about 1/12 of eye in height. Occiput with gray-white pruinosity. Apical margin of pedicel and basal half of flagellum 1 yellow, apical half of flagellum 1 brown yellow. Flagellum 1 about twice as long as pedicel. Distance between end of antenna and epistoma about 2/3 of flagellum 1 length. Arista short ciliated in basal half, the longest hair about 1/3 of flagellum 1 width, times as long as arista basal diameter, bare in apical half. Palpi yellow. Prementum black-brown.

Thorax: Dark black in ground colour, with faint gray pruinosity, without vitta. *Acr* in two rows, short hair-like. 2+3 *dc*, anterior *prst dc* about 1/2 of posterior one length. 0+2 *tal*. 2 proepisternal setae, 2 proepimeral.

Wings: Brown-yellow. Costal spine not marked. Calypters faint yellow. Lower calypter about 1.5 times as long as upper.

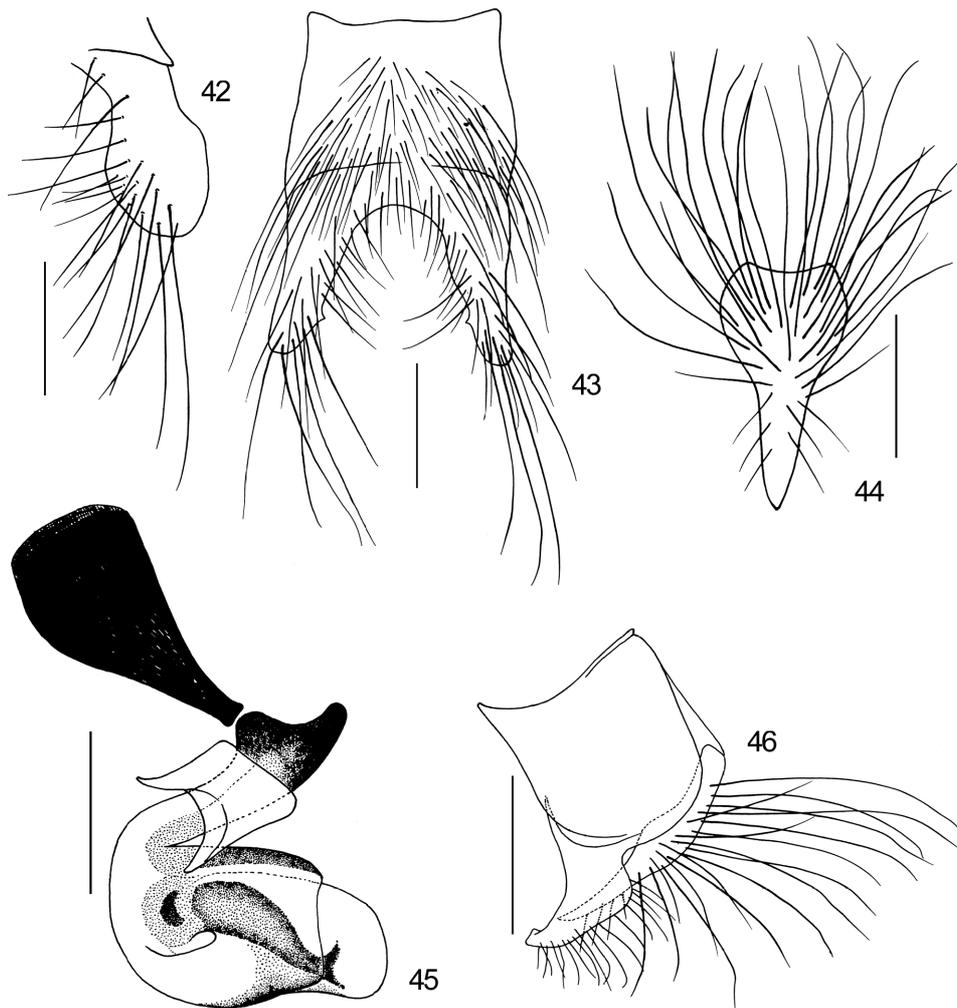
Legs: Coxa, fore and hind femur basal 1/5, mid femur basal 3/4 dark brown, remaining yellow. Mid femur with many long and fine ventral hairs in basal 1/3, without *av*, 1 supra-median *a*, 2 subapical *pd*, 1 supra-median *pv*. Mid tibia with 1 *pd*, 1.5 times as long as tibia diameter. Hind femur with many long and fine ventral hairs in basal 1/4, 4–5 *av*, 1 subapical *pd*, 1 long supra-median *pv*, 1 short subapical *pv*. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*. Pulvilli oval, small.

Abdomen: Oval in dorsal view, dark brown in ground colour, with faint gray pruinosity. Tergites 2–4 posterior margin yellow. Tergites with faint median vittae. Tergites 3–5 each with 1 pair of dark brown rounded lateral spots, spot width about 1/3–1/2 of tergite length respectively. Tergite 5 with developed posterior marginal setae, lateral setae undeveloped, tergite 8 with 2 setae. Sternite 4 posterior half and sternite 5 with dense fine and long hairs.

Female: Unknown.

Etymology: The specific name refers to male cerci with long setae (Fig. 44). *Longus* means long and *hirsutus* means hairy in Latin.

Remarks: Resembles *L. bomiensis* sp. n, but can be recognised by scape, pedicel and apical half of flagellum 1 faint brown, basal half of flagellum 1 yellow; fore and hind femur yellow in apical 4/5, mid femur yellow apical 1/4; abdominal tergites 3 with 1 pair of dark brown rounded lateral spots; L-shaped paraphallus.



**Figs 42–46.** *Lispocephala longihirsuta* sp. n.: 42 = lobe of sternite 5, profile view; 43 = sternite 5; 44 = cerci, posterior view; 45 = phallosome; 46 = terminalia, profile view. (Scale bars 0.2 mm each)

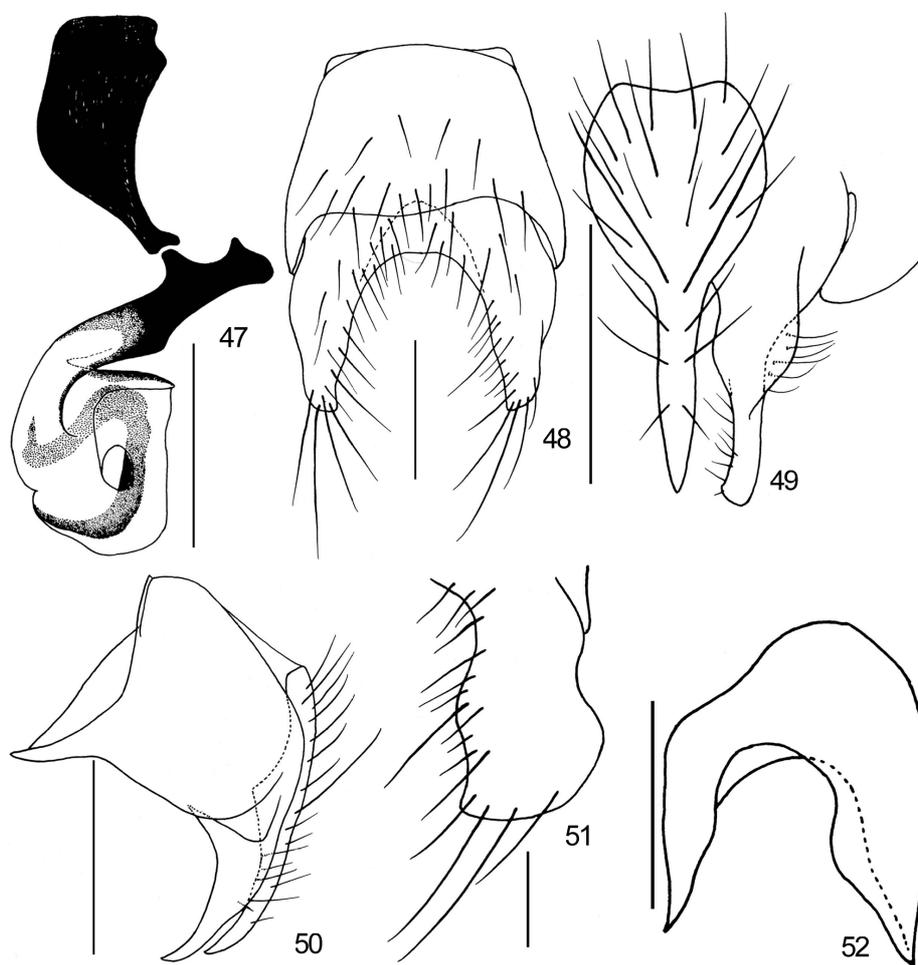
***Lispocephala apertura* sp. n.**  
(Figs 47–52)

Holotype: male, Damenglong (21°58'N, 100°47'E), Xishuangbanna, Yunnan province, 650 m, 22. iv. 1958, collected by YIRAN ZHANG.

Paratype: male, same data as holotype.

Male: Body length 2.8 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.33 times as wide as head, lower part becoming wide. Frontal vitta black-brown in ground colour, nearly without



**Figs 47–52.** *Lispocephala apertura* sp. n.: 47 = phallosome (scale bar: 0.2 mm); 48 = sternite 5 (scale bar: 0.2 mm); 49 = cerci, posterior view (scale bar: 0.2 mm); 50 = terminalia, profile view (scale bar: 0.2 mm); 51 = lobe of sternite 5, profile view (scale bar: 0.1 mm); 52 = paramere (scale bar: 0.1 mm)

pruinosity. Frontal triangle with yellow-gray pruinosity, reaching anterior margin of frons. Ocellar developed, as long as frons lower part width. Outer vertical seta longer than posterior vertical, about 2/3 of ocellar. Fronto-orbital with gray-white pruinosity. Distance between orbital setae longer than that between frontal setae. Parafacial with gray-white pruinosity, narrow, 1/4 of flagellum 1 width. Gena with gray-white pruinosity, about 1/12 of eye height. Occiput black in ground colour, with dense gray-white pruinosity. Apical margin of pedicel and basal half of flagellum 1 red-yellow, remaining brown. Flagellum 1 about 2.2 times as long as pedicel. Distance between end of antenna and epistoma about 1/2 of flagellum 1 length. Arista short ciliated in basal half, the longest hair about 2/3 of flagellum 1 width, bare in apical half. Palpi yellow, prementum black-brown.

Thorax: Dark black in ground colour, with faint gray pruinosity, without vitta. *Acr* in two rows, developed. 2+3 *dc*, anterior *prst dc* about 1/2 of posterior one length. 0+2 *ial*. 2 proepisternal setae, 2 proepimeral.

Wings: Hyaline, veins yellow. Costal spine well marked. Calypters yellow to white. Lower calypter about 1.5 times as long as upper. Halteres yellow.

Legs: Coxa and femur dark brown, remaining yellow. Mid femur with 1 row of short *av*, about 1.5 times as long as mid tibia diameter, 2 medial *a*, 2 subapical *pd*, 2 *pv* in basal 2/5, 1–2 seta-like subapical *pv*, about 1.5 times as long as mid tibia diameter. Mid tibia with 1 supra-median *pd*, about twice as long as mid tibia diameter. Hind femur with 4 developed *av* and 2 short *av*, 1 subapical *pd*, in basal 2/5 2 *pv*, 2 subapical *pv*. Hind tibia with 1 *av*, 2 *ad* (supra-median one long, 1/2 of tibia diameter), 2 *pd* (supra-median one short, as long as tibia diameter). Pulvilli small, oval.

Abdomen: Oval in dorsal view, longer than thorax, posterior margins of tergites and lateral lobes of sternite 5 yellow, remaining dark brown in ground colour, with gray-white pruinosity. Abdominal tergites with faint brown median vittae; tergites 3–5 each with 1 pair of black brown rounded lateral spots, spot width about 1/2–3/4 of tergite length respectively. Tergite 5 with developed posterior marginal setae and discal setae, tergite 8 with 2 discal setae. End of surstyli and cerci cuspidal. Apical lula and dorsialulae of paraphallus slightly sclerotized, 1 pair of auricle-like lateral lulae. In profile, apical part of paraphallus with a small middle posterior window.

Female: Unknown.

Etymology: The specific name refers to male apical part of paraphallus with a small middle posterior window in profile (Fig. 47). *Apertura* means aperture in Latin.

Remarks: Resembles *L. pilimutinus* XUE et ZHANG, 2006, but can be recognized by apical margin of pedicel and basal half of flagellum 1 red-yellow, remaining brown; coxa and femur dark brown, remaining yellow; mid femur 2 medial *a*; in profile, apical part of paraphallus with a small middle posterior window; paraphallus without basal villi zone.

### ***Lispocephala curvilobata* sp. n.**

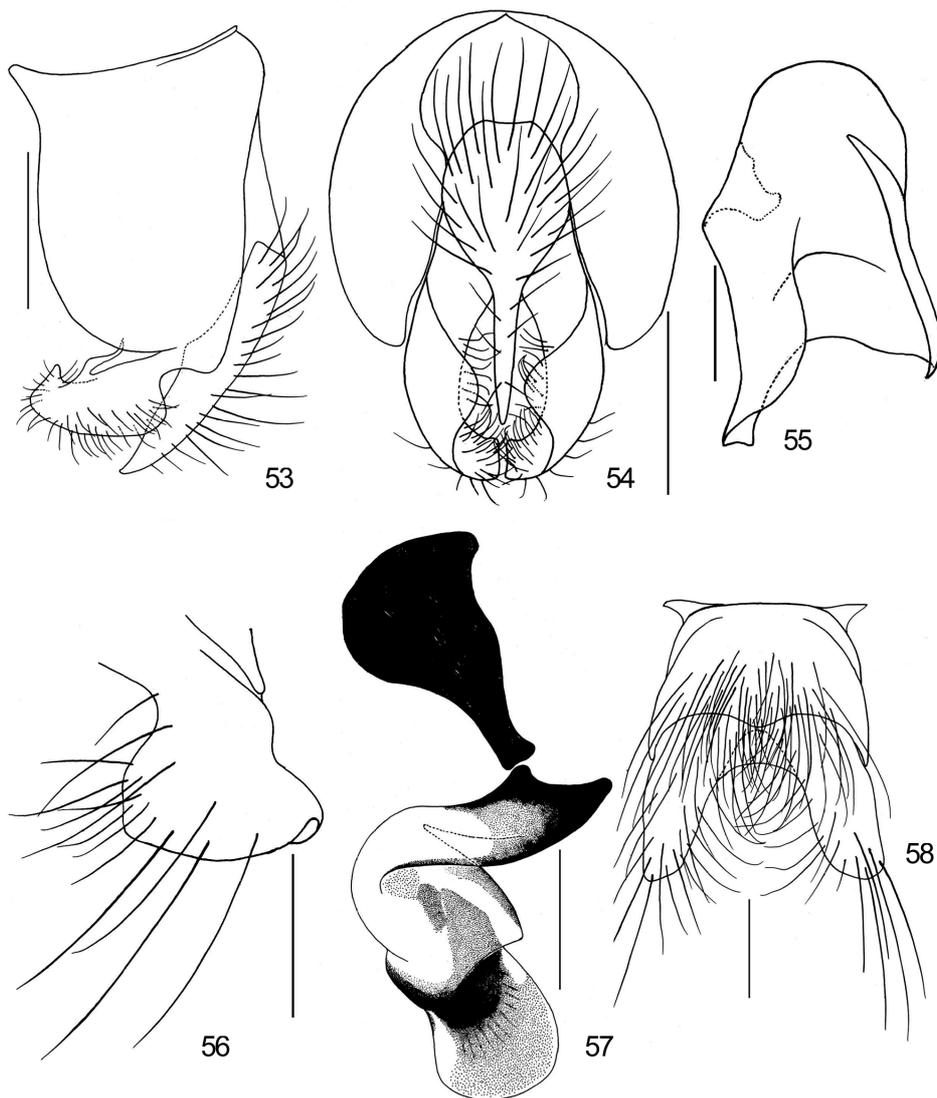
(Figs 53–58)

Holotype: male, Xing village (27°45'N, 118°2'E), Chongan town, Fujian Province, 950–1210 m, 22. v., 1960, collected by CHENGLIN MA.

Paratype: male, same data as holotype.

Male: Body length 4.0 mm.

Head: Eyes bare, lower posterior margin slightly concave. Frons about 0.34 times as wide as head, lateral margins parallel. Frontal vitta black in ground colour, with faint gray pruinosity. Frontal triangle with faint gray pruinosity, reaching anterior margin of frons. Ocellar longer than frons width. Outer vertical seta about 1.5 times as long as posterior vertical, about 2/3 of ocellar. Fronto-orbital



**Figs 53–58.** *Lispocephala curvilobata* sp. n.: 53 = terminalia, profile view (scale bar: 0.2 mm); 54 = cerci, posterior view (scale bar: 0.2 mm); 55 = paramere (scale bar: 0.1 mm); 56 = lobe of sternite 5, profile view (scale bar: 0.2 mm); 57 = phallosome (scale bar: 0.2 mm); 58 = sternite 5 (scale bar: 0.2 mm)

with faint gray pruinosity. Distance between orbital setae about 1.5 times as long as that between frontal setae. Profrons not projecting. Face dark, with faint gray pruinosity, parafacial and facial ridge with dark yellow pruinosity. Parafacial about 1/3 of flagellum 1 width. Gena dark, about 1/12 of eye height. Occiput dark, with gray pruinosity. Antenna brown-yellow, basal half red-yellow. Flagellum 1 about twice as long as pedicel. Distance between end of antenna and epistoma about 1/2 of flagellum 1 length. Arista short ciliated in basal 1/3, the longest hair about 1/2 of flagellum 1 width, arista bare in apical 2/3. Palpi red-yellow, prementum dark brown.

Thorax: Black in ground colour, with faint gray pruinosity, without vitta. *Acr* in two rows, short. 2+3 *dc*, anterior *prst dc* about 3/5 of posterior one length. 0+2 *ial*. 2 proepisternal setae, 2 proepimeral.

Wings: Hyaline, veins yellow. Costal spine well marked. Calypters yellow to white. Lower calypter about 1.5 times as long as upper. Halteres yellow.

Legs: Coxa, fore femur, mid femur and apical 1/3 of hind femur dark brown, remaining yellow. Mid femur with 1 row of *av*, seta-like, 1.5–2.0 times as long as tibia diameter, 1 supra-median *a*, 2 subapical *pd*, 2 short *pv* in basal 1/3. Mid tibia with 1 medial *pd*, 1.5–2.0 times as long as tibia diameter. Hind femur with 1 row of *av* and *ad*, developed, 1 subapical *pd*, 2–3 *pv* in basal 1/3, 1 subapical *pv*. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*. Pulvilli oval, small. Claws longer than pulvilli, about 3/5 of tarsomere 5 length.

Abdomen: Columniform, longer than thorax, syntergite 1+2 and posterior margin of tergite 3 yellow, remaining dark brown, with gray pruinosity. Abdominal tergites 3–4 with faint median vittae respectively, tergite 3 with faint lateral spots, tergites 4–5 each with 1 pair of black rounded lateral spots, spot width about 1/2 of tergite length respectively. Tergite 5 with developed discal and posterior marginal setae, tergite 8 with 3 discal setae. Sternites with long hairs, densest and longest on sternite 5. Lateral lobes of sternite 5 yellow, with apical long setae (Fig. 58). Apical half of surstyli curving inward.

Female: Unknown.

Etymology: The specific name refers to male apical half of surstyli curving inward (Fig. 54). *Curvus* means curving and *lobatus* means lobed in Latin.

Remarks: Resembles *L. orbiprotuberans* (XUE & YANG, 1998), but can be recognised by male fore coxa brown, fore femora dark brown; abdominal syntergite 1+2 without lateral spots; abdominal tergite 5 with 1 pair of black rounded lateral spots.

### ***Lispocephala subcurvilobata* sp. n.**

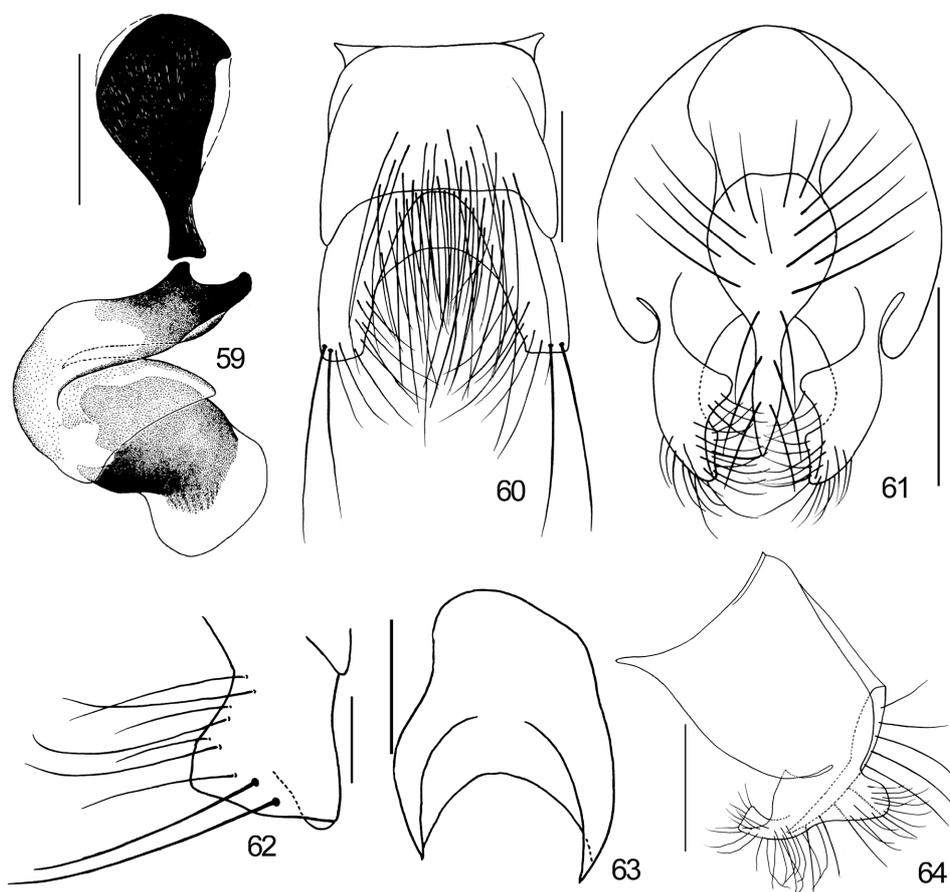
(Figs 59–64)

Holotype: male, Mt. E'mei (29°36'N, 103°25'E), Sichuan Province, 1800–2000 m, 23. v. 1957, collected by KEREN HUANG.

Paratype: male, Laochang town (25°41'N, 104°25'E), Pan county, Guizhou province, 18. ix. 1984, collected by LIANMENG WEI.

Male: Body length 2.4 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.34 times as wide as head, lateral margins parallel, lower part narrowing. Frontal vitta black in ground colour, with yellow-gray pruinosity. Frontal triangle wide, with yellow-gray pruinosity, reaching anterior margin of frons. Ocellar developed, longer than frons width. Outer vertical seta 1.5 times as long as posterior vertical, shorter than ocellar. Fronto-orbital plate with yellow-gray pruinosity. Distance between orbital setae longer than that between frontal setae. Face with gray-white pruinosity. Parafacial with faint yellow pruinosity, 1/4 of flagellum 1 width. Vibrissa angle with 2 short setae. Gena with gray-white pruinosity, about 1/16 of eye height. Occiput black in ground colour, with faint gray pruinosity. Pedicel and apical part of flagellum 1 red-yellow, remaining red-brown. Flagellum 1 about twice as long as pedicel. Distance between end of antenna and epistoma about 2/5 of flagellum 1 length. Arista short plumose in basal 1/3, the longest hair about 2/3 of flagellum 1 width, bare in apical 2/3. Palpi yellow, prementum black-brown.



**Figs 59–64.** *Lispocephala subcurvilobata* sp. n.: 59 = phallosome (scale bar: 0.2 mm); 60 = sternite 5 (scale bar: 0.2 mm); 61 = cerci, posterior view (scale bar: 0.2 mm); 62 = lobe of sternite 5, profile view (scale bar: 0.1 mm); 63 = paramere (scale bar: 0.1 mm); 64 = terminalia, profile view (scale bar: 0.2 mm)

Thorax: Black in ground colour, with faint gray pruinosity, without vitta (sometime with 2 brown faint vittae), with faint brown pruinosity. *Acr* in two rows, slightly developed. 2+3 *dc*, anterior *prst dc* about 3/5 of posterior one length. 0+2 *ial*. 2 proepisternal setae, 2 proepimeral.

Wings: Brown, posterior margins light, veins dark brown. Costal spine well marked. Calypters faint yellow. Lower calypter about 1.5 times as long as upper. Halteres yellow.

Legs: Apical part of femora, trochanters, tibiae and tarsi yellow, remaining black. Mid femur with many long and fine *av*, 4–5 times as long as mid tibia diameter in basal half, 1 supra-median *a*, 2 subapical *p*, in basal half, 2–4 *pv*. Mid tibia with 1 medial *pd*, twice as long as tibia diameter. Hind femur with 1 row of *av* and *ad*, 1 subapical *pd*, 2 basal half *pv*. Hind tibia with 1 *av*, 2 *ad*, 2 *pd* (subbasal twice as long as submedial). Pulvilli oval, small.

Abdomen: Long-oviform in dorsal view, longer than thorax, dark black in ground colour, with gray pruinosity, without median vitta. Abdominal tergites 4–5 each with 1 pair of black rounded lateral spots, spot width about 1/3 of tergite length respectively. Tergite 5 with developed discal and marginal setae, tergite 8 with 2 discal setae. Sternites 2–5 with long hairs, dense in sternite 5 (Fig. 60).

Female: Unknown.

Etymology: This specific name is from the Latin words *sub-*, meaning *similar*, referring to the new species resembles *L. curvilobata* sp. n.

Remarks: Resembles *L. curvilobata* sp. n, but can be recognized by male apical part of femora yellow, remaining black; paraphallus broad and short (Fig. 59); in lateral view, basal part of surstyli projecting backward, beyond cerci (Fig. 64), anterior artus of paramere short.

### **Lispocephala mucronata** sp. n.

(Figs 65–70)

Holotype: male, Wulumuqi city (43°46'N, 87°40'E), Xinjiang, 980 m, 8. ix. 1959, collected by SHUYONG WANG.

Paratype: male, Baiguerte (39°42'N, 75°15'E), Wuqia County, Xinjiang, 2300 m, 19. vi. 1959, collected by SHUYONG WANG.

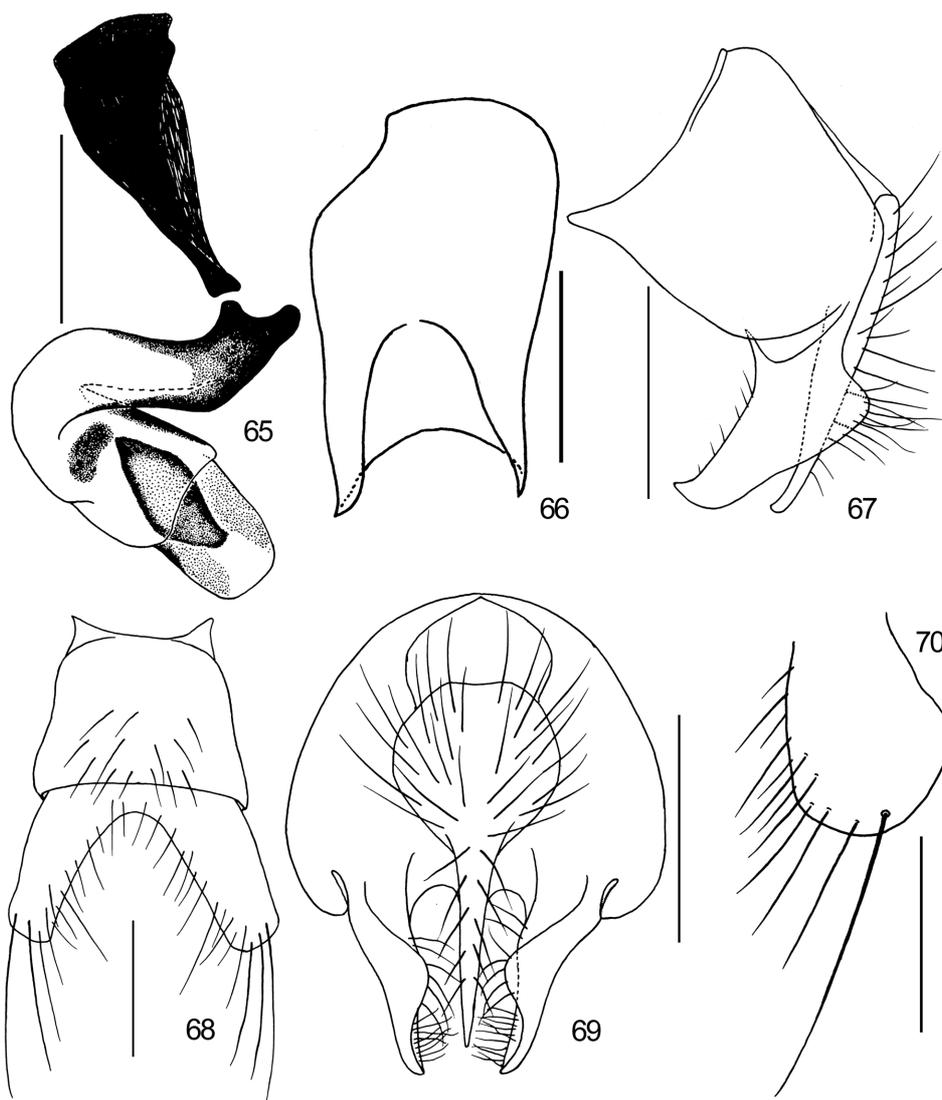
Male: Body length 3.0 mm.

Head: Eyes bare, lower posterior margin not concave. Frons about 0.38 times as wide as head, lateral margins parallel. Frontal vitta black in ground colour, hardly with faint pruinosity. Frontal triangle with yellow-gray pruinosity, reaching anterior margin of frons. Ocellar developed, longer than frons width. Outer vertical seta longer than posterior vertical, about 1/2 of ocellar. Fronto-orbital with faint gray pruinosity. Distance between orbital setae about 1.5 times as long as that between frontal setae. Parafacial and gena with gray pruinosity. Parafacial about 1/2 of flagellum 1 width. Gena about 1/11 of eye height. Occiput dark, with gray pruinosity. Antenna red-yellow, apical half of flagellum 1 brown-yellow. Flagellum 1 about twice as long as pedicel. Distance between end of antenna and epistoma about 1/2 of flagellum 1 length. Arista short ciliated in basal half, the longest hair about 2/3 of flagellum 1 width, arista bare in apical half. Palpi yellow, prementum dark brown.

Thorax: Dark in ground colour, with faint gray pruinosity, without vitta. *Acr* in two rows. 2+3 *dc*, anterior *prst dc* about 1/2 of posterior one length. 0+2 *ial*. 2 proepisternal setae, 2 proepimeral.

Wings: Hyaline. Costal spine well marked. Calypters yellow to white. Lower calypter about 1.5 times as long as upper. Halteres yellow.

Legs: Coxa and basal 3/4 of femur black-brown, remaining brown-yellow. Mid femur with 1 row of *av*, seta-like, longer than tibia diameter, 1 supra-median *a*, 2 subapical *pd*, 2 short *pv* in basal 1/3. Mid tibia with 1 *pd*, 1.5 times as long as tibia diameter. Hind femur with 1 row of *av*, 2 subbasal



**Figs 65–70.** *Lispocephala mucronata* sp. n.: 65 = phallosome (scale bar: 0.2 mm); 66 = paramere (scale bar: 0.1 mm); 67 = terminalia, profile view (scale bar: 0.2 mm); 68 = sternite 5 (scale bar: 0.2 mm); 69 = cerci, posterior view (scale bar: 0.2 mm); 70 = lobe of sternite 5, profile view (scale bar: 0.2 mm)

short, 2 *pv* in basal 1/3, 1 short subapical *pv*. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*, 1 subapical *d*, as long as tarsomere 1 length. Pulvilli oval.

Abdomen: Ovoid, apical part narrow, longer than thorax, posterior margins of abdominal tergites 2–4 yellow, remaining dark black in ground colour, with gray pruinosity. Tergites 2–4 with faint median vittae, tergites 3–5 each with 1 pair of black rounded lateral spots, spot width about 1/2–2/3 of tergite length respectively. Tergite 5 with developed discal and posterior marginal setae, tergite 8 with 2 short setae. Lateral lobes of sternite 5 with apical long setae. End of cerci acute.

Female: Unknown.

Etymology: This specific name is from the Latin words *mucronate*, meaning acute, referring to the new species resembles *L. apicaliseta* XUE & ZHANG, 2006, but male end of cerci very acute (Fig. 69).

Remarks: Resembles *L. apicaliseta* XUE et ZHANG, 2006, but can be recognized by in lateral view, male fore margin of surstyli straight; in posterior view, cerci in basal 2/5 (Fig. 69); end of cerci acute.

### ***Lispocephala nigriala* sp. n.**

(Figs 71–77)

Holotype: male, Leidongping, Mt. E'mei (29°21'N, 103°17'E), Sichuan Province, 2400–2690 m, 3. vi. 2009, collected by MINGFU WANG.

Paratype: male, same data as holotype.

Male: Body length 3.8–4.0 mm.

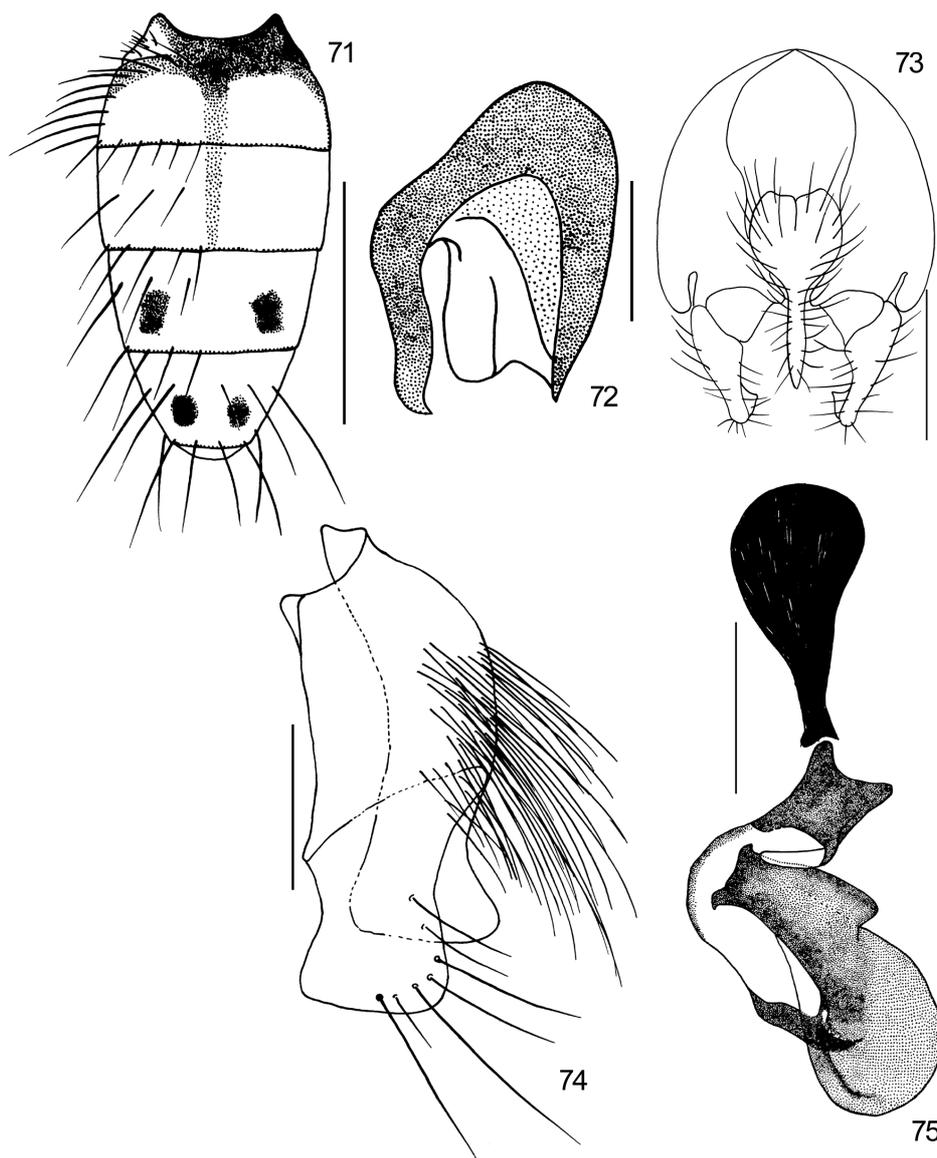
Head: Eyes bare, lower posterior margin not concave. Frons densely grayish dusted, about 0.37 times as wide as head. Frontal vitta black in ground-color, about 2.0–2.4 times as wide as fronto-orbital plate. Frontal triangle with gray-yellow pruinosity, reaching to anterior margin of frons. Lunule brownish, with thin faint pruinosity. Ocellar seta strong, about as long as frons width. Inner vertical seta about 2.0 times as long as outer vertical. Fronto-orbital plates and parafacials with brown-gray pruinosity; parafacial about 2/5 of flagellum 1 in width. Gena about 1/10 of eye height; gena, postgena and epicephalon with black hairs. Epistoma not projecting. Vibrissal angle behind the vertical line of profrons in profile. Occiput with blue gray pruinosity; median occipital sclerite bare. Distal 1/3 of pedicel and base of flagellum 1 yellow, remaining part dark black. Arista long-haired on basal 1/3, apical 2/3 bare, the longest hair about 0.6 times as wide as antenna width. Flagellum 1 about 2.5 times as long as wide; the distance between flagellum 1 and epistoma about 3/5 of antenna length. Prementum black, shining, about 2.5 times as long as high. Palpi yellow, as long as prementum, labella length about 1.2 of prementum height.

Thorax: Black in ground colour, grayish dusted, without distinct vitta. *Acr* in 2 rows, hair-like. 2+3 *dc*, anterior *prst-dc* about 3/7 of posterior *prst-dc* length. 0+2 *ial*, without *pra*. 2 proepisternal setae (the lower one shorter), 2 proepimeral (the lower one shorter). 1 anterior anepisternal seta.

Wings: Brownish, veins brown. Basicosta yellow. Costal spine longer than crossvein r-m. Costa continuing to apex of vein M. Veins  $R_{4+5}$  and M straight, parallel. Calypters yellowish; lower calypter about 1.6 times as long as upper. Halteres faint yellow.

Legs: Fore and mid trochanters, apex of femur, tibia and tarsi brown-yellow, remaining black. Fore tibia with 1 subapical *p*. Mid femur with 1 row of short *av* (2–3 fine hairs in basal 2/3, the longest

one about  $\frac{4}{5}$  of this tibia diameter), becoming shorter towards apex, 1 median *a*, 2 apical *pd*, 2 strong *pv* in basal half. Mid tibia without *ad*, 1 supra-median *pd*, 1 medial *pd*. Hind femur with 4 *av* (sub-basal 1, supra-median 1, submedial 1, subapical 1), 1 strong *pv* in basal  $\frac{1}{3}$ , longer than the diameter of mid tibia, sometimes with 1 basal *pv*, about  $\frac{1}{2}$  of diameter of mid tibia. Hind tibia with 1 *av*, 2 *ad*,



**Figs 71–75.** *Lispocephala nigriala* sp. n.: 71 = male abdomen, dorsal view (scale bar: 0.5 mm); 72 = paramere (scale bar: 0.1 mm); 73 = cerci, posterior view (scale bar: 0.2 mm); 74 = sternite 5, profile view (scale bar: 0.2 mm); 75 = phallosome (scale bar: 0.2 mm)

1 sub-basal *pd*, short, 1 strong pre-apical *d*. Only fore tarsi longer than tibia. Claws longer than pulvilli, about 3/5 of tarsomere 5 length.

Abdomen: Black, with dense blue gray to gray pruinosity, without shifting patches. Nearly spindly in dorsal view. Tergites 2–3 each with dark brown median vitta, vitta width as long as the diameter of hind tibia (Fig. 71), without lateral spot; tergites 4 to 5 each with 1 pair of black brown lateral spots and 2–3 discal setae, the distance between lateral spots on tergite 4 wider (Fig. 71), body hairs sparse, lateral body-hairs and setae not becoming long; tergite 6 and sternite 1 bare.

Female: Unknown.

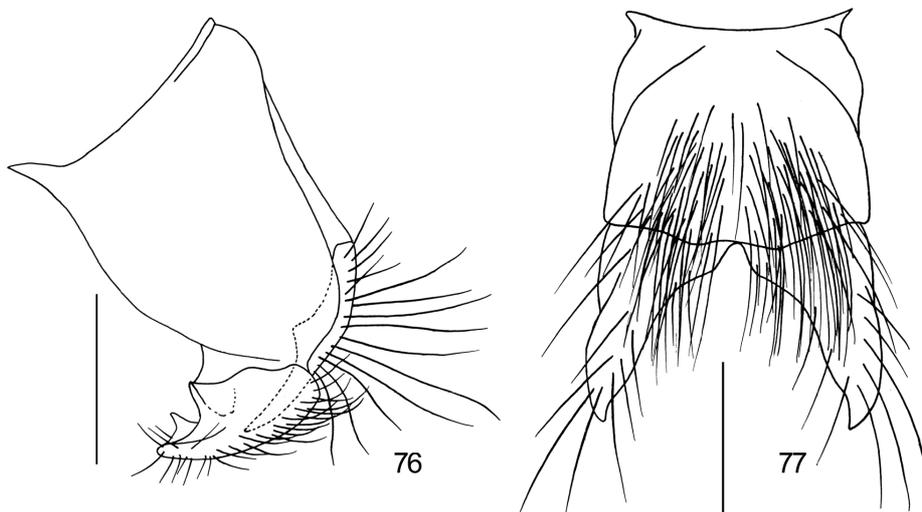
Etymology: This specific name is from the Latin words *niger*, meaning dark black, *ala* meaning wing, referring to the new species resembles *L. obfuscatipennis* (XUE, 1998), but male wing opaque in basal, dark black.

Remarks: Resembles *L. obfuscatipennis* (XUE, 1998), but can be recognised by 2 proepisternal setae; basal part of wing opaque, brown, veins brown; mid tibia with 2 *pd*; abdomen entirely black; tergite 3 without lateral spot, tergites 2–3 each with median vitta; lateral lobe of sternite 5 with 3–4 long hairs in distal part; free part of cerci longer than basal part; surstyli furcated in distal part (Fig. 73).

### ***Lispocephala leschenaulti* sp. n.**

(Figs 78–85)

Holotype: male, Xiachuan town (35°40'N, 112°9'E), Qinshui County, Shanxi Province, 14. vi. 1991, collected by MINGFU WANG.



**Figs 76–77.** *Lispocephala nigriala* sp. n.: 76 = terminalia, profile view (scale bar: 0.2 mm); 77 = sternite 5 (scale bar: 0.2 mm)

Paratypes: 3 males, same data as holotype; 8 males, Mt. Gang (41°43'N, 125°2'E), Xinbin County, Liaoning Province, 8. vii. 1990, collected by CHUNTIAN ZHANG; 1 male, Dongyingfang (41°18'N, 123°43'E), Benxi City, Liaoning Province, 20. v. 1981, collected by WANQI XUE; 1 male, Yanghugou (41°21'N, 123°23'E), Benxi City, Liaoning Province, 2. vi. 1989, collected by WANQI XUE; 3 males, Yanghugou, Benxi City, Liaoning Province, 1. vii. 1993, collected by YONGSHENG CUI; 1 male, Mt. Qianshan (40°18'N, 123°15'E), Anshan City, Liaoning Province, 17. vi. 1994, collected by HONGWEI CHEN; 2 males, Mt. Qianshan, Anshan City, Liaoning Province, 12. vi. 1978, collected by ZHONGYU MA; 2 males, Mt. Fenghuang (40°6'N, 124°23'E), Dandong City, Liaoning Province, 12. v. 1978, collected by ZHONGYU MA; 1 male, Mt. E'mei (29°28'N, 103°21'E), Sichuan Province, 2690 m, 3. vi. 2009, collected by MINGFU WANG.

Male: Body length 4.4–4.6 mm.

Head: Eyes bare, lower posterior margin slightly concave or not. Frons at vertex about 0.36 times as wide as head. Frontal vitta black, with thin pruinosity, about 2.5–3.0 times as wide as fronto-orbital plate. Frontal triangle with brown-gray pruinosity, reaching to anterior margin of frons. Ocellar seta undeveloped, slightly shorter than frons width. Outer vertical seta as long as posterior vertical, distinctly shorter than ocellar. Fronto-orbital plate with gray pruinosity. Parafacial with faint gray pruinosity, the median part about 2/5 of flagellum 1 width, becoming distinctly narrow towards lunule. Face with yellow-gray pruinosity. Gena black in ground color, with blue gray pruinosity, about 1/8 of eye height. Upper part of vibrissa with 2–3 short hairs. Occiput dark in ground colour, with blue-gray pruinosity. Scape, pedicel, basal part of flagellum 1 brown-yellow, remaining part black-brown; arista short ciliated in basal half, the longest one as long as its basal diameter. Palpi yellow. Haustellum black-brown, glossy.

Thorax: Black in ground colour, with gray pruinosity. *Acr* in two rows, long seta-liked; 2+3 *dc*, anterior *prst dc* about 4/5 of posterior one length. 0+2 *ial*. 1 proepisternal seta, 2 proepimeral (the lower one toward down).

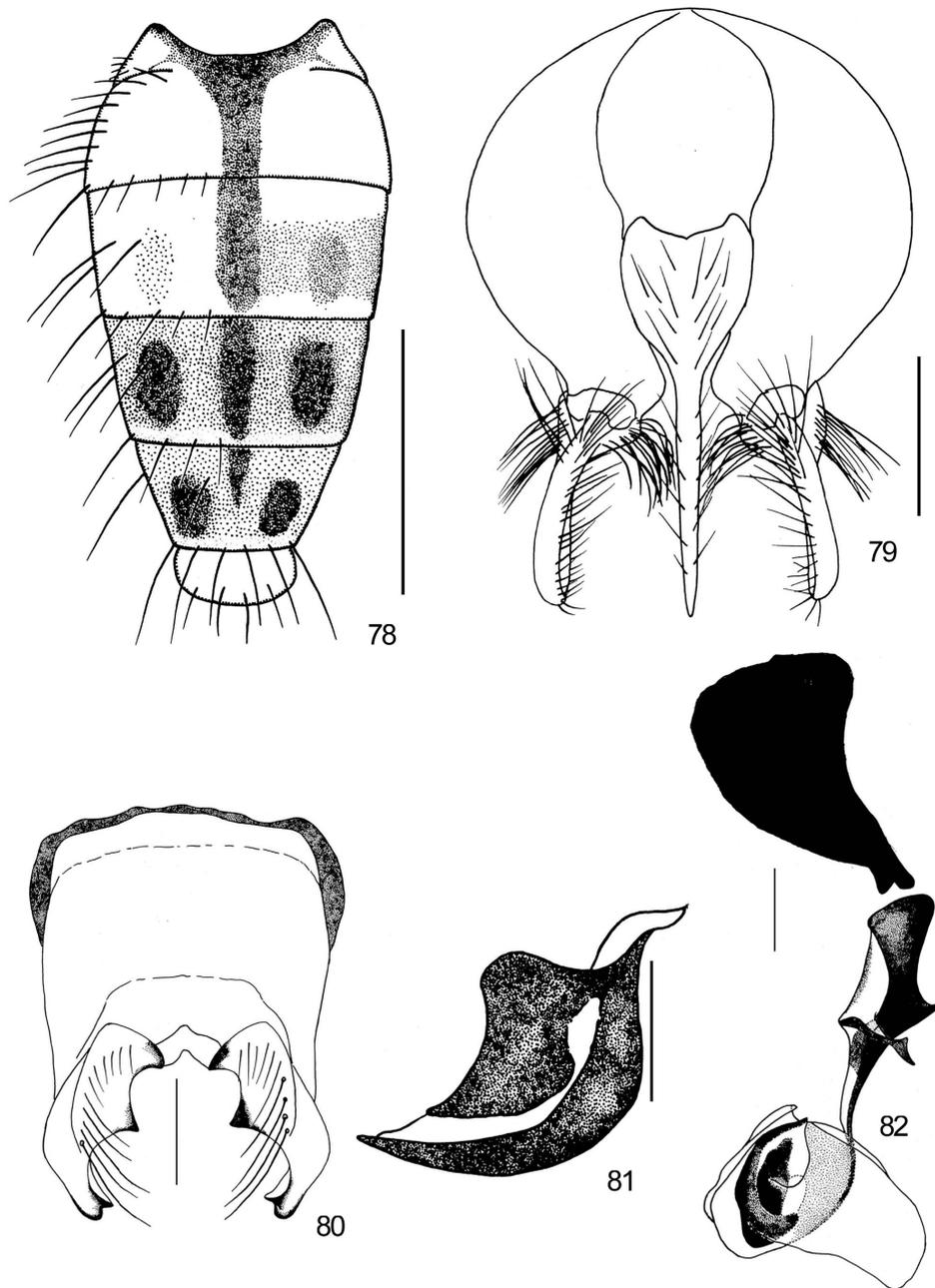
Wings: Slightly hyaline, tegula and basicosta yellow, veins brown-yellow, crossvein not clouded. Costal spine short. Costa continuing to apex of vein M. Calypters white to faint yellow. Lower calypter about 1.4 times as long as upper. Halteres faint yellow.

Legs: Trochanters, apex of fore femora, basal 1/6 and apical 1/7 of mid and hind femora, tibiae and tarsi yellow, remaining part black-brown. Mid femur with 5–6 *av* in apical half, longer than mid tibia diameter, 1 supra-median *a*, 2 subapical *pd*, 2–3 distinct *pv* in basal half, shorter than mid femur longest diameter. Mid tibia with 1 median *pd*. Hind femur with 1 row of *av* and *ad*, completed and ragged, 4 *pv* in basal 2/3, 1 long apical *pv*. Hind tibia with 1 submedial *av*, 1 long median *ad*, 1 short subbasal *ad*, 1 long subapical *d*, 1 short subbasal *pd*. All tarsi longer than tibiae. Claws as long as pulvilli, about 4/5 of tarsomere 5 length.

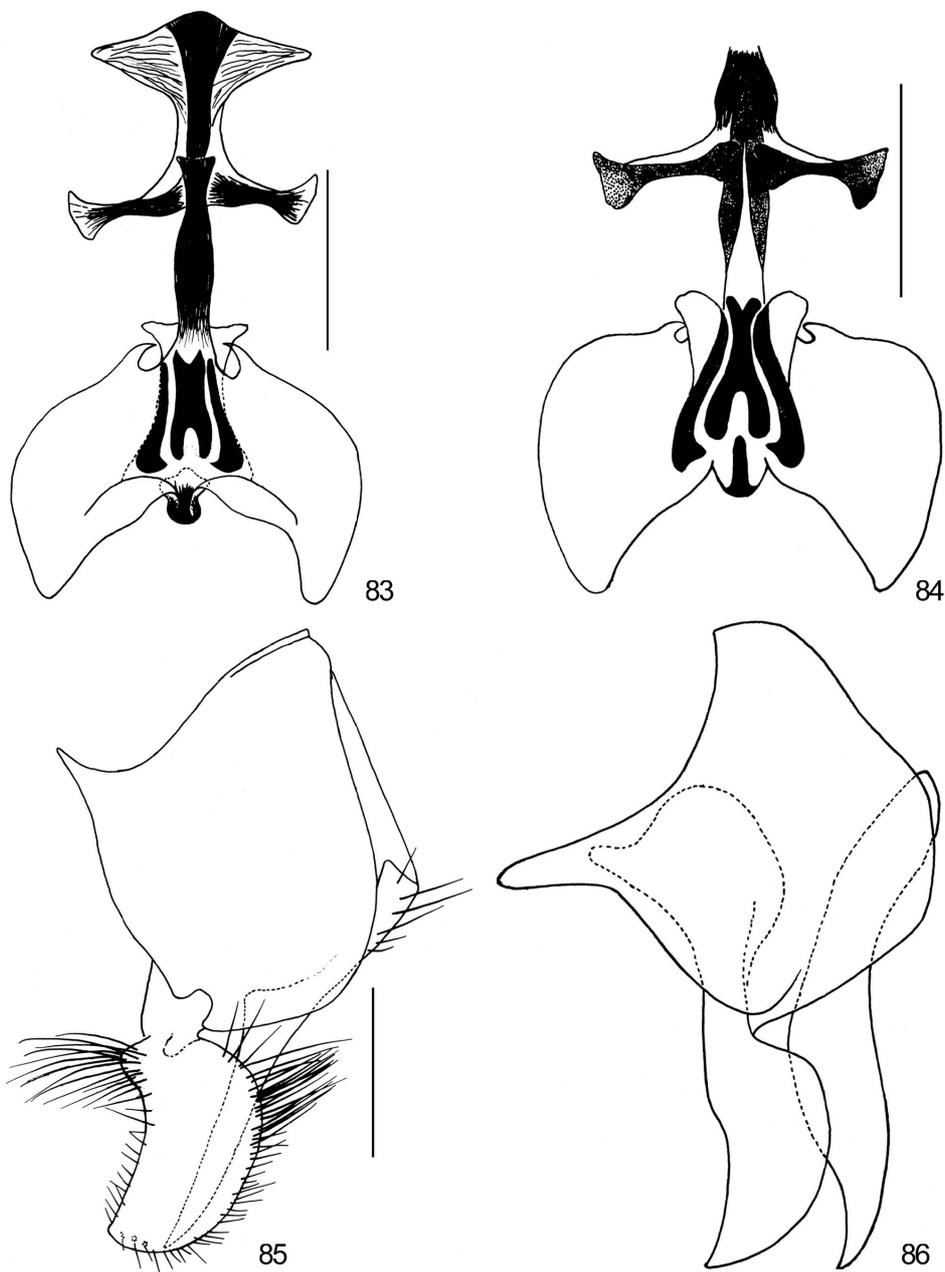
Abdomen: Cone in dorsal view, with gray pruinosity, abdominal synsegment 1+2 (sternite 1 dark brown), abdominal segment 3, posterior margin of tergites 4–5 yellow; tergites 2–5 each with 1 brown median vitta; tergite 3 with indistinct brown yellow lateral spots; tergites 4 and 5 each with 1 pair of dark brown lateral spots, big; tergites 3–5 each with 2–3 discal setae; tergite 7 to epandrium broad; body hair short and sparse; sternite 1 bare.

Female: Unknown.

Etymology: The specific name refers to male very big lateral process of distiphallus (Figs 82–84), which resembles ears of *Boussettus* Desmarest.



**Figs 78–82.** *Lispocephala leschenaulti* sp. n.: 78 = male abdomen, dorsal view (scale bar: 1 mm); 79 = cerci, posterior view (scale bar: 0.2 mm); 80 = sternite 5 (scale bar: 0.2 mm); 81 = paramere (scale bar: 0.1 mm); 82 = phallosome (scale bar: 0.2 mm)



**Figs 83–86.** *Lispocephala leschenaulti* sp. n. terminalia in profile (after HENNIG 1961): 83 = distiphallus, posterior view (scale bar: 0.2 mm), 84 = distiphallus, ventral view (scale bar: 0.2 mm), 85 = terminalia, profile view (scale bar: 0.2 mm). 86 = *L. spuria* (ZETTERSTEDT, 1838) terminalia in profile (after HENNIG 1961)

Remarks: Resembles *L. spuria* (ZETTERSTEDT, 1838) (Fig. 86, male terminalia), but can be recognised by male cerci narrow and straight in lateral view (Fig. 85), fore margin of surstyli projecting and with many long hairs in basal (Fig. 85).

### **Lispocephala setilobata** sp. n.

(Figs 87–94)

Holotype: male, Pianmayakou (25°58'N, 98°49'E), Hushui County, Yunnan province, 3153 m, 8. vii. 2009, collected by SHUAI WANG.

Paratype: male, Mt. E'mei (29°32'N, 103°19'E), Sichuan Province, 1800–2000 m, 20. viii. 1957, collected by KEREN HUANG.

Male: Body length 3.7–4.2 mm.

Head: Eyes bare, lower posterior margin not concave. Frons at vertex about 0.35 times as wide as head, lower part wider. Frontal vitta dark brown in ground colour, with gray pruinosity, twice as wide as fronto-orbital plate, sometime lower part of frons yellow. Frontal triangle with gray to brown-gray pruinosity, reaching anterior margin of frons. Ocellar developed, as long as lower part frons width. Outer vertical seta longer than posterior vertical, about 2/3 of ocellar. Distance between orbital setae about 1.5 times as long as that between frontal setae. Face, parafacial and gena dark in ground colour, with gray pruinosity. Parafacial about 2/5 of flagellum 1 width. Gena about 1/8 of eye height. Occiput dark, with gray pruinosity and black setae. Pedicel and basal half of flagellum 1 red-yellow, apical half of flagellum 1 brown, flagellum 1 about 2–2.5 times as long as pedicel. Distance between end of antenna and epistoma about 1/3 of flagellum 1 length. Arista short ciliated in basal half, the longest hair about 1/2–2/3 of flagellum 1 width, arista bare in apical half. Palpi yellow, about 1.2 times as long as prementum. Haustellum brown-yellow. Prementum brown, 2.5 times as long as high, labella as long as prementum height, posterior margin of labella with a median tooth, sheet-shaped.

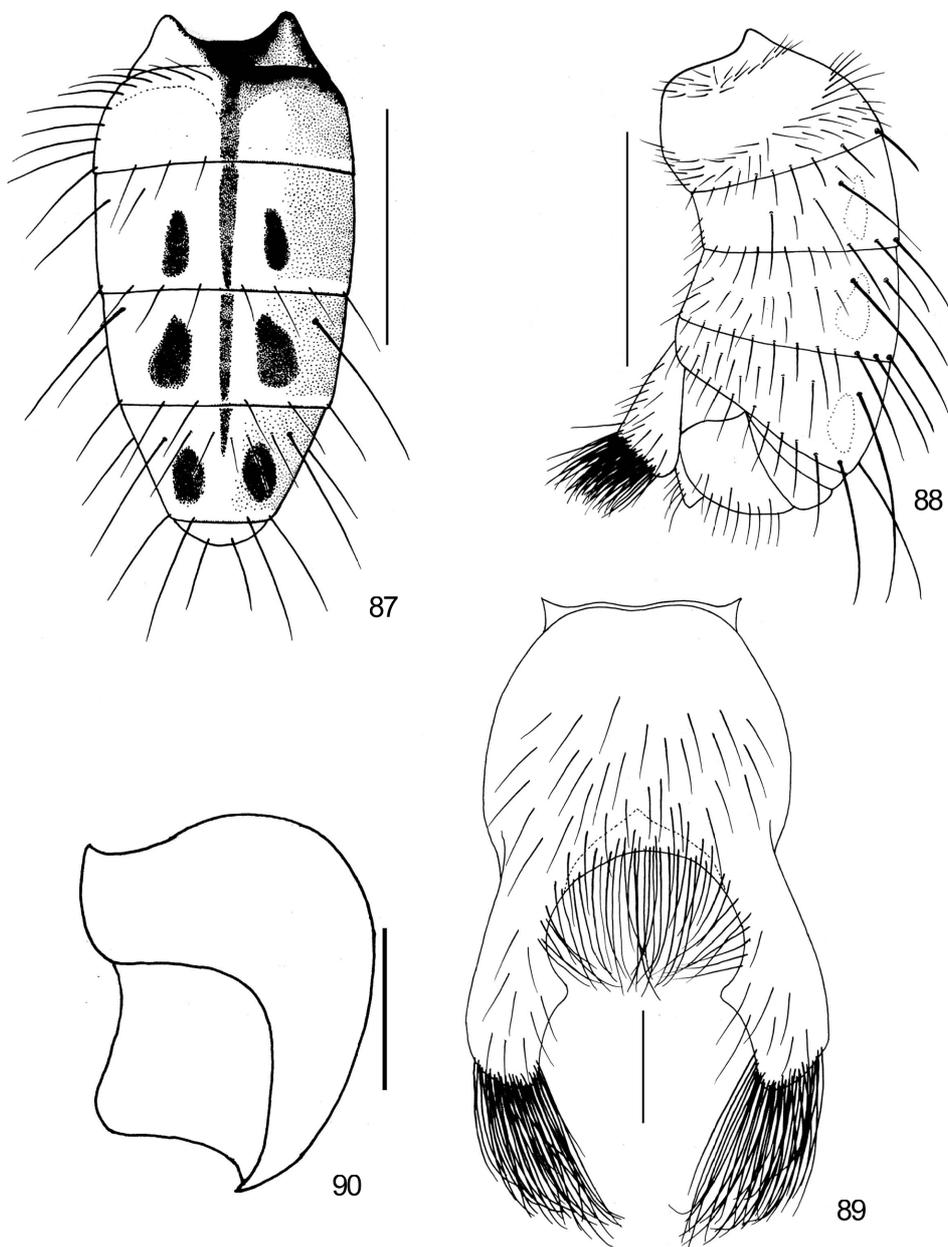
Thorax: Dark in ground colour, with faint gray pruinosity, without vitta (at most with 2 rows of faint brown narrow vittae along *acr* and *dc*). *Acr* in two rows. 2+3 *dc*, anterior *prst dc* about 3/5 of posterior one length. 0+2 *ial*, without prealar seta. 2 proepisternal setae, 2 proepimeral.

Wings: Hyaline, veins yellow. Costa with ventral hairs, continuing to apex of vein M. Costal spine well marked. Calypters yellow to white, lower calypter about 1.6 times as long as upper. Halteres yellow.

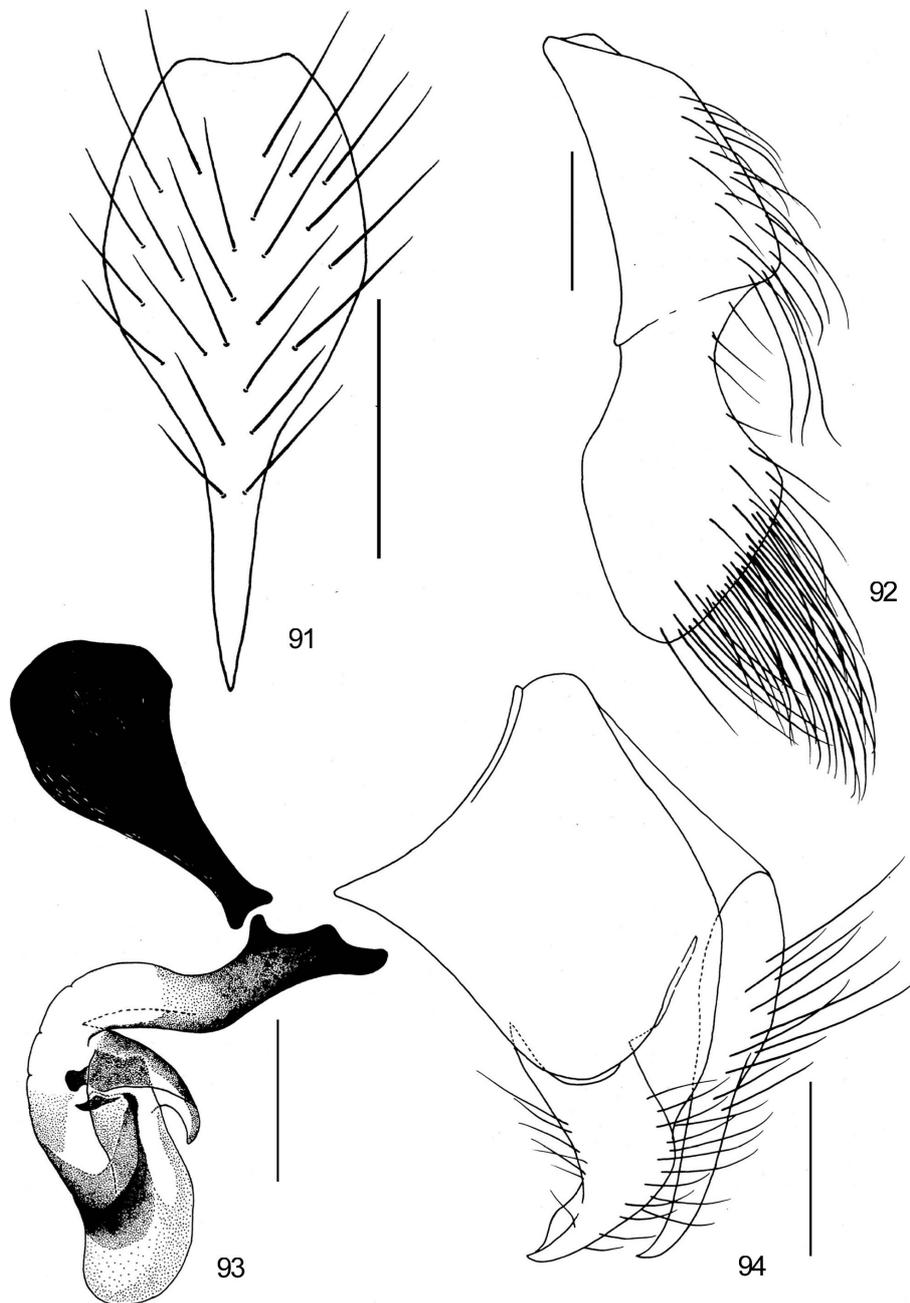
Legs: Trochanter, apex of femur, tibia and tarsi yellow (tarsomeres 4–5 dark), remaining brown, with thin faint pruinosity. Mid femur with 3–4 *av* in basal 1/4, seta-liked, 1.5 times as long as tibia diameter, 1 supra-median *a*, 2 subapical *d*, 1–2 basal developed *pv*. Mid tibia with 1 supra-median *pd*, 1.5–2 times as long as tibia diameter. Hind femur with 1 row of *av* and *ad*, 1 subapical *pd*, 2–3 *pv* in basal half, 1 subapical *pv*, 1 developed supra-median *pv*. Hind tibia with 1 *av*, 2 *ad*, 2 *pd*, 1 apical *pv*, Pulvilli small, oval, shorter than claws, claw about 1/2 of tarsomere 5 length, oviform.

Abdomen: Black in ground colour, long-spindly in dorsal view, longer than thorax, with dense blue-gray pruinosity, lower posterior margins of each tergite yellow. Tergite 3 with 1 pair of faint and narrow lateral spots, tergites 4 and 5 each with 1 pair of black rounded lateral spots, spot width about 1/2–2/3 of tergite length respectively. Each tergite with brown median vitta. Each tergite with long and developed lateral setae, body-hairs sparse. Sternite 1 bare, lateral lobes of sternite 5 yellow, projecting downwards, with characteristic tufts of long and dense setae, over end of abdomen.

Female: Unknown.



**Figs 87–90.** *Lispocephala setilobata* sp. n.: 87 = male abdomen, dorsal view (scale bar: 1 mm); 88 = male abdomen, profile view (scale bar: 1 mm); 89 = sternite 5 (scale bar: 0.2 mm); 90 = paramere (scale bar: 0.1 mm)



**Figs 91–94.** *Lispocephala setilobata* sp. n.: 91 = cerci, posterior view (scale bar: 0.2 mm); 92 = sternite 5, profile view (scale bar: 0.2 mm); 93 = phallosome (scale bar: 0.2 mm); 94 = terminalia, profile view (scale bar: 0.2 mm)

Etymology: The specific name refers to male lateral lobes of sternite 5 with characteristic tufts of long and dense setae (Fig. 89). *Lobulus* means lobe in Latin.

Remarks: Resembles *L. erythrocer*a (ROBINEAU-DESVOIDY, 1830), but can be recognised by frontal vitta with marked gray-white pruinosity, frontal triangle faint; outer vertical seta longer than posterior vertical; lateral lobes of sternite 5 with characteristic tufts of long and dense setae (Fig. 89); in posterior view, cerci narrow in distal part (Fig. 91).

#### DISCUSSION

Key to Chinese species of the genus *Lispocephala* POKORNY, 1893 (males)

- |   |   |                                  |
|---|---|----------------------------------|
| 1 | Arista with long hairs on the dorsal surface only, bare on ventral surface  |                                  |
|   | <i>L. pectinata</i> (STEIN, 1900)   |                                  |
| – | Arista with hairs on both dorsal and ventral surfaces   | 2                                |
| 2 | Mid tibia without <i>pd</i>   | 3                                |
| – | Mid tibia with median <i>pd</i>   | 4                                |
| 3 | 1+3 <i>dc</i> ; femora black, distal part slightly red; tibiae and tarsi orange   |                                  |
|   | <i>L. steini</i> SHINONAGA et HUANG, 2007   |                                  |
| – | 2+3 <i>dc</i> ; legs entirely orange except tarsi dark  |                                  |
|   | <i>L. kanmiyai</i> SHINONAGA et HUANG, 2007   |                                  |
| 4 | Mid tibia with 1 supermedian and submedian <i>pd</i>  | 5                                |
| – | Mid tibia with 1 median <i>pd</i>   | 6                                |
| 5 | Mid tibia with 2 median <i>ad</i>   | <i>L. vernalis</i> (STEIN, 1907) |
| – | Mid tibia without <i>ad</i>   | <b><i>L. nigriala</i></b> sp. n. |
| 6 | Mid tibia with 1 median <i>ad</i>   | 7                                |
| – | Mid tibia without <i>ad</i>   | 8                                |
| 7 | Scutum without vitta; median third of mid femur and distal 3/4 of hind femur black; hind margin of each abdominal tergite yellow, tergite 5 without lateral spots; frontal triangle reaching anterior margin of frons |                                  |
|   | <i>L. monochaitis</i> XUE, WANG et ZHANG, 2006  |                                  |

- Scutum with a faint dark brown vittae; femora entirely black; hind margins of abdominal tergites not yellow, tergite 5 with pair of dark brown lateral spots; frontal triangle not reaching anterior margin of frons  
*L. paradisea* ZHENG et LI, 2007
- 8 Calypters small, similar in size *L. atrimaculata* (STEIN, 1915)
- Lower calypter distinctly larger than upper 9
- 9 Upper orbital seta longer than lower 10
- Upper orbital seta shorter than lower 14
- 10 Antenna entirely red-yellow; abdominal tergites without median vitta  
*L. longipenis* XUE, WANG et ZHANG, 2006
- Antenna black below arista; abdominal tergites with median vitta 11
- 11 Each abdominal tergite black (only hind margin yellow)  
*L. incisicauda* XUE et ZHANG, 2006
- At least lateral surfaces of abdominal syntergite 1+2 yellow 12
- 12 Abdominal syntergite 1+2 entirely yellow, lateral and ventral surfaces of tergite 3 yellow, hind margins of tergites 3–5 not yellow; pulvilli big, fore pulvilli longer than tarsomere 4 13
- Only lateral surfaces and hind margin of abdominal syntergite 1+2 yellow, lateral and ventral surfaces of tergite 3 black, hind margins of tergites 3–4 yellow; fore pulvilli shorter than tarsomere 4  
*L. sichuanensis* XUE et FENG, 2006
- 13 Scutum without vitta; fore coxae yellow, femora entirely yellow  
**L. valvula** sp. n.
- Scutum with brown vittae along *dc* rows; fore coxae dark brown, femora faint brown  
*L. cothurnata* XUE, WANG et ZHANG, 2006
- 14 Abdominal tergites without spot; lower margin of frons yellow  
*L. unicolor* (STEIN, 1907)
- Abdominal tergites with lateral spots; lower margin of frons black 15
- 15 Apical part of scutellum red-yellow **L. flaviscutella** sp. n.
- Scutellum entirely dark black 16
- 16 Ocellar setae absent **L. parciseta** sp. n.

–	Ocellar setae present	17
17	Crossveins r-m and dm-cu brown clouded	18
–	Crossveins not clouded	19
18	Flagellum 1 entirely black; lower 1/3 of face and facial ridge red-yellow; mid femur with 1 row of complete <i>pv</i> (about 9–10), basal part of hind femur black, hind tibia with 2 <i>av</i>	<b>L. applicatilibata</b> sp. n.
–	Flagellum 1 yellow in basal half; face and facial ridge dark black; mid femur with 2–3 <i>pv</i> in basal half, basal part of hind femur yellow, hind tibia with 3 <i>av</i> .	<i>L. securisocialis</i> (XUE, FENG et LIU, 1998)
19	Coxae and femora entirely yellow	20
–	At least mid and hind coxae dark	23
20	Face, facial ridge and parafacial yellow in ground colour; in lateral view, cerci straight (Fig. 41), surstyli wide and short, shorter than half of epandrium length	<b>L. apicighamata</b> sp. n.
–	Face, facial ridge and parafacial dark black in ground colour; in lateral view, median part of cerci concave, surstyli about once to twice as long as epandrium	21
21	Flagellum 1 dark brown in apical half	<i>L. ungulitigris</i> (FENG et XUE, 1997)
–	Antenna entirely yellow	22
22	In lateral view, median part of cerci right-angled curving backwards, surstyli long and slender, about twice as long as epandrium	<i>L. boops</i> (THOMSON, 1869)
–	In lateral view, median part of cerci not right-angled curving backwards, surstyli short and broad, as long as epandrium	<i>L. mikii</i> (STROBL, 1893)
23	Femora not entirely yellow; wing hyaline (except for <i>L. subcurvilobata</i> sp. n.)	24
–	Femora entirely yellow; wing faint brown	27
24	Fore femora entirely yellow	25

- At least dorsal surfaces of fore femora obviously brown 29
- 25 Scape and pedicel black; scutum with 3 narrow vittae  
*L. pecteniseta* XUE, WANG et ZHANG, 2006
- Scape and pedicel yellow; scutum without vitta 26
- 26 Femora entirely yellow; dorsal surface of syntergite 1+2 brown, lateral margins of abdominal tergites 3–4 yellow; abdominal tergites without median vitta  
*L. paulihmata* (XUE, FENG et LIU, 1998)
- Basal and distal parts of mid and hind femora dark black; abdominal syntergite 1+2 and basal parts of abdominal tergite 3; abdominal tergites 2–5 each with median vitta  
*L. flavibasis* (STEIN, 1915)
- 27 Abdomen dark black in ground colour, abdominal tergites with dark brown median vitta; posterior margins of tergites 2–4 and sternites 1–4 yellow; arista short ciliated in basal half, the longest hair about as long as flagellum 1 width  
*L. curvivesica* (XUE, FENG et LIU, 1998)
- Basal half of abdomen yellow, transparent, abdominal tergites without median vitta; abdominal sternites dark black; arista short ciliated in basal half, the longest hair about 1/2 of postpedi flagellum 1 width. 28
- 28 Apex of wing faint brown; hind tibia with 1 *pd*; 1 proepisternal seta; facial ridge yellow in ground colour  
*L. obfuscatipennis* (XUE, 1998)
- Wing entirely faint brown, hind tibia with 2 *pd*; 2 proepisternal setae; facial ridge black in ground colour  
**L. dynatophallus** sp. n.
- 29 Mid femur distinctly with many fine and long hairs 30
- Mid femur without fine and long hairs 32
- 30 Mid and hind femora with fine and long hairs on ventral surfaces in basal 1/3; frontal vitta with dense gray-white pruinosity; wing brown-yellow  
**L. longihispida** sp. n.
- Mid femur with 1 complete row of fine and long hairs on anterior ventral surface; frontal vitta with sparse pruinosity; wing brown 31
- 31 Mid femur with long *av*, at least 3 times as long as the diameter of mid tibia; N-shaped phallosome, paraphallus slender and long, basal part of paraphallus with villi zone, apical part of paramere and abdominal sternite 5 narrow (Figs 4–7)  
**L. bomiensis** sp. n.

- Mid femur with short *av*, at most twice as long as the diameter of mid tibia; L-shaped phallosome, paraphallus broad (Fig. 59), basal part of paraphallus without villi zone (Fig. 1), apical part of paramere and abdominal sternite 5 broad **L. subcurvilobata** sp. n.
- 32 Mid femur with 2 median *a* distinctly; in profile, apical part of paraphallus with a small window **L. apertura** sp. n.
- Mid femur with 1 supra-median *a*; in profile, apical part of penis without window 33
- 33 Pedicel entirely yellow or red-yellow 34
- Pedicel dark brown except for apical margin 44
- 34 Flagellum 1 yellow; lower half of cerci wide  
*L. pilimutinus* XUE et ZHANG, 2006
- Flagellum 1 dark; lower half of cerci distinctly narrow 35
- 35 Mid and hind femora mainly yellow or red-yellow 36
- Except for apical part, mid and hind femora dark brown 37
- 36 Fore coxae yellow; dorsal surface of apical part of fore femur brown; syntergite 1+2 with a pair of brown lateral spots, tergite 5 without spot  
*L. orbiprotuberans* (XUE et YANG, 1998)
- Fore coxae brown; fore femur dark brown; abdominal syntergite 1+2 without lateral spots, abdominal tergite 5 with a pair of black rounded lateral spots **L. curvilobata** sp. n.
- 37 Surstyli broad, axe-shaped in lateral view 38
- Surstyli narrow, not axe-shaped in lateral view 39
- 38 Hind tibia with 3 *ad*; inner margin of lobe of abdominal sternite 5 with tooth-shaped process; abdominal tergites with median vitta  
*L. odonta* HSUE, 1981
- Hind tibia with 2 *ad*; inner margin of lobe of abdominal sternite 5 without tooth-shaped process; abdominal tergites without median vitta  
*L. secura* MA, 1981

- 39 Surstyli crescent-shaped in lateral view (Fig. 85) 40
- Surstyli not crescent-shaped in lateral view (Fig. 94) 41
- 40 In lateral view, cerci narrow and straight; anterior margin of basal part of surstyli with distinct process and long hairs (Fig. 85) **L. leschenaulti** sp. n.
- In lateral view, cerci broad and curving; anterior margin of basal part of surstyli straight, without long hairs (Fig. 86)  
*L. spuria* (ZETTERSTEDT, 1838)
- 41 Lateral lobe of abdominal sternite 5 with characteristic tufts of long and dense setae (Fig. 89) **L. setilobata** sp. n.
- Lateral lobe of sternite 5 without characteristic tufts of long and dense setae 42
- 42 In lateral view, anterior margin of surstyli straight, in posterior view, cerci subcircular in basal 2/5 **L. mucronata** sp. n.
- In lateral view, anterior margin of surstyli curving, in posterior view, cerci not circular in basal half 43
- 43 In lateral view, cerci curving only in apical part, in posterior view, cerci distinctly narrow in apical half *L. apicaliseta* XUE et ZHANG, 2006
- In lateral view, cerci curving in apical 1/3, in posterior view, cerci distinctly broad in apical half *L. erythrocerca* (ROBINEAU-DESVOIDY, 1830)
- 44 Abdominal syntergite 1+2, lateral surfaces of tergite 3 and sternites 1–4 yellow; lateral spots of tergite 3 faint; trochanters, basal 1/4 of mid and hind femora, and distal 1/4 of femora yellow *L. frigida* (FENG et XUE, 1997)
- Abdomen with sternites entirely dark black; lateral spots of tergite 3 well marked; trochanters and femora black 45
- 45 Scutum without vitta; surstyli without projecting  
*L. nigrigenera* XUE et ZHANG, 2006
- Scutum with 2 dark brown narrow vittae; surstyli with big projectings backward  
*L. postifolifera* (FENG et XUE, 1997)

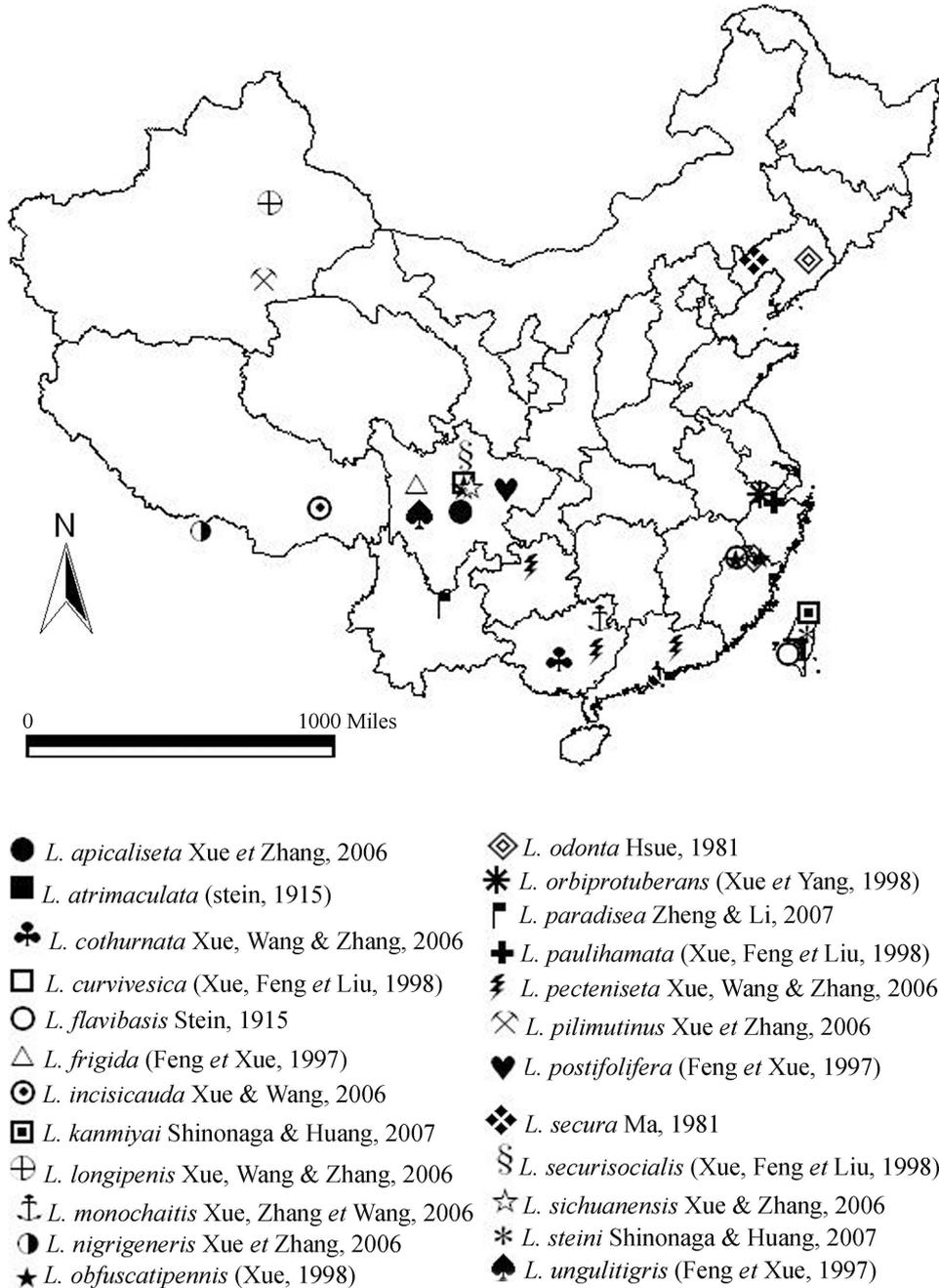


Fig. 95. Distribution map of endemic species of *Lispocephala* in China

## FAUNISTIC ANALYSIS

Species of *Lispocephala* are widely distributed all over the world. There are 166 endemic species, which account for 95.4% of known species. This means that the genus is highly differentiated. There are 46 species (including these new species) in China, accounting for 26.4% of known species in the world. The endemic species account for 52.2% of known species in China. The majority of endemic species are distributed in the south of China (Fig. 95). In a certain sense, it suggests that the south of China is rich in fly diversity.

\*

*Acknowledgements* – This research was supported by a grant from the National Natural Science Foundation of China (No. 30870330), the Ministry of Science and Technology of the People's Republic of China (MOST grant No. 2006FY110500) and the Experimental Central Director's Foundation of Shenyang Normal University (No. SY200609, No. SYZX200902). Thanks are due to Dr. PONT, A. C., MINGFU WANG, YONGSHENG CUI, and SHUYONG WANG for giving constructive comment and collecting.

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Revised version received September 1, 2010, accepted December 7, 2010, published June 10, 2011