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Authors: Hu, Yanqing, Han, Huilin, László, Gyula M., Ronkay, Gábor, and Wang, Min

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FIVE NEW SPECIES AND FIVE NEW RECORDS OF THE GENUS *MEGANOLA* (LEPIDOPTERA: NOLIDAE: NOLINAE) FROM CHINA

YANQING HU¹, HUILIN HAN², GYULA M. LÁSZLÓ³, GÁBOR RONKAY⁴ AND MIN WANG⁵

¹Key Laboratory of Plant Protection Resources and Pest Management of Ministry of Education, Entomological Museum, Northwest A&F University, Yangling, Shaanxi 712100, China

²School of Forestry, Northeast Forestry University, Harbin, Heilongjiang 150040, China

³Fadrusz utca 25, H-1114 Budapest, Hungary

⁴Szent István krt. 4, H-1137 Budapest, Hungary

⁵Department of Entomology, College of Natural Resources and Environment, South China Agricultural University, Guangzhou, Guangdong 510642, China

*Corresponding author; E-mail: minwang@scau.edu.cn

ABSTRACT

The paper describes 5 new species of *Meganola* Dyar, 1898 (*M. paramediana*, *M. nankunensis*, *M. wangi*, *M. donglashanensis* and *M. longshengensis* **spp. nov.**) from China. Five described species, *M. laticcripta* László, Ronkay & Witt, 2005, *M. tarkabarka* László, Ronkay & Witt, 2010, *M. semirufa* (Hampson, 1894), *M. galsworthyi* László, Ronkay & Witt, 2010 and *M. indistincta* (Hampson, 1894) are reported from China for the first time. Adults and genitalia are illustrated.

Key Words: Nolidae, Nolinae, Nolini, *Meganola*, new species, China

RESUMEN

Se describen 5 nuevas especies del género *Meganola* Dyar, 1898 (*M. paramediana*, *M. nankunensis*, *M. wangi* y *M. donglashanensis* *longshengensis* **spp. nov.**) de China. Se reportan cinco especies de polillas conocidas, *M. laticcripta* László, Ronkay & Witt, 2005, *M. tarkabarka* László, Ronkay & Witt, 2010, *M. semirufa* (Hampson, 1894), *M. galsworthyi* László, Ronkay & Witt, 2010 y *M. indistincta* (Hampson, 1894) de China por primera vez. Se ilustran los adultos y las genitalias.

Palabras Clave: Nolidae, Nolinae, Nolini, *Meganola*, nuevas especies, China

The genus *Meganola* Dyar, 1898 was first described from North America and type species, *Meganola conspicua* Dyar, 1898, was designated by monotype. *Meganola* is a large and morphologically rather diverse genus, which is widely distributed on all continents, although it proved to be the most species rich in the mountains of Southeast Asia. The overwhelming majority of *Meganola* species known to occur in China are represented in historical collections preserved mostly in the Natural History Museum, London, United Kingdom. The Nolinae material of the famous German entomologist Hermann Höne is still largely unidentified, although it was collected in the 1930s and is easily accessible in the

Zoologische Forschungs Institute and Museum Alexander Koenig, Bonn, Germany.

Fortunately, the increasing number of Chinese entomologists have assembled a considerable collection of interesting Nolinae taxa of China. Detailed study is now under way by the authors of this paper. Last year, we described 5 new species from China and adjacent regions and summarized the status of research on the genus *Meganola* (Hu et al. 2013). Recently collected materials from China have resulted in the discovery of 5 new species and 5 new records of previously described species. In addition, the female genitalia of *M. tarkabarka* and *M. galsworthyi* are described here for the first time.

MATERIALS AND METHODS

All of the material studied was collected by light traps. Abdomens were macerated in 10% sodium hydroxide (NaOH) and mounted in glycerin (C₃H₈O₃). Adults images were taken by a NIKON D90 digital camera, and genitalia were photographed by a Carl Zeiss Discovery V12 system. Plates were compiled by Adobe Photoshop software version 6.0. The type material of all new species was deposited in the Department of Entomology, College of Natural Resources and Environment, South China Agricultural University, Guangzhou, China. Acronyms of institutions and private collections are as follows:

BMNH: The Natural History Museum, London, United Kingdom;

HNHM: Hungarian Natural History Museum, Budapest, Hungary;

HYQ: genitalia slide number made by Yan-Qing Hu;

MWM: Museum Witt, Munich, Germany;

SCAU: Department of Entomology, College of Natural Resources and Environment, South China Agricultural University, Guangzhou, China.

MEGANOLA PARAMEDIANA HU, HAN, LÁSZLÓ,
RONKAY & WANG **SP. NOV.**
(Figs. 1 and 2)

HOLOTYPE: Male, CHINA, Mt. Daming, Guangxi, 11.VIII.2011, Min Wang, Yan-Qing Hu, Wen-Tang Wang & Hou-Shuai Wang; Slide No. hyq 251 (SCAU). **Paratypes:** 2 males, with the same data as the holotype; Slide Nos. hyq 252, hyq 253.

Diagnosis

Meganola paramediana is externally similar to *M. mediana* László, Ronkay & Witt, 2010, but easily distinguishable by the following characters: thorax and collar of *M. paramediana* are white, while those of *M. mediana* are brown; crosslines of forewing are more obsolescent and median area of forewing is paler than in *M. mediana*. In male genitalia, *M. paramediana* has a slender and sharper uncus, a considerably shorter and more rounded proximal lobe of valva, a slightly broader, less rounded cucullus, a more slender tegumen, a significantly longer and more curved ampulla and a shorter, somewhat thicker aedeagus compared with those of *M. mediana*.

Description

Adult (Fig. 1). Wingspan 18-19 mm. Male. Head, thorax and collar white; antenna brown, bi-

pectinate; labial palpus white with light brown at base. Abdomen grayish brown. Forewing ground color grayish white; median area brown, significantly darker in costal third. Basal line poorly visible, only represented by pale brown scales; antemedial line inconspicuous, arcuate; medial line pale and closer to postmedial line than to antemedial line; postmedial line wavy; subterminal line pale brown, diffuse, rather broad and slightly wavy. Hind wing pale grayish brown; discal spot blurred.

Male genitalia (Fig. 2). Uncus relatively long, slender, apically pointed; tegumen short and narrow; valva medium-long, proximal lobe short, broadly rounded; cucullus broadened, apical margin more or less straight, covered with long and fine hairs; costal margin sclerotized, concave, basally humped; sacculus short; ampulla rather long extending over ventral margin of valva, reaping-hook-shaped, strongly sclerotized, apically rounded; vinculum relatively broad, medium long, V-shaped. Aedeagus short, relatively thick; vesica without cornuti.

Female: Unknown.

Distribution

China: Guangxi Zhuang Autonomous Region.

Etymology

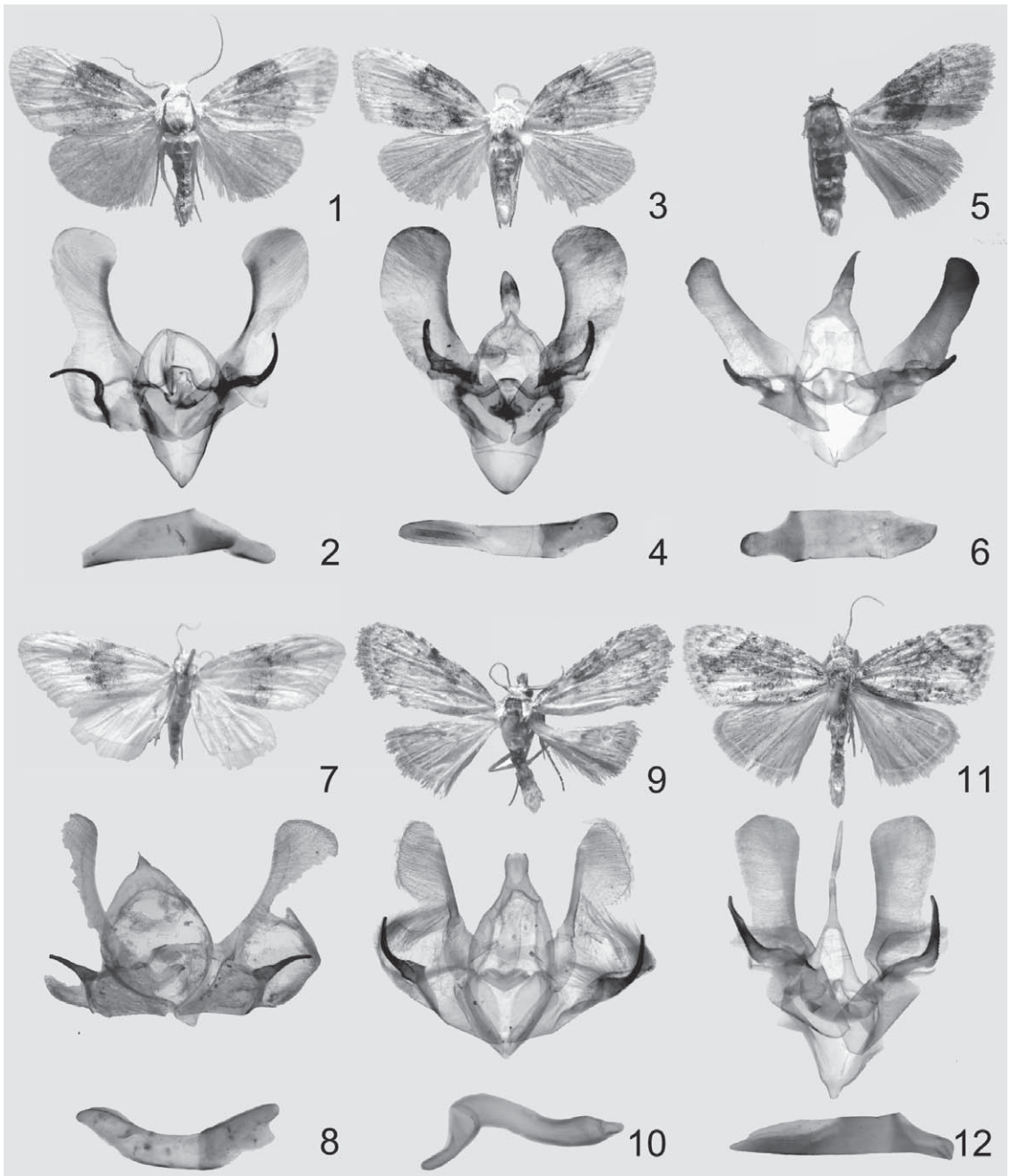
The specific name is derived from the name of its related species, *M. mediana*.

MEGANOLA NANKUNENSIS HU, HAN, LÁSZLÓ,
RONKAY & WANG **SP. NOV.**
(Figs. 3 and 4)

HOLOTYPE: Male, CHINA, Mt. Nankun, 8.VI.2005, Min Wang; Slide No. hyq 728 (SCAU). **Paratype:** 1 male, with the same data as the holotype; Slide No. hyq 727.

Diagnosis

Meganola nankunensis is very similar to *M. Paramediana*, but distinguishable by following characters: *M. nankunensis* is smaller in size (wingspan of *M. nankunensis* 15-16 mm versus 18-19 mm in *M. paramediana*); dark brown area of forewing in *M. nankunensis* is conspicuously larger than in *M. paramediana*, and not restricted to median area as in *M. paramediana* but also includes basal area; postmedial line is strongly arcuate while that of *M. paramediana* is wavy. In male genitalia, *M. nankunensis* has a conspicuously broader and shorter uncus; a more robust, considerably shorter and less arcuate ampulla, and a somewhat longer aedeagus compared with those of *M. paramediana*.



Figs. 1-12. Five new and one newly recorded species of *Meganola*. 1 & 2. *M. paramediana* **sp. nov.**; 3 & 4. *M. nankunensis* **sp. nov.**; 5 & 6. *M. wangi* **sp. nov.**; 7 & 8. *M. donglashanensis* **sp. nov.**; 9 & 10. *M. longshengensis* **sp. nov.**; 11 & 12. *M. indistincta*.

Description

Adult (Fig. 3). Wingspan 15-16 mm. Male. Head, thorax and collar white; antenna light brown, white at base, bipectinate; labial palpus white. Abdomen medially brownish, anterior and

posterior thirds covered by whitish scales. Forewing ground color grayish white, median area and distal half of basal area dark brown. Basal and medial lines faint; antemedial line very pale; postmedial line strongly arcuate; subterminal line pale brown, indistinct; cilia grayish white.

Hind wing brownish gray, grained with darker brown scales; discal spot faint.

Male genitalia (Fig. 4). Uncus relatively short, medially broadened, apically tapering, with rounded apex; tegumen short and narrow; valva medium-long; cucullus broadly rounded, covered with long and fine hairs; costal margin sclerotized, slightly concave; sacculus short; ampulla robust, relatively long, slightly curved, horn-shaped, apically rounded; vinculum medium-long, rather broad, V-shaped. Aedeagus simple, tubular, medium-long and relatively thin; vesica without cornuti.

Female: Unknown.

Distribution

China: Guangdong Province.

Etymology

The specific name is derived from the type locality of the new species: Nankun.

MEGANOLA WANGI

HU, HAN, LÁSZLÓ, RONKAY & WANG **SP. NOV.**
(Figs. 5 and 6)

HOLOTYPE: Male, CHINA, Jianfengling, Hainan, 12.IV.2009, Min Wang; Slide No. hyq 291 (SCAU).

Diagnosis

Meganola wangi is similar to *M. postmediana* László, Ronkay & Witt, 2010, but easily distinguishable by the following characters: *M. wangi* is larger in size (wingspan of *M. wangi* 23 mm versus 17 mm in *M. postmediana*), and postmedial line is more or less straight in *M. wangi* while it is arcuate in *M. postmediana*. Differences between *M. wangi* and *M. postmediana* are well-expressed in the configuration of male genitalia. *M. wangi* has a somewhat longer, apically pointed uncus (shorter, apically rounded uncus in *M. postmediana*); a considerably narrower valva with a more or less rounded quadrangular cucullus (a well-developed, broadly rounded cucullus in *M. postmediana*); a shorter, slightly thicker, less arcuate ampulla and a much shorter and broader vinculum. The main difference between the 2 species is found in the configuration of aedeagus and vesica, i.e., *M. wangi* has a rather short, simple aedeagus with vesica lacking cornuti while aedeagus of *M. postmediana* is rather long, narrow, and vesica is armed by a long, robust cornutus.

Description

Adult (Fig. 5). Wingspan 23 mm. Male. Head dark gray; antenna brown, bipectinate; labial

palpus short, blackish brown. Thorax brown; collar blackish, tegulae pale brownish white; abdomen dark brown. Forewing ground color brownish gray, median area blackish brown. Basal line absent; antemedial line dark brown, smoothly curved; medial line blackish, running closer to postmedial line than to antemedial line; postmedial line blackish, ventral two-third straight, curved at costal third; subterminal line pale brown, wavy; terminal area suffused with pale brown scales; cilia pale brownish white. Hind wing grayish brown, discal spots faint.

Male genitalia (Fig. 6). Uncus medium-long, broad at base, tapering, apically pointed; tegumen medium-long and broad; valva elongate, rather narrow, slightly shrunk at middle; cucullus less dilated, apically rounded quadrangular; costal margin humped at base, slightly concave medially; sacculus simple, short; ampulla relatively short and robust, very slightly curved medially and rounded apically; vinculum relatively short and broad, V-shaped. Aedeagus simple, tubular, relatively short and thick; coecum short and narrow; vesica without cornuti.

Female: Unknown.

Distribution

China: Hainan Province.

Etymology

The specific name is dedicated to Wen-Tang Wang for his kind help in collecting the Nolinae materials.

MEGANOLA DONGLASHANENSIS

HU, HAN, LÁSZLÓ, RONKAY & WANG **SP. NOV.**
(Figs. 7 and 8)

HOLOTYPE: Male, CHINA, Donglashan, Sichuan, 23.VII.2009, Min Wang; Slide No. hyq 685 (SCAU).

Diagnosis

The external appearance of *M. donglashanensis* is reminiscent of certain species of *Nola* rather than *Meganola*, but male genitalia clearly indicate that this species belongs to the *Meganola indistincta* (Hampson, 1894) species-group, and that it is closely related to *M. geoffmartini* László, Ronkay & Witt, 2010. Differences compared with *M. geoffmartini* are as follows: forewing ground color of *M. donglashanensis* is white (gray in *M. geoffmartini*), a proximal lobe of valva is without dentation (conspicuously dentate on outer margin in *M. geoffmartini*), and ampulla of *M. donglashanensis* is more or less straight while ampulla in *M. geoffmartini* is strongly arched.

Description

Adult (Fig. 7). Wingspan 15 mm. Male. Head clear white; antenna pale brownish white, bipectinate; labial palpus white with pale brown scales. Prothoracic collar and tegulae yellowish white; thorax and abdomen brownish yellow. Forewing ground color bright white with fine brownish suffusion in median area and yellowish brown patches at costal margin. Basal line faint, represented by only a brown spot at costal margin; antemedial line shadow-like; medial line arcuate, dark brown; postmedial line pale brown, shadow-like; subterminal line rather wavy, faint, diffuse, consisting of groups of pale brown scales; terminal line diffuse, consisting of pale brown scales. Hind wing bright white, discal spot faint.

Male genitalia (Fig. 8). Uncus very short, apex pen-point-like; tegumen relatively short and narrow; valva medium-long; cucullus broadly rounded; costal margin concave, slightly sclerotized; a proximal lobe of valva rather large, rounded; ampulla well sclerotized, tapering, slightly arcuate, more or less horn-shaped, apically rounded; sacculus simple, short; vinculum very short, V-shaped. Aedeagus medium-long, slightly curved; vesica without cornuti.

Female: Unknown.

Distribution

China: Sichuan Province.

Etymology

The specific name is derived from the type locality of the new species: Donglashan.

MEGANOLA LONGSHENGENSIS

HU, HAN, LÁSZLÓ, RONKAY & WANG **SP. NOV.**
(Figs. 9 and 10)

HOLOTYPE: Male, CHINA, Longsheng, Guangxi, 400 m, 23.VIII.2012, Min Wang, Yan-Qing Hu, Wen-Tang Wang and Hou-Shuai Wang; Slide No. hyq 886 (SCAU).

Diagnosis

Meganola longshengensis is closely related to *M. wilbarka* Hu, Han & Wang, 2013, but is smaller in size (wingspan of *M. longshengensis* 11 mm versus 15–18 mm in *M. wilbarka*), forewing ground color graphite-gray (grayish white in *M. wilbarka*). In *M. longshengensis*, a quadrangular costal patch of forewing is much paler than in *M. wilbarka*. Differences in male genitalia are as follows: a proximal lobe of valva in *M. longshengensis* is much shorter and narrower, cucullus is considerably broader and ampulla is somewhat shorter

and thinner than in *M. wilbarka*, and aedeagus of *M. longshengensis* is characteristically S-shaped, while aedeagus in *M. wilbarka* is straight.

Description

Adult (Fig. 9). Wingspan 11 mm. Male. Head grayish brown; antenna brown, bipectinate; labial palpus brownish, suffused with white scales. Collar grayish brown, tegulae grayish white. Thorax and abdomen brown. Forewing ground color graphite gray; median area blackish brown. Basal line faint; antemedial line blackish brown, arcuate; medial and postmedial lines pale brown, indistinct below Cu₂; subterminal line grayish brown, wavy; cilia dark grayish brown. Hind wing ground color pale brownish gray, discal spot faint.

Male genitalia (Fig. 10). Uncus narrow and elongate, tapering, apically pointed (referring to the closely related *M. semirufa* and *M. tarkabarka*); tegumen simple, relatively short and narrow; valva medium-long, a proximal lobe relatively narrow, distal part slender, apically rounded; cucullus gradually dilated, apically broadly rounded; ampulla robust, strongly sclerotized, medially curved, apically rounded; costal margin strongly sclerotized, straight; sacculus smooth; vinculum very short, V-shaped. Aedeagus medium-long, relatively thin, S-shaped; vesica without cornuti.

Female: Unknown.

Distribution

China: Sichuan Province.

Etymology

The specific name is derived from the type locality of the new species: Longsheng.

MEGANOLA INDISTINCTA (HAMPSON, 1894)
(Figs. 11 and 12)

Selca indistincta Hampson, 1894, Fauna of British India, Moths 2: 147. Type-locality: [India] [Nagaland] Naga Hills. **HOLOTYPE:** male, in coll. BMNH.

Meganola indistincta: László, Ronkay & Witt, 2010: 39.

Material Examined

Two males, Cenwanglaoshan, Guangxi, 15.V.2002, Min Wang; Slide Nos. hyq 639, hyq 646.

Distribution

India, Thailand, China (Guangxi Zhuang Autonomous Region).

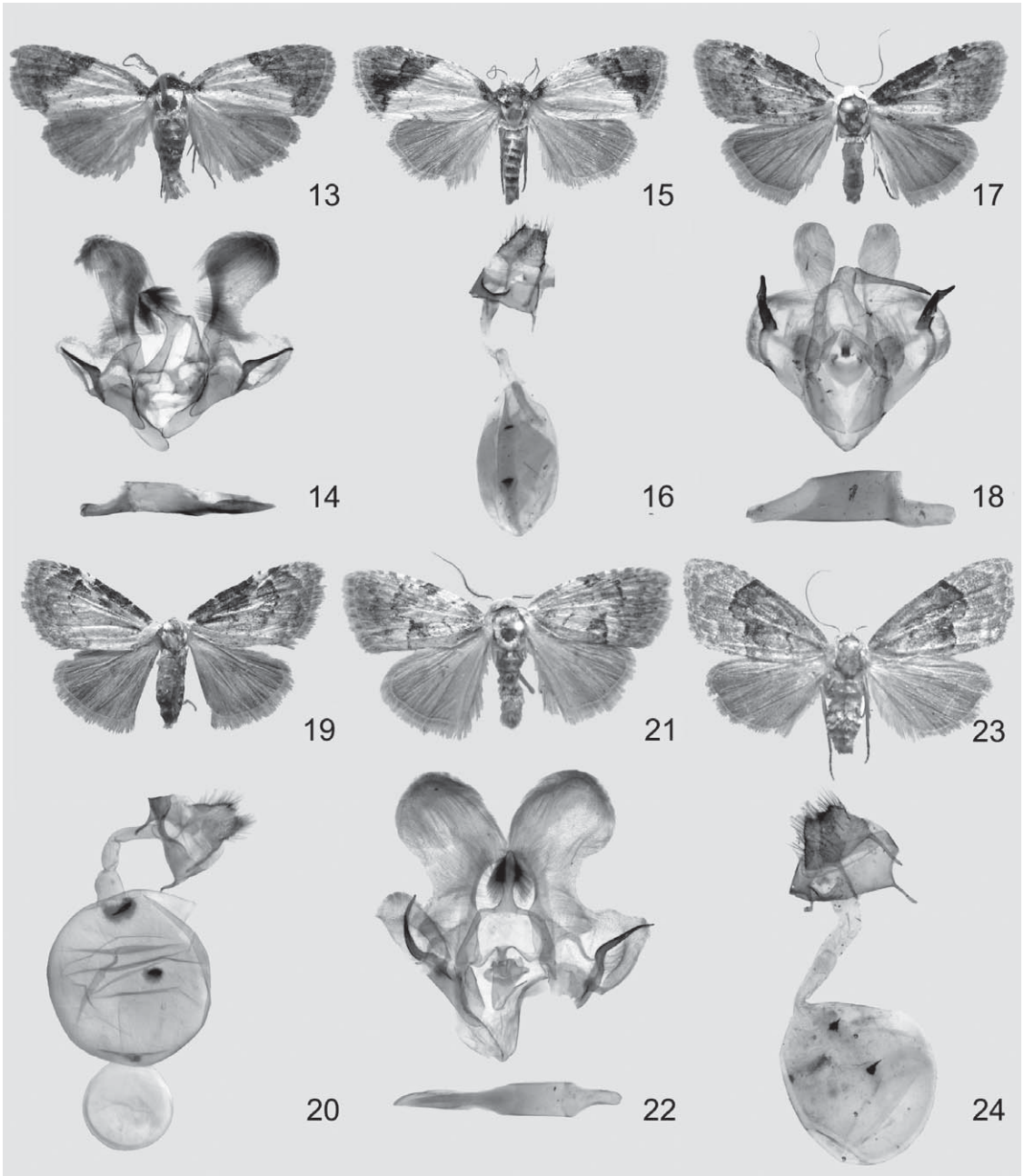
MEGANOLA LATISCRIPTA
LÁSZLÓ, RONKAY & WITT, 2005
(Figs. 13-16)

Meganola latiscrita: László, Ronkay & Witt, 2010: 39.

Material Examined

Meganola latiscrita László, Ronkay & Witt, 2005, *Entomofauna* 26(11): 219. Type locality: Vietnam, Bach-Ma NP, 1200 m, 16°10'N, 107°54'E. HOLOTYPE: male, in coll. MWM.

One female, Hainan, 20.V.2004, Min Wang; Slide No. hyq 51; 1 male, Jianfengling, Hainan, 14.IX.2003, Min Wang; Slide No. hyq 295; 2 males,



Figs. 13-24. Four newly recorded *Meganola* spp. from China, 13-16. *M. latiscrita*; 17-20. *M. tarkabarka*; 21 & 22. *M. semirufa*; 23 & 24. *M. galsworthyi*.

Jianfengling, Hainan, 30.XI.2011, Wen-Tang Wang & Hou-Shuai Wang; Slide Nos. hyq 579, hyq 580; 1 male, Jianfengling, Hainan, 1.XII.2011, Wen-Tang Wang & Hou-Shuai Wang; Slide No. hyq 607.

Distribution

Vietnam, Thailand, China (Hainan Province).

MEGANOLA TARKABARKA
LÁSZLÓ, RONKAY & WITT, 2010
(Figs. 17-20)

Meganola tarkabarka László, Ronkay & Witt, 2010, *Esperiana* 15: 40, plate 6, fig. 1; genital fig. 34. Type-locality: Thailand, Prov. Nan, 25 km N of Bo Luang, 1,150 m. HOLOTYPE: male, in coll. MWM.

Material Examined

Five males & 2 females, Cenwanglaoshan, 15.V.2002, Min Wang; Slide Nos. hyq 630-male, hyq 631-male, hyq 632-female, hyq 633-male, hyq 634-male, hyq 635-female, hyq 636-male.

Description of Female Genitalia (Fig. 20). Papillae anales short, conical. Apophyses posteriores rather long, straight, apophyses anteriores relatively short, apically slightly curved. Eighth segment short, well sclerotized. Ostium bursae simple, saucer-shaped. Ductus bursae medium-long, membranous, cervix bursae simple, slightly swollen. Corpus bursae large, spherical, with well-developed membranous appendix bursae and a pair of medium-sized and strongly sclerotized, crest-like signa, distal signum larger than proximal signum.

Distribution

Thailand, China (Guangxi Zhuang Autonomous Region).

MEGANOLA SEMIRUFA (HAMPSON, 1894)
(Figs. 21 and 22)

Pisara semirufa Hampson, 1894, Fauna of British India, Moths 2: 146. Type-locality: [India] Sikkim. HOLOTYPE: female, in coll. BMNH.

Meganola semirufa: László, Ronkay & Witt, 2010: 39.

Material Examined

Two males & 1 female, Cenwanglaoshan, Guangxi, 15.V.2002, Min Wang; Slide Nos hyq 629-male, hyq 637-male, hyq 647-female.

Distribution

India (Sikkim), Thailand, Vietnam, China (Guangxi Zhuang Autonomous Region).

MEGANOLA GALSWORTHYI
LÁSZLÓ, RONKAY & WITT, 2010
(Figs. 23 and 24)

Meganola galsworthyi László, Ronkay & Witt, 2010, *Esperiana* 15: 41, pl. 6, Fig. 5; genital fig. 37. Type-locality: Thailand, Prov. Chiang Mai, 4 km SE of Pang Faen, 1,100 m. HOLOTYPE: male, in coll. MWM.

Material Examined

One female, Longsheng, Guangxi, 21.VIII.2012, Min Wang & Wen-Tang Wang; Slide No. hyq 913.

Description of Female Genitalia. Papillae anales relatively short, conical. Apophyses posteriores rather long, straight, apophyses anteriores medium-long and straight. Eighth segment very short, weakly sclerotized. Ostium bursae simple, saucer-shaped. Ductus bursae medium-long, membranous, cervix bursae simple, without swelling. Corpus bursae large, more or less spherical, with a pair of rather small but strongly sclerotized, pointed thorn-like signa of similar size.

Distribution

Thailand, China (Guangxi Zhuang Autonomous Region).

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