

Systematics and faunistics of Neotropical Eucosmini, 2: *Epinotia* HÜBNER, *Catastega* CLEMENS, and *Crocidosema* ZELLER (Lepidoptera: Tortricidae)

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ABSTRACT. Thirty species are discussed; 26 species *Epinotia caracae* sp. n., *Epinotia griseiblema* sp. n., *Epinotia potosicola* sp. n., *Epinotia sticta* sp. n., *Epinotia huatuscana* sp. n., *Epinotia chalsocia* sp. n., *Epinotia phorminx* sp. n., *Epinotia sinuncus* sp. n., *Crocidosema ochrovirens* sp. n., *Crocidosema pusula* sp. n., *Crocidosema semanticana* sp. n., *Crocidosema marumbiana* sp. n., *Crocidosema atrovirens* sp. n., *Crocidosema bidepas* sp. n., *Crocidosema peroteana* sp. n., *Crocidosema tainia* sp. n., *Crocidosema argentonivea* sp. n., *Crocidosema dematia* sp. n., *Crocidosema carchinaia* sp. n., *Crocidosema puertoricana* sp. n., *Crocidosema cayeaya* sp. n., *Crocidosema cingularia* sp. n., *Crocidosema meteora* sp. n., *Crocidosema obta* sp. n., *Crocidosema mycteria* sp. n., *Crocidosema connexa* sp. n. are described as new.

New combinations: *Epinotia chlorochara* RAZOWSKI & WOJTUSIAK, *E. guarandae* RAZOWSKI & WOJTUSIAK, *E. multistrigata* RAZOWSKI & WOJTUSIAK, *E. runtunica* RAZOWSKI & WOJTUSIAK and *E. tenebrica* RAZOWSKI & WOJTUSIAK are transferred to *Crocidosema*.

KEY WORDS: Tortricidae, Eucosmini, Neotropic, new taxa.

INTRODUCTION

The traditional concept of *Crocidosema* (HEINRICH 1923, 1931) was accepted by several further authors including ZIMMERMANN (1978) and RAZOWSKI (1989, 2003). In their catalogue POWELL et al. (1995) listed several species representing certainly a few closely-related genera but also *C. lantana* BUSCK, 1910. BAIXERAS in BROWN et al. (2002) described *C. litchivora*, which is closely related to *C. lantana*. HORAK (2006) accepted that expanded concept of the

genus and provided convincing characteristics, distinguishing two groups of species (the *C. plebejana*-group and the *C. lantana*-group) within *Crociosema*. Several Neotropical species described by RAZOWSKI & WOJTUSIAK (2006, 2008) in *Epinotia* HÜBNER [1825] belong to the *lantana*-group. Some of them are transferred to *Crociosema* in this paper.

Numerous species described or placed in more than 20 synonymized genera belong to *Epinotia* HÜBNER (1825). The genus was redescribed by RAZOWSKI (1989, 2003) and in the latter paper the genitalia and adults of ca 30 European species were illustrated.

Catastega CLEMENS, 1861 was resurrected by BROWN (1986), who pointed out that the anellus and sterigma are apomorphic for this genus.

Because of the distinct morphological diversity, the present data are still insufficient to solve the problem of the affinities within the *Epinotia*-group of genera. Thus, we agree with the opinion of HORAK (2006) that the problem should be left open until a cladistic analysis of the entire group is completed.

Acknowledgments

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MATERIALS

The paper is based on the specimens collected by the junior author in Brazil, Costa Rica, Cuba, Ecuador, Mexico and the Virgin Islands. The holotypes of the new species are deposited in the Becker Collection and will eventually be transferred to one of the Brazilian museums. Some specimens, including the paratypes, have been kindly donated to the Institute of Systematics and Evolution of Animals, PAS, Kraków. The numbers cited after the label data and the abbreviation CB are the entry numbers of the specimens in the register book of V.O. BECKER.

Abbreviations

CB – Collection Becker; GS – genitalia slide.

RESULTS

Epinotia caracae sp. n.

(Figs 1, 22, 37, 38)

Diagnosis

In the male genitalia, *E. caracae* somewhat resembles the Palearctic *E. thapsiana* (ZELLER, 1847) but *caracae* has an oval cucullus and large socii; the female genitalia of this species are quite distinct in that they have a transverse, sclerotized postostial sterigma.

Description

Wing span 15 mm. Head and thorax brownish cream, vertex paler, marks on labial palpus and thorax browner. Forewing broadest submedially; costa convex, fold to before middle; apex rounded; termen oblique, almost straight. Ground colour whitish suffused brown forming a fascia along dorsum to before tornus then towards the apex to costal edge of ocellar area; costal half of wing suffused brown; costal strigulae small, whitish; divisions brownish; ocellus brownish white with black dots and weak silver lines. Markings brown in form of angulate fascia limiting dorsal area of ground colour and triangular tornal blotch; apex area brown. Cilia (damaged) brownish. Hindwing brownish; cilia brownish cream.

Variation. Female forewing browner than in male with distinct subdorsal marking diffuse costad.

Male genitalia (Fig. 1). Uncus slender with broad base and bifurcate terminal part; socius large, drooping; sacculus angulate with dorso-postmedian convexity; neck of valva well developed; ventral lobe of sacculus indistinct; cucullus broad, convex caudally.

Female genitalia (Fig. 22). Postostial sterigma short with elongate, curved posterad lateral parts and flat median part; sclerite of ductus bursae large, almost fused with antrum sclerite; blades of signa slender.

Material examined

Holotype male; "Brasil: M[inas]G[erais], Caraca 1300 m, 1-2. IV. 1992, V.O. Becker Col; Col. Becker 85274"; GS 1128. Paratypes 4 identically labelled specimens, one female with GS 1129 WZ.

Etymology

The specific name refers to the type locality.

Epinotia griseiblema sp. n.

(Figs 2, 39)

Diagnosis

The uncus of *E. griseiblema* is deeply incised as in *E. potosicola* and many other congeners but *griseiblema* has very large lateral socii and a rounded sacculus.

Description

Wing span 18 mm. Head and thorax grey, labial palpus blackish grey posteriorly. Forewing almost uniformly broad throughout; costa straight, costal fold slender reaching middle; apex short, rounded; termen straight, weakly oblique, Ground colour grey in postmedian area tinged whitish, in basal and costal parts of wing darker; large blotch from before middle of dorsum to before tornus; postmedian diffuse area reaching termen and ocellus, remaining parts strigulate brownish grey; costal strigulae whitish, divisions large, brown; apex more rust. Markings reduced to posterior part of postbasal fascia. Cilia dark grey. Hindwing brownish, cilia paler.

Male genitalia (Fig. 2). Uncus bifid from the base, with broad arms; socii broad, lateral; sacculus rounded posteriorly, spined at angle and caudally; neck of valva very short followed by an indistinct ventral lobe of cucullus; aedeagus broad to before middle, wedge-shaped postmedially; cornuti long.

Female not known.

Material examined

Holotype male: "Mexico: D[istrict]F[ederal], Mexico 2600 m, 24. VIII. 1981, V.O. Becker Col; Col. Becker 41853"; GS 895 WZ. Paratypes 6 identically labelled males, one with GS 827 WZ.

Etymology

The name refers to the colouration; Medieval Latin: gris- – grey; Greek: blema – a coat.

***Epinotia potosicola* sp. n.**

(Figs 3, 23, 40, 41)

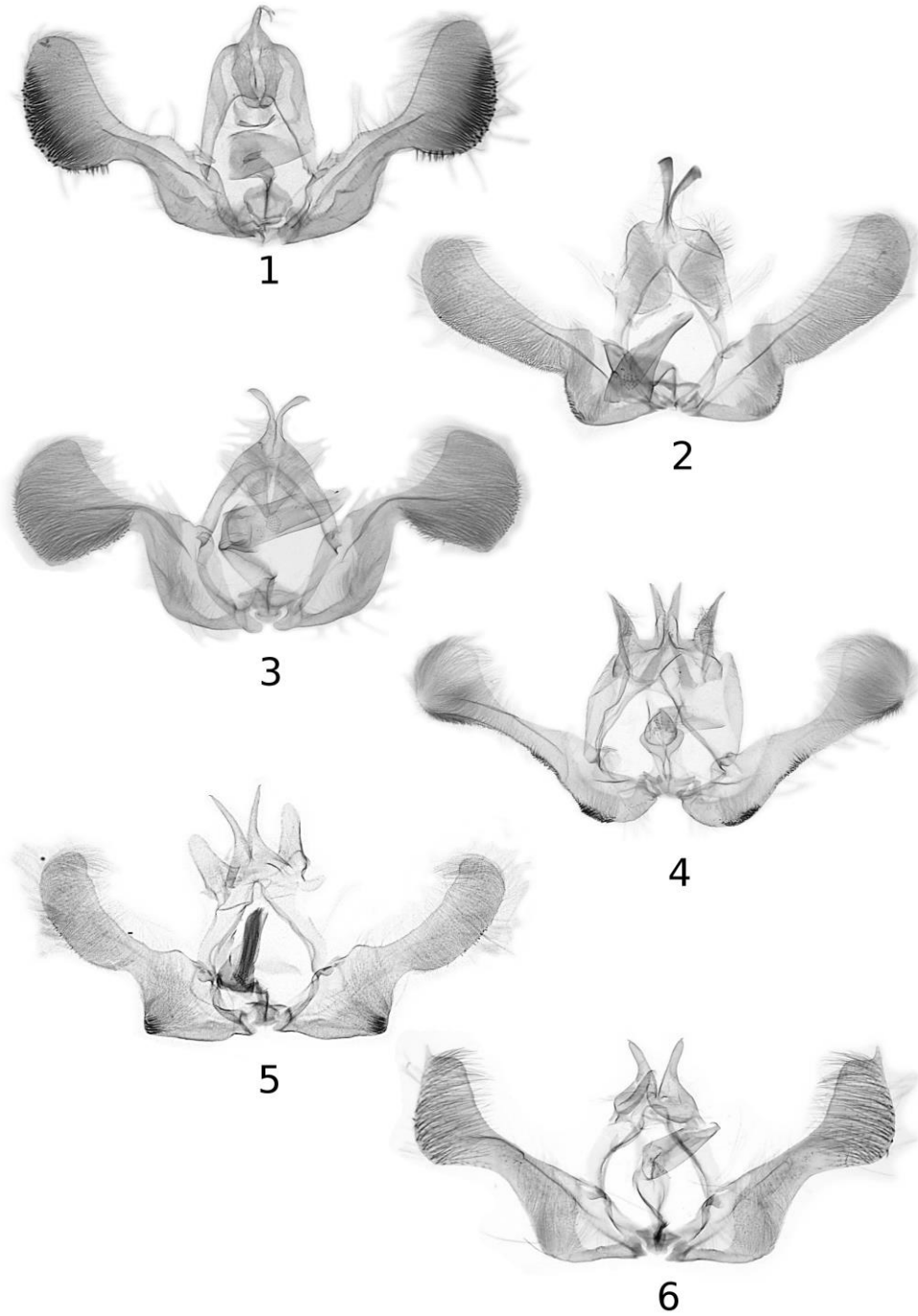
Diagnosis

E. potosicola has widely bifurcate uncus (similarly to Nearctic *E. sotipena* Brown, 1987 but *potosicola* has quite a different cucullus with a rounded, broad caudal edge and lacks the saccular spines.

Description

Wing span 20 mm. Head and thorax black, vertex and median area of thorax white. Forewing expanding terminad; costa straight, fold slender, reaching middle; apex rounded; termen concave beneath apex then straight. Ground colour snow white in form of three dorsal blotches divided medially by a line and tornal blotch; small white line at wing base and along dorsal half of termen; posterior third of wing pale pinkish brown; remaining area black. Costal strigulae fine, white; ocellus atrophied, its area proximally edged white. Cilia white with black divisions. Hindwing cream brown, creamer basally; cilia whitish in apical third of wing pale brownish.

Figs 1-6. Male genitalia: 1 – *Epinotia caracae* sp. n., holotype, 2 – *Epinotia griseiblema* sp. n., holotype, 3 – *Epinotia potosicola* sp. n., holotype, 4 – *Epinotia sticta* sp. n., holotype, 5 – *Epinotia huatuscana* sp. n., holotype, 6 – *Epinotia chalsocia* sp. n., holotype.



Male genitalia (Fig. 3). Uncus widely bifurcate; socius wedge-shaped, densely hairy; basal part of valva rather short; neck short, slender; cucullus subtriangular, broad posteriorly, convex caudally; aedeagus broad; cornuti numerous.

Female genitalia (Fig. 23). Cup-shaped part of sterigma large with ventroposterior prominence; distal parts of poststrial sterigma elongate; cestum short, postmedian; signa unequal, broad.

Material examined

Holotype male: "Mexico: N[uevo]L[eon], C. Potosi 2800 m, 26. VI. 1997, V.O. Becker Col; Col. Becker 110434"; GS 1342 WZ. Paratypes two identically labelled specimens, female with GS 1341 WZ.

Etymology

The specific name refers to the type locality.

Epinotia sticta sp. n.

(Figs 4, 42)

Diagnosis

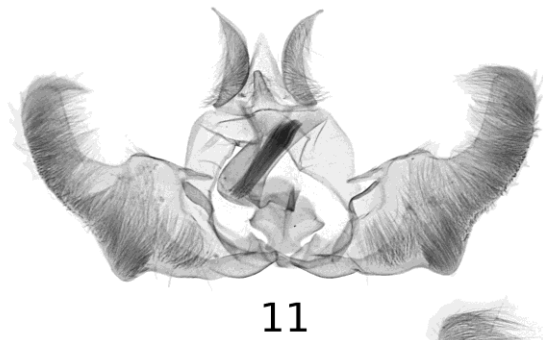
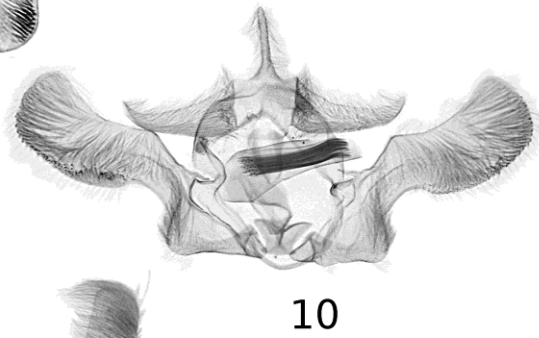
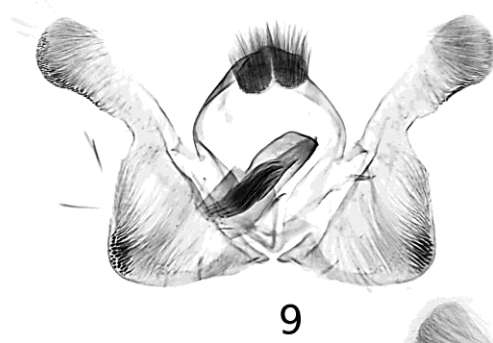
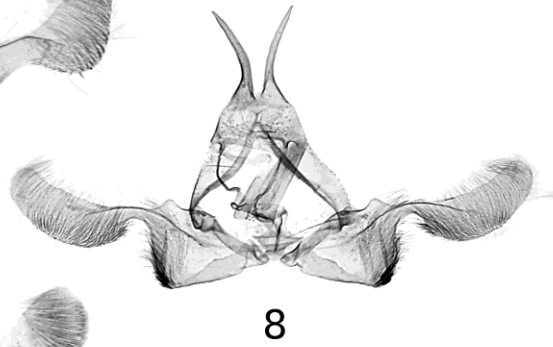
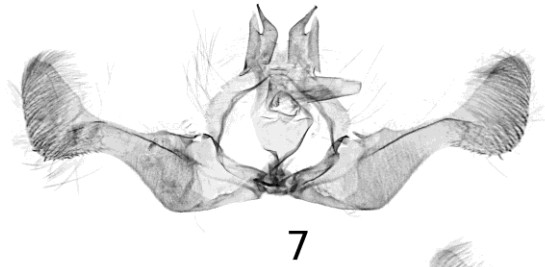
In male genitalia, *E. sticta* is similar to the Nearctic *E. walkerana* (KEARFOTT, 1907) but *sticta* can be distinguished by the long free terminal parts of its uncus and the symmetric cucullus.

Description

Wing span 14 mm. Head and thorax white cream, labial palpus darker with broad blackish subterminal fascia; thorax with blackish marks, tegula brownish. Forewing not expanding terminally; costa bent at middle (end of fold); apex pointed; termen weakly oblique, concave beneath apex. Ground colour white strigulated grey and brown-grey in form of dorsal postbasal and postmedian fused blotches, the latter reaching costal edge of ocellar area; remaining area brownish grey strigulated brown; costal strigulae very slender except for subapical pair, white; divisions brown; ocellar area white with a few black dots and broad refractive lines. Markings dark brown in form of median fascia fused with subdorsal marking limiting area of ground colour. Cilia brown grey. Hindwing brownish cream, cilia paler.

Paratype. Wing span 12 mm. Ground colour of forewing with indistinct greenish admixture and dense grey strigulation; marking distinct (dorsal part of postbasal fascia developed), dark brown. Hindwing brown.

Figs 7-12. Male genitalia: 7 – *Epinotia phorminx* sp. n., holotype, 8 – *Epinotia biuncus* RAZOWSKI & WOJTUSIAK, Morona, Ecuador, 9 – *Epinotia sinuncus* sp. n., holotype, 10 – *Crocidosema semanticana* sp. n., holotype, 11 – *Crocidosema marumbiana* sp. n., holotype, 12 – *Crocidosema meridospila* (MEYRICK), Virgin Is.



Male genitalia (Fig. 4). Base of uncus broad, of similar length as the posterior bifid part; socius tapering terminally; base of valva broad; neck long, slender; sacculus convex; spines on convexity of sacculus and proximal part of ventral incision of valva; cucullus rounded terminally; aedeagus short, broad.

Female not known.

Material examined

Holotype male: "Brasil, S[anta]C[atarina], Bom Jardim de Serra 1500 m; 1-4. X. 1996, V.O. Becker Col; Col. Becker 108515" GS 1119 WZ. Paratype from Ceara (Guaramiranga 1000 m, 9. IV. 1994; CB 92172; GS 1124 WZ).

Etymology

The name refers to the colouration of the dorsal part of the forewing; Greek: stiktos (latinized: stictus) – spotted.

***Epinotia huatuscana* sp. n.**

(Figs 5, 24, 43, 44)

Diagnosis

In the male genitalia, *E. huatuscana* is similar (the shapes of the uncus, sacculus, cucullus etc.) to *E. biuncus* RAZOWSKI & WOJTUSIAK, 2008 except for the presence of socii, which are well-developed, erect and rounded.

Description

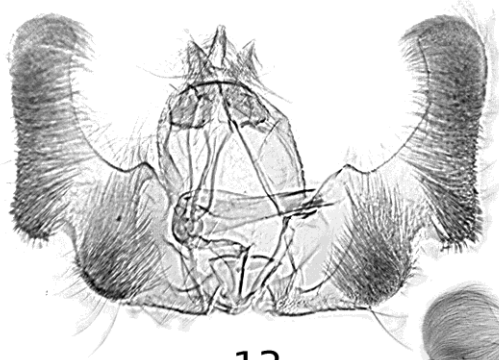
Wing span 15 mm. Head and thorax pale cream brown. Forewing not expanding terminally; costa bent in middle at the end of fold; apex short, rounded; termen not oblique to middle, not concave. Ground colour pale brownish suffused brown, cream beyond costal half of median fascia; costal strigulae white cream, divisions rust brown; ocellus brown cream without lines and spots. Markings brown consisting of costal half of median fascia extending along costal area of ocellus to mid-termen, tornal blotch, and much paler dorsal part of postbasal fascia. Cilia brown. Hindwing brownish; cilia paler.

Variation. Wing span of female paratype 18 mm.

Male genitalia (Fig. 5). Uncus bifurcate with broad base; socius large, broadening basally; basal part of valva broad; neck short, moderately broad; sacculus angulate with group of spines; cucullus slender; aedeagus almost as long as sacculus; cornuti long.

Female genitalia (Fig. 24). Postostial sterigma slightly extending beyond lateral lobes of subgenital sternite, cup-shaped part shorter than the latter; cingulum long; antrum sclerite atrophied; signa unequally large. Subgenital sternite with ill-defined submedian concavities.

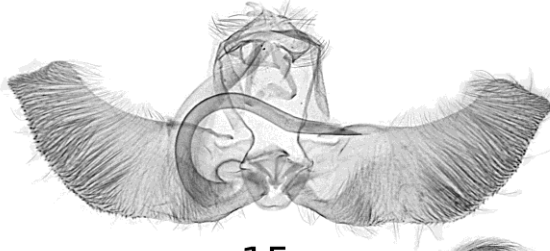
Figs 13-18. Male genitalia: 13 – *Crocidosema peroteana* sp. n., holotype, 14 – *C. tainia* sp. n., holotype, 15 – *Crocidosema argentonivea* sp. n., holotype, 16 – *Crocidosema dematia* sp. n., holotype, 17 – *Crocidosema carchinaia* sp. n., holotype, 18 – *Crocidosema puertoricana* sp. n., holotype.



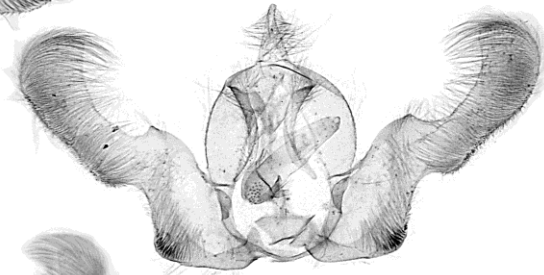
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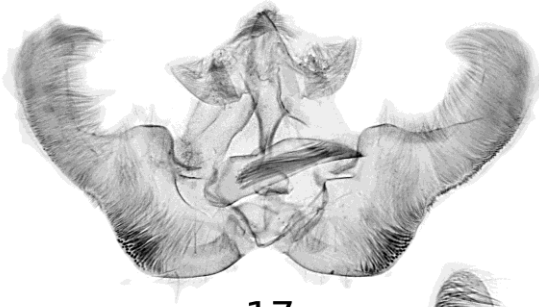
14



15



16



17



18

Material examined

Holotype male: "Mexico: Veracruz, Huatusco 1300 m, 19-23. VIII. 1981, V.O. Becker Col; Coll. Becker 44111"; GS 712 WZ. Paratypes 6 specimens, same label, one female with GS 711 WZ.

Etymology

The name refers to the type locality.

Remarks

The male genitalia of *huatuscana* are typical of the genus as having the well-sclerotised, bifurcate uncus while the female genitalia are similar to those in the species of the *lantana*-group of *Crociosema* (the sterigma and the scent organ of the subgenital sternite). This speaks of a close affinity between *Epinotia* and the *Crociosema lantana* group of species (recently treated by RAZOWSKI (2006, 2008, and other papers) as congeneric.

***Epinotia biuncus* RAZOWSKI & WOJTUSIAK, 2008**

(Fig. 8)

Material examined

One male from Ecuador (Morona, Indanza 2800 m, 24. XII. 1992; CB 103474; GS 153 WZ). Two males from Costa Rica (Braulio Carrillo 1100 m, VII. 1981, CB 44819; one with GS 1007 WZ).

Remarks

The species was described from the Carchi Province, Ecuador. Our Ecuadoran specimen (Fig. 8) differs from the holotype of *biuncus* in having a much longer, weakly convex cucullus. As regards the genitalia, the specimens from Costa Rica are not different from the holotype.

***Epinotia chalsocia* sp. n.**

(Figs 6, 45)

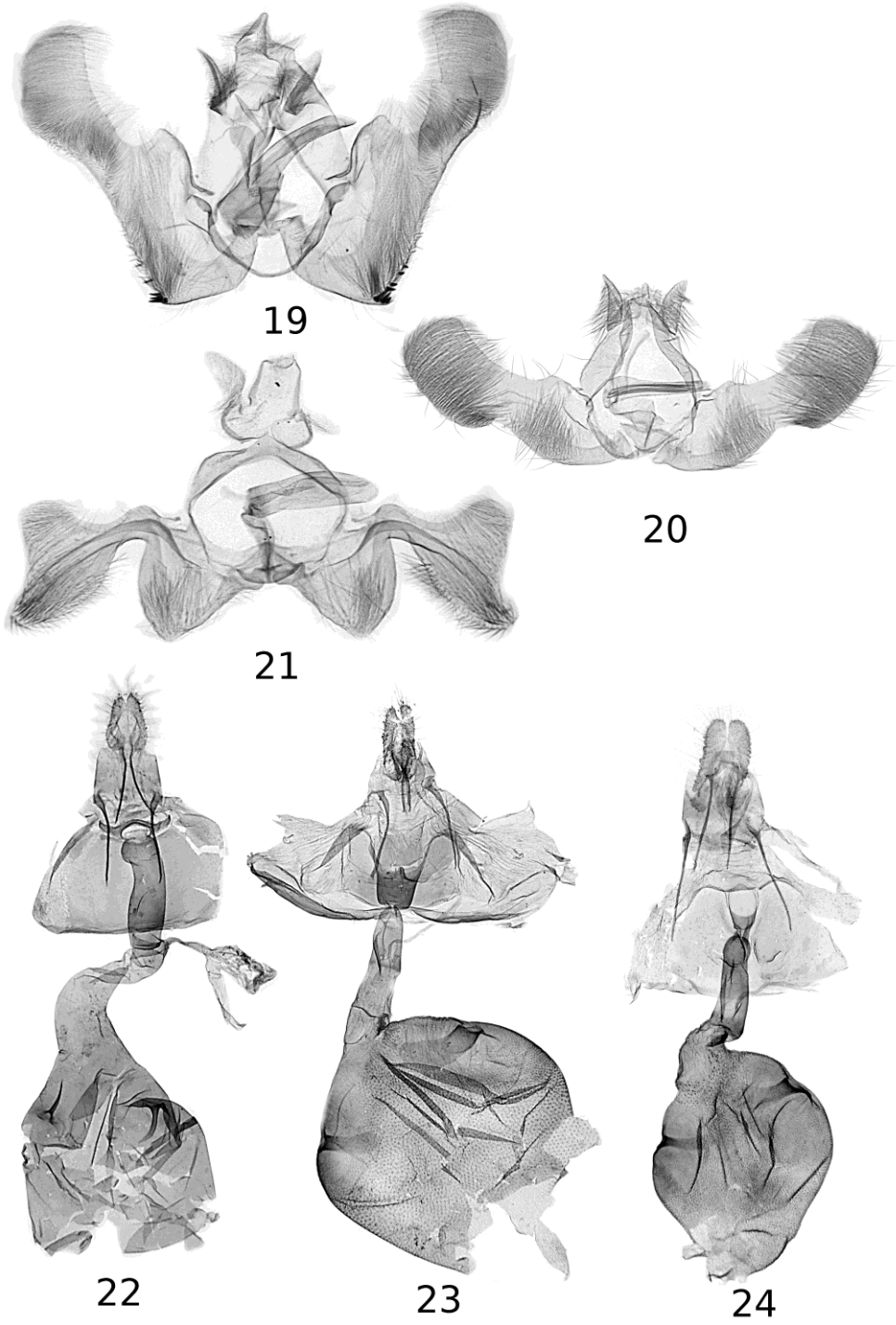
Diagnosis

E. chalsocia lacks the *socii*, as in *E. biuncus* RAZOWSKI & WOJTUSIAK, 2008 from Ecuador but *chalsocia* has short arms of the uncus and a shallow ventral incision of the valva. Its valva, especially the cucullus, resembles that of *phorminx*.

Description

Wing span 16 mm. Head and thorax pale cream brown. Forewing not expanding terminally; costa almost straight, fold slender, to middle; apex very short; termen straight, slightly oblique. Ground colour brownish cream suffused and diffusely strigulated brownish

Figs 19-24. Male and female genitalia: 19 – *Crociosema meteora* sp. n., holotype, 20 – *Crociosema obta* sp. n., holotype, 21 – *Crociosema roraria* MEYRICK, Goias, Brazil, 22 – *Epinotia caracae* sp. n., paratype, 23 – *Epinotia potosicola* sp. n., paratype, 24 – *Epinotia huatuscana* sp. n., paratype.



except for whitish diffuse blotch beyond median fascia accompanied by somewhat darker blotch fused with ocellus and a few subapical spots. Markings brown, rudimentary: remnants of median fascia and tornal blotch. Cilia rust brown. Hindwing greyish brown, cilia paler.

Male genitalia (Fig. 6). Uncus entirely divided into pair of arms; socius absent; henion short; basal part of valva rather short; neck elongate; ventral incision long; sacculus angulate; cucullus short, subtriangular with rounded lobes; aedeagus simple, short.

Female unknown.

Material examined

Holotype male: "Costa Rica: Sta Cruz, Turrialba 1500 , VIII. 1981 V.O. Becker Col; Col. Becker 45348"; GS 698 WZ.

Etymology

The name refers to the lack of the socii: Greek: chalaos – I lose.

Epinotia phorminx sp. n.

(Figs 7, 46)

Diagnosis

In facies, *E. phorminx* resembles *E. perotana* but its male genitalia are quite distinct, differing from all congeners especially in having the sclerotized socii fused with the arms of the uncus. The valva is similar to that of *chalsocia*.

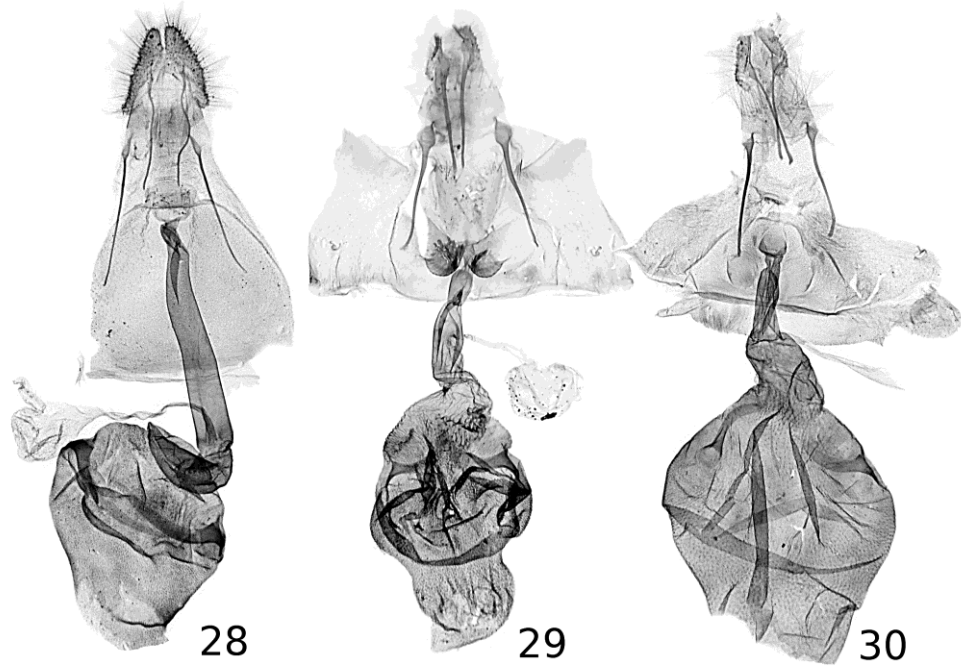
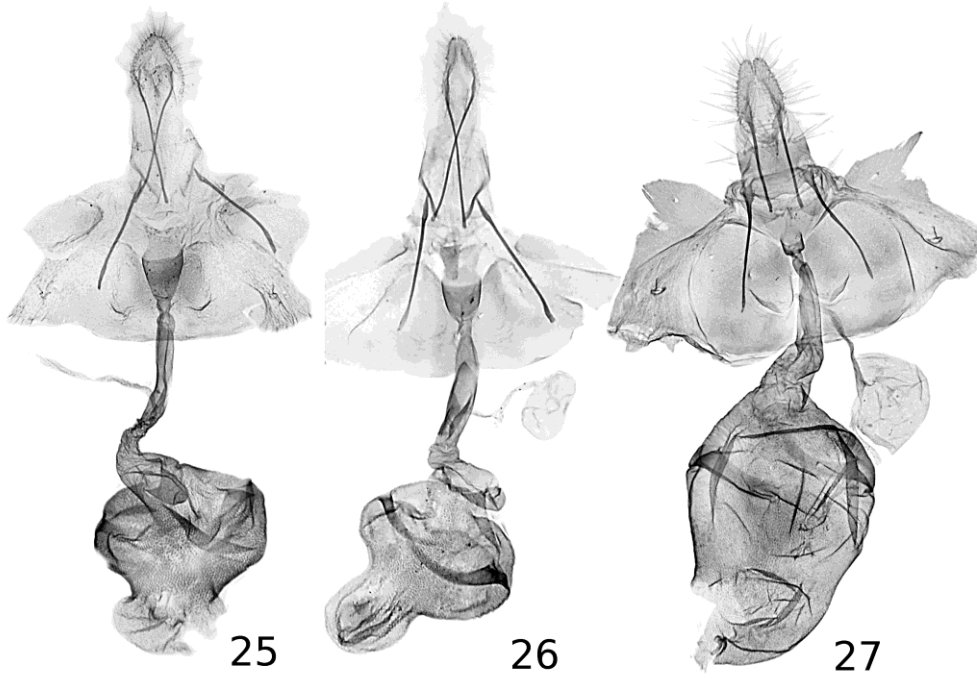
Description

Wing span 22 mm. Head pale brownish, thorax slightly darker. Forewing not expanding terminally; costa almost straight, fold to middle, slender; apex short; termen indistinctly oblique and concave. Ground colour pale brownish; suffusions somewhat darker, a few indistinct brown cream lines across the wing; costal strigulae whitish, divisions brown. Marking a longitudinal dark brown fascia along costal part of median fascia from ca middle of median cell to before termen, interrupted by pinkish white patch. Cilia brown. Hindwing brownish, cilia paler.

Variation. Paratype with brown marking reduced to its antemedian part.

Male genitalia (Fig. 7). Uncus and socii well sclerotized, not hairy; tuba analis membranous; hami short; basal part of valva moderately broad; neck moderately broad; sacculus weakly angulate; proximal edge of ventral incision oblique; cucullus triangular with broadly rounded ventral lobe; aedeagus shorter than sacculus, tapering terminad; oethreutoid large, caulis elongate.

Figs 25-30. Female genitalia: 25 – *Crocidosema ochrovirens* sp. n., holotype, 26 – *Crocidosema pusula* sp. n., holotype, 27 – *Crocidosema marumbiana* sp. n., paratype, 28 – *Crocidosema atrovirens* sp. n., holotype, 29 – *Crocidosema bidepas* sp. n., holotype, 30 – *Crocidosema meridospila* (MEYRICK), Virgin Is.



Female unknown.

Material examined

Holotype male: “Costa Rica: Volcan Turrialba 1800 m, 9. VIII. 1972, V.O. Becker Col; Col. Becker 37937”; GS 724 WZ. Paratype male, same label, GS 709 WZ.

Etymology

The name refers to the uncus-socii complex; Greek: phorminx – a harp.

Epinotia sinuncus sp. n.

(Figs 9, 47)

Diagnosis

E. sinuncus is distinct from all its congeners both in facies and the male genitalia; the basal part of valva and the cucullus resemble those in the Palaearctic *E. brunnichiana* (LINNAEUS, 1758) and *Crocidosema panda* (RAZOWSKI & WOJTUSIAK, 2008) from Ecuador but the tegumen is shorter, the pedunculi slender, the socii are broad, drooping, and the uncus is reduced to a small, sclerotized projection.

Description

Wing span 12 mm. Head and thorax brownish grey. Forewing not expanding terminad; costa weakly convex; termen not oblique to middle. Ground colour brownish grey; costal strigulae white, divisions rust; ocellus indistinct, paler than remaining ground colour. Markings dark rust consisting of weak postbasal and diffuse median fascia. Cilia rust brown. Hindwing brown, cilia paler.

Male genitalia (Fig. 9). Uncus and pedunculi as described in diagnosis; socius rounded, densely bristled; basal part of valva very broad; neck small; angle of sacculus rounded marked with group of spines; cucullus with small ventral lobe; aedeagus large, broad; cornuti long.

Female unknown.

Material examined

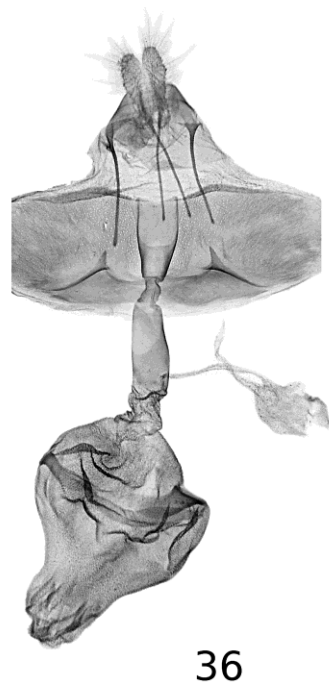
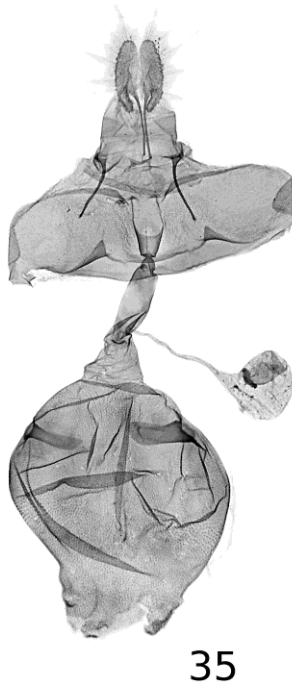
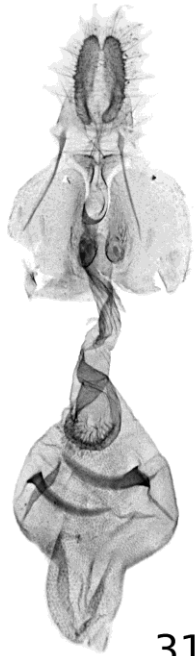
Holotype male: “Costa Rica: S. Vito 1100 m, 24-25. XI. 1973, V.O. Becker Col; Col. Becker 38531”; GS 620 WZ.

Catastega timidella CLEMENS, 1861

Material examined

Ten males and females from Chiapas, Mexico (San Cristobal de las Casas 2300 m, 23-27. VI. 1981; GS 853 WZ, 854 WZ, 855 WZ; CB 43772).

Figs 31-36. Female genitalia: 31 – *Crocidosema carchinaia* sp. n., paratype, 32 – *Crocidosema puertoricana* sp. n., paratype, 33 – *Crocidosema cayeya* sp. n., holotype, 34 – *Crocidosema cingularia* sp. n., holotype, 35 – *Crocidosema mycteria* sp. n., holotype, 36 – *Crocidosema connexa* sp. n., holotype.



Remarks

C. timidella is known from the U.S.A. (from New York to Texas). In the facies, our specimens differ distinctly from the more northern specimens (cf. GILLIGAN et al. 2008), have no blackish brown colouration of the forewing and a pale cream hindwing. However, the male genitalia of the two populations seem identical.

Crociosema opposita* (HEINRICH, 1931)*Material examined**

Five specimens from Brazil (Curitiba, Paraná (920 m, 20. XII. 1974; GS 815 WZ; CB 5367).

Remarks

C. opposita was described from Peru; RAZOWSKI & WOJTUSIAK (2008) recorded it from Carchi Province (2000 m) and Bolivar Province (1250 m), Ecuador, and RAZOWSKI & WOJTUSIAK (2010) from the Provinces of Carchi and Napo, Ecuador (2000 m, 3650 m).

***Crociosema ochrovirens* sp. n.**

(Figs 25, 48)

Diagnosis

C. ochrovirens is closely related to *C. pusula* but *ochrovirens* is much smaller, has a greenish dorsum, twice as long as the cestum, and shorter sterigma.

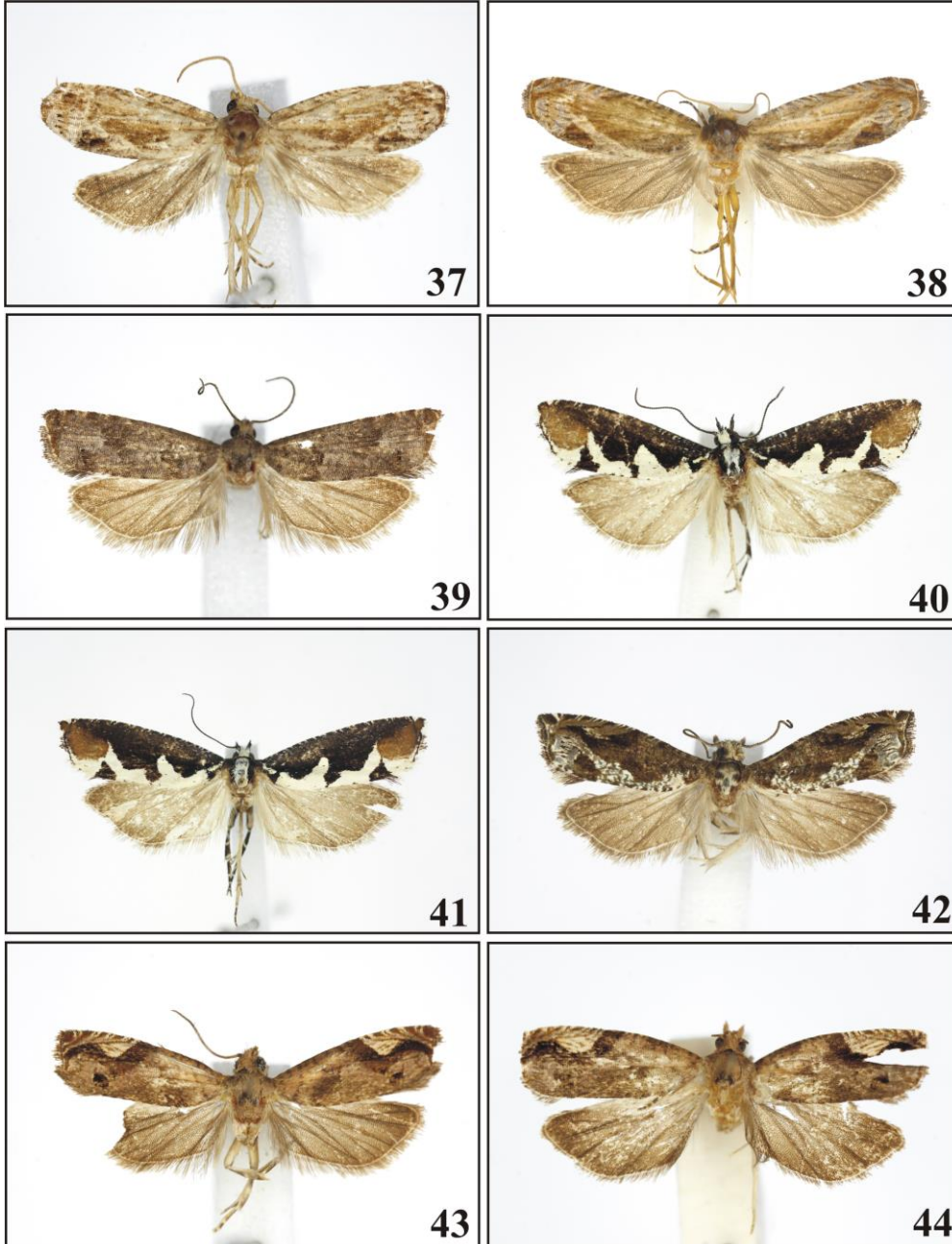
Description

Wing span 11 mm. Head pale grey-brown, thorax similar with dark brown markings. Forewing slender, uniformly broad throughout; costa weakly convex; termen indistinctly concave beneath apex, slightly oblique. Ground colour whitish ochreous suffused brown in costal area, greenish along dorsum where sprinkled blackish and white; dorsal patch and ocellus whitish with weak greenish suffusions; costal strigulae white, divisions brown. Area between costal and dorsal colours rather brown with longitudinal black markings. Cilia brownish with whitish diffuse parts. Hindwing brownish; cilia slightly paler.

Male unknown.

Female genitalia (Fig. 25). Ovipositor moderately long; cup-shaped part of sterigma broad, expanding posteriorly, postostial sterigma constricted medially, weakly concave distally; cestum long, incomplete in distal part; sac from base of ductus bursae present; signa long. Concavities of scent organ of subgenital sternite weak, elongate.

Figs 37-44. Adults: 37 – *Epinotia caracae*, holotype, 38 – *Epinotia caracae*, paratype, 39 – *Epinotia griseiblema* sp. n., holotype, 40 – *Epinotia potosicola* sp. n., holotype, 41 – *Epinotia potosicola* sp. n., paratype, 42 – *Epinotia sticta* sp. n., holotype, 43 – *Epinotia huatuscana* sp. n., holotype, 44 – *Epinotia huatuscana* sp. n., paratype.



Material

Holotype female: "Cuba: Helguin, Mayari 400 m, 12. VII. 1990, V.O. Becker Col; Col. Becker 72552"; GS 1252 WZ.

Etymology

The name refers to the colouration of the adult; Greek: ochros – pale yellow and Latin: virens – green.

***Crociosema pusula* sp. n.**

(Figs 26, 49)

Diagnosis

C. pusula is closely related to *C. microscyphos* (RAZOWSKI et al. 2008) from Galapagos but *pusula* is distinguished by its green whitish cream hindwing, the dorsal forewing markings, the short cingulum and the longer postostial part of the sterigma.

Description

Wing span 15.5 mm. Head and thorax brownish. Forewing not expanding terminally; costa almost straight; apex broadly rounded; termen slightly oblique, slightly concave near middle. Ground colour cream in form of dorsal patch extending to ocellar area and apex; remaining area brownish cream. Costal strigulae cream, divisions brown; ocellar area glossy with reduced marks. Markings brown: basal blotch reaching mid-dorsum atrophying towards costa; tornal blotch elongate; trace of subterminal fascia present. Cilia pale brownish cream with browner interruptions medially. Hindwing cream mixed brownish grey on peripheries; cilia cream.

Male unknown.

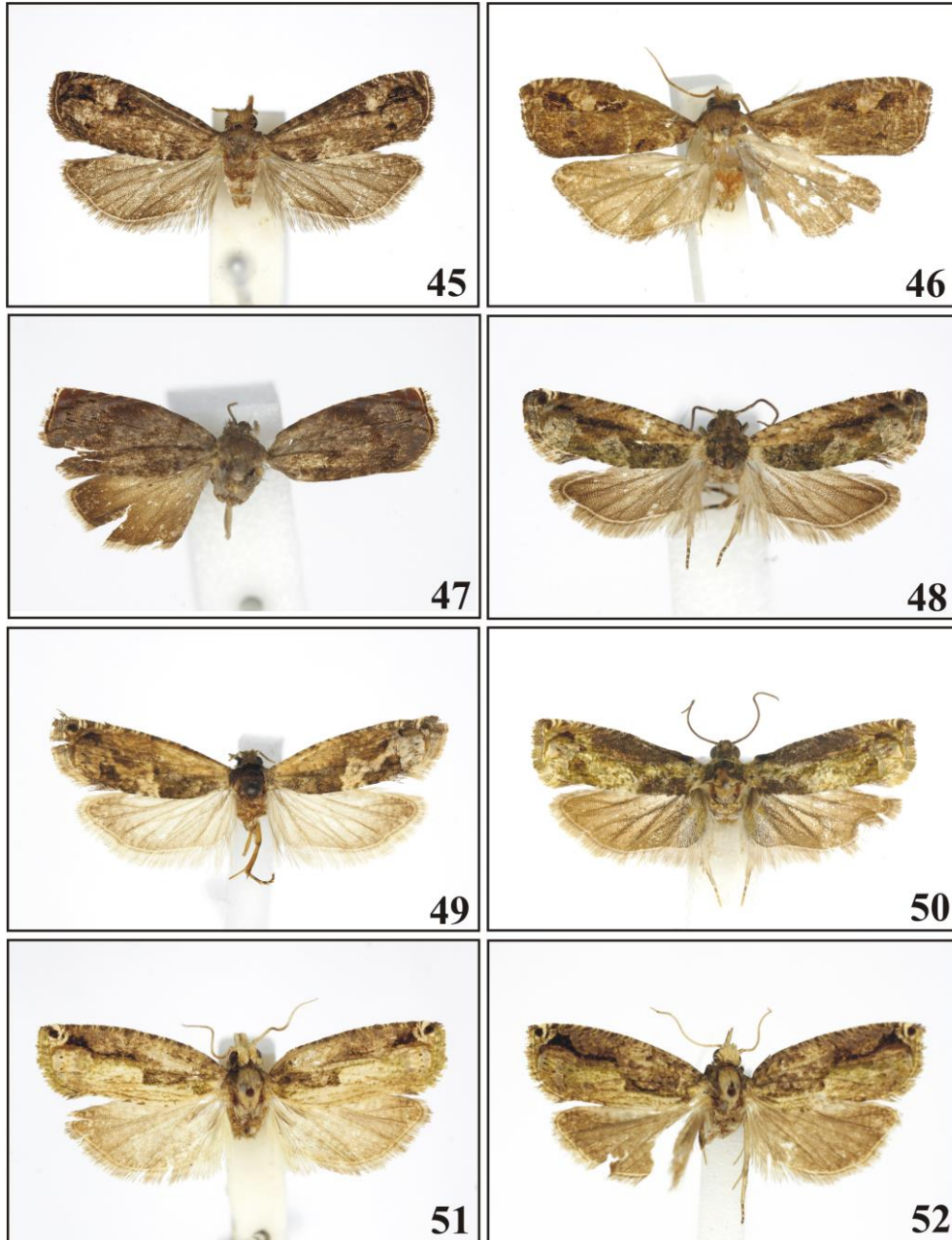
Female genitalia (Fig. 26). Ovipositor moderately long; apophyses long; cup-shaped part of sterigma broad, postostial sterigma in form of pair of weak, elongate sclerites; cingulum slightly shorter than the smaller signum; base of ductus bursae with sac; signa long, bent, unequally sized. Subgenital sternite without scent organ.

Material

Holotype female: "Ecuador: Carchi, Maldonado 2200 m, 9-11. I. 1993, V.O. Becker Col; Col. Becker 105315"; GS 1023 WZ. Paratype 1 female, similarly labelled.

Etymology

The specific name refers to the shape of the base of ductus bursae; Latin: pusula – a bulb.



Figs 45-52. Adults: 45 – *Epinotia chalsocia* sp. n., holotype, 46 – *Epinotia phorminx* sp. n., holotype, 47 – *Epinotia sinuncus* sp. n., holotype, 48 – *Crocidosema ochrovirens* sp. n., holotype, 49 – *Crocidosema pusula* sp. n., holotype, 50 – *Crocidosema semanticana* sp. n., holotype, 51 – *Crocidosema marumbiana* sp. n., holotype, 52 – *Crocidosema marumbiana* sp. n., paratype.

Crociosema multistrigata (RAZOWSKI & WOJTUSIAK, 2008) comb. n.

Material examined

Two specimens from Carchi, Ecuador (Maldonado, 2200 m, 9-11. I. 1993; GS 808 WZ; CB 105313).

Remarks

This species was described from the same province from an altitude of 2000 m.

Crociosema accessa (HEINRICH, 1931)

Material examined

One male from Costa Rica (Turrialba (600 m, XII. 1972; CB 37332).

Remarks

C. accessa was described from Panama; HEINRICH (1931) records the paratypes from Costa Rica and Veracruz, Mexico.

Crociosema semanticana sp. n.

(Figs 10, 50)

Diagnosis

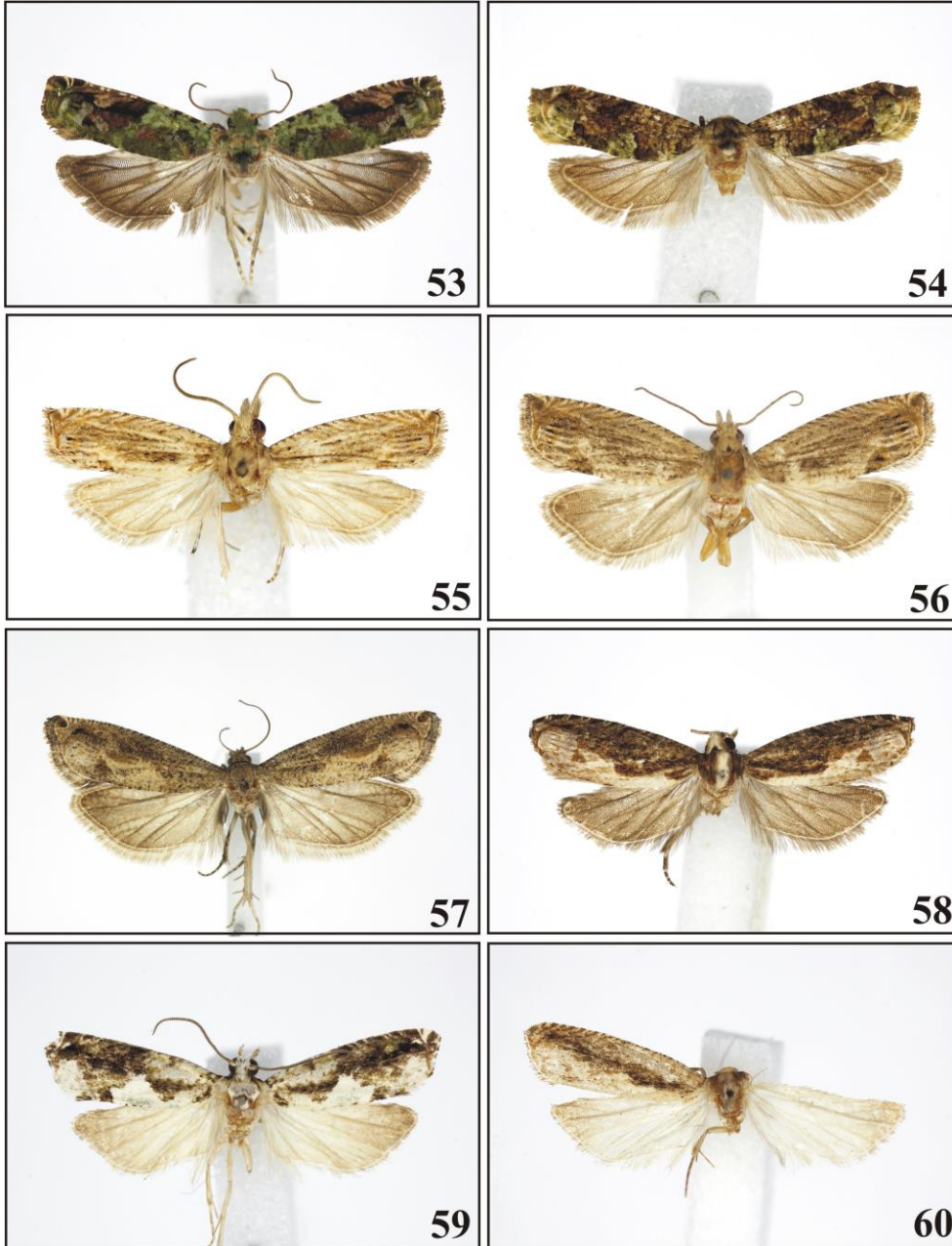
C. semanticana is closely related to *C. microscyphos* (RAZOWSKI & LANDRY, 2008) from Galapagos but *semanticana* is larger, has a darker hindwing with a large area of black scent scales in the anal field of the hindwing, a slenderer uncus, and a less convex ventral edge of the cucullus.

Description

Wing span 16 mm. Head and thorax brownish cream with black-grey markings. Forewing not expanding terminally; costa almost straight, fold to before middle, slender; termen indistinctly oblique, concave medially. Ground colour cream in form of elongate dorsal patch extending along middle of wing to base and beyond median cell, partly fused with concolorous ocellus; strigulation and marks of ocellus dark grey, refractive lines present; costal strigulae cream, divisions blackish grey. Remaining area of wing greyish black. Markings blackish consisting of dorsal part of postbasal fascia and tornal blotch. Cilia greyish, cream at tornus. Hindwing brownish cream darker on peripheries, black scaled in anal area to vein CuP; cilia cream tinged brownish grey.

Variation. One paratype darker than the holotype with blackish forewing and short cream dorsal patch.

Figs 53-60. Adults: 53 – *Crociosema atrovirens* sp. n., holotype, 54 – *Crociosema bidepas* sp. n., holotype, 55 – *Crociosema meridospila* MEYRICK, Virgin Is., 56 – *Crociosema meridospila* MEYRICK, Virgin Is., 57 – *Crociosema peroteana* sp. n., holotype, 58 – *Crociosema tainia* sp. n., holotype, 59 – *Crociosema argentonivea* sp. n., holotype, 60 – *Crociosema dematia* sp. n., holotype.



Male genitalia (Fig. 10). Uncus long, slender, rounded apically; socius large, tapering terminally; basal part of valva broad, neck moderately large with oblique ventral edge; sacculus short; with broad, rounded angle; cucullus fairly broad, rounded caudally; aedeagus large; cornuti long.

Female unknown.

Material examined

Holotype male: “Brasil: 1100 m, Planaltina D[istrito]F[ederal], 5. VI. 1989, V.O. Becker Col; Col. Becker 9681”; GS 814 WZ. Paratypes 4 males labelled as above and one from Paraná (Telemaco Borba, 750 m, 13-19. X. 1995; GS 816 WZ; CB 97802).

Etymology

The name refers to the distinctness of the species; Greek: semantikos – distinct.

***Crociosema lantana* (BUSCK, 1910)**

Material examined

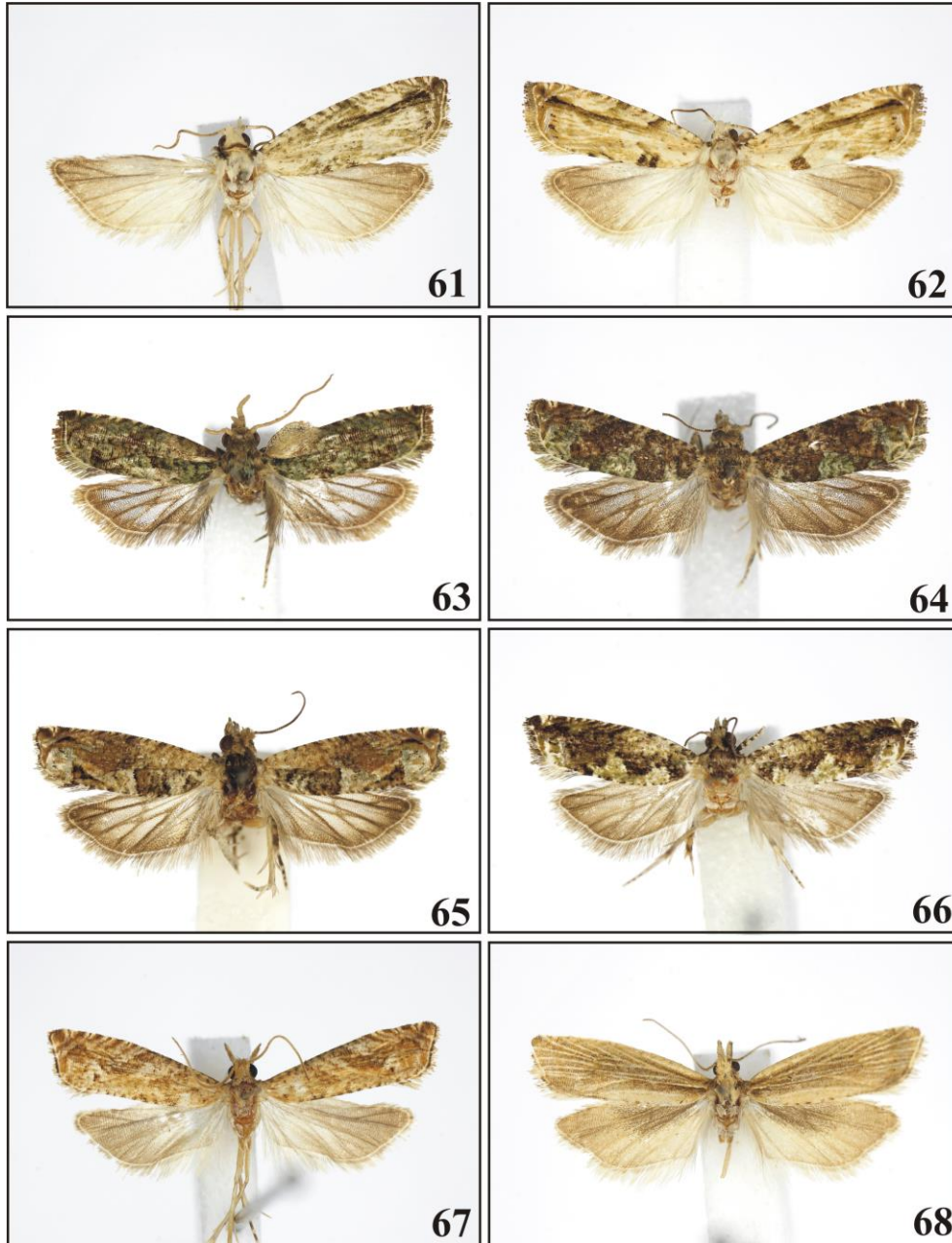
Several specimens from Brazil: Minas Gerais (Unai 700 m, 16. X. 1988; GS 1047 WZ; CB 59926); Espírito Santo (Linhares, 40 m, 20-29. II. 1992; GS 1108 WZ; CB81951), Rio Grande do Sul (Mostardas, 5 m, 13. I. 1989); Paraná (Marumbi, Morretes, 500 m, 17. XII. 1969; Quatro Barras, 800 m, 12. IV. 1970); Goiás (Alto Paraiso, 1300 and 1400 m, 30. V. 1994 and 1-6. XI. 1996; GS 1112 WZ; CB 61210 and 92855).

Remarks

C. lantana was described from Oahu, Hawaii; BROWN (2006) listed seven synonyms from Australia and Sri Lanka (*E. corynetes* DIAKONOFF, 1982); HEINRICH (1931) cited the record by WALSINGHAM (1914) and illustrated the male genitalia of the Hawaiian specimen.

The specimens examined show some variation in the shape of the uncus; in the example from Espírito Santo the uncus is broad, in specimens from Paraná it is slenderer, tapering terminad.

Figs 61-68. Adults: 61 – *Crociosema carchinaia* sp. n., holotype, 62 – *Crociosema carchinaia* sp. n., paratype, 63 – *Crociosema puertoricana* sp. n., holotype, 64 – *Crociosema puertoricana* sp. n., paratype, 65 – *Crociosema cayeya* sp. n., holotype, 66 – *Crociosema cingularia* sp. n., holotype, 67 – *Crociosema meteora* sp. n., holotype, 68 – *Crociosema obta* sp. n., holotype.



Crocidosema longipalpana (MÖSCHLER, 1891)**Material examined**

Several specimens from Tamaulipas, Mexico (Ensino 250 m, 4-15. VIII. 1988; CB 69142; GS 1113 WZ); Puerto Rico (Carite 500 m, 17. VIII. 1987; CB 67701; GS 1254 WZ); Cuba (Pinar Rio Vinales, 27. IX. 1987; CB 70346; GS 1163 WZ); Paraná, Brasil (Telemaco Borba, 750 m, 13-19. X. 1995, CB 97807; GS 1109 WZ); Federal District Brazil (Planaltina 1100 m, 5. VI. 1989; CB 96679; GS 1116 WZ); Goias: (Alto Paraiso 1400 m, 1-6. XI. 1996; CB 98978; GS 787 WZ).

Remarks

Compared with the illustrations by BROWN & al. (2002) our specimens display some differences, which may depend on the preparations or the drawing (longer uncus and broader socii).

Crocidosema marumbiana sp. n.

(Figs 11, 27, 51, 52)

Diagnosis

C. marumbiana is closely related to *C. lantana* but differs from it in having a cream forewing dorsum, a subsquare cup-shaped sterigma and large signa.

Description

Wing span 20 mm. Head and thorax cream, labial palpus mixed brownish laterally; tegula brownish. Forewing weakly expanding terminally; costa somewhat convex; termen straight to middle, indistinctly oblique. Ground colour cream sprinkled and suffused brownish yellow preserved along dorsum to indistinct ocellus; costal half of wing brownish; costal strigulae cream, divisions brownish. Markings in form of brownish dorsal part of basal blotch and dark brown longitudinal fascia limiting fascia of ground colour. Cilia greyish cream. Hindwing pale brownish; cilia dirty cream.

Male genitalia (Fig. 11). Uncus moderately short, somewhat tapering terminad; socius large, rounded at base, pointed; basal half of valva broad; neck reduced marked by minute ventral concavity at the distal end of sacculus; large, postmedian group of setae on sacculus; cucullus slightly depressed beyond ventral lobe; aedeagus broad to middle; cornuti long (present in paratype).

Female genitalia (Fig. 27). Cup-shaped sterigma well sclerotized, subsquare; postostial sterigma expanding posterad, weakly sclerotized along middle; cingulum long; signa large; scent organ of subgenital sterite in form of a pair of concavities.

Material examined

Holotype male: "Brasil: Paraná, Marumbi, Morretes 500 m, 17. XII. 1969, Becker & Laroca; Col. Becker 10870"; GS 783 WZ. Paratypes 6 specimens, same label, one female with GS 782 WZ.

***Crociosema atrovirens* sp. n.**

(Figs 28, 53)

Diagnosis

In the facies *C. atrovirens* is similar to *C. lantana* but *atrovirens* is distinguished by the black and green colouration of its forewing and the very long, weakly sclerotized cingulum.

Description

Wing span 15 mm. Head and thorax green. Forewing not expanding terminally; costa straight; termen convex beneath postapical concavity. Ground colour green in costal area glossy in dorsal area yellowish green with small rust mark in middle near median cell; costal strigulae very small, white; divisions black; ocellus pale green with distinct refractive proximal line. Markings: green dotted black remnants of basal blotch near dorsum; ferruginous brown costal half of median fascia marked black followed by rust cream area of ground colour at costa, rust brown near end of median cell; brown and green marked black remnants of subterminal fascia and black spot at apex. Cilia yellowish brown with brown interruptions medially. Hindwing brown, brownish cream basally; cilia brownish.

Male unknown.

Female genitalia (Fig. 28). Postostial sterigma proportionally small, weakly sclerotized, slightly incised posteriorly; antrum membranous; ductus bursae long; cingulum long, rather weakly sclerotized; signa very large.

Material examined

Holotype male: "Cuba: S[an]t[ia]go, 1500 m, Sier.[ra] Maestra, P. Cuba, 31. VII. 1990, V. O. Becker Col.; Col. Becker 73603"; GS 1266 WZ. Paratypes 4 identically labelled females.

Etymology

The name highlights the colouration of the forewing: Latin: ater – black, virens – green.

***Crociosema bidepas* sp. n.**

(Figs 29, 54)

Diagnosis

C. bidepas is closely related to *C. lantana* as the shape of the female genitalia show; but *bidepas* has long sterigma, deep pockets in the subgenital sternite scent organ, and a weakly developed cingulum.

Description

Wing span 14 mm. Head yellowish brown, thorax scaled greenish. Forewing uniformly broad; costa straight; termen slightly oblique, weakly concave beneath apex. Ground colour cream brown with dark brown dense strigulation; dorsal patch and ocellus cream with slight greenish hue, cream admixture beyond costal half of median fascia; costal strigulae small, white, divisions brown. Markings brown consisting of dorsal remnants of postbasal fascia;

median fascia with yellowish brown marks in median and dorsal part; remnants of posterior fascia. Cilia cream brown with browner parts. Hindwing brownish, cilia similar.

Male unknown.

Female genitalia (Fig. 29). Postostial sterigma long, distinctly incised posteriorly; antrum membranous; ductus bursae with two longitudinal sclerites and weak ring forming cingulum; signa large.

Material examined

Holotype female: "Cuba: Pinar Rio, Sierra Rosario, 400 m, 4-6. X. 1989, V.O. Becker Col; Col. Becker 70687"; GS 1195 WZ. Paratypes 3 identically labelled females.

Etymology

The specific name refers to the pockets for scent scales in the subgenital plate; Latin: bi – twice; Greek: depas – a cup.

***Crocidosema meridospila* (MEYRICK, 1922)**

(Figs 12, 30, 55, 56)

Description

Male genitalia (Fig. 12). Uncus long, slender; socius moderately broad, curved; basal part of valva broad; dorsal lobe at end of basal cavity large, pointed; neck indistinct; sacculus convexly rounded; cucullus not broadening posteriorly; aedeagus broad, rather short.

Female genitalia (Fig. 30). Postostial sterigma weakly sclerotized; anteostial part short, cup-shaped; cingulum rudimentary; blades of signa large; scent organs of subgenital sternite weak, parallel to ductus bursae.

Material examined

Eight specimens from British Virgin Islands: Guana Island (0-80 m, 9-23. VII. 1987; CB 66720; GS 1277 WZ, 1278 WZ).

Remarks

The male genitalia are almost identical with the illustration of the lectotype from Obidos, Brazil by CLARKE (1958, Pl. 185, Fig. 3, 3a); the facies is slightly different.

***Crocidosema peroteana* sp. n.**

(Figs 13, 57)

Diagnosis

C. peroteana is closely related to *C. cosmoptila* (MEYRICK, 1917) from Argentina but *peroteana* has a shorter uncus and a longer aedeagus, a larger ventral lobe of the cucullus with a concave caudal edge. From *C. multistrigata* RAZOWSKI & WOJTUSIAK, 2008 from Carchi Province *peroteana* can be distinguished by its larger size, the numerous costal strigulae of the forewing, a longer uncus and the cucullus perpendicular to the ventral edge of the sacculus. *C. peroteana* is also similar to *Argyroploce sediliata* MEYRICK, 1912 from Colombia (placed by

CLARKE, 1958 in *Eucosma* HÜBNER, [1825] but the illustrations of the male genitalia are not sufficiently clear) from which *peroteana* differs in the convex caudal edge of the cucullus.

Description

Wing span 24 mm. Head and thorax brownish. Forewing weakly expanding terminally; costa almost straight, fold slender; termen slightly oblique, concave near middle. Ground colour brownish cream strigulated and spotted brown; dorsal patch creamer, ocellus whiter; costal half of wing more brownish with longitudinal brown suffusions; costal strigulae numerous, very small, cream; divisions brown; apical spot brown; refractive lines and two blackish spots in ocellus. Cilia grey-brown with darker lines and cream termination. Hindwing brownish cream, browner on peripheries; cilia whitish grey.

Male genitalia (Fig. 13). Uncus moderately long, broad basally; socius large, tapering terminally; base of valva broad; neck broad; sacculus broadly angulate; cucullus slender with distinct ventral lobe and weakly concave caudal edge; aedeagus slender; henion long.

Female unknown.

Material examined

Holotype male: "Mexico: Ver.[acruz], Cofre de Perote 3300 m, 4. VI. 1997, V.O. Becker Col; Col. Becker 109500"; GS 1368 WZ.

Etymology

The name refers to the type locality.

Crociosema tainia sp. n.

(Figs 14, 58)

Diagnosis

C. tainia is related to *C. tenebrica* (RAZOWSKI & WOJTUSIAK, 2008), comb. n. from Ecuador but *tainia* is distinguished by the slender forewing, the broad uncus, and the curved terminal part of the cucullus.

Description

Wing span 16 mm. Head and terminal part of labial palpus white, remainder of palpus brownish; thorax brownish, white along middle, tegula with brown fasciae. Forewing not expanding terminally; costa almost straight; termen straight rather than oblique to middle. Ground colour brownish with brown and rust brown marks; dorsum white cream; ocellus white cream with three black spots; costal strigulae indistinct, small, whitish; divisions brown. Dorsal edge of dark area expanding near middle and tornus. Cilia damaged. Hindwing brownish grey paler basally; cilia greyish.

Male genitalia (Fig. 14). Basal half of uncus broad, termination slender; socius broad, slender distally; henion sclerites slender; sacculus rounded ventrocaudally with small group of spines at the angle; neck of valva short, incision deep; cucullus expanding posteriorly with rounded dorsal lobe; aedeagus fairly short.

Female unknown.

Material examined

Holotype male: "Brasil: GO[ias], Alto Paraiso, 1300 m, 30. V. 1994, V.O. Becker Col; Col. Becker 97853"; GS 1111 WZ.

Etymology

The name refers to the colouration of the forewing dorsum: Greek: *tainia* – a ribbon.

Remarks

One specimen from Cuba (Pinar Rio, Sierra Rosario, 400 m, 5-15.VI. 1990; CB 71545, GS 1328 WZ) may represent a distinct species but shows only slight differences from the holotype (the oblique proximal edge of the basal cavity of the valva, the shorter cucullus with distinctly convex caudal edge).

***Crociosema argentonivea* sp. n.**

(Figs 15, 59)

Diagnosis

C. argentonivea is related to *C. tainia* but its *socii* and *uncus* are similar to those of *C. puertoricana* and the *aedeagus* to *C. guarandae* (RAZOWSKI & WOJTUSIAK, 2008) comb. n.; in the *facies*, *argentonivea* differs considerably from the two mentioned species chiefly in the white ground colour of the forewing.

Description

Wing span 16 mm. Head and thorax white, base of tegula brown. Forewing weakly expanding terminally; costa rather straight, fold slender; termen gently depressed towards middle, weakly oblique. Ground colour silver white preserved as costobasal diffuse blotch, dorsal basal and median patch and ocellus; some whitish scaling postmedially; remaining area of wing pale blackish brown with much darker parts. Markings blackish brown in form of costal remnants of median fascia and dorsal projections limiting dark area. Cilia (damaged) white with brown parts. Hindwing cream tinged brown on peripheries; cilia damaged.

Male genitalia (Fig. 15). *Uncus* moderately broad; *socius* broadest medially; basal part of valva broad; angle of sacculus rounded; neck of valva distinct; ventral lobe of cucullus small, caudal edge convexly rounded; *aedeagus* broad basally, slender beyond zone.

Female unknown.

Material examined

Holotype male: "Ecuador: Past.[aza], Mera 1300 m, XII. 1992, V.O. Becker Col; Col. Becker 100707"; GS 806 WZ.

Etymology

The name refers to the ground colour of the forewing: Latin: *argenteus* – of silver colour; *niveus* – snow colour.

***Crociosema dematia* sp. n.**

(Figs 16, 60)

Diagnosis

In the facies, *C. dematia* is similar to *C. tainia* and the Ecuadoran *C. runtunica* (RAZOWSKI & WOJTUSIAK, 2009), comb. n. but *dematia* differs in having a weakly oblique forewing termen, a long uncus and long, slender socii.

Description

Wing span 16 mm. Head cream, thorax cream tinged brownish with brown markings. Forewing slightly expanding terminally; costa straight; termen weakly oblique, straight. Ground colour cream tinged and sprinkled brown forming a dorsal fascia and ocellus; remaining area brownish cream suffused and sprinkled brown, paler in basal third than otherwise, dark brown along middle; costal strigulae numerous, dense, small; divisions brownish. Cilia damaged (in tornal part cream). Hindwing cream white, brownish apically; cilia whitish.

Male genitalia (Fig. 16). Uncus moderately long, broadening basally; socius long, slender; sacculus short, angulate; neck of valva short, indistinct; cucullus slender, broadening terminally with well-developed ventral lobe; aedeagus moderately short.

Female unknown.

Material examined

Holotype male: "Ecuador: Loja, Loja 2750 m, 21. XII. 1992, V.O. Becker Col; Col. Becker 103169"; GS 1036 WZ.

Etymology

The specific epithet refers to the colouration of the forewing dorsum; Greek: dema – a ribbon.

***Crociosema carchinaia* sp. n.**

(Figs 17, 31, 61, 62)

Diagnosis

C. carchinaia is related to *C. chlorochara* (RAZOWSKI & WOJTUSIAK, 2008), comb. n.; *carchinaia* is distinguished chiefly by the cream colouration of its forewing, the strong reduction of the neck of the valva and the slender, weakly expanding posterad cucullus. The female is distinguished by the wing-shaped lateral parts of the postostial sterigma.

Description

Wing span 16 mm. Head and thorax cream white, base of tegula brown. Forewing weakly expanding terminally; costa straight, fold slender; apex rounded; termen slightly oblique, weakly sinuate towards middle. Ground colour whitish in part mixed cream, sparsely dotted brown-grey, with a few concolorous lines along middle; apex area tinged grey; costal strigulae concolorous with the ground, divisions – with maculation. Markings brownish grey traces of usual elements and black streaks on remnants of grey subterminal fascia. Cilia cream with brownish grey suffusions. Hindwing cream tinged brownish of peripheries; cilia similar.

Variations. Paratype female slightly darker than holotype with better developed markings and blackish dorso-postmedian spot.

Male genitalia (Fig. 17). Uncus large, broad basally, wedge-shaped; socius moderately broad terminally; henion sclerites slender; sacculus rounded posteriorly with large group of spines at the angle; neck almost completely reduced; costa of valva strongly expanding beyond base dorsally; cucullus long, slender, slightly bent; aedeagus longer than sacculus.

Female genitalia (Fig. 31). Sclerite of cup-shaped part of sterigma short; poststernal sterigma long with lateroposterior lobes; cingulum broad proximally, slender posteriorly; blades of signa long; scent organs of subgenital sternite slender, extending distad.

Material examined

Holotype male: “Ecuador: Carchi, Maldonado, 2200 m, 9-11. I. 1993. V.O. Becker Col; Col. Becker 105309”; GS 826 WZ. Paratypes 4 identically labelled specimens one female with GS 825 WZ.

Etymology

The name refers to the province of Carchi; Greek: naio – I reside.

***Crociosema puertoricana* sp. n.**

(Figs 18, 32, 63, 64)

Diagnosis

In the facies, *C. puertoricana* is similar to *C. longipalpana* but *puertoricana* can be distinguished by its large ventral incision of the valva, the shorter cucullus, and the small, rounded proximally sclerites of the scent organ of the subgenital sternite.

Description

Wing span 12 mm. Head brownish grey with dense green scales. Forewing not expanding terminally; costa straight, bent at end of fold; apex pointed; termen gently sinuate beneath apex. Ground colour greenish densely strigulated blackish grey, dorsal patch much whiter; ocellus and costal strigulae greenish, divisions blackish. Markings: indistinct remnants of postbasal spot at dorsum, tornal blotch and median fascia. Cilia pale rust in apical and median parts of termen, greenish white at tornus. Hindwing transparent brownish, venation brownish; cilia brownish cream.

Variation. Female forewing ground colour brownish except for dorsal patch and ocellus which are greenish; strigulation distinct. Markings brown: rather well developed dorso-postbasal blotch and median fascia.

Male genitalia (Fig. 18). Uncus fairly long; sacculus rounded ventroposteriorly; neck of valva large, rather slender; cucullus elongate-oval with broad ventral lobe; aedeagus much longer than socius.

Female genitalia (Fig. 32). Cup-shaped sterigma reduced to a slender ring; poststrial sterigma expanding posteriorly with sharp lateral ends; sclerite of sterigma absent; cingulum slender; signa almost equally long, slender.

Material examined

Holotype male: "Puerto Rico, Patillas 590 m, VIII. 1987, V.O. Becker Col; Col. Becker 68279"; GS 1176 WZ. Paratypes two males and two females, same label, GS 1177 WZ and 1168 WZ.

Etymology

The name refers to the country of origin of the moth.

***Crociosema cayeya* sp. n.**

(Figs 33, 65)

Diagnosis

C. cayeya is externally similar and closely related to *C. lantana* but *cayeya* has large poststrial sterigma, a small cingulum, larger signa, oblique inner folds of the scent organ of the subgenital sternite and additional inner sclerites.

Description

Wing span 13 mm. Head and thorax pale brownish. Forewing almost uniformly broad; costa straight; termen concave just beneath apex. Ground colour in form of two cream slightly tinged rust patches at dorsum and whiter, glossy ocellus; remaining area pale brownish rust sprinkled brown, paler basally, mixed rust medially; costal strigulae brownish cream, divisions brown. Markings brownish ferruginous edged black spots along dorsum (basal, submedian and tornal blotches). Cilia pale brownish rust, creamer at tornus. Hindwing transparent brownish cream basally, browner on peripheries. Cilia pale brownish.

Male unknown.

Female genitalia (Fig. 33). Sclerite of cup-shaped part of sterigma reduced; poststrial sterigma with large posterior lobes; cingulum small, incomplete; signa large. Sclerotized folds of scent organ consist of pair of oblique submedian ribs and transverse small folds in the concavity.

Material examined

Holotype female: "Puerto Rico: Cayey 450 m, 2. VII. 1987, V.O. Becker Col; Col. Becker 67036"; GS 1248 WZ.

Etymology

The name refers to the type locality.

***Crociosema cingularia* sp. n.**

(Figs 34, 66)

Diagnosis

In the facies, *C. cingularia* is similar to *C. puertoricana* but has white dorsal patches on the forewing; *cingularia* and *C. opposita* have a similar cup-shaped part of the sterigma and a reduced postostial part, but *cingularia* has a very long cingulum.

Description

Wing span 12 mm. Head cream brown, labial palpus brown subterminally; thorax cream white with brown marks and base of tegula. Forewing not expanding terminally; costa straight; termen lightly oblique, indistinctly sinuate. Ground colour white forming two dorsal blotches connected medially, and ocellus; costal strigulae white, slender except for the subapical, divisions dark brown; costal half of wing brownish mixed white in basal third, spotted and strigulated black-brown especially at the ground colour patches; concolorous fascia reaching apex. Cilia blackish in median and dorsal parts grey, cream at tornus. Hindwing pale cream brown, paler basally; cilia similar.

Male unknown.

Female genitalia (Fig. 34). Ovipositor elongate, apophyses posteriores slender; sclerite of cup-shaped part of sterigma moderately large, broadest subterminally; cingulum almost as long as ductus bursae; blades of signa unequally long, slender.

Material examined

Holotype female: "Cuba; S[an]tiago. Turguino 470 m, 27/9. VII. 1990, V.O. Becker Col; Col. Becker 73394"; GS 1246. Paratypes, two identically labelled females.

Etymology

The specific name refers to large cingulum.

***Crociosema meteora* sp. n.**

(Figs 19, 67)

Diagnosis

C. meteora is closely related to the Ecuadoran *C. guarandae* (RAZOWSKI & WOJTUSIAK, 2008) comb. n. but the two are conspicuously different in facies; *guarandae* has a slender forewing, expanding terminally, with an oblique termen and greenish colouration; in the male genitalia *guarandae* has a slenderer uncus, a shorter socius and a small number of the spines on the sacculus.

Description

Wing span 13 mm. Head and thorax cream ferruginous. Forewing not expanding posteriorly; costa straight (bent medially, fold slender); termen oblique, weakly sinuate. Ground colour cream in large parts tinged pale ferruginous, with a few cream lines along middle and brown spots, cream at costal part of median fascia; costal strigulae cream, divisions yellow-brown; ocellus cream, glossy proximally. Markings indistinct yellow-brown edged brownish consisting of median fascia and subterminal marks. Cilia (damaged) cream with dark brown basal line. Hindwing pale brownish cream darker on peripheries, whiter basally; cilia cream in apical half of wing mixed brownish.

Male genitalia (Fig. 19). Uncus moderately large, broad basally, densely hairy; socius slender, long with broadened hairy base; basal part of valva very broad with broad dorsal lobe; sacculus angulate, spined at angle; cucullus directed dorsally, slender beyond neck; aedeagus long, with slender posterior part.

Female unknown.

Material examined

Holotype male: "Costa Rica: Cerro la Muerte 3100 m, 5-7. VIII. 1981, V.O. Becker Col; Col. Becker 45034"; GS 857 WZ.

Etymology

The name refers to the position of the distal part of the valva; Greek: meteora – raised.

***Crociosema obta* sp. n.**

(Figs 20, 68)

Diagnosis

C. obta is related to *C. venata* RAZOWSKI & WOJTUSIAK, 2006 from Venezuela; *obta* is distinguished by the pale brownish cream venation of the forewing and the broad neck of the valva.

Description

Wing span 15 mm. Head and thorax brownish cream. Forewing slightly expanding terminally; costa almost straight, fold very slender; termen straight, not oblique. Ground colour brownish cream, cream along termen; veins cream. Markings completely atrophied. Cilia cream sparsely scaled brown. Hindwing brownish cream, creamer basally; cilia cream.

Variation. Two paratypes larger (wing span 18 mm) and darker than holotype with brownish ground colour and paler venation, cream dorsally, dotted along dorsum.

Male genitalia (Fig. 20). Uncus small, slender; socius moderately broad, tapering terminally; sacculus convexly rounded; neck of valva broad; cucullus as long as sacculus, broad, rounded caudally; aedeagus slender; cornuti long.

Female unknown.

Material examined

Holotype male: "Ecuador: Loja, Loja 2750 m, 21. XII. 1992, V.O. Becker Col; Col. Becker 103170"; GS 978 WZ. Paratypes 4 specimens males labelled as above or from Azuay (Cajas, 3150 m, 23. XII. 1992, CB 103285; one with GS 977 WZ) and Sucum[...] (Sta Barbara 3400 m, 8. I. 1993; CB 104338; one with GS 980 WZ).

Etymology

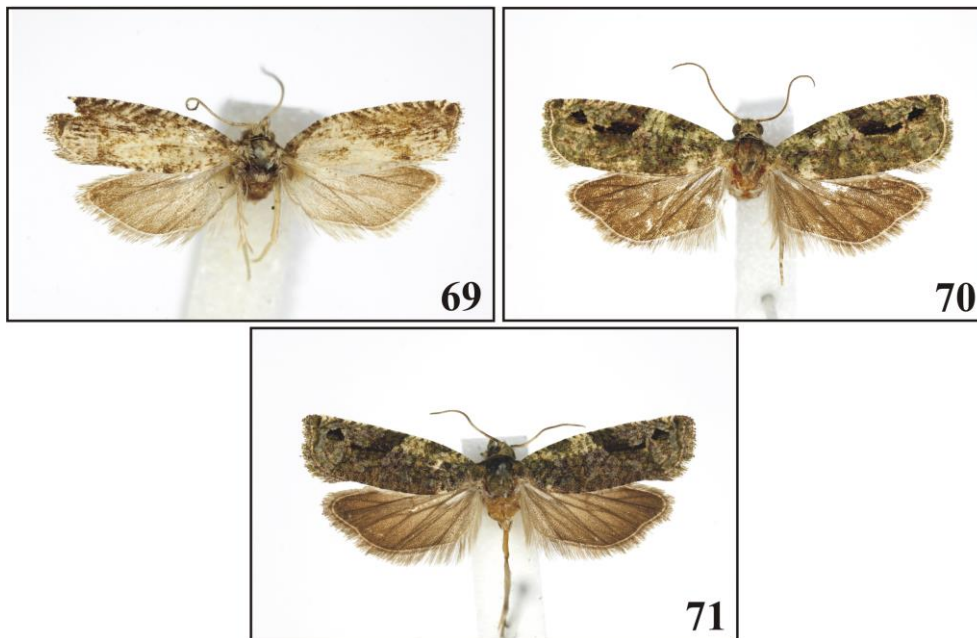
The specific name refers to the shape of the end of sacculus; Latin: obta – blunt.

Crociosema plebejana ZELLER, 1847**Material examined**

One male from British Virgin Is. (Guana I., 0-80 m, 9-23. VII.1987; CB 66710; GS 1219 WZ).

Remarks

C. plebejana is a cosmopolitan species probably widely distributed in the Neotropical region from which some species were described (compare CLARKE, 1958; RAZOWSKI et al. 2008) and occasionally treated as synonymous. The problem is, however, not solved and requires molecular study.



Figs 69-72. Adults: 69 – *Crociosema roraria* sp. n., holotype, 70 – *Crociosema myceteria* sp. n., holotype, 71 – *Crociosema connexa* sp. n., holotype.

***Crociosema roraria* MEYRICK, 1917**

(Figs 21, 69)

Material examined

Three males from Goiás, Brazil (Ipameri, 10. X. 1988, CB 59708; GS 870 WZ).

Remarks

This species is characterized by the lack of large spines on the cucullus. It was illustrated by CLARKE (1958) but the comparison cannot be accurate because of the insufficiently clear drawing of the male genitalia. In the facies, our specimen differs from CLARKE'S figure in the distinctly oblique forewing termen.

***Crociosema mycteria* sp. n.**

(Figs 35, 70)

Diagnosis

C. mycteria is related to *C. plebejana*; *mycteria* is distinguished by having sharp, subtriangular processes of the subgenital sternite and greenish colouration of the forewing.

Description

Wing span 18 mm. Head and thorax brownish tinged green, frons brownish white. Forewing weakly expanding terminally; costa bent at middle; termen incised beneath apex. Ground colour greenish cream suffused green inside interfasciae, browner dorsally; strigulation brownish and grey; costal strigulae concolorous with ground colour, divisions brownish grey. Markings brownish green with black parts: basal blotch almost complete with straight posterior edge; median fascia atrophying dorsally, parallel to the former; subterminal fascia indistinct but marked by black median blotch. Sparse groups of erect scales both on ground colour and markings. Cilia grey-green. Hindwing brown, cilia paler.

Male unknown.

Female genitalia (Fig. 35). Cup-shaped part of sterigma about one third of the length of posterior part, weakly expanding posterad; cingulum long, submembranous medially; signa unequal, one twice as broad as the other. Subgenital sternite with pair of sclerotized processes connected by a slender median rib.

Material examined

Holotype female: "Mexico: Tam[aulipas], Gomes Farias 1000 m, 29-31. VII. 1988, V.O. Becker Col; Col. Becker 69830"; GS 1106 WZ.

Etymology

The name refers to the presence of the sclerotic processes of the subgenital sternite; Greek: mykter – a beak.

***Crociosema connexa* sp. n.**

(Figs 36, 71)

Diagnosis

C. connexa is closely related to *mycteria* and *plebejana* from which it differs by the shape of the processes of the subgenital sternite; the processes of *connexa* are almost spiniform and are connected by a broad proximal sclerite.

Description

Wing span 22 mm. Head brown-green; thorax concolorous but with blackish and brown marks. Forewing uniformly broad throughout; costa bent basally; termen incised beneath apex. Ground colour grey sprinkled whitish at costa, whitish before costal part of median fascia, brownish along dorsum; strigulation brown and blackish; green suffusion on dark parts of wing; costal strigulae small greyish, divisions grey. Markings blackish with black marks: basal blotch consisting of a few marks; median fascia concave in middle proximally; subapical fascia marked by black spot. Hindwing brown, cilia paler.

Male unknown.

Female genitalia (Fig. 36). Cup-shaped part of sterigma fairly broad about half the length of the posterior part; cingulum broad; signa unequally large. Processes of subgenital sternite slender connected by broad proximal sclerite.

Material examined

Holotype female: "Brasil: S[ão]P[aulo], São Paulo 1000 m, 29. I. 1993, V.O. Becker Col; Col. Becker 86842"; GS 1105 WZ. Paratypes 2 females, same labels.

Etymology

The name refers to a connection with the *plebejana*-group of species.

REFERENCES

- BROWN J.W., PENA J., VAZQUEZ T., BAIXERAS J. 2002. Description of a new tortricid pest (Lepidoptera: Tortricidae: Olethreutinae) of litchi (*Litchi chinensis*) in Florida, with a review of tortricid pests of litchi worldwide. *Proceedings of the Entomological Society of Washington* **104**(2): 318–329.
- BROWN R. L. 1986. Resurrection of *Catastega* CLEMENS and revision of the *Epinotia vertummana* (ZELLER) species-group (Tortricidae: Olethreutinae). *Journal of the Lepidopterists' Society* **40**(4): 327–346.
- GILLIGAN T.M., WRIGHT D.J., GIBSON L.D. 2008. Olethreutine Moths of the Midwestern United States. An identification guide. *Bulletin of the Ohio Biological Survey, New Series* **16**(2): 1–334.
- HORAK M. 2006. Monographs on Australian Lepidoptera 10. Olethreutinae moths of Australia (Lepidoptera: Tortricidae). CSIRO, Canberra.
- HEINRICH C. 1923. Revision of the North American moths of the subfamily Eucosminae of the family Olethreutidae. *Bulletin of the United States National Museum* **123**: I–IV, 1–297.

- HEINRICH C. 1931. Notes on and descriptions of some American moths. *Proceedings of the U.S. National Museum* **79**(13): 1–16.
- POWELL J.A., RAZOWSKI J., BROWN J. W., BROWN R.L. 1995. Tortricidae. [in:] J.B. HEPPNER (ed.). *Atlas of Neotropical Lepidoptera. Checklist: Part 2. Hyblaeoidea – Pyraloidea – Tortricoidea*. FL Scientific Publishers, Inc., Gainesville: 138–157.
- RAZOWSKI J. 1989. The genera of Tortricidae (Lepidoptera). Part II: Palaearctic Olethreutinae. *Acta zoologica cracoviensia* **32**(2): 107–328.
- RAZOWSKI J. 2003. Tortricidae (Lepidoptera) of Europe, Volume 2. Olethreutinae. František Slamka, Bratislava.
- RAZOWSKI J., LANDRY B., ROQUE-ALBELO L. 2008. The Tortricidae (Lepidoptera) of the Galapagos Islands, Ecuador. *Revue suisse de Zoologie* **15**(1): 185–220.
- RAZOWSKI J., WOJTUSIAK J. 2006. Tortricidae (Lepidoptera) from the Valley of Rio Gualaceo, East Cordillera in Ecuador, with descriptions of new taxa. *Acta zoologica cracoviensia* **49B**(1-2): 17–53.
- RAZOWSKI J., WOJTUSIAK J. 2008. Tortricidae from the mountains of Ecuador. Part III: Western Cordillera (Insecta: Lepidoptera). *Genus* **19**(3): 497–575.
- ZIMMERMANN E.C. 1978. *Insects of Hawaii. A manual of the insects of the Hawaiian Islands, including an enumeration of the species and notes on their origin, distribution, hosts, parasites, etc. Volume 9. Microlepidoptera. Part I. Monotrysia, Tineoidea, Tortricoidea, Gracillarioidea, Yponomeutoidea, and Alucitoidea*. Honolulu: University Press of Hawaii.

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