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One new species of *Baburia* Koçak, 1981 and one of *Metendothenia* Diakonoff, 1973 (Lepidoptera: Tortricidae: Olethreutinae) from Thailand

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Abstract

Two new species of the tribe Olethreutini are described and illustrated from Thailand: *Baburia paucustriga* Jirasuttayaporn and Pinkaew, **n.sp.**, and *Metendothenia ordospina* Jirasuttayaporn and Pinkaew, **n.sp.** The two new taxa increase the number of described species in *Baburia* to three and in *Metendothenia* to 14.

Key words: *Baburia*, *Metendothenia*, new species, Olethreutini, Thailand

Introduction

Baburia Koçak, 1981 is a replacement name for *Monacantha* Diakonoff, 1973 which is a junior homonym of *Monacantha* Hope, 1843 (Coleoptera). The genus includes only two species worldwide: *Baburia abdita* (Diakonoff, 1973) from Borneo and *Baburia trachymelas* (Diakonoff, 1973) from Indonesia (Gilligan *et al.* 2014).... A male specimen of *B. abdita* was reported from Khao Yai National Park, Nakhon Nayok province, Thailand by Kawabe (1989). *Baburia* is similar to *Sycacantha* Diakonoff in wing pattern, but the male genitalia differ from the latter in the shape of the uncus and socii.

Metendothenia was described by Diakonoff (1973), who characterized the genus by a peculiar subscapular scale-pencil of the hind tibia and asymmetric valvae, the latter character with a few exceptions. The genus includes 13 species worldwide (Gilligan *et al*. 2014), but only *M. pulchra* Kawabe and *M. fidelis* Diakonoff have been recorded from Thailand (Kawabe, 1989).

During ongoing studies of the Olethreutinae of Thailand, we discovered one undescribed species of *Baburia* and one of *Metendothenia*. The purpose of this contribution is to describe and illustrate these two new species.

Materials and methods

The descriptions are based on specimens deposited in the Kasetsart Kamphaeng Saen Insect Collection (KKIC). Forewing length was measured from the wing base to the outermost edge of the fringe scales at the apex. Methods of genitalia dissection were adapted from Common (1990). Photographs of adults were taken with a Canon DSLR mark II digital camera connected to a Canon EF 100 mm f/2.8L Macro IS USM lens. Genitalia were photographed with a Leica DM 750 compound microscope connected to an ICC 50 camera module. Labial palpi were photographed with a Leica S8 APO stereomicroscope equipped with a Leica MC170 HD camera module. The images were edited with Helicon Focus 5.1 and Adobe Photoshop CS 6.

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Taxonomy

Baburia paucustriga Jirasuttayaporn and Pinkaew, n.sp.

(Figs. 1–2, 5, 9–10, 12–14, 17–18)

Diagnosis. The adult of *Baburia paucustriga* is similar to that of *B. trachymelas* in wing shape and wing pattern, but *B. paucustriga* has a more distinct subtriangular tornal patch. Male genitalia of *B. paucustriga* are similar to those of *B. trachymelas*, but in *B. paucustriga* the apex of the uncus is abruptly widened ovately and the sacculus has a small triangular lobe at the middle of the ventral margin. In contrast, in *B. trachymelas* the apex of the uncus is slightly dilated and the sacculus lacks a small triangular lobe at the ventral margin.

Description. Head (Fig. 5): Lower frons cream-white, upper frons and vertex cream mixed with pale brown; labial palpi porrect, first segment short, cream mixed with dark brown dorsally, second segment long and curved with margins parallel, cream with brown scales along dorsal margin from base to near apex and extending downward to ventral margin, third segment short, brown except pale brown at apex, antenna brown, reaching to middle of forewing. Thorax: Pronotal collar, tegulae, mesonotum, and posterior crest cream mixed with dark brown; hindtibia covered with dense, long white scales in male, inner margin with a tuft of long, orange-white scale (hairpencil), originating from base of hindtibia (Fig. 10). Forewing subrectangular, broad, length 8.0–8.5 mm in male (Fig. 1) (n = 3), 8.5 mm in female (Fig. 2) (n = 2), costal margin evenly curved, ground color cream, basal half of wing with several irregular, narrow, sinuate, transverse striae; basal patch with irregular, broken, transverse stripe from costa to dorsum, brown mixed with dark brown, median patch with brown subtriangular mark on costa medially, dorsum with large, semicircular tornal patch, brown mixed with dark brown, apically with irregular, longitudinal, short and narrow dark brown lines, between vein from R_2 extending curve to CuA_2, apex with a small dark brown spot; costal strigulae well developed, cream, each separated by a dark brown streak; termen slightly curved from apex to CuA_1 then strongly curved to tornus, underside of forewing brown with pale brown marks along costa. Hindwing subtriangular, brown, slightly paler basally, anal margin in male with a modified, long, sclerotized, shallow groove without scales (Fig. 9); underside pale brown. Abdomen: Male genitalia (Figs. 12–14) with tegumen subtriangular, dorsolaterally with small angled shoulders, scale sockets dense ventrally, apodeme of M4 (muscle connecting ventral tegumen with costal hook of valva) small and forming pointed hook; uncus moderately long, curved outward apically, basal half abruptly widened in apical half, apex ovate; base of uncus with sclerotized ridge with projections angled laterally, possibly homologous with socii; gnathos comprised of weakly sclerotized bands, arising near middle of tegumen, slightly widened to median, medially concave and connected to cup-shaped anellus; vinculum moderately sclerotized; juxta subtriangular; caulis moderately long; phallus rather short, wide, oblique apically, with numerous lanceolate cornuti, 3/4 length of phallus; valva long and slender; sacculus rather short, with moderately dense sockets basally, continued as row of short setae reaching base of cucullus, medially with patch of dense setae from margin of basal opening to base of cucullus, dorsal margin with a large hump bearing a conspicuous tuft of long bristles, ventral margin with a small subtriangular lobe ventromedially, rounded apically; cucullus long, dorsal margin slightly curved, apical margin sinuate, narrow at apex, with rounded elbow at base, covered with mixture of dense, short setae and long spiniform setae except for dorsal and dorsoapical margins, with a large, strong spine at ventroapical margin, remainder with bifid and flattened bristles mixed with setae. Female genitalia (Figs. 17–18) with sternum 7 sclerotized, posterior margin deeply concave and ovate surrounding ostium and sterigma, with dense scale sockets on posteromedial margins adjacent to lamella postvaginalis; tergum 8 smooth with moderately dense scale sockets on lateral triangular extensions; papillae anales with dense setae; sterigma with lamella antevaginalis reduced, lamella postvaginalis with dense microtrichia, heavily sclerotized in posterior half, with sclerotization extending anteriorly as narrow medial band to ostium bursae; ductus bursae long, weakly sclerotized; antrum ovate, connected to moderately sclerotized colliculum, conical shaped; ductus seminalis arising at posterior 1/3 of ductus bursae, corpus bursae large, ovoid, without signum.

Holotype. ♂, Thailand: Sa Kaeo Prov., Pang Sida N. P., 14°07'37"N 102°15'30"E, ca. 610 m, 28 Feb 2017, N. Pinkaew, np9500 (genitalia slide NP3487). Deposited in Kasetsart Kamphaeng Sean Insect Collection (KKIC).

Paratypes (3♂, 2♀). Thailand: Kanchanaburi Prov., Chaloem Rattanakosin N.P., 14°39'30"N 99°18'17"E, ca. 310 m, 20 Mar 2017, N. Pinkaew, np9755 (♀ genitalia sslide NP3495), Nikom Sahakorn Thong Pha Phum, 14°45'40"N 98°49'14"E, ca. 658 m, 13 May 2018, N. Pinkaew, np11611 (♀). Nakhon Nayok Prov., Khao Yai N.P.,

14°26'18"N 101°22'24"E, ca.740 m, 6 Jul 2016, N. Pinkaew, np9046, (♂ genitalia slide NP 3488). Nakhon Ratchasima Prov., Khao Yai N.P., 14°25'55"N 101°24'05"E, ca.700 m, 27 Nov 2016, N. Pinkaew, np9382 (♂). Nakhon Ratchasima Prov., Khao Yai N.P., 14°25'55"N 101°24'05"E, ca.700 m, 27 Nov 2016, N. Pinkaew, np9381 (♂). All specimens deposited in KKIC.

Distribution. Thailand (Sa Kaeo Prov., Nakhon Nayok Prov., Nakhon Ratchasima Prov. and Kanchanaburi Prov.).

Etymology. The specific epithet is a combination of the Latin *paucus* (= small) and *striga* (= ridge), and refers to the socii in the male genitalia.

FIGURES 1–4. Adults of *Baburia* and *Metendothenia* (scale bars = 2 mm). 1. *B. paucustriga* (male holotype), 2. *B. paucustriga* (female paratype), 3. *M. ordospina* (male holotype), 4. *M. ordospina* (female paratype).

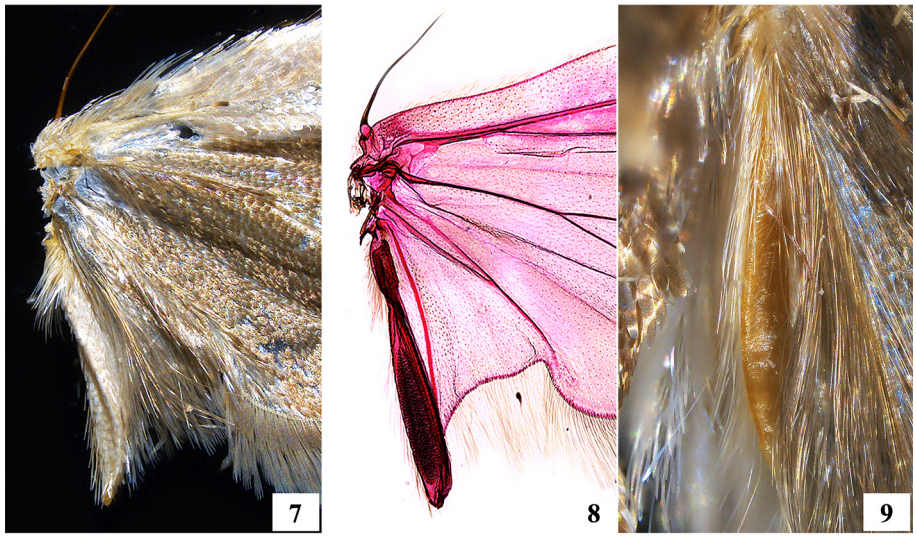
FIGURES 5–6. Heads of *Baburia* and *Metendothenia*. 5. *B. paucustriga* (male paratype), 6. *M. ordospina* (male paratype).

Metendothenia ordospina Jirasuttayaporn and Pinkaew, n.sp.

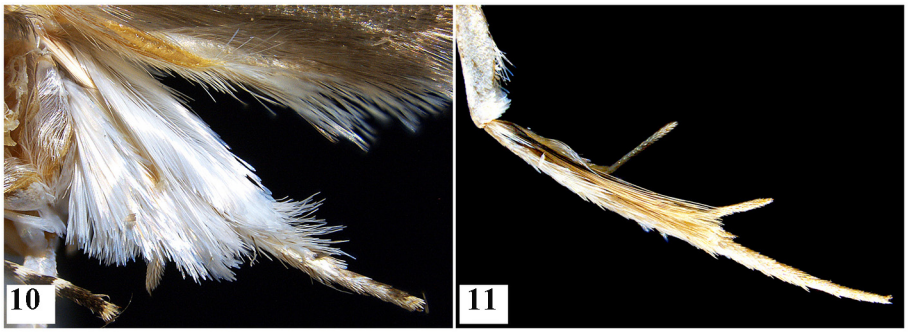
(Figs. 3–4, 6–8, 11, 15–16, 19–21)

Diagnosis. *Metendothenia ordospina* is most similar to *M. fidelis* Diakonoff in wing shape and pattern. However, the male genitalia of *M. ordospina* differ from those of *M. fidelis* in having the apex of the cucullus more truncate, the base of the cucullus with a distinct row of longer spiniform setae, and the right sacculus with a smaller group of

bristles medially. In contrast, *M. fidelis* has a rounded apex of the cucullus, the base of the cucullus has a short spiniform setae, and the right sacculus has a larger group of bristles medially.



FIGURES 7–9. Anal lobe of hindwing of *Baburia* and *Metendothenia*. 7. *M. ordospina* with scales (male paratype), 8. *M. ordospina* without scales (male paratype), 9. *B. paucustriga* (male paratype).



FIGURES 10–11. Hind tibia pencils of *Baburia* and *Metendothenia*. 10. *B. paucustriga* (male holotype), 11. *M. ordospina* (male paratype).

Description. Head (Fig. 6): Lower frons cream, upper frons pale brown, vertex pale brown mixed with blackish brown, labial palpi porrect, first segment cream mixed with pale brown, second segment pale brown mixed with brown, with dark brown patch medially, third segment pale brown; antenna brown, reaching to middle of forewing. Thorax: Pronotal collar, mesonotum, posterior crest pale brown with narrow, dark brown transverse band, tegulae pale brown, with basal 1/3 dark brown; hindtibia with long hair pencils, basally dark brown, remainder cream (Fig. 11). Forewing subrectangular, length 7.0–7.5 mm in male (Fig. 3) (n = 8), 6.5–7.0 mm in female (Fig. 4) (n = 3); costal strigulae well developed, whitish marks separated by dark brown, some pairs of strigulae divided by blackish streaks; ground color pale brown, basally 0.4 of wing with irregular, broken basal patch, brown mixed with dark brown, present as longitudinal stripe below costa, crescent-shaped patch ventrobasally, subtriangular mark on dorsum, surrounded by diffuse, sinuate striae, brown to dark brown; median patch large, apically divided into three wedge-shaped parts, blackish brown, pretornal patch rounded, confluent with outer portion of median fascia, brown mixed with dark brown, with dorsum slightly sinuate apically, outer margin with triangular spot near middle, angled towards costa, apical 1/4 with elongate, triangular mark, brown mixed with dark brown, extending from termen between M_2 and CuA_1 angled towards costa, and a thin line between R_5 on termen and R_3 on costa, wing apex with dark brown spot; underside grayish brown, with cream strigulae along costal margin. Hindwing subtriangular, brown, outer margin sinuate, widely concave near anal margin; anal margin modified, long, thickened into rolled tube of scent producing structures (Figs. 7–8); underside gray. Abdomen: Male genitalia (Figs. 15–16) with tegumen subrectangular, with large, rounded projecting

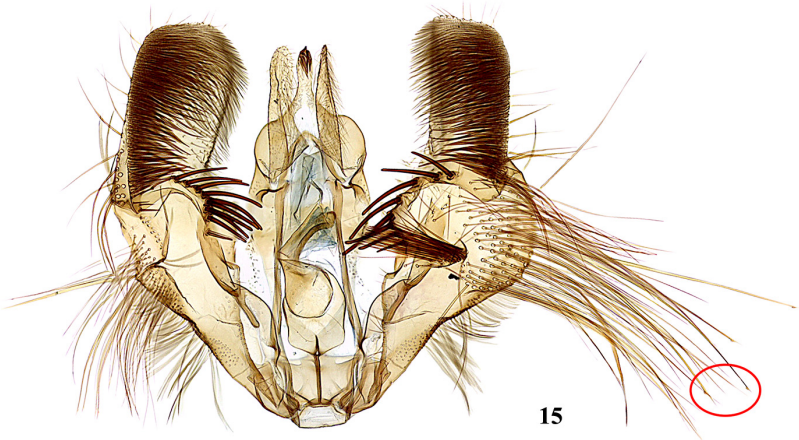
shoulders; uncus moderately long, widest at base, slightly tapered to apex, moderately dense, short setae, except apex with dense bristles, curved ventrally; socii twice as long as uncus, band shaped, apices rounded, with moderately dense setae; gnathos a weakly sclerotized, widened band; vinculum moderately wide; juxta subrectangular; caulis very short, anellus wide, cup-shaped; phallus moderately long, basal half swollen, apical half concave ventrally, truncated apically; valvae asymmetrical; left valva with moderately large excavation on dorsal margin connected to costal hook, sacculus with group of dense scale sockets basally, ventroapically with large group of long, dense setae; cucullus subrectangular, slightly widened at rounded apex, with dense bristles on apicoventral margin, basal margin forming a moderately wide, subtriangular lobe projecting towards sacculus, lobe with row of 10 long, stout, spiniform setae; right valva with moderately large excavation on dorsal margin connected to costal hook, sacculus basally with group of dense scale sockets, medially with a cluster of dense, long setae, ventroapically strongly swollen, covered with moderately dense setae, longer than setae on left valva, some setae with a distinct small hook near apex (Fig. 16); right cucullus narrower than left, subrectangular, parallel margined, apex slightly truncated, bristles dense, except sparsely setose dorsobasally, basal margin with moderately wide, rounded lobe projecting towards sacculus, lobe with row of 8 long, stout, spiniform setae reaching dorsal margin of sacculus. Female genitalia (Figs. 19–21) with papillae anales narrow; apophyses posteriores as long as apophyses anteriores; sternum 7 with posterior half slightly sclerotized, posterior margin folded inwardly, with a wide, U-shaped emargination medially, scale sockets dense; tergum 8 with dense scale sockets along posterior margin reaching triangular lateral extensions; ostium bursae opening behind emargination of sternum 7, surrounded by raised, asymmetrical, dome-shaped sterigma, densely microtriciate, lamella antevaginalis forming a narrow band connected to complex, asymmetrical lamella postvaginalis, with two different sizes of subtriangular excavations, connected to large, weakly sclerotized plate, densely microtrichiate; ductus bursae ca 0.57 length of corpus bursae; colliculum forming two narrow sclerites on opposite sides of ductus, middle of ductus bursae with large, weakly sclerotized band; ductus seminalis originating between colliculum and weakly sclerotized band; corpus bursae with moderately large scobination patch (= signum).

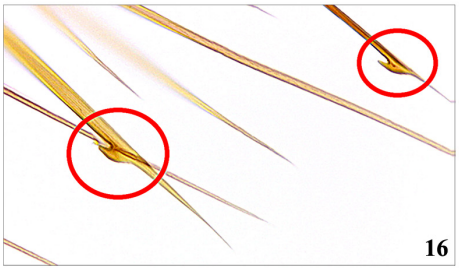
FIGURES 12–14. 12. *Baburia paucustriga* (holotype). 12. male genitalia. 13. Small subtriangular lobe at ventromedially of sacculus, 14. Sclerotized ridge socii.

Holotype. ♂, Thailand: Nakhon Nayok Prov., Khao Yai N. P., 14°17'13"N 101°23'37"E, ca. 400 m, 4 Jul 2016, N. Pinkaew, np8962 (genitalia slide NP3482). Deposited in Kasetsart Kamphaeng Sean Insect Collection (KKIC).

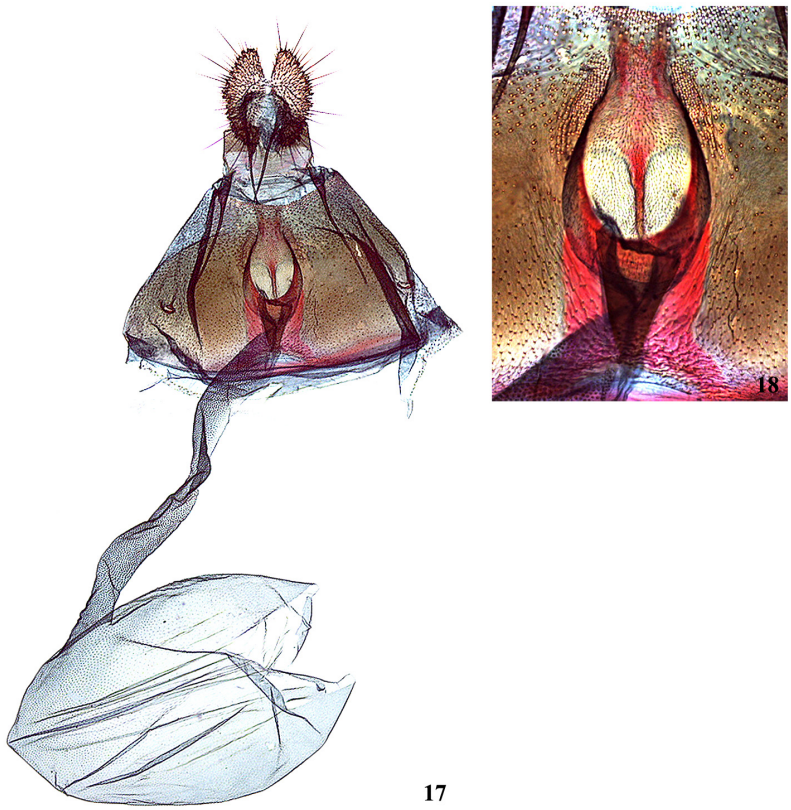
Paratypes (39♂, 10♀). Thailand: Ratchaburi Prov. Thaiprajan N.P., 13°15'57"N 99°33'23"E, ca. 172 m, 2 Sep 2006, N. Pinkaew, np1718 (♂). Chanthaburi Prov., Ang-et Com. For., 12°36'04"N 102°19'50"E, ca. 33 m, 20 Oct

2011, N. Pinkaew, np8716 (♀); Ang-et Com. For., 12°36'04"N 102°19'50"E, ca. 33 m, 22-23 Dec 2011, N. Pinkaew, np8741 (♂); Khao Khichakut N.P., 12°50'21"N 102°07'15"E, ca. 73 m, 21 Feb 2012, N. Pinkaew, np7711 (♂), np7713 (♂), np7717 (♂), np7724 (♂); Khao Khichakut N.P., 12°50'23"N 102°19'53"E, ca. 950 m, 19 Apr 2012, N. Pinkaew, np7734 (♀), np7735 (♀), np7736 (♂), np7737 (♂), np7738 (♂); Khao Khichakut N.P., 12°48'37"N 102°09'11"E, ca. 92 m, 6 Jun 2013, N. Pinkaew, np5843 (♂ genitalia slide NP1983). Trat Prov. Trat Agroforestry R. St., 12°23'34"N 102°40'00"E. ca. 46 m, 18–19 Mar 2010, N. Pinkaew, np3654 (♂), np3685 (♂), np3700 (♂); Trat Agroforestry R. St., 12°23'43"N 102°40'32"E. ca. 30 m, 19–20 Oct 2011, N. Pinkaew, np4874 (♂ genitalia slide NP1573), np5303 (♀); Trat Agroforestry R. St., 12°23'43"N 102°40'32"E. ca. 30 m, 16–18 Jun 2012, N. Pinkaew, np5111 (♂ genitalia slide NP1575), np5302 (♂ genitalia slide NP1575). Prachuap Kiri Khan Prov. Kui Buri N.P., 12°21'29"N 99°28'55"E. ca. 365 m, 16 May 2015, N. Pinkaew, np7676 (♂ genitalia slide NP2983), np7680 (♂), np7681 (♂). Sa Kaeo Prov. Pang Sida N.P. 14°00'54"N 102°11'45"E. ca. 260 m, 24 Apr 2017, N. Pinkaew, np9872 (♂); Pang Sida N.P. 14°07'37"N 102°15'30"E. ca. 610 m, 20 Jun 2017, N. Pinkaew, np10410 (♂), np10411 (♂);Pang Sida N.P. 14°07'37"N 102°15'30"E. ca. 610 m, 22 Aug 2017, N. Pinkaew, np10728 (♂), np10717 (♂), np10718 (♂); Pang Sida N.P. 13°59'36"N 102°12'21"E. ca. 165 m, 19 Oct 2017, N. Pinkaew, np11207 (♂), np11208 (♀). Chaiyaphum Prov. Chulaphorn Dam, 16°32'10"N 101°39'00"E. ca. 750 m, 7–9 Mar 2017, N. Pinkaew, np9683 (♂). Nakhon Nayok Prov. Khao Yai N.P. 14°26'17"N 101°22'25"E. ca. 737 m, 1 Apr 2009, N. Pinkaew, np2996 (♂); Khao Yai N.P. 14°23'56"N 101°22'16"E. ca. 786 m, 13 Feb 2010, N. Pinkaew, np3422 (♀), np3443 (♂), np3447 (♀ genitalia slide NP1362), np3452 (♂), np3454 (♂), np3479 (♂ genitalia slide NP3479), np3483 (♀);Khao Yai N.P. 14°17'13"N 101°23'37"E. ca. 400 m, 7 Mar 2016, N. Pinkaew, np8158 (♂ genitalia slide NP3483); Khao Yai N.P. 14°17'13"N 101°23'37"E. ca. 400 m, 2 May 2016, N. Pinkaew, np8533 (♂), np8608 (♂); Khao Yai N.P. 14°17'13"N 101°23'37"E. ca. 400 m, 4 Jul 20016, N. Pinkaew, Khao Yai N.P. 14°26'18"N 101°22'24"E. ca. 740 m, 9 Mar 2016, N. Pinkaew, np8293 (♂), np8303 (♂); Khao Yai N.P. 14°17'13"N 101°23'37"E. ca. 400 m, np8942 (♂), np8966 (♀ genitalia slide NP3484), np8967 (♀ genitalia slide NP3485); Khao Yai N.P. 14°17'13"N 101°23'37"E. ca. 400 m, 5 Sep 2016, N. Pinkaew, np9102 (♂); Khao Yai N.P. 14°26'18"N 101°22'24"E. ca. 740 m, 26 Nov 2016, N. Pinkaew, np9367 (♀ genitalia slide NP3486). Specimens deposited in KKIC. Nakhon Nayok Prov. Khao Yai N.P. 14°23'56"N 101°22'16"E. ca. 786 m, 13 Feb 2010, N. Pinkaew, np3424 (♂), np3435 (♀). Specimens deposited in Australian National Insect Collection (ANIC).

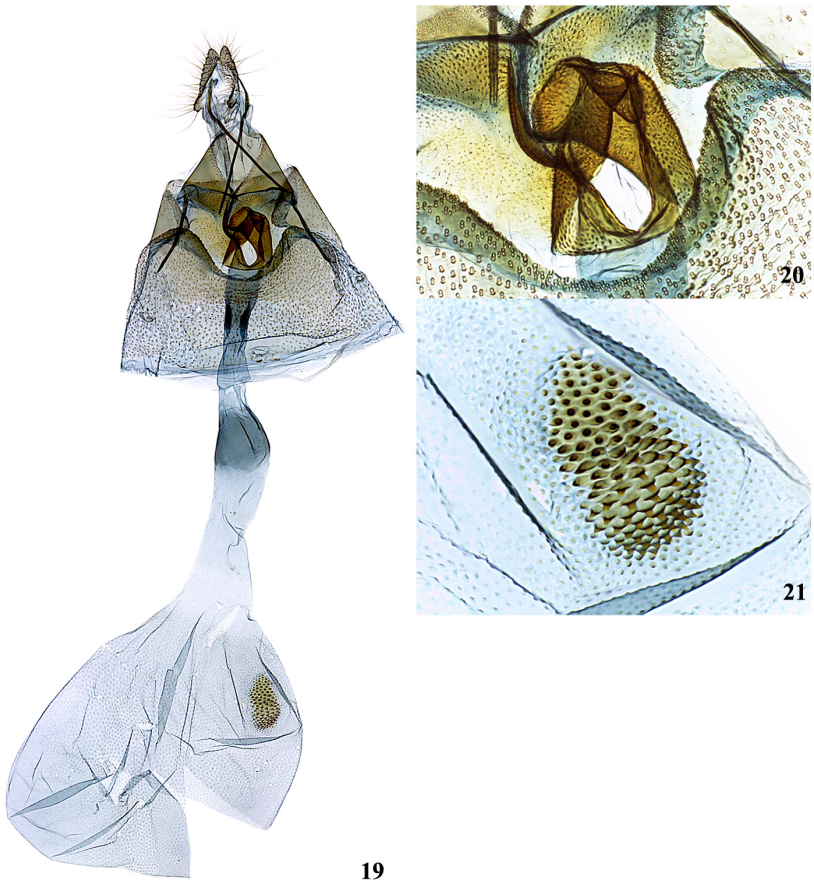




FIGURES 15–16. *Metendothenia ordospina* (holotype). 15. Male genitalia, 16. Hook near apex of long setae from right valva.



FIGURES 17–18. *Baburia paucustriga* (paratype). 17. Female genitalia, 18. Sterigma and ostium.



FIGURES 19–21. *Metendothenia ordospina* (paratype). 19. Female genitalia, 20. Ostium and sterigma, 21. Signum.

Distribution. Thailand (Ratchaburi, Chanthaburi, Trat, Prachuap Kiri Khan, Chaiyaphum, Sa Kaeo, Nakhon Nayok)

Etymology. The specific epithet is a combination of the Latin *ordo* (= row) and *spina* (= spine), and refers to the row of narrow spines at the base of the cucullus.

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