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Review of the genus *Thliptoceras* Warren, 1890 (Lepidoptera: Crambidae: Pyraustinae) from the Oriental region of China

DANDAN ZHANG[1], JIAWEN XU & JINWEI LI
Institute of Entomology, State Key Laboratory of Biocontrol, Sun Yat-sen University, Guangzhou, Guangdong 510275, China
[1]Corresponding author. E-mail: zhangdd6@mail.sysu.edu.cn

Abstract

The species of the genus *Thliptoceras* Warren, 1890 from the Oriental region of China are reviewed, and a description of the genus is given. Five new species, *T. bicuspidatum* **sp. nov.**, *T. semicirculare* **sp. nov.**, *T. bisulciforme* **sp. nov.**, *T. filamentosum* **sp. nov.** and *T. impube* **sp. nov.** are described. *T. fulvimargo* (Warren, 1895) is newly recorded for China. A key to the species of the Oriental region of China is provided, along with diagnoses for previously described species. Illustrations of external features and genitalia are presented.

Key words: Lepidoptera, Crambidae, Pyraustinae, *Thliptoceras*, new species

Introduction

Warren (1890) described the genus *Thliptoceras* and the species *T. variabilis* in Swinhoe's paper and Swinhoe (1890) on the next page added two more species to the genus. Hampson (1896) designated *Hapalia cascalis* Swinhoe, 1890, which was not originally included in *Thliptoceras*, as the type species of the genus. At the same time, Hampson placed *T. variabilis*, a nominal species originally included in *Thliptoceras*, as a junior synonym of *T cascalis*. In accordance with the Code, Fletcher and Nye (1984) proposed that *T. variabilis* should be regarded as the type species. Later, Hampson (1896, 1899, 1913, 1918), Mabille (1899), Aurivillius (1910), Schaus (1912), Strand (1918), de Joannis (1932), Munroe (1967), Munroe & Mutuura (1968), Bänziger (1987) and Guillermet (1996) described more species for *Thliptoceras*. In a review of the genus *Thliptoceras*, Munroe (1967) listed 12 species from northern China, Japan, India, Myanmar, Thailand, Indonesia (Sumatra, Java) and Borneo, established several generic and specific synonymies, and described male genital characters of the genus.

Thliptoceras is very a species-rich genus in the Oriental region with 26 out of a total of 35 named species (including the new species). The remaining species are distributed across the Ethiopian region (8 species), the Palaearctic region (2 species) and the Neotropical region (1 species).

Material and methods

The specimens studied, including the types, are all deposited at the Institute of Entomology, Sun Yat-sen University (IESYU), the Insect Collection of the College of Life Sciences, Nankai University (NKUM) and the Institute of Zoology, Chinese Academy of Sciences (IZCAS).

Slides of genitalic dissections and wings were prepared according to Robinson (1976) and Li & Zheng (1996), with some modifications. Genitalia terms used followed Marion (1952, 1961), Munroe (1976) and Maes (1995).

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Systematics

Thliptoceras Warren, 1890

Thliptoceras Warren, 1890: 274. Type species: *Thliptoceras variabilis* Warren, 1890 (by subsequent designation by Hampson, 1896: 377, but cited as "*T. cascale* Swinhoe").
Mimocomma Warren, 1895: 473. Type species: *Mimocomma fulvimargo* Warren, 1895, by original designation.
Polychorista Warren, 1896: 109. Type species: *Thliptoceras calvatalis* Swinhoe, 1890, by original designation.
Parudea Swinhoe, 1900: 523. Type species: *Parudea fimbriata* Swinhoe, 1900, by original designation.

Diagnosis. Species of *Thliptoceras* can be recognized superficially by a hind wing with the postmedial line either parallel with the termen or oblique and straight to behind CuA_1, in the male by the modified antenna and in some species by modified, broad scales along the posterior margin of the forewing. In the male genitalia the combination of a narrowly triangular uncus usually with anteriorly directed lateral setae, a finger- to club-shaped editum, a sacculus with a dorsal process, and presence of an anellus are diagnostic for *Thliptoceras*. The female genitalia are characterized by a sclerotized tubular antrum.

Thliptoceras is superficially similar to *Circobotys* Butler, 1879, but can be distinguished by the modified antenna with sinus and scale-tuft or scale-tooth, the minute outer mid-spur on the hind tibia, a finger-shaped editum, absence of sella and presence of anellus in the male, and a tubular antrum in the female. *Thliptoceras* is definitely close to *Toxobotys*, as Munroe and Mutuura mentioned (1968), based on similar wing pattern and valva shape. The two genera also share a modified antenna and a hind tibia with outer mid-spur minute in the male, a finger-shaped editum, a process to the sacculus and a sclerotized tubular antrum. However, *Toxobotys* can be distinguished by an uncus with a distal appendix and a vinculum with a long dorsal process. The sclerotized transverse ridges posterior to the ostium in the female could be another apomorphy for *Toxobotys*.

Description. Head. Frons flat and oblique, seldom conically projecting. Labial palpus sinuate, obliquely upturned, exceeding frons by about length of head or a little less, third segment porrect. Maxillary palpus filiform. Antenna modified at base in male (except in *T. gladialis*), usually with sinus and scale-tuft or scale-tooth. Thorax. Hind tibia with inner mid-spur longer than other inner spurs and outer mid-spur minute in male, other outer spurs about 1/3–1/2 of inner. Forewing in males sometimes with frenulum hook extending posterodistad from behind costa (subcostal frenulum hook). Wing venation. Forewing cell about half length of wing; R_1 from 2/3 to 4/5 of anterior margin of cell; R_3 and R_4 stalked at about 3/5–2/3 of distance from cell to apex; discocellulars curved; M_1 much closer to R_5 at base than to M_2; CuA_2 from 3/5–2/3 of posterior margin of cell; 2A sometimes absent. Hindwing with cell 1/3 length of wing; $Sc+R_1$ and Rs anastomosed for 1/3– over 1/2 of Rs; CuA_2 from 3/5–3/4 of posterior margin of cell. Abdomen. Posterior margin of 7th sternite bordered by modified scales. Male genitalia. Uncus slender and long, narrowly triangular or inverted T-shaped, usually with anteriorly directed setae along margin and dorsal surface. Valva narrow and long, costa usually with excavation and apex with spine; editum arising from base or middle of valva, curved, finger- to club-shaped, with apex sparsely setose; sella absent; sacculus inflated, with dorsal process submedially, sometimes with a process distally. Anellus usually developed. Aedeagus cylindrical, usually with spine-shaped cornuti. Female genitalia. Ovipositor lobes flat, densely setose. Anterior apophyses longer, posterior apophyses short. Antrum widened and sclerotized, tubular, with ductus seminalis arising from close to its anterior end. Ductus bursae long, parallel-sided and usually more or less spiraled, usually membraneous. Corpus bursae with accessory bursae, signum rhomboid, sometimes bipartite and irregular.

Distribution. *Thliptoceras* occurs in China, Japan, India, Myanmar, Thailand, Sri Lanka, Sumatra, Java, Borneo, Sulawesi, Africa and Costa Rica. In China, the majority of species occurs in the south.

Biology. All Chinese material of *Thliptoceras* has been collected at light and host information is not available. However, Bänziger (1987) observed mostly males of 5 species of *Thliptoceras* sucking lachrymal and other body fluids from animals or humans: *T. cascale* (Swinhoe) sucking at the eye of a sambar deer (*Cervus unicolor* Kerr) and flying around an Indian elephant (*Elephas maximus* L.); *T. anthropophilum* Bänziger sucking perspiration of humans and lachrymal fluid of Indian elephants; *T. umoremsugente* Bänziger sucking perspiration of a human and lachrymal fluid and blood droplets expelled by mosquitoes on elephant and buffalo; *T. lacriphagum* Bänziger sucking lachrymal fluid of a zebu (*Bos indicus* L.) and elephant's skin secretions; *T. shafferi* Bänziger sucking perspiration of a human.

Remarks. Based on external structures, the species of *Thliptoceras* in the Oriental region of China are divided into three species groups: *T. artatalis* (Caradja, 1925), *T. formosanum* Munroe & Mutuura, 1968, *T. gladialis* (Leech, 1889) and *T. bicuspidatum* **sp. nov.** as the *artatalis* group; *T. caradjai* Munroe & Mutuura, 1968, *T. semicirculare* **sp. nov.**, *T. bisulciforme* **sp. nov.** and *T. fulvimargo* (Warren, 1895) as the *caradjai* group; *T. anthropophilum* Bänziger, 1987, *T. shafferi* Bänziger, 1987, *T. sinense* (Caradja, 1925), *T. filamentosum* **sp. nov.** and *T. impube* **sp. nov.** as the *sinense* group. Diagnoses for the three groups are given below.

Sexual dimorphism is prominent in *Thliptoceras* and is expressed in antennal structure, wing shape and colour, wing venation and modified scales on male forewing, as well as in the size of the hind tibial mid-spur. All species in the Oriental region of China except *T. gladialis* have a modified antennal base. In the hind tibia of males the inner mid-spur is longer than the other inner spurs and the outer mid-spur is minute. Males of the *artatalis* group have narrowly elongate forewings with an acute apex and a strongly oblique termen. Males of the *sinense* group have modified scales along the posterior margin of the forewing obliquely extending forward, corresponding with a close approximation of 1A to CuA_2 at the wing margin. In *T. gladialis* and *T. bisulciforme* **sp. nov.** the female is in general paler than the male.

Wing shape and venation are usually very uniform at the generic level in the subfamily Pyraustinae. But in *Thliptoceras*, there is a substantial range of variation in both wing shape and venation (Figs. 3–14). In males of the *artatalis* group the forewings are narrowly elongate, with a strongly oblique termen and an acute apex, and the hindwings are nearly triangular. Both sexes of *T. caradjai* and *T. semicirculare* **sp. nov.** have the forewing costa arched and the termen obliquely rounded. All other species have the forewing costa straight and the termen oblique, and the hindwing oblong.

Variation of forewing venation is restricted to the course of CuA_2, 1A and 2A. In the males of the *sinense* group vein 1A is closely approximated to CuA_2 at the wing margin, and 2A is absent in these species in both sexes. In the *artatalis* and the *caradjai* groups 1A and 2A usually form a loop, with both ends of 2A fused with 1A in *T. gladialis* and *T. bicuspidatum* **sp. nov.** but 2A reduced in *T. artatalis*, *T. fulvimargo* and *T. caradjai*.

Key to *Thliptoceras* species of the Chinese Oriental region based on males

1	Forewing with modified, broad scales along posterior margin in male; 2A absent in forewing in both sexes	2
-	Forewing without modified scales in male; 2A present in forewing	6
2	Sacculus with two processes	3
-	Sacculus with one process	5
3	Valva with projections from costa; sacculus with submedial process longer than distal process	*T. anthropophilum*
-	Costa of valva without projection; sacculus with submedial process shorter than distal process	4
4	Uncus without setae; distal sacculus process short, stout, twisted, club-shaped and bent towards base; aedeagus without cornuti	*T. impube* **sp. nov.**
-	Uncus setose; distal sacculus process long, slender, straight, finger-shaped, pointing outwardly; aedeagus with spine-shaped cornuti	*T. filamentosum* **sp. nov.**
5	Valva with apex not curved upwardly, costa nearly straight with a minute spine at apex; juxta with carina	*T. sinense*
-	Valva with apex curved upwardly, costa strongly concave and without spine at apex; juxta without carina	*T. shafferi*
6	Costa of valva with projection, excavation or spine; process of sacculus with rounded apex	7
-	Costa of valva smoothly concave, without process, excavation or spine; process of sacculus with sharply pointed apex	*T. formosanum*
7	Costa of valva without excavation	8
-	Costa of valva with excavation near apex	11
8	Sacculus process long, finger-shaped, extending beyond transtilla	*T. artatalis*
-	Sacculus process short, nipple-shaped, not extending beyond transtilla.	9
9	Apex of valva with two small sharp points	*T. bicuspidatum* **sp. nov.**
-	Apex of valva with a single small sharp point	10
10	Anellus without sclerotization; aedeagus with spine-shaped cornuti	*T. fulvimargo*
-	Anellus with double thumb-shaped sclerotizations bearing minute spines; aedeagus without cornuti	*T. gladialis*
11	Aedeagus with spine-shaped cornuti forming several groups; apex of valva with spine	12
-	Aedeagus with an oblique row of cornuti; apex of valva not with spine	*T. caradjai*
12	Costa of valva with finger-shaped process near apex; anellus a somewhat amorphous membrane	*T. semicirculare* **sp. nov.**
-	Costa of valva with rounded trapezoidal process near apex; anellus comprised of two parallel, connected, trough-shaped sclerotizations	*T. bisulciforme* **sp. nov.**

The *artatalis* group

Forewing in male narrowly elongate with straight, strongly oblique termen and acute apex, hindwing nearly triangular; 2A and 1A form a loop.

***Thliptoceras artatalis* (Caradja, 1925)**
Figs. 3, 4, 15, 16, 30, 39

Crocidophora artatalis Caradja, 1925: 101, pl. 2, figs. 54, 55. Type locality: China, Lienping; Amoy.
Thliptoceras artatale: Munroe, 1967: 723.

Diagnosis. Wing expanse 22–28 mm. *Thliptoceras artatalis* has the narrow, modified wings of the *artatalis* group in the male. It is characterised by yellow wings with contrasting brown termen and fringe, and by a male antenna with scape and pedicel slightly compressed dorsally and flagellum with a short cone-shaped scale-tooth dorsally at base followed by a few lightly compressed segments. Male genitalia with distal half of uncus extremely slender, pencil-shaped, without setae; costa straight with a minute spine at apex; editum long and recurved; process of sacculus long, finger-shaped, extending dorsad beyond transtilla; anellus with two slim and long sclerotized bands which are unique and diagnostic. Female genitalia with antrum funnel-shaped, anteriorly tapering, ductus bursae rather short, longitudinally wrinkled; signum very large (wider than half diameter of corpus bursae) and asymmetrical, with angles bearing carina rounded and the other two narrower and longer; accessory bursae arising from middle part of corpus bursae.

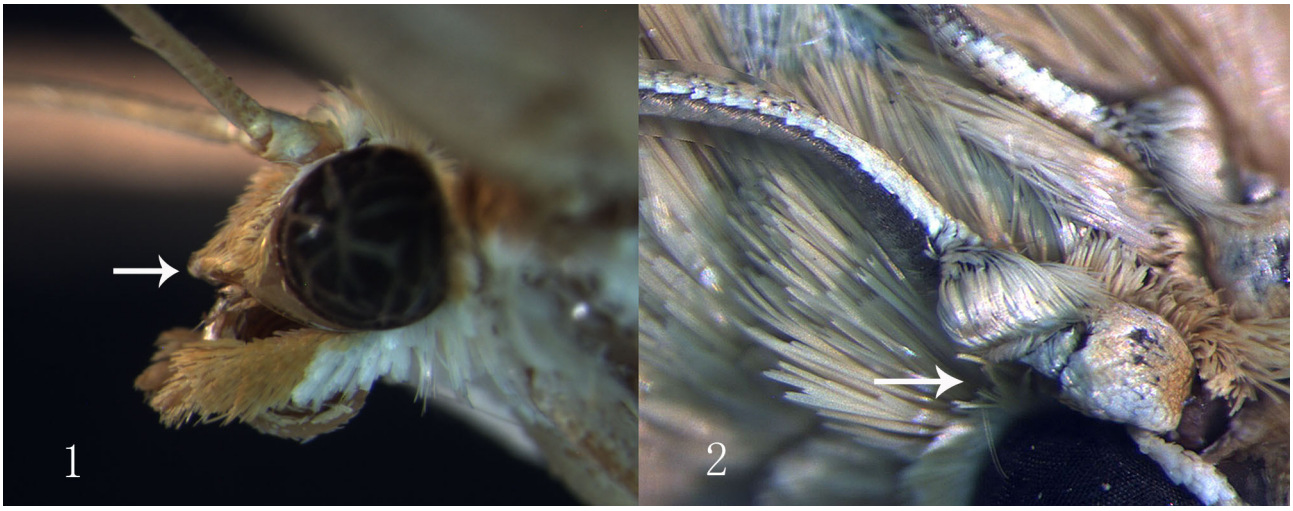
Material examined. CHINA, Zhejiang: 3 ♂, 1 ♀, Mt. Tianmushan, alt. 295 m, 11.V.2012, coll. Li Jinwei; Fujian: 4♂, 3 ♀, Tongmu, Mt. Wuyishan, alt. 759 m, 19, 20.V.2012, coll. Li Jinwei; Jiangxi: 2 ♀, Xiagongtang, Mt. Jiulianshan, alt. 630 m, 29.VIII.2007, coll. Zhang Dandan; 11 ♂, 27 ♀, Daqiutian, Mt. Jiulianshan, alt. 500 m, 30, 31.VIII.2007, coll. Zhang Dandan and Pang Hong, 12, 13.VII.2008, He Fengxia, Li Jiahui and Jia Fenglong, et. al.; 3 ♂, 8 ♀, Xiaoxidong, Mt. Jinggangshan, 2.VIII.2011, coll. Li Jinwei, 2.IX.2011, coll. Yang Lijun; 2 ♂, Mt. Sanqingshan, alt. 389 m, 15.V.2012, coll. Li Jinwei; Guangdong: 5 ♂, 6 ♀, Heshan County, 22–24.IV., 28.V., 16.VII., 6.VIII., 28.VIII.2002, 28.III.2003, coll. Liu Guilin, Pang Hong and Chen Haidong; 1 ♀, Mt. Nankunshan, 16.VII.2003, coll. Zhang Dandan and Li Zhiqiang; 5 ♂, 2 ♀, Lianping County, 12.VIII.2009, coll. Zeng Yanyi; 3 ♀, Yanshuitian, Mt. Heishiding, Fengkai County, 2.V., 3.VIII.2011, coll. Zhang Dandan, Tong Bo and Xie Jiaqin; 1 ♂, Heerkou, Fengkai County, 2.VII.2010, coll. Chen Haidong, Zhang Dandan, Tong Bo; 3 ♂, 4 ♀, Mt. Heishiding, Fengkai County, 14.VI.2009, coll. Han Xiaolei, 7.V.2010, 1.V.2011, coll. Zhang Dandan and Tong Bo; 12 ♂, 19 ♀, Mt. Danxiashan, alt. 96 m, 408 m, 15.IV., 31.V.2008, coll. He Fengxia, 6–7.VI.2012, coll. Li Jinwei; Guangxi: 1 ♂, Mt. Shiwandashan, alt. 352 m, 18.IV.2012, coll. Li Jinwei; Hainan, 2 ♂, 1 ♀, Mt. Limushan, 4–6.V.2012, coll. Zhang Dandan, Yang Lijun and Yang Lifeng; Guizhou: 1 ♂, Mt. Fanjingshan, 25.VIII.2012, coll. Li Jinwei and Chen Xiaohua.

Distribution. China (Zhejiang, Fujian, Jiangxi, Guangdong, Guangxi, Hainan, Guizhou).

***Thliptoceras formosanum* Munroe & Mutuura, 1968**
Figs. 5

Thliptoceras formosanum Munroe & Mutuura, 1968: 861. Type locality: China, Taiwan, Urai.

Diagnosis. Wing expanse 18–24 mm. *Thliptoceras formosanum* has the narrow, modified wings of the *artatalis* group in the male, of dark, greyish fuscous colour, and somewhat paler, more yellowish in the female. It is characterized by a strongly modified male antenna: scape enlarged, base of flagellum enlarged and complex, with large, dorsal fan-shaped scale tuft arranged in a semicircle dorsally of a small depression bordered by two triangular teeth and filled with very small setae, next few segments strongly widened and compressed, curved to form a large shallow sinus. In the male genitalia, this species can be recognized by the claw-shaped sacculus process and the gently concave costa without excavation or spine. In the female genitalia, the weakly sclerotized posterior part of the ductus bursae with an ovate expansion at its base is diagnostic.



FIGURES 1–2 Head of *Thliptoceras* spp. 1. Conically projecting frons of *T. gladialis* (image reversed). 2. Modified antenna of *T. semicirculare*.

Material examined. CHINA, Fujian: 1 ♂, Maodi, Nanping County, alt. 850 m, 22.IX.2002, coll. Wang Xinpu (NKUM); 1 ♂, Xiaobeimen, Fuzhou, 15–16.V.1933; 1 ♂, Daiyuncun, Mt. Daiyunshan, alt. 902 m, 23.V.2012, coll. Li Jinwei; Jiangxi: 1 ♂, Xiagongtang, Mt. Jiulianshan, alt. 630 m, 28.VIII.2007, coll. Zhang Dandan; 1 ♂, Daqiutian, Mt. Jiulianshan, alt. 500 m, 31.VIII.2007, coll. Zhang Dandan; Guangdong: 1 ♂, Heshan County, 10.X.2002, coll. Liu Guilin; 1 ♂, Kau-lin San. Lien-Ping Distr., alt. 700–900m, 23.IV.1940, coll. J. L. Gressitt and F. Z. To.; 1 ♂, Mt. Wutongshan, Shenzhen, 15.IX.1999, coll. Jia Fenglong; 1 ♂, Yangmei, Gaoming County, 23.IV.2006, coll. Zhang Dandan; 1 ♂, Mt. Nankunshan, 16.VII.2003, coll. Zhang Dandan and Li Zhiqiang; 7 ♂, Niupoling, Yangchun County, 18–19.VIII.2009, coll. He Fengxia and Han Xiaolei; 3 ♂, Mt. Heishiding, Fengkai County, 16.VI.2009, 1.V., 5.X.2011, coll. Zhang Dandan, He Fengxia and Tong Bo et. al.; 5 ♂, Mt. Danxiashan, alt. 96 m, 6–7.VI.2012, coll. Li Jinwei; Guangxi: 1 ♂, Mt. Pinglongshan, Shangsi County, alt. 510 m, 6.IV.2002, coll. Hao Shulian and Xue Huaijun (NKUM); 1 ♂, Nonggang, Longzhou County, alt. 271 m, 19.IV.2012, coll. Li Jinwei; Guizhou: 3 ♂, Maolan reserve, 1.IX.2011, coll. Li Jinwei.

Distribution. China (Fujian, Jiangxi, Guangdong, Guangxi, Guizhou, Taiwan).

Thliptoceras gladialis (Leech, 1889)

Figs. 1, 6, 7, 17, 18, 31, 40

Botys gladialis Leech, 1889: 67, pl. 3, figs. 5, 15. Type locality: China, Foochau.
Crocidophora rufitinctalis Hampson, 1918: 185.
Thliptoceras gladiale: Munroe, 1967: 723.

Diagnosis. Wing expanse 23–26 mm. *Thliptoceras gladialis* has the narrow, modified wings of the *artatalis* group in the male, of greyish yellow colour in the male, more grey towards termen, and deeper yellow with orange tinge in the female with a grey shade along termen. It shares a conically projecting frons with *T. bicuspidatum*. The antennal base in *T. gladialis* is unmodified in the male. Male genitalia with narrow, distally rounded valva, smooth, weakly concave costa with a minute spine at apex; juxta hexagonal; anellus amorphously membranous with paired thumb-shaped sclerotizations bearing minute spines; sacculus process very small and short, nipple-shaped. Female genitalia with antrum long, funnel-shaped, ductus bursae long, irregularly coiled; signum diagnostic, large (wider than half diameter of corpus bursae), bipartite, angles bearing carina rounded and widely separated, other two angles extended and narrow but weakly sclerotized.

Material examined. CHINA, Guangdong : 1 ♂, Kangle, Guangzhou, 9.IV.1959; 1 ♂, White Cloud Mountain, P'an-yu District, Canton, 23.V.1938, coll. W. E. Roffmann; 1 ♀, Mt. Wutongshan, 18.IV.1998, coll. Jia Fenglong; 6 ♂, 1 ♀, Heshan County, 29.V.2002, 27–28.III.2003, coll. Liu Guilin; 24 ♂, 26 ♀, Mt. Danxiashan, alt. 96 m, 408 m, 15.IV., 19.IV., 30.V.–8.VI.2008, 6–7.VI.2012, coll. Li Jinwei, He Fengxia and Chen Haidong et. al.; 8 ♂, 3 ♀,

Shimentai, Yingde County, 27.V.2012, coll. Yang Lijun and Jia Qianju; Yunnan: 1 ♀, Longmen, Mengla County, 23.VII.2011, coll. Li Jinwei.

Distribution. China (Fujian, Guangdong, Yunnan, Taiwan).

Thliptoceras bicuspidatum Zhang, sp. nov.

Figs. 19, 32

Diagnosis. *Thliptoceras bicuspidatum* is closely related to *T. gladialis*, with conical frons, similar wing pattern and male genitalia, and the narrow, modified wings of the *artatalis* group in the male, but it can be distinguished by the modified antennal base in the male, a medially deeply concave V-shaped juxta, an almost square valva apex with a second minute spine on ventrodistal angle, a tubular anellus with 2 invaginated lobe-shaped sclerotizations bearing 4 low carinae.

Description. Head. Frons conically projecting, pale fuscous, or pale yellowish fuscous, with white lateral bands. Vertex pale fuscous, medially much paler. Labial palpus exceeding frons by a little less than length of head; brown, contrastingly white at base ventrally. Maxillary palpus brown, with tip paler. Basal scaling of proboscis creamy white. Antenna scape in male elongated by dorsal scales forming a big distally extended tooth, pedicel and basalmost flagellum segments compressed dorsally, forming a short deep sinus; fuscous, with pale fuscous scales dorsally. Thorax. Tegula pale fuscous. Legs pale fuscous dorsally, dirty white ventrally; hind tibia with inner mid-spur longer than other inner spurs and outer mid-spur minute in male, other outer spurs about half length of inner. Wing expanse 28 mm. Forewing pale grey fuscous, markings fuscous; reniform stigma a short streak; postmedial line with anterior 4/5 distinct, arched from 2/3 costa to middle of CuA_2; fringe fuscous, distal half paler. Hindwing translucent whitish at base and along costa; postmedial line similar as in forewing; fringe as forewing, paler at tornal region. Abdomen. Pale fuscous dorsally, dirty white ventrally. Male genitalia. Uncus narrowly triangular, distal half curved, setose dorsolaterally except apex. Valva simple, narrow, long and nearly parallel-sided with truncate, squared apex with a minute spine-shaped process at both dorsodistal and ventrodistal corners; editum slender and long, gently bent dorsad, apex slightly inflated and with sparse, long and short setae; sacculus with a low and round process medially, sparsely setose distally. Juxta nearly V-shaped, with arms curved and tapering to the tips. Anellus developed, tubular, with 2 invaginated lobe-shaped sclerotizations with 4 low carinae (attached to aedeagus in Fig. 32). Aedeagus weakly bent at 1/3, without cornuti.

Female unknown.

Material examined. Holotype: ♂, CHINA, Guangdong: Mt. Danxiashan (25°04'N, 113°64'E), Shaoguan County, alt. 96 m, 7.VII.2012, coll. Li Jinwei, genitalia slide No. XJW12006; **Paratype**: Guangdong: 1 ♂, Yanshuitian, Mt. Heishiding (23°27'N, 111°54'E), Fengkai County, 3.VI.2011, coll. Chen Haidong and Tong Bo, genitalia slide No. ZDD10067.

Distribution. China (Guangdong).

Etymology. The specific name is derived from the Latin *bicuspidatus* = two pointed, referring to the valva with two pointed processes at distal end.

The *caradjai* group

Wing shape similar in male and female. Without modified scales on forewing in male. 2A with 1A forming a loop.

Thliptoceras caradjai Munroe & Mutuura, 1968

Fig. 8

Thliptoceras caradjai Munroe & Mutuura, 1968: 865. Type locality: China, Jiangsu, Lungtan; Chejiang, West Tien-mu-shan.

Diagnosis. Wing expanse 20–22 mm. *Thliptoceras caradjai* can be recognized by yellow ground colour and forewings with a distinctly sinuate antemedial line and fine postmedial line; a male antenna with a loose whirl of long scales at the base of the flagellum enclosing a small depression, followed by some lightly compressed

flagellum segments**.** Male genitalia: costa of valva with subapical projection nearly triangular, followed by a nearly semicircular excavation; editum arising from nearly middle of valva; medial sacculus process expanded into a broad, rounded lobe; juxta long, plate-shaped, with basal part inflated; anellus doubled, long, band-like, scattered with scale-shaped minute tubercles; aedeagus with an oblique row of few small cornuti distally. Female genitalia with ostium flanked by a pair of sclerotised processes, antrum sclerotised, an anteriorly narrowing cylinder, followed by a short distorted membraneous zone and a sclerotised ring; ductus bursae short and wide, about twice diameter of corpus bursae.

Material examined. CHINA, Zhejiang: 3 ♂, 1 ♀, Sanmuping, Mt. Tianmushan, alt. 800 m, 15.VIII.1999, coll. Li Houhun (NKUM); Jiangxi: 1 ♂, 1 ♀, Daqiutian, Mt. Jiulianshan, alt. 500 m, 31.VIII.2007, coll. Pang Hong; 1 ♂, Mt. Jiulianshan, 14.VII.1975, coll. Song Shimei (IZAS); 1 ♂, Mt. Jinggangshan, 1.VII.2011, coll. Yang Lijun; Guizhou: 1 ♂, Jiangkou County, alt. 330 m, 27.V.2002, coll. Wang Xinpu (NKUM); 1 ♀, Suoluo, Chishui County, alt. 240 m, 22.IX.2000, coll. Yu Haili (NKUM); 1 ♂, Linjiang, Xishui County, alt. 500m, 24.IX.2000, coll. Yu Haili (NKUM).

Distribution. China (Jiangsu, Zhejiang, Fujian, Jiangxi, Guangdong, Guangxi, Hainan, Guizhou).

Thliptoceras semicirculare Zhang, sp. nov.

Figs. 2, 9, 10, 20, 33, 41

Diagnosis. *Thliptoceras semicirculare* is similar to *T. buettikeri* Munroe, but can be distinguished by the larger wing expanse (23–28 mm), a column-shaped uncus with its basal half not setose; a valva with a finger-shaped process on costa near apex followed by a much deeper semicircular excavation and a more sharply pointed apex; a relatively slender and long editum, sharply bent dorsad. The spinulose region in the ductus bursae is diagnostic for this species.

Description. Head. Frons yellowish brown, with creamy white lateral bands. Vertex pale yellowish brown. Labial palpus exceeding head by about length of head, yellowish brown, contrastingly creamy white at base ventrally. Maxillary palpus yellowish brown, with apex creamy white. Basal scaling of proboscis creamy white. Antenna brown, with creamy white or pale yellow scales dorsally; male with scape slightly compressed, basal segments of flagellum greatly enlarged, dorsally excised and covered with scale-tuft extending basad from distal part of excision, followed by few weakly compressed segments, expanded and slightly curved. Thorax. Tegulae yellowish brown. Grey-yellow dorsally, paler ventrally. Legs grey-yellow dorsally, paler ventrally; hind tibia with inner mid-spur longer than other inner spurs and outer mid-spur minute in male, other outer spurs about 1/3 to 1/2 length of inner. Wing expanse 23–28 mm. Forewing greyish yellow, scattered with yellowish brown scales, much denser between base and antemedial line; markings brown; antemedial line fine, outwardly curved from 1/5 costa to 2/5 posterior margin, very weakly indented at 2A; cell with a minute orbicular stigma at 2/3 cell length; reniform stigma a short streak, outwardly oblique; postmedial line slightly dentate, from 3/4 costa arched to distal 1/3 CuA_1, angled to middle of CuA_2, then a sinuate line to 3/4 posterior margin; termen brown line; fringe with basal half alternating yellow and fuscous, distal half fuscous. Hindwing greyish yellow, scattered with orange scales, much denser on basal area and gradually decreasing to postmedial line; postmedial line faint, from M_1 straight to behind CuA_1 then bent basad and ending at anal fold, sometimes absent; termen and fringe as in forewing, but yellow at tornal region. Abdomen. Grey-yellow dorsally, paler ventrally. Male genitalia. Uncus column-shaped, wide only at base, parallel-sided, distal half setose dorsolaterally except apex. Valva very slender; costa strongly sclerotized, weakly concave, with a tapering finger-shaped process near apex, followed by a semicircular excavation and sharply pointed apex; ventral margin slightly sinuate; editum slender, long and sharply bent dorsad, apex inflated and sparsely setose; sacculus with a low, round process medially. Juxta a dorsally elongated rhomboid. Anellus a somewhat amorphous membrane. Aedeagus narrowest in middle, with spine-shaped cornuti of different length in several groups. Female genitalia. Ovipositor lobes flat, crescentic, densely setose. Apophyses anteriores almost 1.5 times length of apophyses posteriores. Antrum sclerotised, asymmetrical, a wide, laterally curved tube, narrowest 1/3 from ostium, densely spinulose, posterior part less sclerotised, collar-shaped**.** Ductus seminalis originating just anterior of antrum. Ductus bursae irregularly spiraled, length about 5 times diameter of corpus bursae, at 1/4 from corpus bursae with area of dense sclerotised spinules. Corpus bursae globular, signum small (less than half diameter of corpus bursae), angles bearing carina nearly right-angled and of the angles without carina one blunt, the other rounded; accessory bursae arising from posterior end of corpus bursae.

Material examined. **Holotype:** ♂, CHINA, Guangdong: Mt. Nankunshan (23°63'N, 113°89'E), Huizhou County, 16.VII.2003, coll. Zhang Dandan and Li Zhiqiang, genitalia slide No. ZDD03202; **Paratypes:** Guangdong: 1 ♂, Mt. Nankunshan (23°63'N, 113°89'E), Huizhou County, 16.VII.2003, coll. Zhang Dandan and Li Zhiqiang; 30 ♂, 3 ♀, Mt. Heishiding (23°27'N, 111°54'E), Fengkai County, 14–16.VI.2009, 1. VII., 13.VIII.2010, 1–2.V., 2–3.VII., 2.VIII., 5.IX.2011, coll. Zhang Dandan and Tong Bo et. al., genitalia slide No. XJW12002, ZDD03312, ZDD10087, venation slide No. ZDD10086.

Distribution. China (Guangdong).

Etymology. The specific name is derived from the Latin *semicircularis* = semicircular, referring to the dorsal valva margin with a semicircular excavation near its apex.

***Thliptoceras bisulciforme* Zhang, sp. nov.**

Figs. 21, 22, 34, 42

Diagnosis. *Thliptoceras bisulciforme* is similar to *T. fulvimargo* with smoky fuscous wings with their pattern obscured in male, but it can be distinguished by the larger wing expanse (28–30 mm), a differently modified antennal base in the male, a much wider valva with a rounded trapezoidal process on its costa near the apex, followed by a semicircular excavation, an editum curved rather than bent dorsad, a sacculus process reaching to base of costa, an anellus with two parallel, connected, trough-shaped sclerotizations, and an aedeagus with spine-shaped cornuti arranged in a single group.

Description. Male. Head. Frons fuscous and vertex pale yellowish fuscous. Labial palpus exceeding head by less than length of head, yellowish fuscous, contrastingly creamy white at base ventrally. Maxillary palpus yellowish brown. Basal scaling of proboscis white or pale yellow. Antenna fuscous; scape dorsally compressed, basal segment of flagellum enlarged with a shallow transverse groove lined with small scales followed and partly covered by a long, oblique, appressed scale-tuft extending inwardly, with the following few segments compressed, and moderately expanded, forming a curved sinus. Thorax. Tegula fuscous. Thorax fuscous dorsally and paler ventrally. Legs grey fuscous dorsally, paler ventrally; male hind tibia with inner mid-spur longer than other inner spurs and outer mid-spur minute, other outer spurs about 1/2 length of inner. Wing expanse 28–30 mm. Wings fuscous, markings deep fuscous, antemedial and postmedial lines obscure; reniform stigma ring-shaped, obscure. Fringe fuscous, with pale yellow base line. Abdomen. Fuscous dorsally and paler ventrally. Male genitalia. Uncus very narrowly triangular, setose dorsolaterally except apex. Valva broad, slightly curved, costa roughly parallel to ventral margin, with a large trapezoidal process near apex, followed by a semicircular excavation and a curved, tapering apex with a spine; editum curved dorsad, apex little inflated and sparsely setose; sacculus with medial process a roundish lobe, reaching to base of costa. Juxta long plate-shaped, constricted at ventral 1/3; anellus fused with juxta, comprised of two parallel, connected, trough-shaped sclerotizations. Aedeagus slender, with a group of spine-shaped cornuti.

Female in general paler than male. Wings pale fuscous, straw yellow beyond postmedial line; fringe pale fuscous, with pale yellow base line, pale yellow at hindwing tornal area. Female genitalia. Ovipositor lobes flat, crescentic, densely setose. Apophyses anteriores curved in middle, almost twice length of apophyses posteriores. Antrum strongly sclerotised, funnel-shaped, gradually broadening towards ostium, narrowest at 1/4 from anterior end, posterior end with collar-shaped extension ventrally. Ductus seminalis originating from close to anterior end of antrum. Ductus bursae irregularly spiraled, length about 5 times diameter of corpus bursae, posterior part inflated and sclerotized. Corpus bursae globular, signum very small (less than 1/4 diameter of corpus bursae), angles bearing carina nearly right-angled and the other two blunt; accessory bursae arising laterally from corpus bursae.

Material examined. **Holotype**: ♂, CHINA, Guangxi: Mt. Maoershan (25°53'N, 110°25'E), Xing'an County, 26.V.2010, coll. Wu Hongsheng, Zhao Shuang and Tong Bo, genitalia slide No. ZDD10077; **Paratypes**: Guangxi: 1 ♂, 2♀, Mt. Maoershan (25°53'N, 110°25'E), Xing'an County, 26.V.2010, coll. Wu Hongsheng, Zhao Shuang and Tong Bo, genitalia slide No. ZDD12011.

Distribution. China (Guangxi).

Etymology. The specific name is derived from the Latin *bi-* = two and *sulciformis* = trough-shaped, referring to the anellus looking like two parallel, trough-shaped sclerites .

***Thliptoceras fulvimargo* (Warren, 1895)**
Figs. 11, 23, 35

Mimocomma fulvimargo Warren, 1895: 473. Type locality: Khasia Hills.
Crocidophora fulvimargo: Hampson, 1899: 191.
Thliptoceras fulvimargo: Munroe 1967: 723.

Diagnosis. Wing expanse 25 mm. *Thliptoceras fulvimargo* is similar and closely related to *T. bisulciforme* **sp. nov.** with smoky fuscous wings with obscured pattern elements in the male, but it can be distinguished by its smaller wing expanse (23 mm), a differently modified antennal base in the male with a long scape, a much deeper transverse groove at base of flagellum flanked on both sides by scale ridges, and a less expanded and curved sinus. In the male genitalia the valva is much narrower with a weakly concave, simple costa without process and excavation, the editum is sharply bent dorsad at almost a right angle, the sacculus process does not reach to costa, the anellus is amorphous and membranous, and the aedeagus has spine-shaped cornuti arranged in three groups.

Material examined. CHINA, Guangxi: 3 ♂, Nonggang, Longzhou, alt. 271 m, 19.IV.2012, coll. Li Jinwei.

Distribution. China (Guangxi), India (Khasia Hills), Burma. This species is reported to China for the first time.

The *sinense* group
Males with modified, obliquely forwardly pointing scales along posterior margin of forewing, associated with 1A closely approximated to CuA_2 near wing margin; females unmodified.

***Thliptoceras anthropophilum* Bänziger, 1987**

Thliptoceras anthropophilum Bänziger, 1987: 672. Type locality: Thailand, Chiengmai.

Diagnosis. Wing expanse 22–23 mm. *Thliptoceras anthropophilum* can be recognized in the male by the modified scales along the posterior margin of the forewing and the antenna with a scale-tooth at the inner side of the flagellum base, followed by several compressed segments. Male genitalia with valva rather wide and upcurved at apex, its costa deeply and irregularly excavated with a serrated process followed by a semicircular excavation near middle, then a low triangular process, sacculus with a finger-shaped process medially and a short triangular process distally, juxta with a dorsal median carina, and aedeagus with two patches of cornuti distally.

Material examined. CHINA, Yunnan: 3 ♂, Damenglong, Xishuangbanna, alt. 650 m, 19.V.1962, coll. Song Shimei (IZAS).

Distribution. China (Yunnan), Thailand (Chiengmai).

***Thliptoceras shafferi* Bänziger, 1987**

Thliptoceras shafferi Bänziger, 1987: 678. Type locality: Thailand, Chiengmai.

Diagnosis. Wing expanse 23–26 mm. *Thliptoceras shafferi* can be recognized in the male by the modified scales along the posterior margin of the forewing and an only slightly modified antenna with a small scale-tuft at base of flagellum, followed by compressed and extended segments, and by diagnostic tegulae, fleecy and bicolorous yellowish and fuscous. Male genitalia with uncus diagnostic, irregularly subtriangular, without setae on narrowed distal 1/4; valva simple and very narrow, with apex widened and recurved; editum straight and stout, sacculus with projecting basal hump, and aedeagus with a bundle of cornuti near apex.

Material examined. CHINA, Guangdong: 2♂, Heshan County, 26.VIII., 10.X.2002, coll. Liu Guilin, Jia Fenglong and Chen Haidong; Guangxi: 1 ♂, Nonggang, Longzhou County, alt. 271m, 19.IV.2012, coll. Li Jinwei.

Distribution. China (Guangdong, Guangxi), Thailand (Chiengmai).

***Thliptoceras sinense* (Caradja, 1925)**
Figs. 12, 24, 25, 36, 43

Phlyctaenodes decoloralis sinense Caradja, 1925: 105. Type locality: China, Shanghai; Lienping.
Thliptoceras sinense: Munroe, 1967: 723.

Diagnosis. Wing expanse 24–27 mm. *Thliptoceras sinense* can be recognized in the male by the modified scales along the posterior margin of the forewing and by a modified antenna with a globular scape, a broadened flagellum with a deep, transverse groove at base ending laterally in an upcurved tooth and delineated distally by a transverse ridge covered with raised appressed scales, followed by several compressed and decreasingly widened segments. Male genitalia with valva gradually widening, widest at 2/3, costa straight with a minute spine at apex, ventral margin sinuate, editum short and stout, sacculus process triangular, with sparse seatae, juxta with dorso-medial finger-shaped carina, aedeagus with four groups of cornuti of different length and width near distal end. Female genitalia with antrum sclerotised, irregularly tubular with middle part globularly inflated and thick-walled, posterior margin bilobed; ductus bursae long (length about 8 times diameter of corpus bursae), irregularly spiraled, with scattering of minute spinules in widened posteriormost part; signum small (less than half diameter of corpus bursae).

Material examined. CHINA, Zhejiang: 4 ♂, Chanyuansi, Mt. Tianmushan, alt. 350 m, 15.VIII.1999, coll. Li Houhun (NKUM); 8 ♂, Houshanmen, Mt. Tianmushan, alt. 500 m, 16.VIII.1999, coll. Li Houhun (NKUM); Fujian: 1 ♂, Mt. Wuyishan, alt. 759 m, 21.V.2012, coll. Li Jinwei; Jiangxi: 3 ♂, Daqiutian, Mt. Jiulianshan, alt. 500 m, 30.VIII.2007, coll. Zhang Dandan, 13.VII.2008, He Fengxia and Li Jiahui; 3 ♂, Fengxin County, alt. 506 m, 22.IX.2012, coll. Li Jinwei; 2 ♂, Mt. Jinggangshan, 25.IV.2011, coll. Mei Yan, 30.VI.2011, coll. Yang Lijun; Guangdong: 4 ♂, 4 ♀, Mt. Danxiashan, alt. 96 m, 17.IV., 31. V., 1.VI.2008, coll. He Fengxia, 6–7.VI.2012, coll. Li Jinwei; 1 ♀, Lianping County, 12.VIII.2009, coll. Zeng Yanyi; 1 ♂, Yanshuitian, Mt. Heishiding, Fengkai County, 2.V.2011, coll. Zhang Dandan and Tong Bo; Guangxi: 3 ♂, 1 ♀, Gaozhai, Xing'an County, alt. 469 m, 28.VIII.2011, coll. Zhang Dandan and Yang Lijun; Hainan: 1 ♂, Mt. Limushan, 5.V.2011, coll. Zhang Dandan and Yang Lijun; Guizhou: 2 ♂, Suoluo, Chishui County, alt. 390 m, 27.V.2000, coll. Du Yanli (NKUM); 1 ♂, 1 ♀, Suoluo, Chishui County, alt. 240 m, 22.IX.2000, coll. Yu Haili (NKUM).

Distribution. China (Shanghai, Zhejiang, Fujian, Jiangxi, Guangdong, Guangxi, Hainan, Guizhou).

Remarks. This species was recorded by Song (2001) and Wang et. al. (2003) from Jiangsu, Fujian, Zhejiang and Hainan, China as *T. amamiale* (Munroe & Mutuura, 1968). In this study, we re-identified this species. Therefore, *T. amamiale* is not present in China.

***Thliptoceras filamentosum* Zhang, sp. nov.**
Figs. 13, 26, 27, 37, 44

Diagnosis. *Thliptoceras filamentosum* with modified scales along the forewing hind margin in the male, is closely related to *T. impube* **sp. nov.**, both with a weakly modified antenna in male and a distal sacculus process, but the former can be distinguished by the smaller size and the yellowish brown colour, the setose uncus, the long, slender, finger-shape, dorso-distally directed distal sacculus process, as well as an aedeagus with a loose group of cornuti. Female genitalia with a tightly spiraled ductus bursae characterize this species.

Description. Head. Frons deep yellow, with white lateral bands. Vertex pale yellow, sometimes with creamy white scales medially. Labial palpus exceeding frons by about length of head, yellowish, contrastingly white at base ventrally. Maxillary palpus yellowish, whitish terminally. Basal scaling of proboscis creamy white. Antenna in male with scape enlarged, base of flagellum with small dorsal expansion covered with small scale tuft, following segments weakly compressed and slightly bent basally in male; yellow, with creamy white or pale yellow scales dorsally. Thorax. Pale yellow dorsally, creamy white ventrally. Legs yellow dorsally, creamy white ventrally, hind tibia with inner mid-spur longer than other inner spurs and outer mid-spur minute in male, other outer spurs about half length of inner. Wing expanse 20–22 mm. Wings yellow-brown, gradually deepening from postmedial line to termen, markings fuscous. Forewing with antemedial line and orbicular stigma indistinct; reniform stigma a short streak; postmedial line with anterior 4/5 distinct, slightly dentate, from 2/3 costa arched to middle of CuA_2; posterior margin with a band of modified, broad scales pointing obliquely forwards in male; basal half of fringe

deep yellow, distal half fuscous. Hindwing translucent whitish at base along costa; postmedial line slightly dentate, from 3/4 costa to nearly straight behind CuA_1, then bent basad and ending at anal fold; fringe as in forewing, paler in tornal region. Abdomen. Pale yellow dorsally, creamy white ventrally. Male genitalia. Uncus short and stout, wide at base then parallel-sided with tapered tip, distal half setose dorso-laterally. Valva with basal 2/3 of costa straight and ventral margin very weakly sinuate, apex recurved with a minute excavation at apex of costa; editum short, stout and distal half inflated, globular, bent dorsad, sparsely setose; sacculus with an erect, short, stout, thumb-shaped process medially and a long, slender, straight, finger-shaped dorso-distally directed distal process with its inner margins lightly serrate. Juxta anchor-shaped, with a low carina. Anellus indistinct. Aedeagus with a long series of spine-shaped cornuti, vesica with filiform parallel wrinkles, distal end with minute spinules. Female genitalia. Ovipositor lobes flat, crescentic, densely setose. Apophyses anteriores almost twice length of apophyses posteriores. Lamella postvaginalis lightly sclerotized and spinulose, projecting as a low hump posterior to ostium and forming a vertical fold in dorsal wall of antrum; short, sclerotized, cylindrical antrum posteriorly fused with wide invagination with a lateral pocket on each side and a deeply bilobed and projecting ventral margin. Ductus seminalis originating just anterior to antrum. Ductus bursae tightly and regularly spiraled, length about 3 times diameter of corpus bursae, anteriormost coil much wider, lined with short, sclerotized spinules. Corpus bursae globular, signum small (less than half diameter of corpus bursae), angles bearing carina pointed and of the angles without carina one blunt, the other slightly extended; accessory bursae arising from posterior end of corpus bursae.

Material examined. **Holotype:** ♂, CHINA, Guangdong: Mt. Danxiashan (25°04'N, 113°64'E), Shaoguan County, alt. 96 m, 6.VI.2012, coll. Li Jinwei, genitalia slide No. ZDD10068; **Paratypes:** Guangdong: 2 ♂, 5 ♀, Mt. Danxiashan (25°04'N, 113°64'E), Shaoguan County, alt. 96 m, 6–7.VI.2012, coll. Li Jinwei, genitalia slide No. ZDD10059, ZDD10069, XJW12003, XJW12009; Jiangxi: 1 ♂, Mt. Jiulianshan (24°54'N, 114°46'E), alt. 500 m, 12.VII.2008, coll. Jia Fenglong, genitalia slide No. ZDD10074.

Distribution. China (Jiangxi, Guangdong).

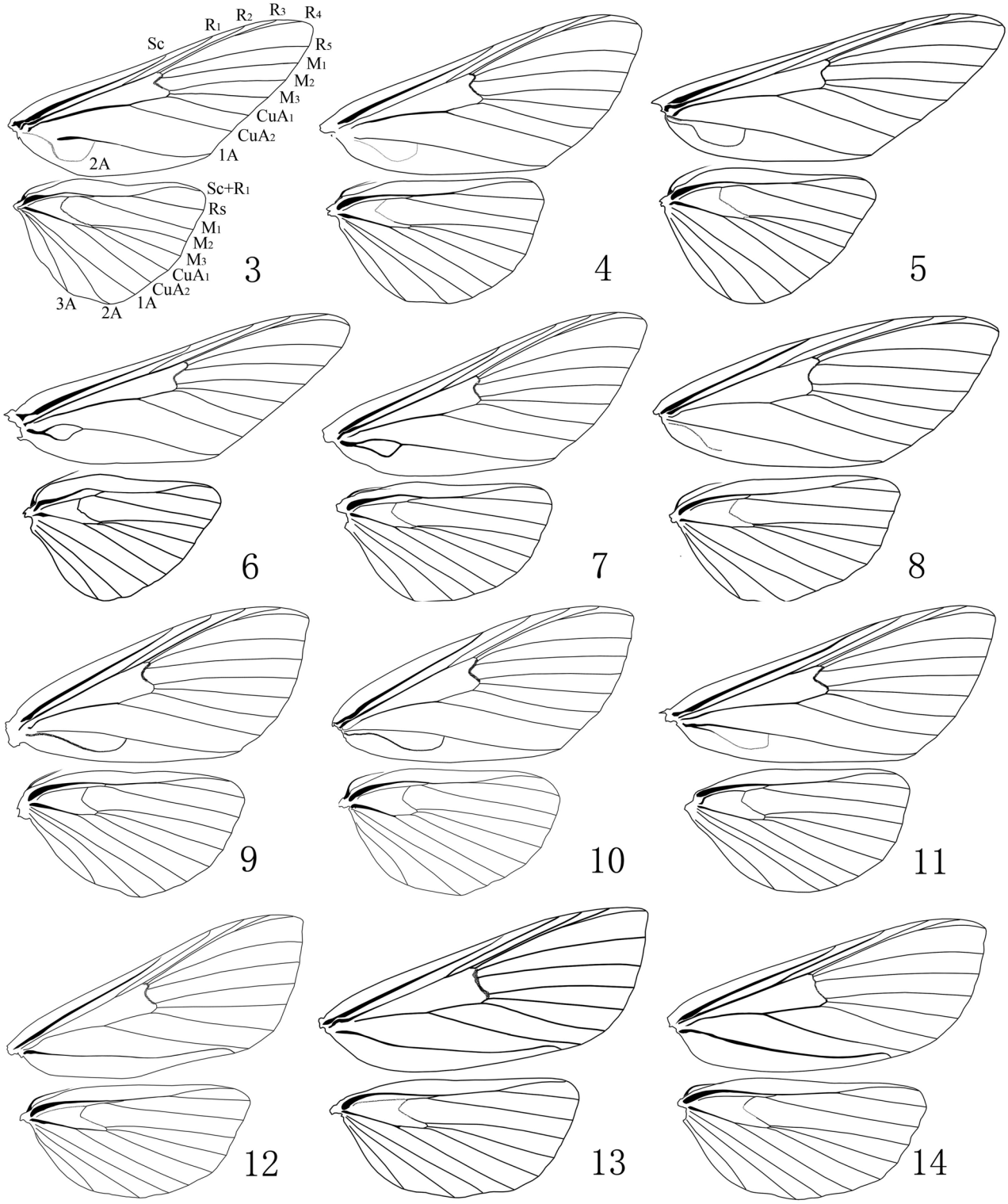
Etymology. The specific name is derived from the Latin *filamentosus* = filiform, referring to the filiform wrinkles in the vesica.

***Thliptoceras impube* Zhang, sp. nov.**
Figs. 14, 28, 29, 38, 45

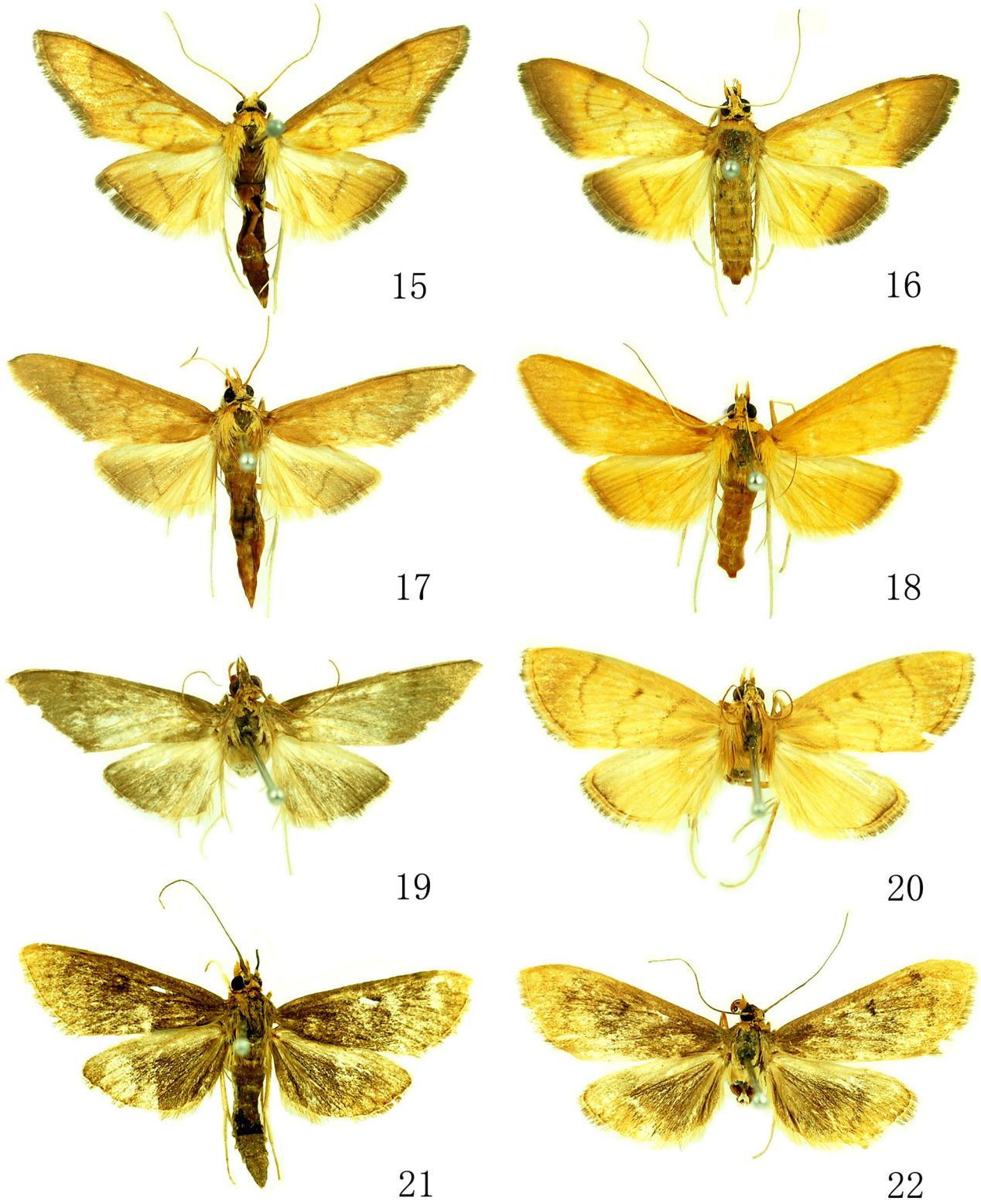
Diagnosis. *Thliptoceras impube*, with modified scales along the forewing hind margin in the male, is closely related to *T. filamentosum* **sp. nov.**, but can be distinguished by its much larger size and paler colour, as well as a very slender uncus without setae, a sacculus with a stout recurved thumb-shaped distal process and a sinuate aedeagus without cornuti. Female genitalia with a heavily adorned lamella postvaginalis and a loosely spiraled ductus bursae with a long sclerotized band in its posteriormost part characterize this species.

Description. Head. Frons pale yellow, with white lateral bands. Vertex pale buff. Labial palpus exceeding frons by about length of head; yellowish, contrastingly white at base ventrally. Maxillary palpus yellowish, whitish terminally. Basal scaling of proboscis creamy white. Antenna in male with base of flagellum with a small dorsal expansion covered with two small scale tufts, following segments weakly compressed and slightly bent basally in male; yellow, with creamy white or pale yellow scales dorsally. Thorax. Pale yellow. Legs pale yellow; hind tibia with inner mid-spur longer than other inner spurs and outer mid-spur minute in male, other outer spurs about half length of inner. Wing expanse 22–24 mm. Wings pale yellow, gradually deepening from postmedial line to termen, markings fuscous. Forewing with antemedial line indistinct; cell with orbicular stigma at basal 2/3; reniform stigma a short streak, outwardly oblique; postmedial line a string of dots, with anterior 4/5 distinct from 2/3 costa arched to middle of CuA_2; posterior margin with a band of modified, broad, forwardly oblique scales in male; fringe fuscous, basal half deep and pale yellow alternately. Hindwing translucent whitish at base and costa; postmedial line a string of dots from 3/4 costa, straight to behind CuA_1, then bent basad and ending at anal fold; fringe as in forewing, paler in tornal region. Abdomen. Pale yellow. Male genitalia. Uncus small, widest at base, remainder finger-shaped, without setae, distally tapering. Valva with basal 4/5 costa slightly convex followed the deeply concave, ventral margin nearly straight except for strongly recurved apex, with a minute excavation at end of costa; editum rather short, distal end asymmetrically inflated on dorsal side, sparsely setose; sacculus with a small triangular process medially and a short, recurved, thumb-shaped process distally. Juxta anchor-shaped, with a long carina. Anellus

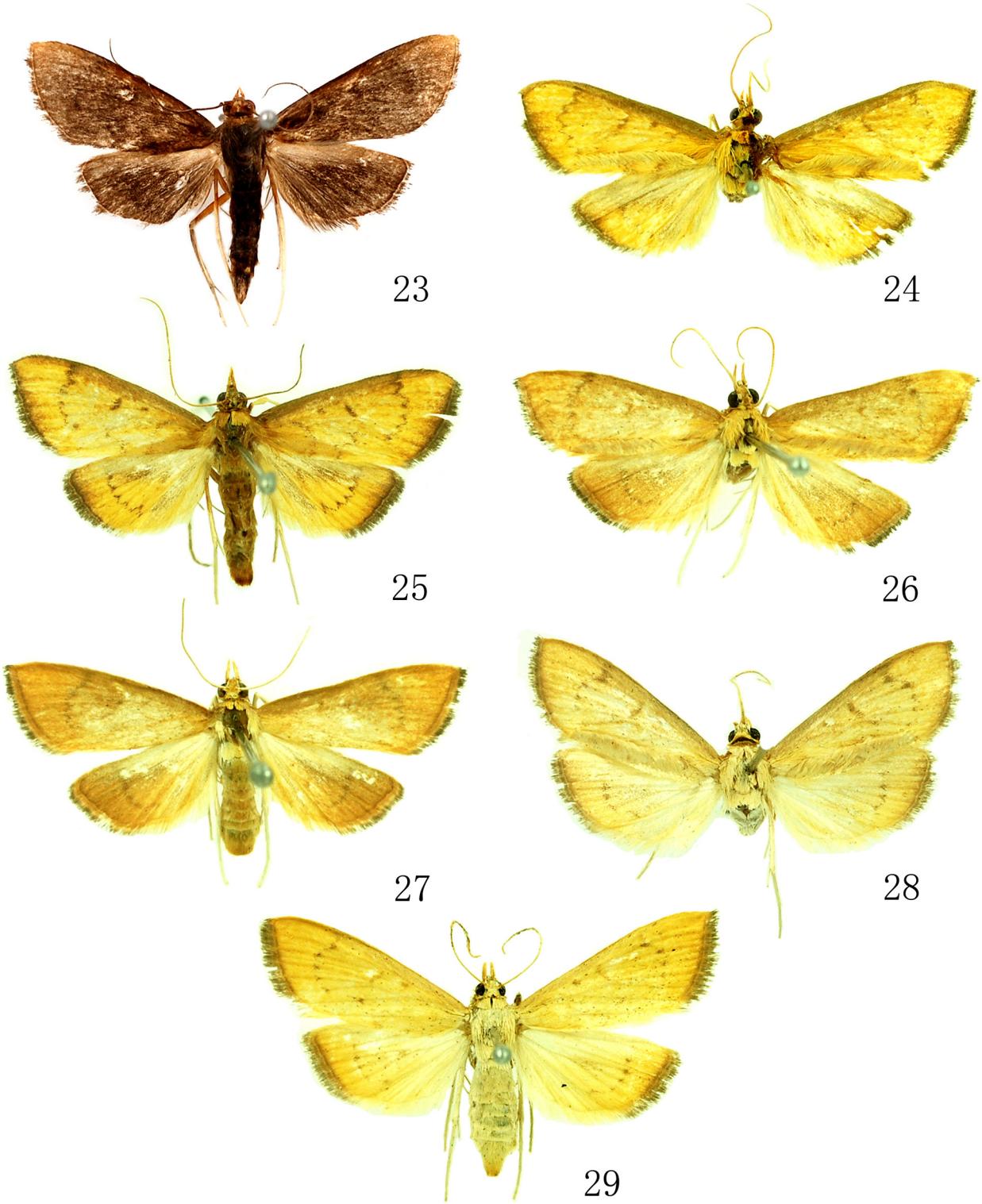
indistinct. Aedeagus sinuate, vesica without cornuti but with weak filiform parallel wrinkles. Female genitalia. Ovipositor lobes flat, crescentic, densely setose. Apophyses anteriores with basal half widened, curved medially, about 1.7 times length of apophyses posteriores. Ventral corners of 8th tergite spinulose. Lamella antevaginalis with sclerotized spinules forming raised, angled ridges of spinules framing the ostium, with a strongly sclerotised, nose-shaped ridge in between, in entrance to antrum; antrum strongly sclerotised, subcylindrical, sharply tapering



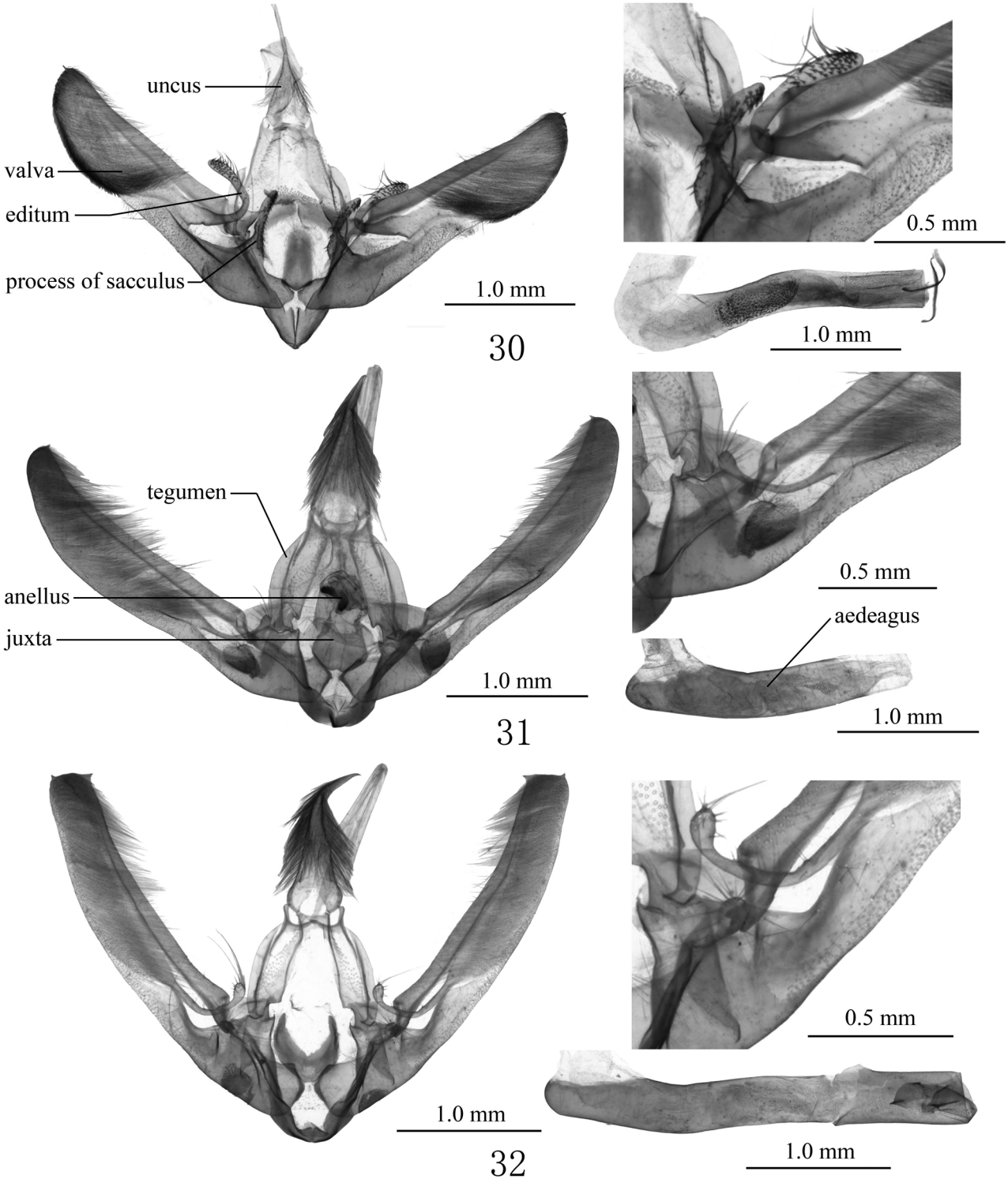
FIGURES 3–14. Venations of *Thliptoceras* spp. 3–4. *T. artatalis*. 3, ♂; 4, ♀. 5. *T. formosanum*. 6–7. *T. gladialis*. 6, ♂; 7, ♀. 8. *T. caradjai.* 9–10. *T. semicirculare* **sp. nov.** 9, ♂, paratype; 10, ♀, paratype. 11. *T. fulvimargo.* 12. *T. sinense.* 13. *T. filamentosum* **sp. nov.** 14. *T. impube* **sp. nov.**



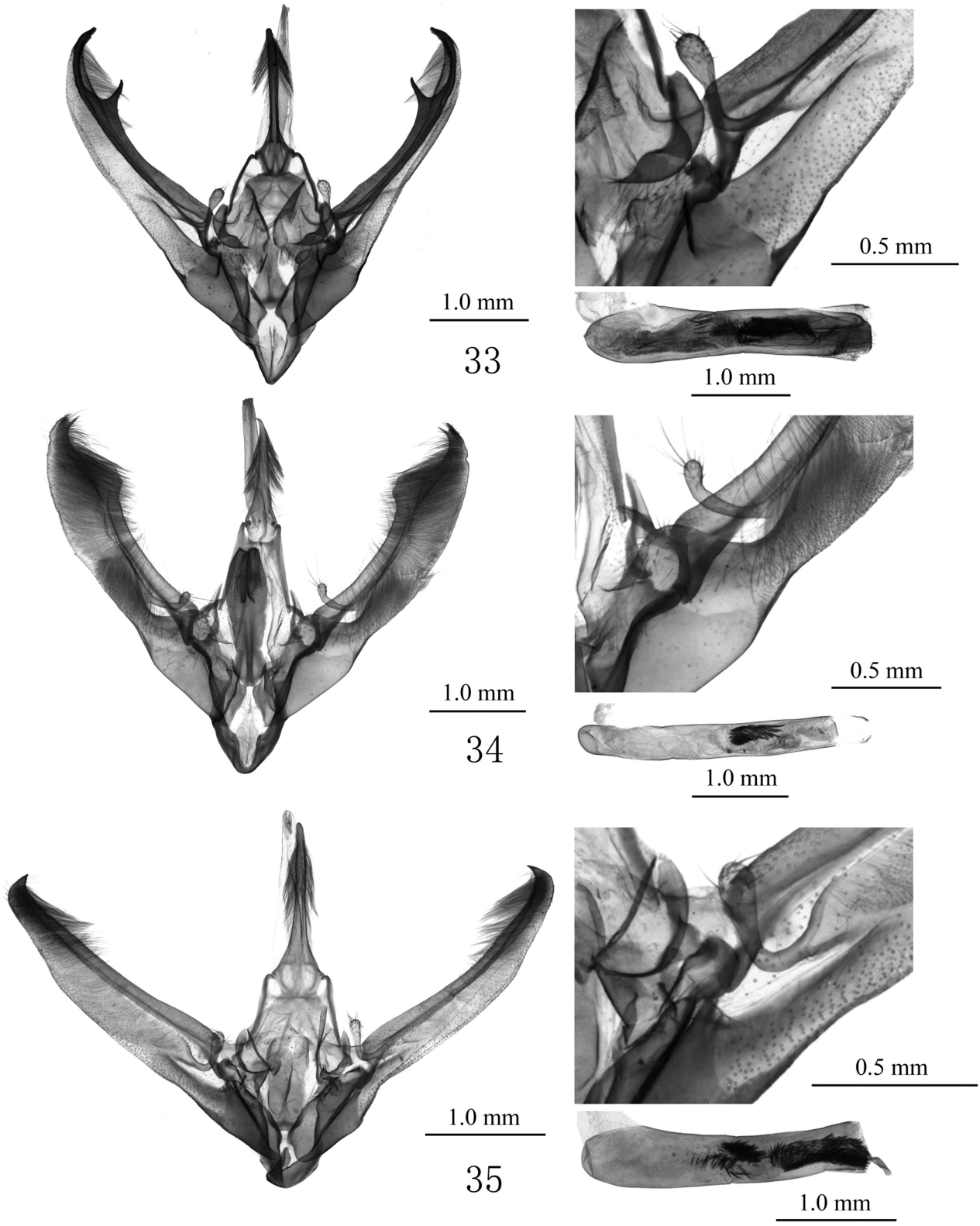
FIGURES 15–22. Adults of *Thliptoceras* spp. 15–16. *T. artatalis*. 15, ♂, Mt. Tianmushan; 16, ♀, Mt. Danxiashan. 17–18. *T. gladialis*. 17, ♂, Yingde; 18, ♀, Yingde. 19. *T. bicuspidatum* **sp. nov.** ♂, holotype. 20. *T. semicirculare* **sp. nov.** ♂, holotype. 21–22. *T. bisulciforme* **sp. nov.** 21, ♂, paratype, Xing'an; 22, ♀, paratype, Xing'an.



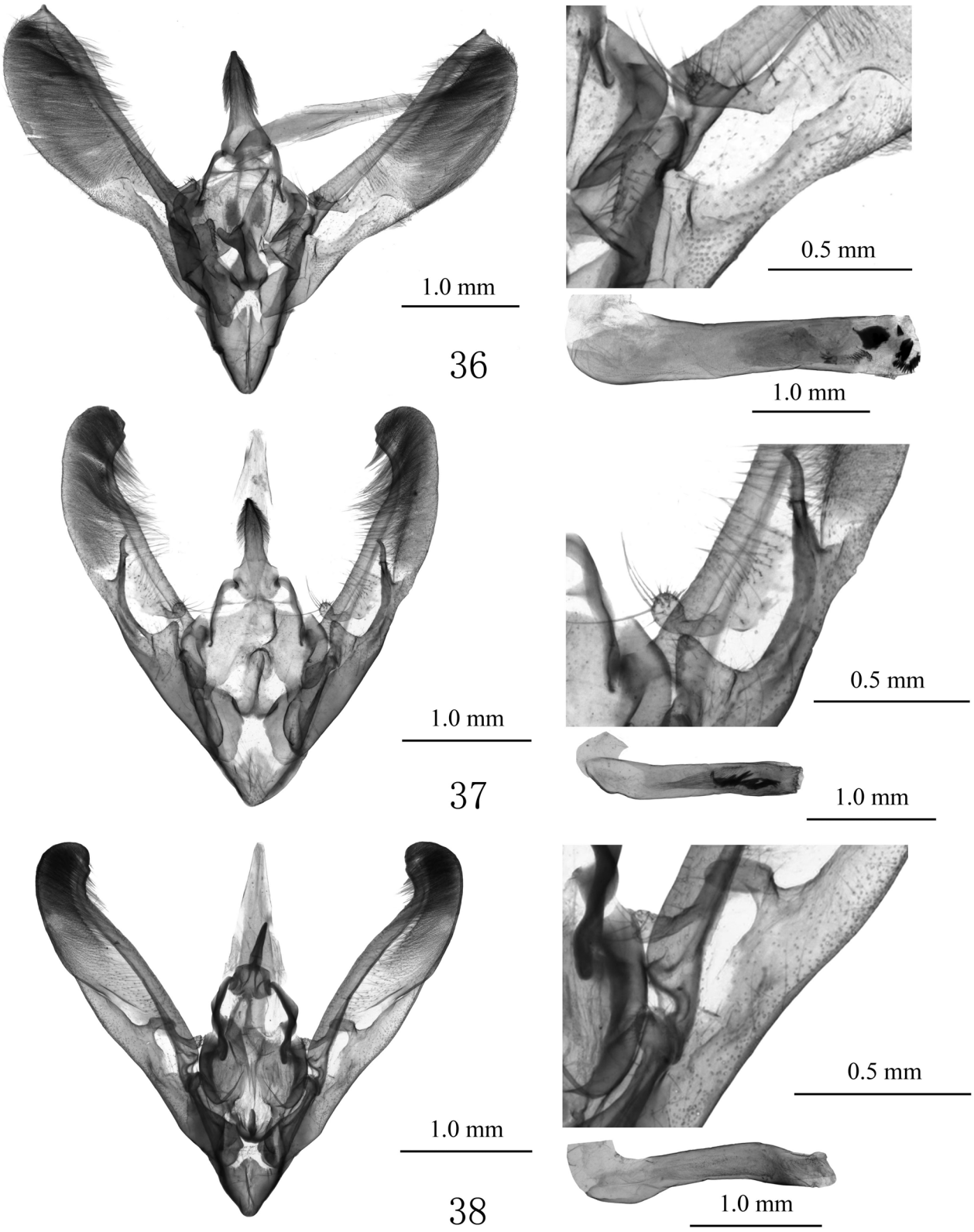
FIGURES 23–29. Adults of *Thliptoceras* spp. 23. *T. fulvimargo*, ♂, Longzhou. 24–25. *T. sinense*. 24, ♂, Xing'an; 25, ♀, Mt. Danxiashan. 26–27. *T. filamentosum* **sp. nov.** 26, ♂, holotype; 27, ♀, paratype, Mt. Danxiashan. 28–29. *T. impube* **sp. nov.** 28, ♂, paratype, Mt. Danxiashan; 29, ♀, paratype, Mt. Danxiashan.



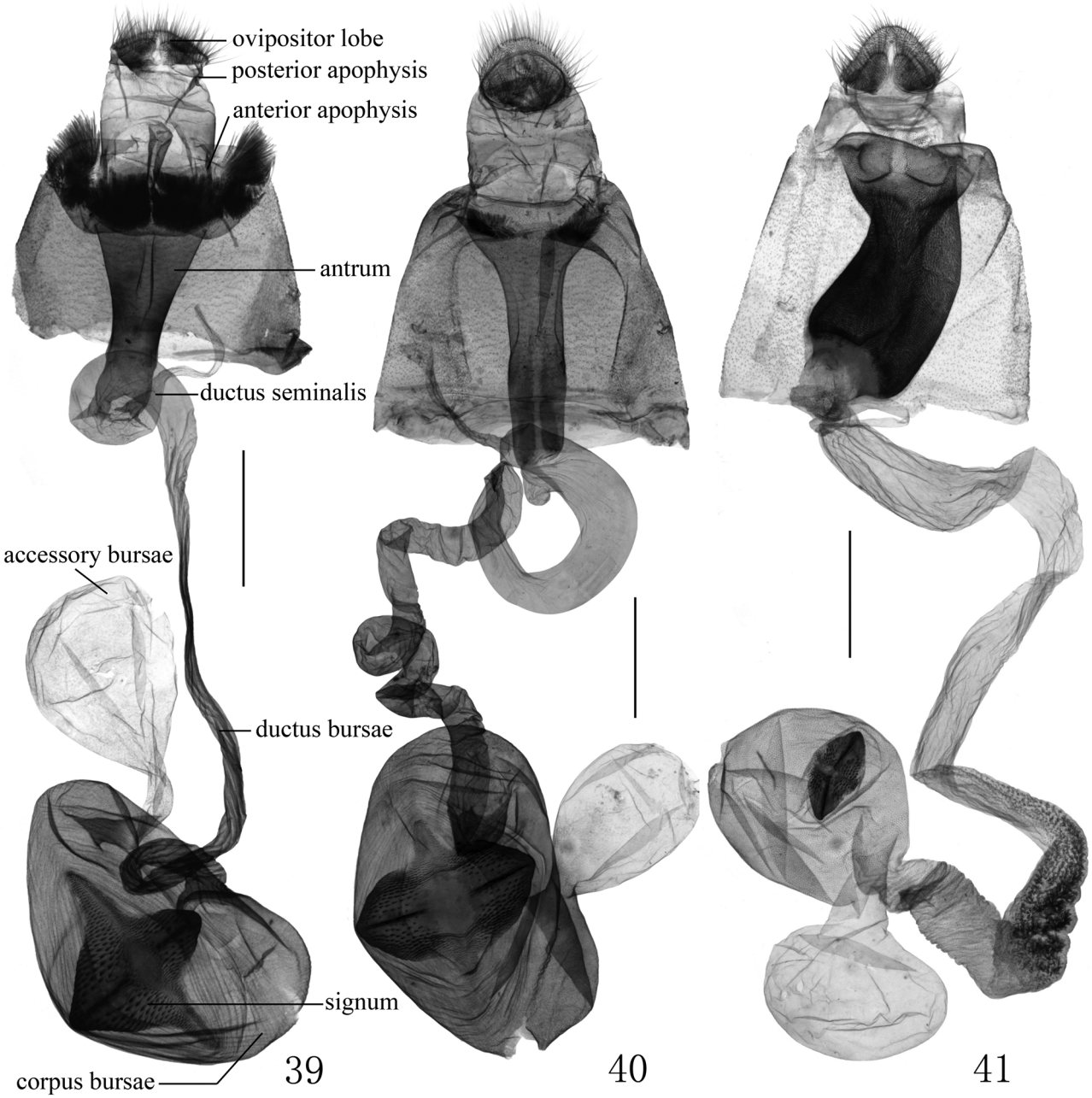
FIGURES 30–32. Male genitalia of *Thliptoceras* spp., with enlarged detail of base part of valva (top right). 30. *T. artatalis*. genitalia slide no. ZDD12007 (anellus attached to aedeagus). 31. *T. gladialis*. genitalia slide no. ZDD10065 (image reversed). 32. *T. bicuspidatum* **sp. nov.** paratype, genitalia slide no. ZDD10067 (anellus attached to aedeagus).



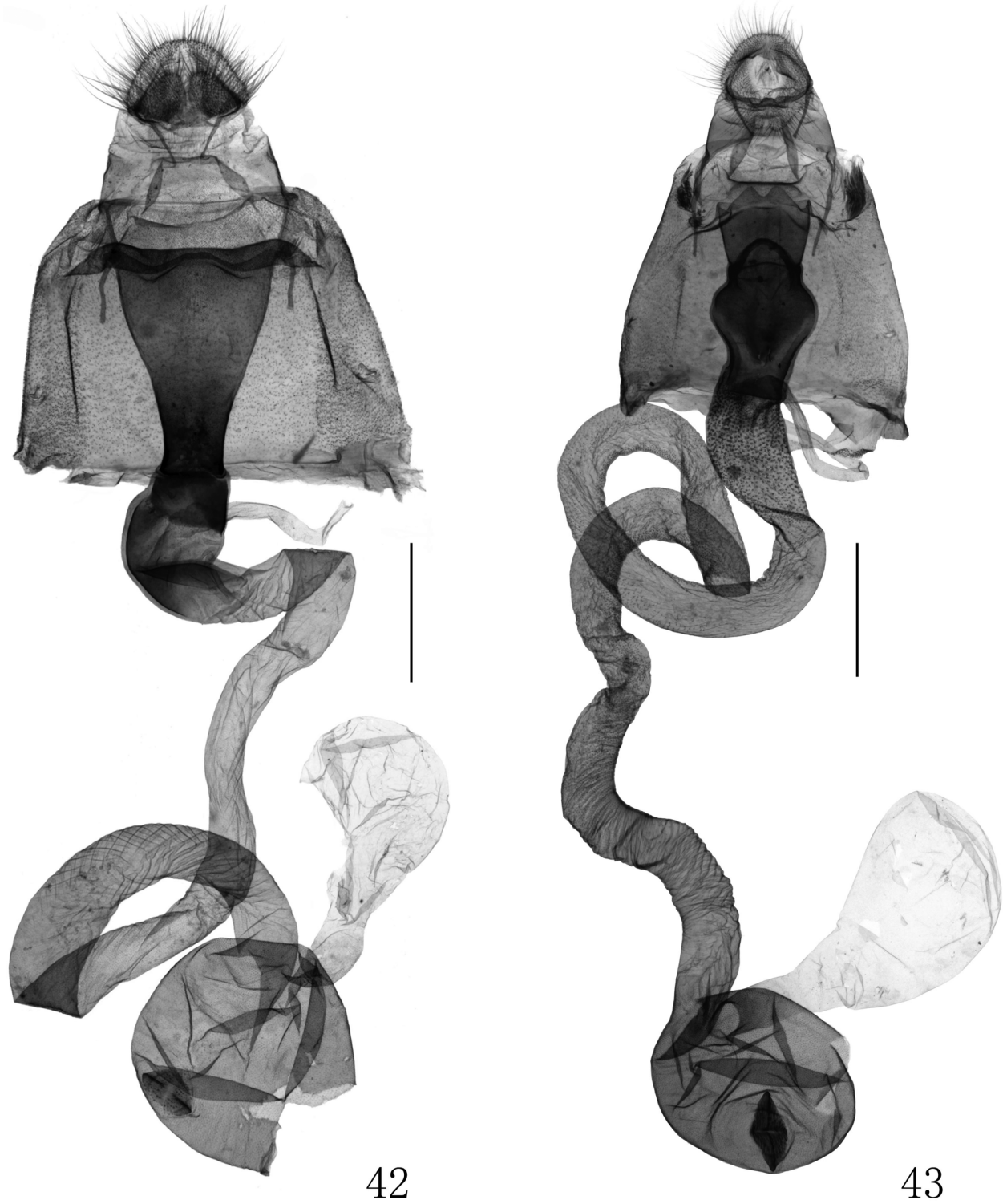
FIGURES 33–35. Male genitalia of *Thliptoceras* spp., with enlarged detail of base part of valva (top right). 33. *T. semicirculare* **sp. nov.** paratype, genitalia slide no. ZDD12005 (image reversed). 34. *T. bisulciforme* **sp. nov.** holotype, genitalia slide no. ZDD10077. 35. *T. fulvimargo.* genitalia no. ZDD12010 (image reversed).



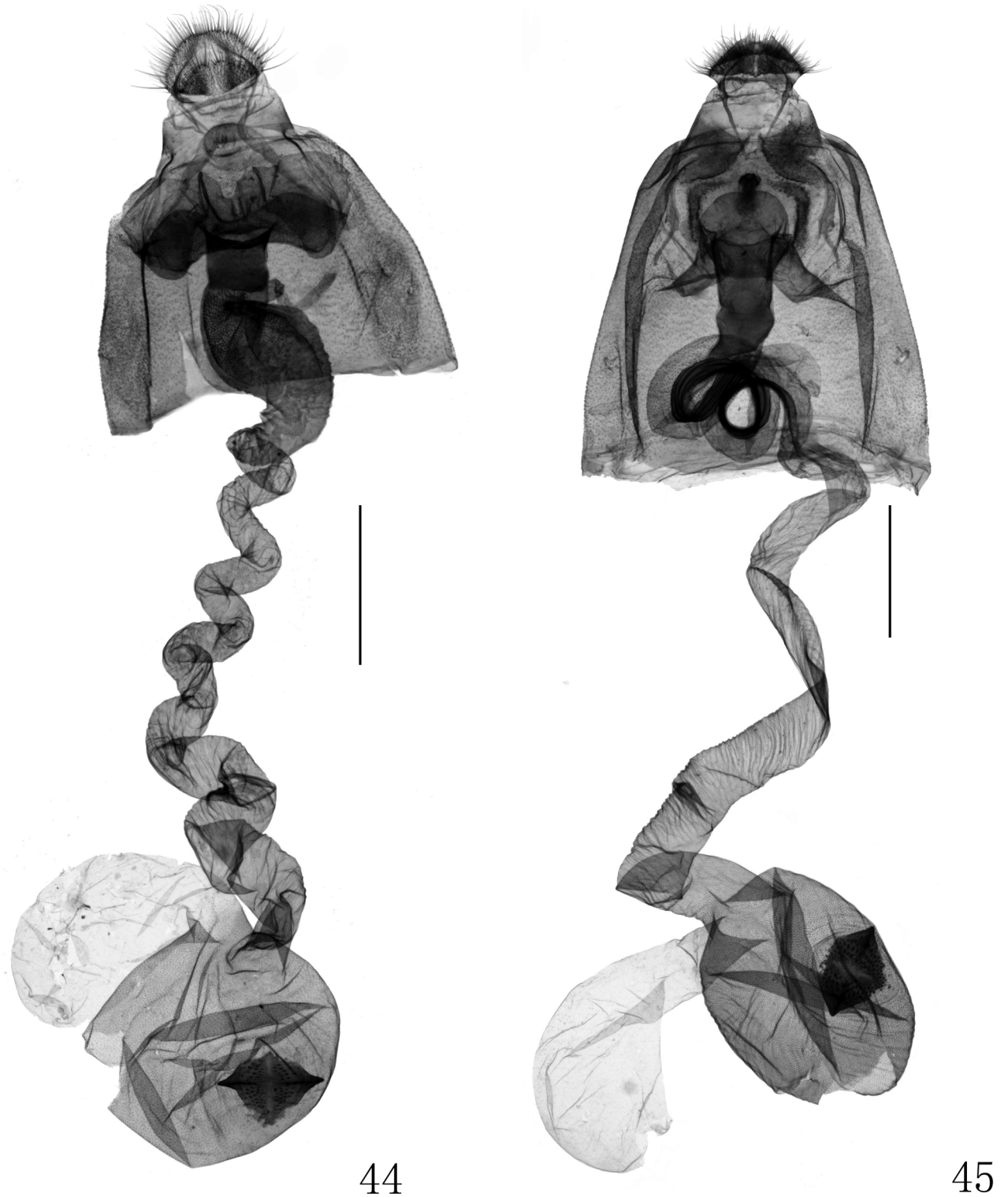
FIGURES 36–38. Male genitalia of *Thliptoceras* spp., with enlarged detail of base part of valva (top right). 36. *T. sinense*. genitalia slide no. ZDD12009. 37. *T. filamentosum* **sp. nov.** paratype, genitalia slide no. XJW12009. 38. *T. impube* **sp. nov.** paratype, genitalia slide no. XJW12010.



FIGURES 39–41. Female genitalia of *Thliptoceras* spp. 39. *T. artatalis*. genitalia slide no. ZDD12014. 40. *T. gladialis*. genitalia slide no. ZDD10073. 41. *T. semicirculare* **sp. nov.** paratype, genitalia slide no. ZDD12012. (Scale bars = 1.0 mm)



FIGURES 42–43. Female genitalia of *Thliptoceras* spp. 42. *T. bisulciforme* **sp. nov.** paratype, genitalia slide no. ZDD12011. 43. *T. sinense*. genitalia slide no. ZDD10070. (Scale bars = 1.0 mm)



FIGURES 44–45. Female genitalia of *Thliptoceras* spp. 44. *T. filamentosum* **sp. nov.** paratype, genitalia slide no. ZDD12008. 45. *T. impube* **sp. nov.** paratype, genitalia slide no. ZDD12006. (Scale bars = 1.0 mm)

anteriorly, posteriorly connected with two membraneous lateral pockets and with a projecting, semicircular hind margin with a small median notch. Ductus seminalis from just anterior of antrum. Ductus bursae irregularly spiraled, length about 4 times diameter of corpus bursae, with long sclerotized striate band in posterior third of ductus bursae. Corpus bursae globular; signum small (about 1/3 diameter of corpus bursae), angles bearing carina pointed and of the angles without carina one flat, the other slightly extended; accessory bursae arising from posterior end of corpus bursae.

Material examined. Holotype: ♂, CHINA, Guangdong: Mt. Danxiashan (25°04'N, 113°64'E), Shaoguan County, alt. 408 m, 1.VI.2008, coll. Jia Fenglong, genitalia slide No. HFX08193; **Paratypes:** Guangdong: 50 ♂, 60 ♀, Mt. Danxiashan (25°04'N, 113°64'E), Shaoguan County, alt. 96 m, 408 m, 30.V.–8.VI.2008, 6–7.VI.2012, coll. Li Jinwei and He Fengxia et. al., genitalia slide No. HFX08191, HFX08192, HFX08195, HFX08196, ZDD10060, XJW12004, XJW12010, XJW12011, XJW12024, XJW12025, XJW12026, venation slide No. ZDD10083; 1 ♂, 3 ♀, Shimentai, Yingde county (24°10'N, 113°22'E), 27.V.2012, coll. Yang Lijun and Jia Qianju, genitalia slide No. XJW12001; 1 ♂, 4 ♀, Yanshuitian, Mt. Heishiding (23°27'N, 111°54'E), Fengkai, 15.VI.2009, 3.VI, 3.VII.2011, coll. He Fengxia and Tong Bo et. al., genitalia slide No. ZDD03320.

Distribution. China (Guangdong).

Etymology. The specific name is derived from the Latin *impubis* = hairless, referring to the uncus without setae.

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