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Descriptions of new Tortricidae (Lepidoptera) reared from native fruit in Kenya

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Abstract

One new genus, *Concinocordis* (Enarmoniini), and 13 new species, *Phtheochroa aarviki* (Cochylini), *Endothenia ator* (Bactrini), *Concinocordis wilsonarum*, *Anthozela psychotriae* (both Enarmoniini), *Cosmetra podocarpivora*, *Cosmetra taitana*, *Gypsonoma scolopiae* (all Eucosmini), *Thaumatotibia salaciae*, *Cydia connara*, *Cydia sennae*, *Fulcrifera crotalariae*, *Stenentoma sorindeiae*, and *Thylacogaster garcinivora* (all Grapholitini), are described and illustrated. All specimens of these new species were reared from native fruit in Kenya. Two new combinations are proposed, *Cydia anthracotis* (Meyrick) (transferred from "*Laspeyresia*") and *Cosmetra nereidopa* (Meyrick) (transferred from *Sycacantha*), and the female genitalia of *Anthozela chrysoxantha* Meyrick are illustrated for the first time.

Key words: Afrotropical Region, genitalia, host plants, moths, new genus, new species, systematics, USAID

Introduction

The tortricid fauna of the Afrotropical Region is probably the least known of any major biogeographic realm. The foundation of our knowledge was laid by Diakonoff (1957a, b, 1958, 1959a, b, 1960, 1961, 1963a, b, 1977, 1981, 1983, 1988a, b, 1989a, b, 1992) through numerous contributions focused primarily on Madagascar. Razowski (1981) reviewed the Nigerian Tortricini and later (Razowski 1993) the Cochylini of the Afrotropical Region; Razowski (1995) subsequently compiled a catalogue of Chlidanotinae and three tribes of Tortricinae (Phricanthini, Cochylini, and Tortricini) for the region. Illustrations of many of the types of tortricids described by Edward Meyrick from the region are available in Clarke (1958, 1963). Razowski and Krüger (2007) provided color images of the type specimens of Tortricidae deposited in the Transvaal Museum, Pretoria, and most recently Razowski *et al.* (2010) provided images of those deposited in the Royal Museum for Central Africa, Tervuren, Belgium. Over the last decade, systematic and faunal studies by Aarvik (2004a, b, c, 2005, 2008a, b, 2010), Razowski (2002a, b, 2004, 2005, 2006a, b), Karisch (2005a, b), Aarvik and Karisch (2009), and others have contributed significantly to the growing inventory of the region, and a broad picture of the fauna is beginning to emerge. Nonetheless, a significant portion of the tortricid fauna remains undescribed, and larval food plants and life histories for the vast majority are unknown.

This paper is based on specimens reared from native fruits in Kenya in association with a project funded by the United States Agency for International Development (USAID) focused on fruit fly (Diptera: Tephritidae) pests. A summary of all the tortricids reared during that project will be presented elsewhere. The purpose of this contribution is to make available the names of new taxa to be used in that proposed work. This paper provides descriptions and illustrations of one new genus and 13 new species and proposes two new combination.

Material and methods

The study sites and methods of fruit-sampling and insect-rearing are described in detail by Copeland *et al.* (2002). All sampling was done in Kenya, primarily east and west of the Great Rift Valley – four sites in Central Province,

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11 sites in Coast Province, two sites in Eastern Province, one site in Western Province, and one site in Nyanza Province. Sites were selected to maximize the diversity of native plant species; fruits were sampled from open woodlands, shrublands, dunes, and coral rag associations (rubbly limestone composed of ancient coral reef), from 7 to 2300 m elevation.

Dissection methods follow those presented in Brown and Powell (1991). Images of adults and genitalia were captured using a Microptics Digital Imaging System. Terminology for genitalia structures and forewing pattern elements follows Razowski (2002c); we use the term "speculum" for the typical modified scaling in the forewing tornus in Eucosmini, Enarmoniini, and Grapholitini frequently referred to as the "ocellus" or "ocelloid patch" to avoid confusion with the ocellus of the head. "Dorsum" refers to the trailing edge of the forewing which represents the dorsum of the moth when the wings are in their resting posture. "Notum" refers to the dorsal surface of the thoracic segments. All dissected male genitalia were examined using a compound scope to determine the presence/absence of cornuti and/or sockets. In the specimens examined sections, "A&M" on specimen labels refers to Texas A&M University, one of the recipients of funding from USAID. The label on every specimen indicates "R.S. Copeland, ICIPE/USAID" and those data are excluded from the holotype and paratype data presented in the text.

Holotypes of all new species are deposited in the National Museums of Kenya, Nairobi. Paratypes are deposited in the latter and in the National Museum of Natural History, Smithsonian Institution, Washington, DC, USA. Abbreviations used in text are as follows: TL = type locality; GS = genitalia slide; r.f. = reared from.

Systematics

Tortricinae: Cochylini

Phtheochroa Stevens, 1829

Type species: *Tortrix rugosana* Hübner, [1796–1799]

Species currently included in *Phtheochroa* have been treated variously as *Hysterosia* Stephens, 1852, *Trachysmia* Guenée, 1845, or *Phtheochroa*, but there has been considerable inconsistency in the application of these names. The type species of the three genera have very similar male genitalia and a forewing costal fold in the male. Although male secondary structures such as a costal fold typically are unreliable indicators of relationship, within Cochylini a male costal fold occurs only in the species of this genus (but not all included species have a costal fold).

Based on facies, species of *Phtheochroa* (sensu stricto) (type species *rugosana* Hübner [1796–1799]) can be separated from those of *Hysterosia* (sensu stricto) by a banded forewing pattern, usually with conspicuously upraised scales, and a reduction or loss of the forewing costal fold. However, on the basis of the male genitalia of the type species, *Hysterosia* (i.e., *inopiana* [Haworth 1811]) and *Trachysmia* (i.e., *duponchelana* Duponchel, 1843) are almost certainly congeneric. The type species of *Phtheochroa* (i.e., *rugosana*) has similar genitalia, but with a much shorter uncus. While a short uncus and banded forewing pattern are somewhat concordant, these characters are not shared by all species in the group. Until a phylogenetic analysis of the included species is performed, it is uncertain whether the three genera are each monophyletic (representing genera, subgenera within *Phtheochora*, or species groups) or one or more are paraphyletic with respect to the others. In the absence of compelling evidence to the contrary, we opt for a conservative approach and retain all in *Phtheochroa*.

As currently defined, *Phtheochroa* includes 110 species distributed primarily in the Palearctic, Nearctic, and Neotropical regions (Brown 2005). Three recently described species are known from the Afrotropical region: *P. natalica* Razowski, 2005, *P. lonnvei* Aarvik, 2010, and *P. kenyana* Aarvik, 2010. Most species have a well-developed, long, rodlike uncus; large, pendant socii; a large, broad phallus with 1–2 (rarely 3) long cornuti; a transtilla with a short, usually rectangular mesal lobe; and long, parallel-sided valvae with a distinct sacculus and a sclerotized costa.

Whereas most Cochylini utilize Asteraceae as larval food plants, many species of *Phtheochroa* apparently prefer other plant families, including Acanthaceae, Berberidaceae, Chenopodiaceae, Cucurbitaceae, Dipsacaceae, Liliaceae, Plumbaginaceae, Poaceae, Rhamnaceae, Rosaceae, Salicaceae and Ulmaceae (Brown *et al.* 2010).

***Phtheochroa aarviki*, sp. n.**
Figs. 1, 15, 16, 29

Diagnosis. *Phtheochroa aarviki* is most similar to *P. kenyana* in facies and genitalia. The two share a similar forewing pattern, but the ground color of *P. aarviki* is dark gray-brown (Fig. 1) compared to the pale gray-brown of *P. kenyana* (Aarvik 2010: fig. 41). The male genitalia of *P. aarviki* can be distinguished from those of *P. kenyana* by the blunt termination of the median process of the transtilla (an emarginate, U-shaped termination in *P. kenyana*) and the presence of two large cornuti in the vesica (one in *P. kenyana*). In the female genitalia, the narrow band of the antrum is attached to a broad, sclerotized plate in *P. aarviki* which is absent in *P. kenyana*. Both species share with *P. ingridae* Huemer, 1990 from Europe (see Razowski 2002c) and species of *Actihema* Razowski, 1993 from eastern Africa (see Aarvik 2010) an unusual, highly modified juxta with a long slender mesal process and the uncus reduced to a small mesal lobe (i.e., *P. ingridae*) or lost altogether (i.e., *Actihema*). However, it is uncertain whether these character states are synapomorphies or merely reflect convergence. These species are easily distinguished by a number of other features: the socii are broad basally and digitate distally in *Actihema* (Aarvik 2010: figs. 27–36), rounded in *P. ingridae* (Razowski 2002: fig. 75), and subtriangular in *P. aarviki* (Fig. 15) and *P. kenyana* (Aarvik 2010: fig. 4). The elongate process of the juxta is densely spined in the distal half in *Actihema* and smooth throughout in *P. ingridae*, *P. aarviki*, and *P. kenyana*. The ventral edge of the valva is somewhat rounded from the sacculus to the apex in *Actihema*, *P. aarviki*, and *P. kenyana*, whereas it is deeply concave basally in *P. ingridae*. The phallus is slender in the distal half (width < 0.18 times length) and the vesica lacks cornuti in *Actihema*, whereas it is wider (width 0.25–0.30 times length) in *P. ingridae* and *P. aarviki*, with one large cornutus in *P. ingridae* and *P. kenyana*, and two large cornuti in *P. aarviki*. The male genitalia of *P. aarviki* and *P. kenyana* also are somewhat similar to those of *Trachybyrsis euglypta* Meyrick, 1927, particularly in the overall shape of the valva and phallus; *P. aarviki* also shares with *T. euglypta* two cornuti in the vesica. However, *T. euglypta* lacks the long, dorsomedian process of the juxta and has an elongate-rectangular median process from the transtilla (broad and rounded in *P. aarviki*). The median process of the transtilla of *P. aarviki* is similar to that of *Eugnosta assecula* (Meyrick, 1909) from South Africa, but *P. aarviki* lacks the erect rigid socii characteristic of *Eugnosta* Hübner [1825], 1816.

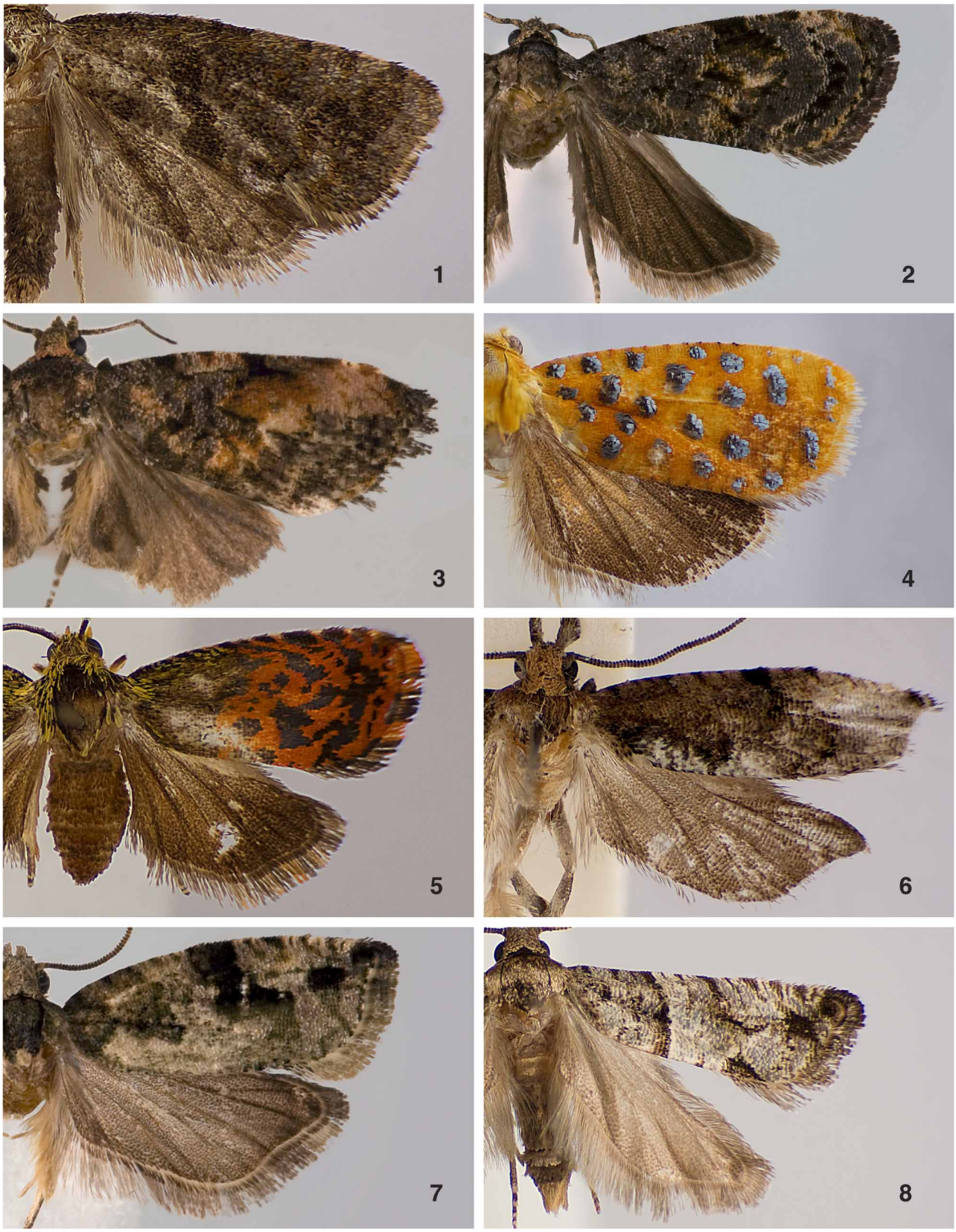
Description. Male. *Head*: Vertex and frons olive gray; labial palpus olive gray with a small patch of cream scales dorsally on subbasal portion on segment II, length 3 times horizontal diameter of compound eye. *Thorax*: Notum brownish gray, darker than head; legs unmodified, without sex scales in male. Forewing length 6.5–6.8 mm (n = 2); forewing (Fig. 1) slightly expanding distally; costa weakly curved throughout, costal fold absent; termen weakly oblique to costa, slightly sinuate before middle; ground color whitish gray, densely scaled with dark brownish gray, darker in distal 0.33 of wing than in basal portion; pattern weak, in form of brown, faint, oblique fasciae from basal 0.3 of costa to near mid-dorsum; costa with ill-defined, small, faint brownish orange, subapical patch; fringe cream gray basally, dark brown distally. Hindwing brownish gray; basal 0.4 of costa with distinct pale orange hairpencil; fringe brownish gray with darker basal area. *Abdomen*: Genitalia (Fig. 15) with uncus in form of rudimentary median prominence at posterior end of tegumen; socii broad, short, subtriangular; valva broad to about middle, then tapering distally; sacculus simple, uniformly broad throughout; median part of transtilla broad, very short, rounded, finely spined; juxta with elongate dorsomedian process; phallus (Fig. 16) moderately large, slender, with distinct attenuate ventral termination; vesica with two slender cornuti, one slightly longer than the other.

Female. *Head and thorax*: Essentially as described for male, except forewing length 7.0 mm (n = 2) and ground color slightly paler; hindwing with number of bristles in frenulum variable: 3&3 in one specimen, 4&4 in the other (having a higher number of bristles than most Cochylini, as do other species of *Phtheochroa*; see Monsalve *et al*. 2011). *Abdomen*: Genitalia (Fig. 29) with papillae anales unmodified; apophyses anteriores about 1.8 times as long as papillae anales, slightly longer than apophyses posteriores; lamella postvaginalis with sclerotized mesal process; lamella antevaginalis rectangular, with a distinct, narrow, anterior band; accessory bursae absent; ductus bursae broad, mostly sclerotized, not differentiated from corpus bursae; origin of ductus seminalis uncertain; posterior third of corpus bursae with dense fine spines.

Holotype (♂). Kenya, Central Province, Kereita Forest, 2500 m, 0°56.40’S 36°51’E, 3 Dec 2003, A&M Coll. #2587, r.f. *Bothriocline* sp. [Asteraceae]; GS USNM 84,907.

Paratypes (2♂, 2♀). Same data as holotype; GS USNM 84,906 (♀), 118,732 (♂).

Etymology. The specific epithet is a patronym for Leif Aarvik in recognition of his exceptional work on African Tortricidae.



FIGURES 1–8. Adults of Tortricidae. 1, *Phtheochroa aarviki* (paratype male), 2, *Endothenia ator* (holotype female), 3, *Endothenia ator* (paratype male), 4, *Concinocordis wilsonarum* (holotype male), 5, *Anthozela psychotriae* (paratype female), 6, *Cosmetra podocarpivora* (holotype male), 7, *Cosmetra taitana* (holotype male), 8, *Gypsonoma scolopiae* (paratype male).

FIGURES 9–14. Adults of Tortricidae. 9, *Thaumatotibia salaciae* (holotype male), 10, *Cydia sennae* (paratype female), 11, *Cydia connara* (paratype male), 12, *Fulcrifera crotalariae* (paratype female), 13, *Stenentoma sorindeiae* (paratype male), 14, *Thylacogaster garcinivora* (paratype female).

Olethreutinae: Bactrini

Endothenia Stephens, 1852

Type species: *Tortrix gentianaeana* Hübner, [1799]

Endothenia is widely distributed in the Holarctic, Oriental, and Australian regions, encompassing 48 described species (Brown 2005, Horak 2006). Four species are recorded from the Afrotropical region: *E. alpigena* Bradley, 1965, *E. euryteles* (Meyrick, 1936), *E. nephelopsycha* (Meyrick, 1934), and *E. vasculigera* Meyrick, 1938. Razowski (1989) reviewed the Palearctic members, and Dang (1990) reviewed and critiqued the tribal assignment of *Endothenia* and relatives (formerly Endotheniini), providing compelling evidence that the genus should be included in Bactrini.

The genus is morphologically well defined, with highly derived male genitalia that feature a distally spined, club-shaped uncus and distally slender valvae with a spiny process from the ventral part of the basal excavation (Horak 2006). The signum in the female genitalia is usually a small, scobinate, pocket-shaped, invaginated plate.

The larvae of *Endothenia* are borers in the stalks, roots, seeds and fruit of numerous families of flowering plants including Acanthaceae, Asteraceae, Dipsacaceae, Gentianaceae, Lamiaceae, Plantaginaceae, Ranunculaceae, and Scrophulariaceae (Brown *et al.* 2011).

***Endothenia ator,* sp. n.**
Figs. 2, 3, 17, 30, 42

Diagnosis. The female of *Endothenia ator* (Fig. 2) is superficially similar to that of *E. euryteles* (Meyrick, 1936) (Razowski *et al.* 2010; fig. 24), but with a dark, rather than pale, hindwing. However, the forewing pattern of the male of *E. ator* (Fig. 3) is quite different. The male genitalia of *E. ator* share with *E. nephelopsycha* (Meyrick, 1934) (Razowski *et al.* 2010: fig. 68) and *E. alpigena* Bradley, 1965 (Bradley 1965: fig. 98) a distinctive patch of 10–12 large spines on the posterior distal 0.25 of the uncus. The postbasal process of the valva is large and conspicuous with a linear patch of large setae as in *E. euryteles* and *E. vasculigera* Meyrick, 1938, but in *E. ator* the process is considerably more expanded distally than in those two species, and is somewhat anvil-shaped. The male genitalia of *E. ator* are further distinguished by a broad, weakly sclerotized lobe extending ventrally from near midvalva and a deep concavity at the top of the tegumen, with the socii fused laterally at the base of the concavity.

Description. Male. *Head*: Vertex and frons dark brown, longer scales on vertex have pale brown tips; labial palpus dark brown, length ca. 1.25 horizontal diameter of compound eye; ocellus large, conspicuous. *Thorax*: Notum dark brown, posterior tuft present in male; legs unmodified, although scaling slightly more dense in males. Forewing length 6.0–7.0 mm (n = 4); forewing ground color dark gray-brown with faint, irregular, pinkish brown speckling; a large, irregular, pale bronze-orange blotch in region of median fascia; fringe yellow ochreous with pale brown terminal edge. Hindwing uniformly brown, scaling slightly lighter, less dense along costa; fringe pale beige with basal brown line; well-developed anal roll bearing a narrow patch of elongate scales. *Abdomen*: Segment VIII with a pair of broad, triangular pockets laterally (Fig. 42), attached by a sclerotized U-shaped mesal band ventrally. Genitalia (Fig. 17) with tegumen large, bearing deep semicircular excavation on top; pedunculi broad; uncus club-shaped with ca. 12 strong posterior spines on dorsum; socius fused to tegumen laterally; vinculum simple, slender; valva with large lobes from dorsobasal margin of basal cavity, densely spined distally, sacculus long; neck short, cucullus long, directed upwards, with large ventral lobe; juxta short, broad; phallus short, strongly sclerotized dorsally; caulis short; vesica with two short, capitate, fixed cornuti.

Description. Female. *Head*: Essentially as described for male. *Thorax*: Scaling of notum slightly less dense than in male. Forewing length 6.0 (n = 1); forewing ground color dark gray-brown with faint irregular darker brown and cream speckling; median fascia dark brown, well defined at costa, terminating at upper edge of discal cell; subterminal band dark brown, crescent-shaped; termen bordered by narrow row of cream colored scales, expanded in apical region; fringe yellow ochreous with pale brown terminal edge. Hindwing uniformly brown, scaling slightly lighter, less dense along costa, without anal roll of sex scales, frenulum with three bristles; fringe pale beige with basal brown line. *Abdomen*: Segment VIII without sclerotized pockets. Genitalia (Fig. 30) with papillae anales narrow throughout; apophyses long, ca. 1.5 times length of papillae anales; sterigma a lightly sclerotized nearly circular shield with a narrow, strongly sclerotized projection mesally at posterior edge; ostium bursae well defined by sclerotized ring; ductus bursae ca. 3.5 times length of corpus bursae, nearly uniform in width, slightly broadened anteriorly, slightly narrowed immediately anterad of antrum; corpus bursae oblong with semicircular, pocketlike signum characteristic of genus.

Holotype (♀): Kenya, Western Province, Kakamega Forest, Yala River, 1580 m, 19 Feb 2001, A&M [Coll. #] 1051, r.f. *Acanthus eminens* [Acanthaceae]; GS USNM 124,476.

Paratypes (3♂). Same data as holotype; GS USNM 124,436, 124,457, 85,885.

Etymology. The specific epithet is an arbitrary combination of letters.

Remarks. The sexual dimorphism in forewing pattern exhibited by this species is unique among species of *Endothenia* we examined. Unfortunately, in two of the three males, the forewing pattern is virtually non-existent owing to the poor quality of the specimens. Although the association of the sexes cannot be confirmed with cer-

tainty without additional data (e.g. DNA-barcodes), we are fairly confident that these specimens are conspecific because they all come from the same collection (lot #1051) from the fruit of *Acanthus eminens*.

Olethreutinae: Enarmoniini

Concinocordis, gen. n.

Figs. 4, 18, 31, 40, 43

Type species: *Concinocordis wilsonarum*, sp. n.

Diagnosis. Owing to its bright orange forewing ground color, *Concinocordis* is superficially similar to *Anthozela* Meyrick, 1913, *Loboschiza* Diakonoff, 1968, *Cimeliomorpha* Diakonoff, 1966, and *Enarmoniodes* Ghesquière, 1940 among genera of Enarmoniini. *Concinocordis* can be distinguished from *Anthozela* and *Loboschiza* by its slightly larger size and by the presence of numerous (21–25) raised, round patches of opalescent scales on the forewing (Fig. 4), which are similar to those of *Cimeliomorpha* Diakonoff and *Enarmoniodes*. In the latter two genera there are fewer spots. The wing venation of *Concinocordis* is most similar to that of *Irianassa* Meyrick, 1905, with the bases of Rs and M_1 quite distant from each other in the hindwing. However, beyond venation, the two have little in common. Features of the genitalia easily distinguish the new genus from those of *Cimeliomorpha* and *Enarmoniodes*. The male genitalia of *Concinocordis* have a well-developed uncus and a simple, nearly parallel-sided valva with a slightly expanded, rounded cucullus; those of *Cimeliomorpha* (e.g., *C. cymbalora* (Meyrick, 1907) and *C. nabokovi* Kuznetsov, 1997) lack an uncus and have a long, slender, pointed apex of the valva with a long, broad, ovoid saccular region that extends more than half the length of the valva (see Clarke 1958: 435, Kuznetsov 1997: 801); those of *Enarmoniodes* (e.g., *E. mirabilis* Ghesquière) lack an uncus and have a complex valva with a bulbous, rounded basoventral portion and a conspicuous hairy digitate process from the venter of the base of the cucullus. The female genitalia of *Concinocordis* have a peculiar, long, tubular signum that extends externally well beyond the wall of the corpus bursae, unlike that of any other known tortricid.

Description. *Head*: Smooth scaled; labial palpus short, ca. 1.3 times horizontal diameter of compound eye (Fig. 40); ocellus moderately large; antenna ca. 0.5 forewing length, sensillae short in both sexes, ca. 0.1 times flagellomere diameter; proboscis ca. as long as labial palpus, presumably functional. *Thorax*: Tegula long, extending to ca. middle of metathorax; small patch of raised scales at posterior end of mesonotum; legs unmodified, male without conspicuous secondary sex scales. Forewing (Fig. 43) expanding to ca. middle, distal ca. 0.5 relatively uniform in width; apex broadly rounded; termen slightly rounded; all veins present and separate beyond discal cell; discal cell ca. 0.63 length of forewing; M-stem well developed; chorda absent; CuA_2 originating ca. 0.75 length of discal cell; male without forewing costal fold; hindwing with Rs and M_1 originating distant from each other, CuA_1 and M_3 short-stalked; male frenulum with one bristle, female with three (as in most other Enarmoniini; see Rota *et al.* 2009). *Abdomen*: Unmodified, lacking conspicuous secondary scales. Male genitalia (Fig. 18) with pedunculi long, slender; vinculum well developed, broad; uncus in form of subrectangular process with somewhat rounded apex, bearing a few long ventroterminal setae (frequently lost in slide mounted preparations) from large sockets; socius broad with sparse hairs; valva slender, nearly parallel-sided, with large basal process, sacculus simple, cucullus ovoid with small ventral lobe; juxta with small triangular basal plate and broad, subrectangular, hollow, shieldlike plate covering phallobase; phallus simple, slender, vesica without cornuti. Female genitalia (Fig. 31) with papillae anales slender; apophyses moderately long, slender, anteriores about as long as posteriores, distinctly curved medially; sterigma weakly sclerotized, minutely spined posteriorly; rim of ostium bursae slender; antrum weakly sclerotized, broader than ductus bursae; ductus bursae very slender, long; ductus seminalis from ductus bursae immediately posterad of junction of corpus bursae and ductus bursae, opposite of a small, somewhat linear sclerite; corpus bursae ovoid pear-shaped, with dense, extremely fine spines, except in posterior portion (longest spines ventrally and postmedially); signum a double-walled, tubular sclerite with extremely long, tubular capitulum extending outside of corpus bursae, a dense patch of spines at junction of capitulum and corpus bursae extending internally, and an attenuate terminal portion within corpus bursae.

Etymology. The name is comprised of the Latin “concino,” meaning to sing together, celebrate, and the Latin “cordis,” meaning heart. The name is in honor of the musical group Heart.

***Concinocordis wilsonarum*, sp. n.**
Figs. 4, 18, 31

Diagnosis. *Concinocordis wilsonarum* is the only species in the genus. It is easily distinguished from all other Enarmoniini by the unusual tubular signum in the female genitalia. The bright orange forewing with raised iridescent/opalescent forewing scale patches is superficially similar to that of *Enarmoniodes mirabilis* (see Razowski *et al.* 2010). However, the forewing of *Concinocordis* has a more rounded apex and termen, and many more raised opalescent spots.

Description. Male. *Head*: Vertex, frons, and labial palpus pale cream-orange. *Thorax*: Notum and tegula orange. Forewing length 6.5–8.0 mm (mean = 7.0; n = 3); forewing ground color orange, slightly paler in posterior and submedian area; raised spots of iridescent or opalescent (appearing silver to silvery blue) scales roughly forming four diagonal lines, spots smallest along costa; some tiny blackish dots near termen; fringe cream, orange basally, brownish gray at tornus. Hindwing dark brown, lightly tinged cream postbasally; fringe whitish. *Abdomen*: Genitalia (Fig. 18) as described for the genus.

Female. *Head and thorax*: Essentially as described for male; forewing length 7.1–8.0 mm (mean = 7.4; n = 4); forewing with more blackish brown suffusion in tornal 0.25; fringe brownish at tornus; basal and postbasal part of hindwing usually orange (3 of 4 individuals). *Abdomen*: Genitalia (Fig. 31) as described for the genus.

Holotype (♂): Kenya, Western Province, Kakamega Forest, 1600 m, 0°14.38'S, 34°51.86'E, 31 Aug 1999, A&M Coll. #273, r.f. *Manilkara butugi* [Sapotaceae]; GS USNM 85,897.

Paratypes (2♂, 4♀). Same data as holotype (1♀). KENYA: COAST PROVINCE: Ngangao Forest/Taita Hills, 3°22.33'S, 38°20.70'E, 1770 m, 2 May 2002 (1♂), A&M Coll. #1981, r.f. unknown fruit; USNM GS 124,421. EASTERN PROVINCE: Mt. Kenya Forest, 2040 m, 0°14.256'S, 37°33.924'E, 6 Nov 2001 (1♀), A&M Coll. #1625, r.f. *Chrysophyllum gorungosanum* [Sapotaceae]. WESTERN PROVINCE: Kakamega Forest, 1565 m, ca. 0°15,16'S, 34°51.68'E, 26 Feb 2000 (1♀), A&M Coll. #540, r.f. *Synsepa brevipes* [Sapotaceae]; GS USNM 94,156. Kakamega Forest, 1612 m, ca. 0°14.16'S, 34°51.82'E, 29 Mar 2000 (1♂, 1♀), A&M Coll. #573, r.f. *Chrysophyllum albidum*.

Etymology. The specific name is a patronym for Ann and Nancy Wilson, singers and songwriters of the music group Heart, in recognition of their lepidopterological hit "Dog and Butterfly."

Anthozela Meyrick, 1913

Type species: *Anthozela chrysoxantha* Meyrick, 1913.

The taxonomic history and circumscription of *Anthozela* is somewhat complicated and involves species previously placed under at least five contemporary generic names: *Anthozela*, *Gephyroneura* Obraztsov, 1968, *Mehteria* Koçak, 1981, *Loboschiza* Diakonoff, 1968, and *Cimeliomorpha* Diakonoff, 1966. *Anthozela* was described by Meyrick to accommodate the single species *A. chrysoxantha* from South Africa; Ghesquière (1940) added *A. anonidii* Ghesquière, 1940, from the Belgian Congo. Clarke (1958) provided illustrations of the adult and male genitalia of the lectotype of "*Laspeyresia*" *hemidoxa* Meyrick, 1907, from India (most recently included in *Mehteria*); Obraztsov (1968) provided illustrations of the head, wing venation, and genitalia of the latter, which he designated as the type species of his genus *Gephyroneura*; and Diakonoff (1984) provided illustrations of the genitalia of *Gephyroneura bathysema* Diakonoff, 1984, from Indonesia. Koçak (1981) recognized that *Gephyroneura* was preoccupied, and proposed the replacement name *Mehteria*.

Brown (2005) included two species in *Anthozela*: *chrysoxantha* and *anonidii*, and six species in *Mehteria*: *bathysema*, *hemidoxa* (Meyrick, 1907), *mediana* (Walker, 1866) (with synonyms *gratulata* (Meyrick, 1916), *sulfurella* (Pagenstecher, 1900), and *turifera* (Meyrick, 1912)), *novarana* (Felder and Rogenhofer, 1875), *perdigna* (Kuznetsov, 1976), and *theonarcha* (Meyrick, 1911). Horak (2006) proposed the synonymy of *Mehteria* with *Anthozela*, assigning *hemidoxa*, *bathysema*, and *hilaris* (Turner, 1916) to *Anthozela*, bringing to five the number of included species (see Appendix 1). Horak (2006) transferred *mediana* and its synonyms (two of which, *gratulata* and *turifera*, she elevated to species status), *theonarcha*, and *cinnabaritis* (Meyrick, 1928) to *Loboschiza*. Although Brown (2005) included *novarana* in *Anthozela*, Kuznetsov (1997) had previously transferred the species to *Cimeliomorpha*, a new combination overlooked by Brown. According to Horak (2006), the correct placement of *G. perdigna* remains unresolved (see Apendix 1).

The male genitalia of *Anthozela* are distinguished by a highly modified gnathos (*sensu* Horak 2006) consisting of a pair of large, dorsoposteriorly-projecting lobes together forming a hood-shaped structure over the top of the tegumen, each lobe with a row of peglike setae along the dorsal and lateral margin. In the female genitalia there is a slightly bulbous swelling at the posterior end of the corpus bursae (at the junction with the ductus bursae) from which the ductus seminalis arises; two long, curved, thorn-shaped signa; and a frail, membranous accessory sac (*sensu* Horak 2006) or "parabursa" at the anterior end of the corpus bursae.

Previously reported food plants for the genus include *Anonidium manii* Engl. & Diels (Annonaceae) for *Anthozela anonidii*; *Pavetta* sp. (Rubiaceae) for *Anthozela chrysoxantha*; and *Piper kadsura* (Choisy) Ohwi and *Piper nigrum* L. (Piperaceae) for *Anthozela hemidoxa* (Brown *et al.* 2010).

Anthozela chrysoxantha Meyrick, 1913

Fig. 32

Anthozela chrysoxantha was described from South Africa. Meyrick (1936) reported the host as *Pavetta* sp. (Rubiaceae). We examined four specimens from Kakamega Forest, Western Province, 1570 m, 16 December 1999, reared from *Tarenna pavettoides* ssp. *triessiorum* (Rubiaceae), A&M Coll. #402, R. S. Copeland. According to Horak (2006), the female genitalia have not been described or illustrated previously, so we provide a diagnosis and description.

Diagnosis. The female genitalia of *A. chrysoxantha* (Fig. 32) are similar to those of *A. hilaris* (Horak 2006: fig. 498) and *A. bathysema* (Diakonoff 1984: fig. 38). They can be distinguished by the shield-shaped lamella antevaginalis, which is absent in *A. hilaris* and *A. bathysema*, and a pair of signa that are broader basally and more claw-shaped than the slender thorn-shaped signa of those species. The papillae anales are slender and unmodified; the apophyses are 2.25–2.50 times as long as the papillae anales, the anteriores slightly longer than the posteriores; the cup-shaped part of the sterigma (i.e., lamella antevaginalis) has a distinct shield-shaped sclerite with three small, parallel, lateral creases; it is separated from the indistinct antrum by membrane; the ductus bursae is slender, uniform in width, with a small bulbous swelling at the posterior end at the junction with the corpus bursae, from which arises the ductus seminalis; the corpus bursae is large, ovoid, with a pair of strong, curved, claw-shaped signa; an accessory sac is absent.

Anthozela psychotriae, sp. n.

Figs. 5, 19, 33

Diagnosis. *Anthozela psychotriae* is superficially similar to its congeners, with the basal 0.33 of the forewing dark, variably overscaled with bright yellow or greenish yellow, and the distal 0.66 coppery-orange**,** irregularly spotted with leaden gray and/or blue gray. The male genitalia of *A. psychotriae* are closest to those of *A. chrysoxantha*, but the cucullus bears a large, dense patch of spines ventrally and is separated from the sacculus by a deep, rounded invagination; and the gnathos lobes are shorter, not meeting distally over the uncus. The male also lacks the paired patches of spiniform setae on the 8th abdominal segment (Horak 2006: fig. 499). The female genitalia of *A. psychotriae* are distinguished by the minute signa, ca. 0.25 the length of those of its congeners.

Description. Male. *Head*: Vertex and frons mixed dark gray and bright yellow; labial palpus bright yellow, length ca. 1.5 times horizontal diameter of compound eye. *Thorax*: Notum brown with scattered bright yellow scales; legs unmodified. Forewing length 3.8–4.2 mm (mean = 4.0; n = 7); forewing broad, expanding distally; costa gently arched; termen convex; basal 0.33 of forewing olive brown with bright yellow scales; distal 0.66 reddish with series of irregular, olive brown to leaden gray refractive spots and dots forming incomplete rows; costal strigulae small, white, separated by brown; fringe reddish, irregularly interrupted with brown. Hindwing dark brown with slender, poorly-developed anal fold along margin bearing long, thin scales; fringe slightly lighter brown. *Abdomen*: Without paired patches of elongate spiniform setae on 8th segment. Genitalia (Fig. 19) with gnathos small, rounded, not meeting distally above uncus, with distinct, uniform row of marginal spines; valva moderately short, broad at base, somewhat parallel-sided in distal 0.25 (i.e., cucullus), with rounded apex; sacculus angulate; deep, rounded excavation immediately before ventral lobe of cucullus, with ventral lobe distinctly clothed with spines; phallus small, ca. 0.3 length of valva, with a pair of stout cornuti.

Female. *Head and thorax*: Essentially as described for male, except forewing length 4.2–5.5 mm (mean = 4.8; n = 10) and hindwing without anal fold, frenulum with three bristles. *Abdomen*: Genitalia (Fig. 33) with sterigma weakly bilobed, shield-shaped, with narrow, median, slightly elevated, U-shaped protuberance; antrum well sclerotized, con-

cave posteriorly; cingulum short; ductus seminalis originating at junction of corpus and ductus bursae; corpus bursae ovoid, finely and uniformly punctate throughout, with frail parabursa (accessory sac) from anterior end; a pair of very small subtriangular signa.

Holotype (♂): Kenya, Eastern Province, Kirimiri Forest, 0°25.62'S, 37°32.83'E, 1710 m, 28 May 2002, A&M Coll. #2052, r.f. *Psychotria lauracea* [Rubiaceae]; not dissected.

Paratypes (6♂, 22♀). Same data as holotype (1♂, 4♀); GS USNM 128,813. CENTRAL PROVINCE: Njukiini Forest, 1455 m, 0°31.15'S, 37°25.19'E, 24 Jul 2001 (1♂), A&M Coll. #1397, r.f. *Chaetacme aristata* [Ulmaceae]. COAST PROVINCE: Buda Forest, 88 m, 4°27.79'S, 39°24.20'E, 23 Nov 2001 (1♂), A&M Coll. #1552, r.f. *Psychotria faucicola*, GS USNM 95,905. Gede Forest, 30 m, 3°18.47'S, 40°00.90'E, 8 Oct 1999 (1♂, 9♀), A&M Coll.#299, r.f. *Psychotria punctata* var. *punctata*; GS USNM 128,814. Road to Gede Forest, 35 m, 3°18.318'S, 40°00.995'E, 8 Oct 1999 (1♂, 2♀), KIP Coll. #205, r.f. *Psychotria punctata* var. *punctata*. Shimba Hills: 406 m, 4°10.71'S, 39°26.64'E, 10 Aug 2002 (1♂), A&M Coll. #2076 and 421 m, 4°11.03'S, 40°01.66'E, 8 Jun 2000 (1♀), GS USNM 95914, KIP #592, r.f. *Psychotria lauracea*; 383 m, 4°15.704'S, 39°22.744'E, 8 Sep 2004 (1♀), A&M Coll. #3005, r.f. *Psychotria punctata* var. *punctata*. Arabuko-Sokoke Forest, 55 m, 3°25.25'S, 39°53.89'E, 6 Oct 1999 (1♀), A&M Coll. #302, R. S. Copeland, ICIPE/USAID, r.f. *Psychotria punctata* var. *punctata*. EASTERN PROVINCE: Kirimiri Forest, 1698 m, 0°25.616'S, 37°32.834'E, 8 Nov 2001 (3♀), A&M Coll. #1539, r.f. *Psychotria lauracea*. Kiangombe Hill, 1295 m, 0°32.860'S, 37°42.133'E, 29 Aug 2002 (1♀), A&M Coll. #2195, r.f. *Psychotria* sp.

Etymology. The species name refers to the generic name of the food plant.

Olethreutinae: Eucosmini

***Cosmetra* Diakonoff, 1977**

Type species: *Cosmetra anthophaga* Diakonoff, 1977.

Cosmetra includes three species restricted to the Afrotropical region: *C. anthophaga* Diakonoff, 1977 (type species) from Réunion Island, *C. rythmosema* Diakonoff, 1992 from Madagascar, and *C. neka* Razowski & Brown, 2009 from South Africa. We provisionally assign to the genus two new species described below and transfer *Sycacantha nereidopa* (Meyrick, 1937) to *Cosmetra*, new combination.

Based on recent work focused on the Afrotropical Region, Razowski et al. (2010) synonymized *Polychrosis hendrickxi* Ghesquière, 1940 (TL: Belgian Congo [Zaire]) with *Eucosma nereidopa* Meyrick, 1927 (TL: Kenya Colony [Kenya]) and its synonym *Eucosma phylloscia* (Meyrick, 1937) (TL: Uganda), and transferred them to *Sycacantha* (Olethreutini). They provided illustrations of the holotype adult and male genitalia of *P. hendrickxi* (Razowski et al. 2010: figs. 37, 81). Illustrations of the holotypes of *S. nereidopa* and *S. phylloscia* can be found in Clarke (1958: 376). Below we describe two new species from Kenya reared from native fruit that are morphologically similar to *nereidopa*, the latter of which is a well-known pest of coffee in Africa (e.g., Coffee Research Services 1963; Evans 1968, 1970; Waller et al. 2007; Hill 2008). There is little question that these African species are congeneric, and based on the female genitalia they do not belong in *Sycancatha* or in Olethreutini. We provisionally describe our two new species in *Cosmetra* Diakonoff, 1977 and provisionally transfer *nereidopa* to that genus. However, it is likely that the three require a new genus.

***Cosmetra podocarpivora*, sp. n.**
Figs. 6, 20

Diagnosis. Superficially, *C. podocarpivora* is similar to *C. taitana*, but the forewing ground color is pale brown in the former and grayish green in the latter. The male genitalia of *C. podocarpivora* are most similar to those of *C. nereidopa*, but the sacculus of *C. podocarpivora* lacks a distinct caudal angle, and the ventral lobe of the cucullus is indistinct and lacks the single strong spine present in *C. nereidopa*.

Description. Male. *Head*: Vertex and upper frons beige; lower frons with appressed pale cream scales; labial palpus conspicuously broadened by scales distally, length ca. 1.3 times horizontal diameter of compound eye. *Thorax*: Notum mostly pale brown; hindtibia densely clothed in long whitish scales. Forewing length 5.5–6.0 mm (n = 2); forewing slightly expanded distally; costa weakly and gradually convex; termen slightly oblique, somewhat concave

beneath apex; ground color pale brownish, with fine irregular darker brown irrorations in basal 0.5; distinct, dark brown, oblique median fascia from costa ca. 0.6 distance from base to apex, terminating at lower edge of discal cell; patches of white scales along basal 0.5 of dorsum. *Abdomen*: Genitalia (Fig. 20) with uncus represented by broad, low hump dorsally, with a few scattered long setae and small sclerotized processes ventromedially; socius with large, lateral, sclerotized hump near base, moderate process near middle, and sclerotized, pointed distal portion; valva with neck absent, ventral edge of sacculus oblique, angle absent**,** cucullus broad, rounded, without ventral lobe, with submarginal group of strong spines on lower 0.7; phallus short, broad, vesica with eight deciduous cornuti (represented by sockets in holotype).

Female. *Head and thorax*: Essentially as described for male, except lacking long scales on hindtibia; forewing length 6.5 mm (n = 1); patches of white scales along basal 0.5 of dorsum with some gray-green scales. *Abdomen*: Genitalia (Fig. 39) with papillae anales unmodifed, parallel-sided, setose; apophyses about 1.2 times length of papilliae anales, posteriores and anteriores of similar length; sterigma a complicated medial process with ovoid ositum subtended by a pair of strong, lateral, anvil-shaped processes, each with a flattened, densely and finely spined posterior margin, mesal posterior portion of sterigma a subrectangular plate, with dense microtrichia; ductus bursae about 3 times length of apophyses, relatively uniform in width in posterior 0.6, sclerotized in posterior 0.3, abruptly broadened in anterior 0.3; origin of ductus seminalis inconspicuous; corpus bursae cordate, finely punctuate, with a pair of moderately large, thorn-shaped signa.

Holotype (♂): Kenya, Central Province, Gatamayu Forest, 2281 m, ca. 0°58.20’S, 36°41.68’E, 24 Apr 2001, A&M Coll. #1193, r.f. fruit of *Podocarpus latifolius* [Podocarpaceae]; GS USNM 124,453.

Paratypes (1♂, 1♀). KENYA: EASTERN PROVINCE: Mt. Kenya Forest, 2500 m, 24 Jan 2002 (1♂), A&M Coll. #1699, r.f. *Podocarpus latifolius*; GS USNM 124,467. WESTERN PROVINCE: Itieni Forest, 2560 m, 0°14.05’N, 37°52.58’E, 25 May 2004 (1♀), A&M Coll. #2904, r.f. fruit of *Podocarpus latifolius*; GS USNM 124,5043.

Etymology. The name refers to the genus of the food plant, *Podocarpus.*

Remarks. The genitalia of the male paratype differ slightly from those of the holotype in the following: socius slightly larger with middle process less defined, and the presence of a distinctly sclerotized arch above the excavation immediately basad of the lower edge of the cucullus.

***Cosmetra taitana*, sp. n.**
Figs. 7, 21

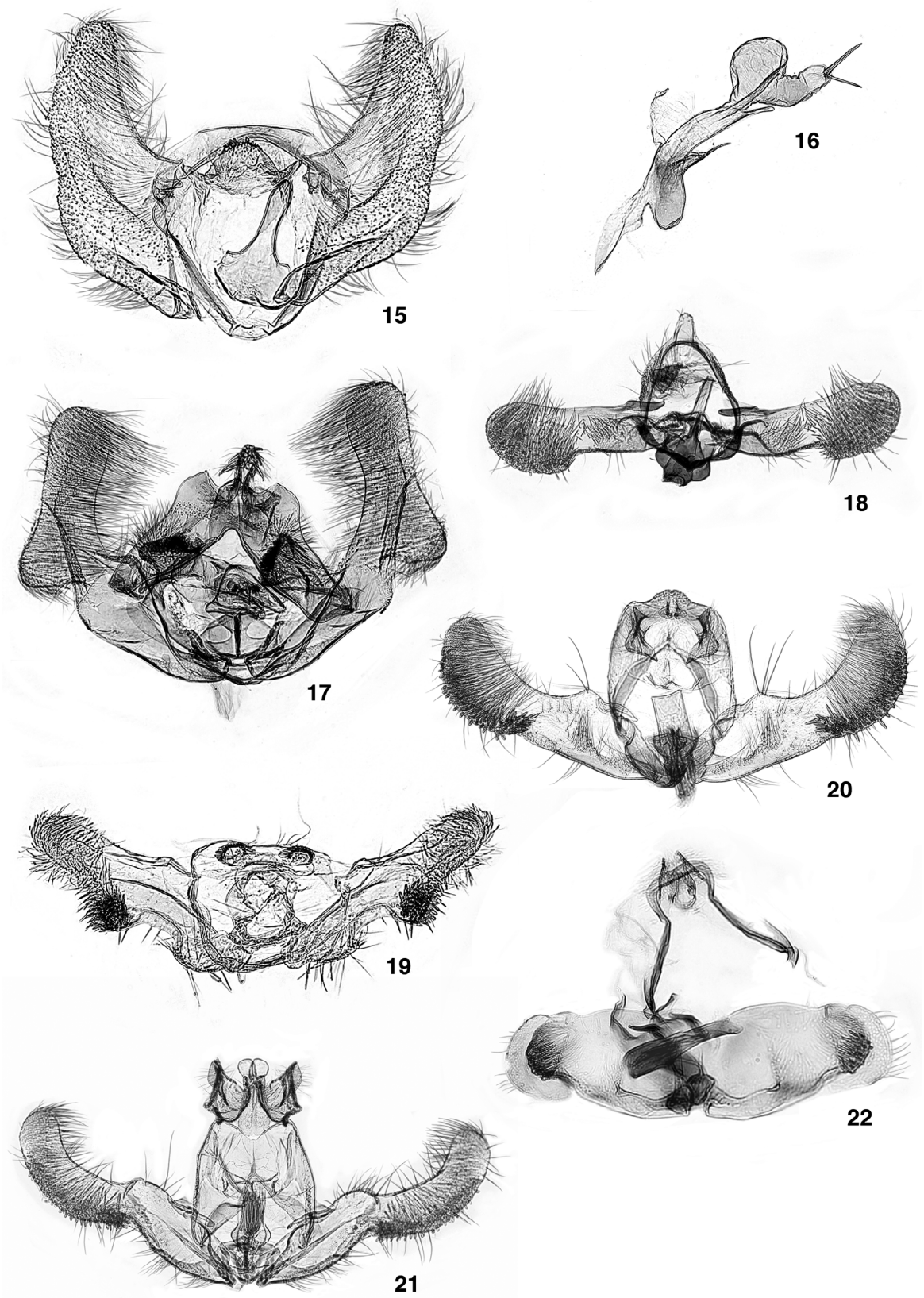
Diagnosis. *Cosmetra taitana* is similar to *C. podocarpivora* with a forewing pattern that features an oblique median fascia that terminates at the lower edge of the discal cell. However, the forewing ground color of *C. taitana* is grayish green in contrast to the pale brown of *S. podocarpivora*. Superficially, *C. taitana* is similar in forewing color, pattern, and length to the Nearctic *Proteoteras aesculana* Riley, 1881 (Eucosmini). The male genitalia of *C. taitana* are most similar to those of *C. podocarpivora* and *C. nereidopa*, but those of *C. taitana* have a more complex, bulbous uncus; larger, more angulate socii; and the valvae are essentially parallel-sided and evenly upcurved throughout the cucullus.

Description. Male. *Head*: Vertex and upper frons pale brownish olive, lower frons with appressed white scales; labial palpus conspicuously broadened by scales distally, length ca. 1.3 times horizontal diameter of compound eye, outer surface pale gray mixed with brown, inner surface mostly whitish with some dark brown. *Thorax*: Notum brownish olive, slightly darker than vertex of head; dorso-posterior edge of hindtibia in male covered by dense patch of cream scales, ventro-anterior portion with patch of longer white scales. Forewing length 5.5 mm (n = 1); forewing slightly expanded distally; costa weakly and gradually convex; termen slightly oblique to costa, somewhat concave beneath apex; ground color whitish cream, suffused and sprinkled with greenish; costal strigulae distinct, divisions brownish; costobasal half of wing darker than median and distal parts; median fascia well defined at costa, blackish with some green scales, fading to green in discal cell, paler green at dorsum; two small quadrangular black marks between end of discal cell (near outer edge of median fascia) and apex; fringe greenish, whitish at tornus. Hindwing brownish gray, darker in apical region; fringe concolorous with wing. *Abdomen*: Male genitalia (Fig. 21) with bulbous, weakly sclerotized uncus; gnathos and subscaphium well sclerotized; socius broad, sclerotized, upturned, with distal process large, pointed, and proximal process atrophied; valva relatively long, slender, nearly parallel-sided in distal 0.5 (i.e., cucullus), upturned; angle of sacculus absent; ventral lobe of cucullus weak, marked by dense group of strong, rather short spines; phallus short, stout, with dense cluster of slender cornuti.

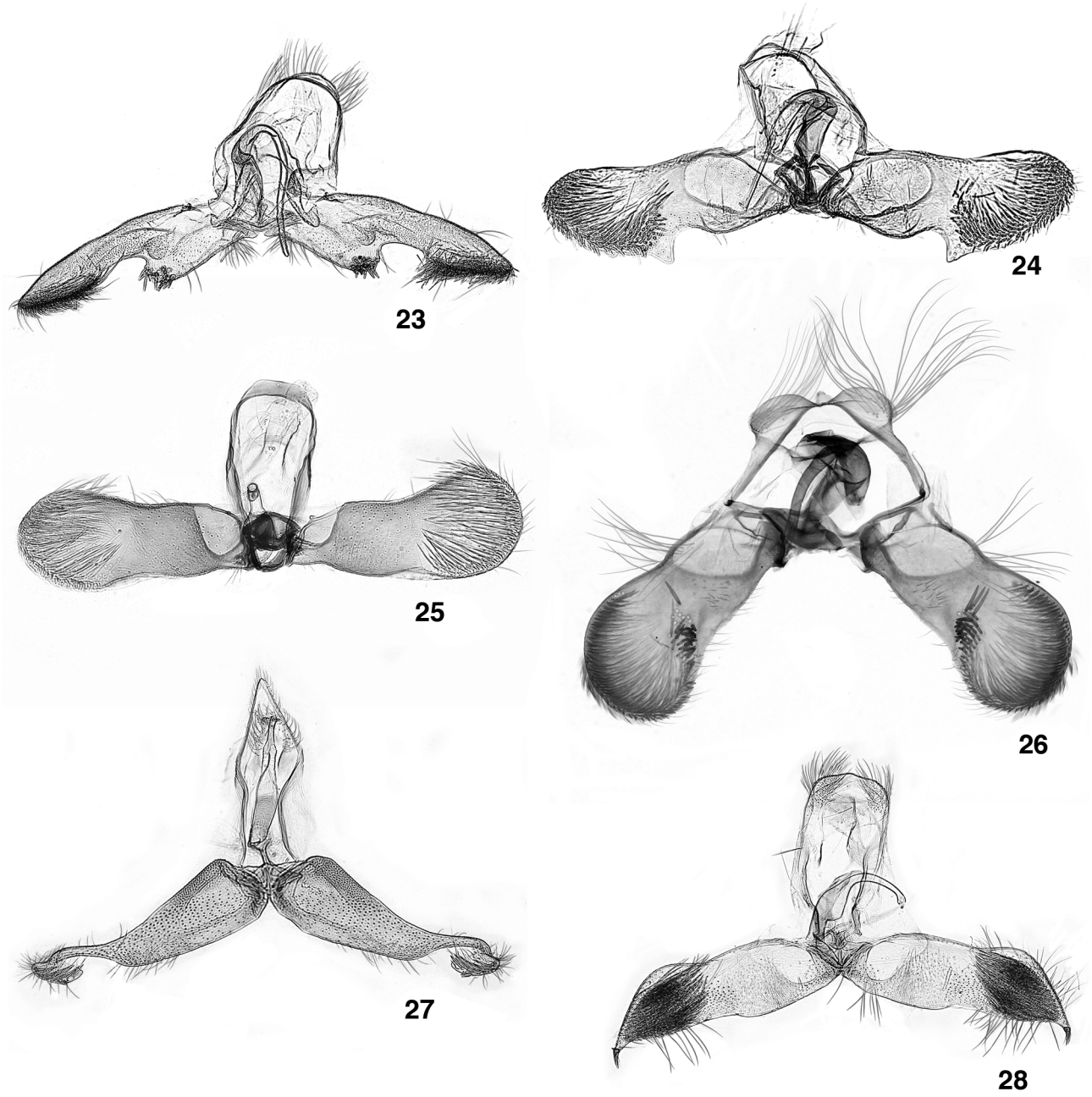
Female. Unknown.

Holotype (♂): Kenya, Coast Province, Ngangao Forest/Taita Hills, 1770 m, 13°22.33'S, 38°20.70'E, 11 Aug 2002, A&M Coll. #2113, r.f. *Acanthopale pubescens* [Acanthaceae]; GS USNM 124,442.

Etymology. The specific name refers to the type locality, Taita Hills.



FIGURES 15–22. Male genitalia. 15, *Phtheochroa aarviki*, genital capsule (GS USNM 84,907), 16, *P. aarviki*, phallus (GS USNM 84,907), 17, *Endothenia ator* (GS USNM 85,887), 18, *Concinocordis wilsonarum* (GS USNM 128,811), 19, *Anthozela psychotriae* (GS USNM 95,905), 20, *Cosmetra podocarpivora* (GS USNM 124,453), 21, *Cosmetra taitana* (GS USNM 124,442), 22, *Gypsonoma scolopiae* (GS USNM 128,819)

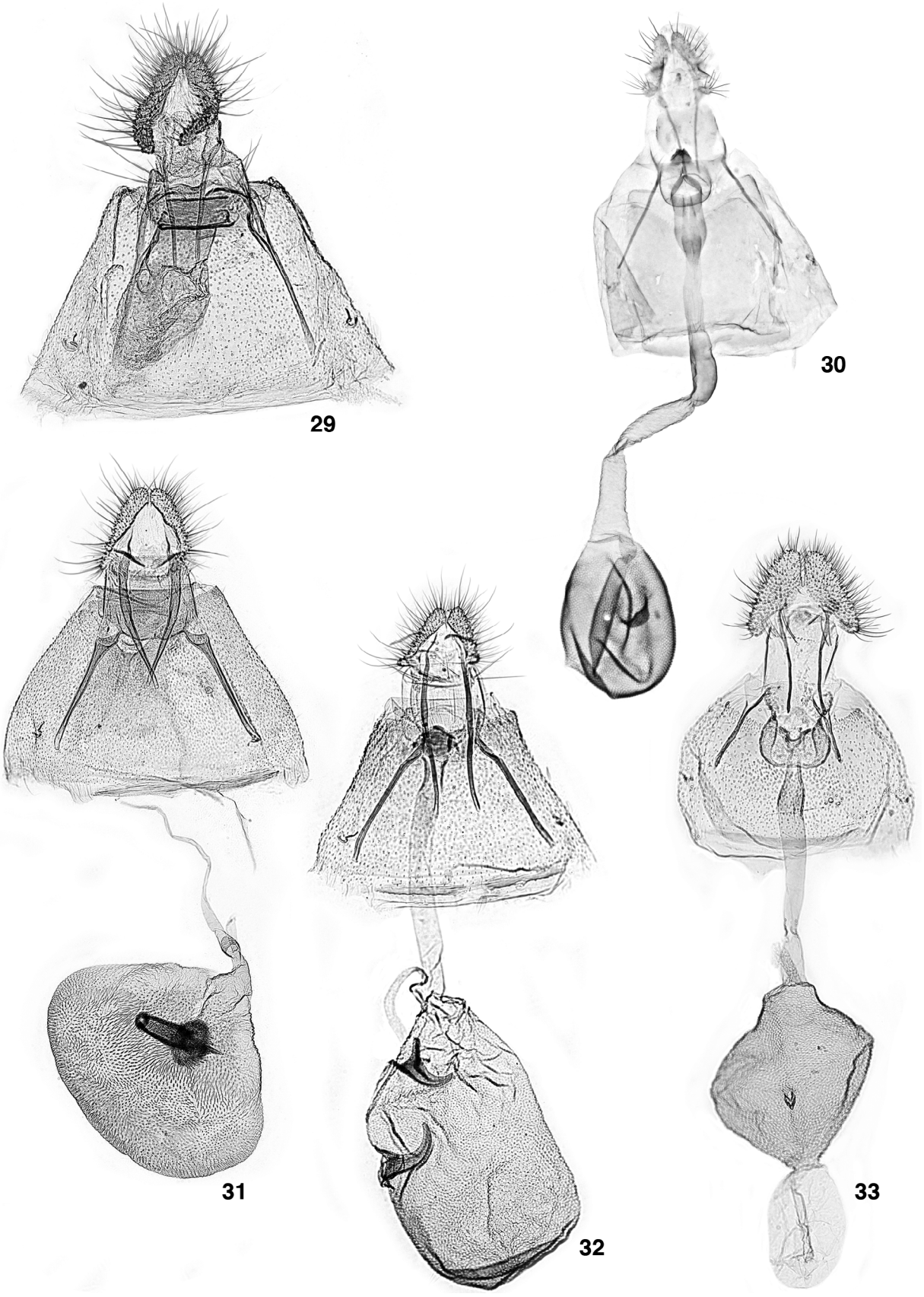


FIGURES 23–28. Male genitalia. 23, *Thaumatotibia salaciae* (GS USNM 124,070), 24, *Cydia sennae* (GS USNM 124,427), 25, *Cydia connara* (GS USNM 128,824), 26, *Fulcrifera crotalariae* (GS USNM 85,885), 27, *Stenentoma sorindeiae* (GS USNM 95,904), 28, *Thylacogaster garcinivora* (GS USNM 124,412).

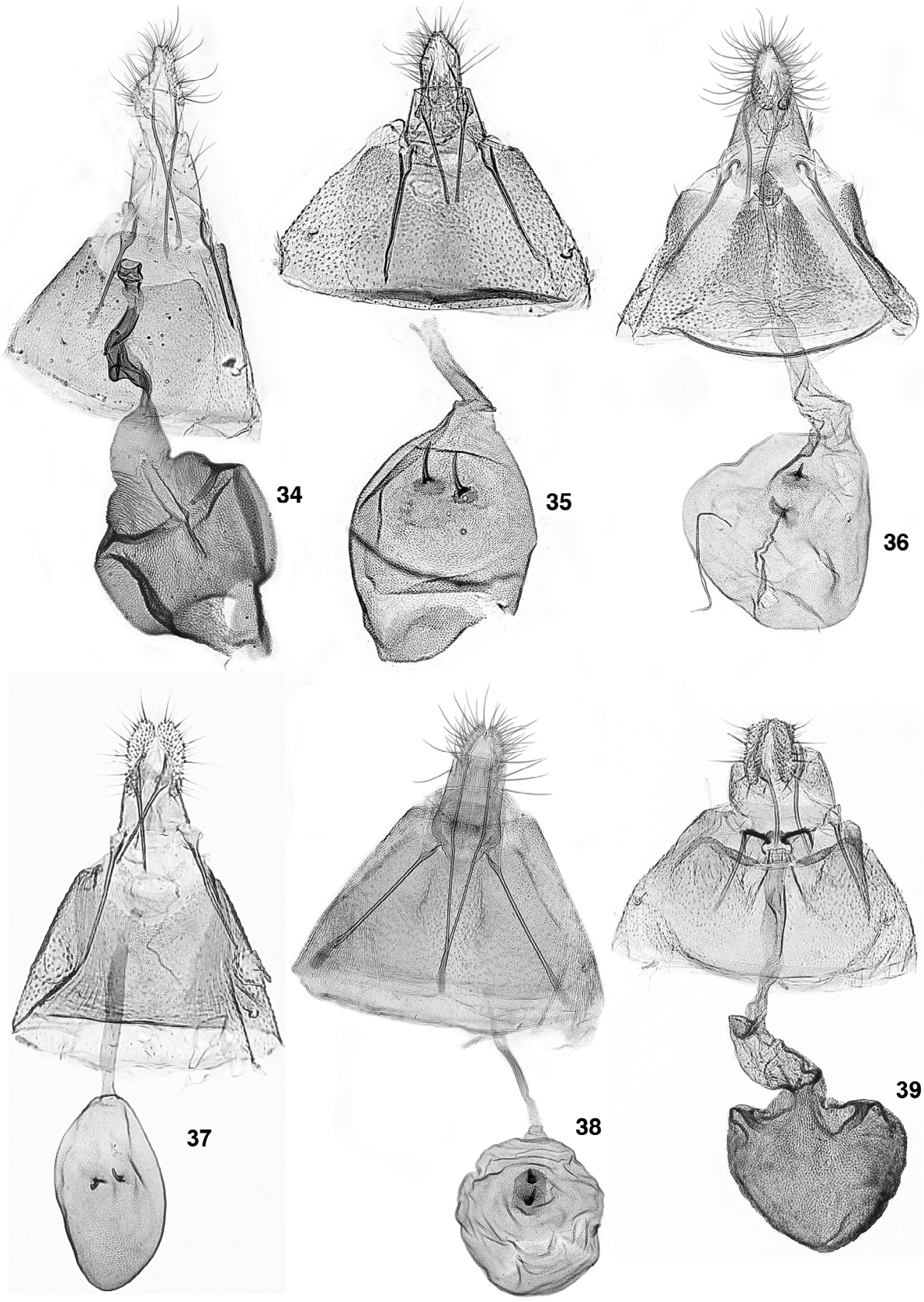
Gypsonoma Meyrick, 1895

Type species: *Tortrix dealbana* Frölich, 1828.

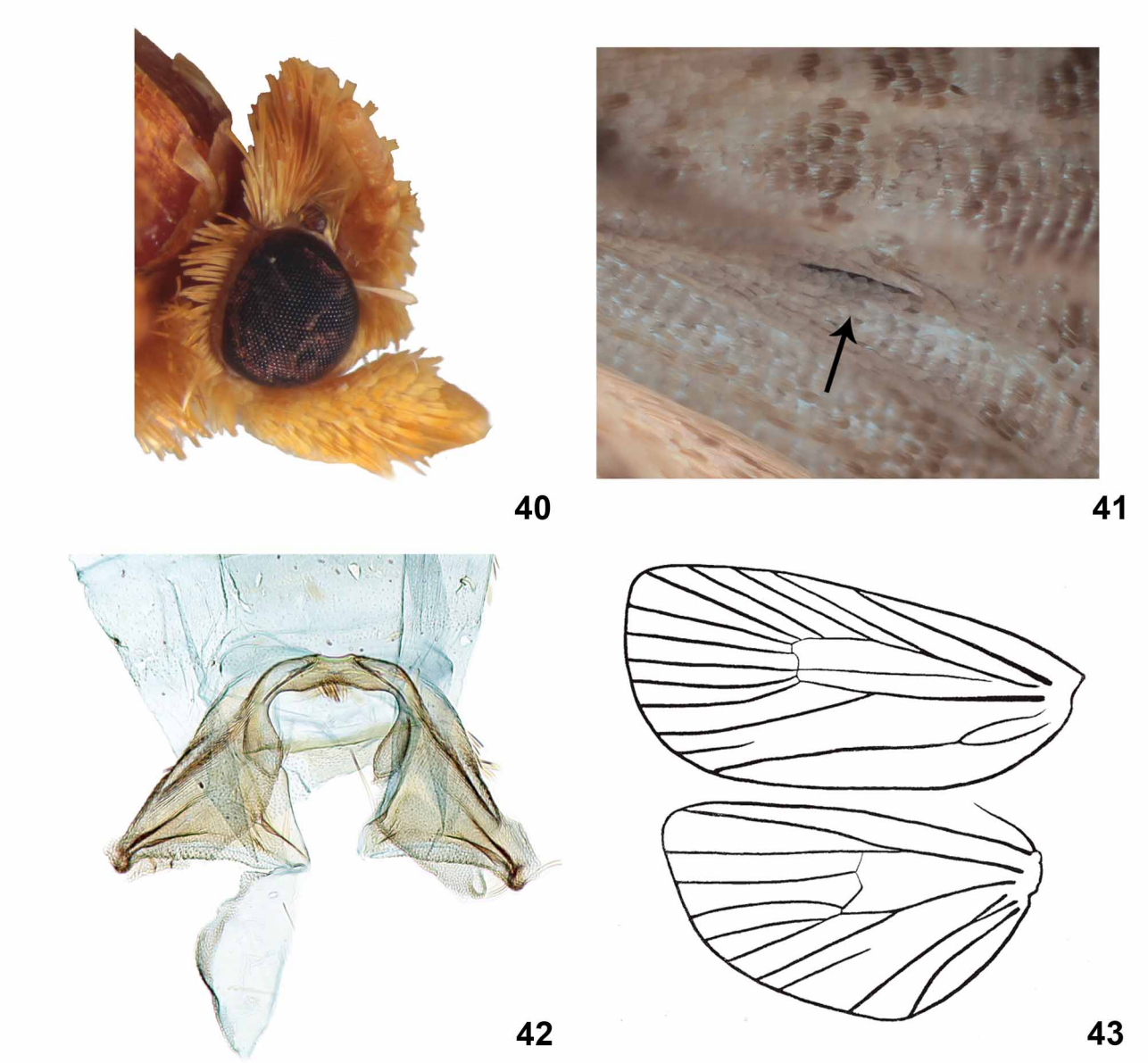
Brown (2005) included 39 species in *Gypsonoma*, ranging throughout much of Holarctic Region, and in the Palearctic extending south through the Oriental Region and the Middle East (Turkey, Afghanistan, Saudi Arabia, and Iran). Razowski and Krüger (2007) recently transferred to the genus three species from the Afrotropical region, i.e., *G. opsonoma* (Meyrick, 1918), *G. paradelta* (Meyrick, 1925), and *G. scenica* (Meyrick, 1911), increasing significantly the geographic range of the genus and bringing the total number of included species to 42. Aarvik (2008b) provided details on the systematics of and variation in *G. paradelta* and synonymized *Eucosma picrodelta* Meyrick, 1932 with it.



FIGURES 29–33. Female genitalia. 29, *Phtheochroa aarviki* (GS USNM 84906), 30, *Endothenia ator* (GS USNM 124,476), 31, *Concinocordis wilsonarum* (GS USNM 128,812), 32, *Anthozela chrysoxantha* (GS USNM 124,066), 33, *Anthozela psychotriae* (GS USNM 128,814).



FIGURES 34–39. Female genitalia. 34, *Gypsonoma scolopiae* (GS USNM 128,820), 35, *Cydia sennae* (GS USNM 124,462), 36, *Fulcrifera crotalariae* (GS USNM 85,886), 37, *Stenentoma sorindeiae* (GS USNM 124,627), 38, *Thylacogaster garcinivora* (GS USNM 124,478), 39, *Cosmetra podocarpivora* (GS USNM 124,503).



FIGURES 40–45. Morphological features of new species. 40, Head of *Concinocordis wilsonarum*, 41, Underside of hindwing pouch of male *Thaumatotibia salaciae*, 42, Modified 8th abdominal segment of male *Endothenia ator*, 43, Wing venation of *Concinocordis wilsonarum*.

The male genitalia of many species of *Gypsonoma* are distinguished by a conspicuous, narrow margin along the distal perimeter of the cucullus that is devoid of spines and usually less sclerotized, and a dense patch of elongate scales from the tegumen near its junction with the vinculum (e.g., see Gilligan *et al*. 2008: male genitalia figs. 206–209). Females invariably have a two-bristled frenulum (Rota *et al*. 2009).

The vast majority of recorded larval hosts for species of *Gypsonoma* are *Populus* and *Salix* (both Salicaceae) from which the following species have been reared: *G. aceriana* (Duponchel, 1842); *G. adjuncta* Heinrich, 1924; *G. bifasciata* Kuznetsov, 1966; *G. dealbata* (Frölich, 1828); *G. euphraticana* (Amsel, 1935); *G. fasciolana* (Clemens, 1864); *G. haimbachiana* (Kearfott, 1907); *G. minutana* (Hübner [1796–1799]); *G. nitidulana* (Leinig and Zeller, 1846); *G. oppressana* (Treitschke, 1835); *G. riparia* Meyrick, 1933; *G. sociana* (Haworth, [1811]); and *G. substitutionis* Heinrich, 1923. However, a few of these same *Gypsonoma* species also have been reared from Rosaceae, Fagaceae, Caprifoliaceae, and Ericaceae. The new species described below was reared from *Scolopia* and *Ludia* (both Salicaceae, formerly Flacourtiaceae) in Kenya.

***Gypsonoma scolopiae*, sp. n.**
Figs. 8, 22, 34

Diagnosis. *Gypsonoma scolopiae* is most similar to *G. opsonoma* (Meyrick, 1918) and *G. scenica* (Meyrick, 1911) from South Africa, but *G. scolopiae* has more slender socii, broader valvae, an atrophied horn of the distal edge of basal cavity, and a smaller spiny part of the cucullus. The female genitalia are distinguished by a large, sclerotized, somewhat angulate J-shaped cingulum and a strongly reduced sterigma.

Description. Male. *Head*: Scaling on vertex mostly pale gray brown, frons and median part of vertex cream white; labial palpus pale gray brown on outer surface, white on inner surface, segment III and distal portion of segment II white, length ca. 1.2 times horizontal diameter of compound eye. *Thorax*: Notum whitish gray, brown anteriorly. Legs unmodified. Forewing length 4.5–5.5 mm (mean = 5.1; n = 5); forewing weakly expanding distally; costa straight; termen moderately oblique to costa, straight, with weak concavity below apex; ground color white with ill-defined gray and pale brown suffusions, basal patch (basal 0.4) dark gray to brown with irregular striations and spots of gray and white, outer margin of patch convex, well defined by darker scales, postmedian interfascial regions white with some grayish suffusions, an oblique median fascia from costa ca. 0.6 distance from base, narrow at costa between strigulae 4 and 5, interrupted at upper and lower margins of discal cell to form an oblique line with a broad triangular spot on dorsum; costal strigulae white, divisions brownish gray; speculum faint, grayish with two or three small black dots; dark rhomboid blotch from speculum to concolorous apical blotch; termen finely edged with brown; fringe dark gray, whiter at tornus. Hindwing gray cream, paler basally; fringe concolorous with middle of wing. *Abdomen*: Genitalia (Fig. 22) with posterior edge of tegumen bilobed (possibly representing uncus); socius moderately sclerotized, rather slender, rounded distally; base of gnathos well sclerotized; valva broad, rounded distally; cucullus distinct with semicircular area of dense spines, large semi-membranous area of valva distad of cluster of spines; phallus ca. 0.6 length of valva; vesica with 8–12 long, slender cornuti that are weakly undulate subapically.

Female. *Head and thorax*: Essentially as described for male, except forewing length 4.8–6.0 mm (mean = 5.4, n = 5); forewing often slightly paler than in male, with narrow darker posterior edges and darker subtornal blotch; frenulum with two bristles. *Abdomen*: Genitalia (Fig. 34) with papillae anales slender; apophyses posteriores ca. 2 times as long as apophyses anteriores; sterigma membranous with strongly sclerotized, short, tubular antrum separated from long, strongly sclerotized, somewhat angulate J-shaped cingulum by short membranous region of ductus bursae; ductus seminalis from near anterior end of cingulum; two long, bladelike signa, equal in size.

Holotype (♂): Kenya, Central Province, Burguret Forest, 2062 m, 0°06.78’S, 37°03.29’E, 15 Jan 2003, A&M Coll. #2347, r.f. *Scolopia theifolia* [Salicaceae]; GS USNM 128,823.

Paratypes (17♂, 21♀). Same data as holotype; GS USNM 124,435 (♀), 124,434 (♂),128,819 (♂), 128,821 (♀). KENYA: CENTRAL PROVINCE: Burguret Forest, 2128 m, 0°07.155’S, 37°05.035’E, 16 May 2002 (1♀), A&M Coll. #2003, r.f. fruit (sp. unknown). City Park Forest, Nairobi, 1697 m, 1°15.61’S, 36°49.76’E, 19 Apr 2001 (1♂, 2♀), A&M Coll. #1182, r.f. *Ludia mauritiana* [Salicaceae]. RIFT VALLEY PROVINCE: Mau Forest, 2168 m, 0°14.334’S, 35°32.828’E, 7 Sep 2002 (5♂, 5♀), A&M Coll. #2245, r.f. *Scolopia theifolia*.

Etymology. The species name refers to the genus of the most frequently recorded food plant.

Olethreutinae: Grapholitini

Thaumatotibia Zacher, 1915

Type species: *Thaumatotibia roerigii* Zacher, 1915, a junior synynym of *Argyroploce leucotreta* Meyrick, 1913.

Thaumatotibia includes 17 described species ranging from the Oriental Region to South Africa and Madagascar (Komai 1999, Brown 2005); most species are indigenous to the Afrotropical Region. Species assigned to *Thaumatotibia* were included in *Cryptophlebia* Walsingham, 1900 until Komai (1999) distinguished the two genera. Based on morphology, Adamski and Brown (2001) suggested that *Thaumatotibia* is the sister to (*Cryptophlebia*+*Pseudogalleria* Ragonot, 1884)+*Gymnandrosoma* Dyar, 1904.

Larvae of *Thaumatotibia* feed primarily in seeds and have been reported from a wide range of plant families, including Annonaceae, Apocynaceae, Bromeliaceae, Capparaceae, Celastraceae, Combretaceae, Ebenaceae, Fabaceae, Malvaceae, Oxalidaceae, Rubiaceae, Rutaceae, Sapotaceae, Solanaceae, Sterculiaceae, and Theaceae (Komai 1999). The majority of the reported host records for *Thaumatotibia* are for two species: *T. leucotreta* (Meyrick, 1913), the false codling moth, and *T. batrochopa* (Meyrick, 1908).

***Thaumatotibia salaciae*, sp. n.**
Figs. 9, 23, 41

Diagnosis. *Thaumatotibia salaciae* is superficially similar to *Cryptophlebia illepida* (Butler, 1882) and *C. ombrodelta* (Lower, 1898) with a distinct dark brown to rust brown triangular pretornal spot on a grayish to grayish brown or brown ground color. However, males of *T. salaciae* can be distinguished from those of all species of *Cryptophlebia* and *Thaumatotibia* by the presence of a narrow pouch of modified sex scales near the distal end of the discal cell in the hindwing, represented by a small ovoid swelling on the upper surface and by a narrowly open pouch bearing blackish scales on the lower surface (Fig. 41). The male genitalia of *T. salaciae* differ from those of all other described congeners in the presence of a group of enlarged spines at the outer edge of the sacculus and the extremely long, slender phallus.

Description. Male. *Head*: Vertex blackish brown and ferruginous; frons pale ferruginous; labial palpus blackish brown on outer surface, whitish on inner surface, length ca. 1.3 times horizontal diameter of compound eye. *Thorax*: Notum blackish brown and ferruginous, distal end of tegula steel gray; hindtibia in male slightly swollen by cream colored secondary sex scales. Forewing length 6.5 mm (n = 1); forewing expanding distally, termen straight; ground color grayish, costal area and basal 0.33 of dorsum mixed ferruginous and dark gray, basal area blackish brown; faint, narrow, cream patch along dorsum before middle; striations dark gray in posterior 0.33; subterminal fascia slender, ill-defined, ferruginous at costa, dark gray below; pretornal patch triangular, rust colored; costal strigulae fine, whitish, divisions rust; fringe ash gray. Hindwing pale brownish gray with darker striations; a small oblong pouch of scales near distal end of discal cell at intersection of veins CuA_1 and M_3, slightly elevated and concolorous with wing on upper surface, black scales concealed in narrowly opened pouch on lower wing surface (Fig. 41); fringe much paler than ground color. *Abdomen*: Male genitalia (Fig. 23) with tegumen relatively broad, subrectangular; uncus, socius, and gnathos absent; basal half of valva broad; cucullus subtriangular, hairy, sacculus ending before middle of valva, with distinct angle bearing a patch of short, strong spines; ventral incision large, semicircular; cucullus subtriangular, densely spined/hairy along ventral margin; phallus very slender, long, strongly curved proximally.

Female. *Head and thorax*: Essentially as described for male [although in very poor condition]; forewing length 7.0 mm (n = 1); lacking pouch of sex scales on hindwing; frenulum with two bristles. *Abdomen*: [Missing].

Holotype (♂): Kenya, Western Province, Kakamega Forest, 1565 m, ca. 0°15.16'N, 34°51.68'E, 26 Feb 2000, A&M Coll. #546, r.f. *Salacia cerasifera* [Hippocrateaceae], GS USNM 124,070.

Paratype (1♀). Same data as holotype, except 29 Mar 2000, A&M Coll. #581.

Etymology. The specific epithet refers to the food plant genus, *Salacia*.

***Cydia* Hübner, [1825] 1816**

Type species: *Phalaena* (*Tortrix*) *pomonella* Linnaeus, 1758.

Brown (2005) included more than 225 species in *Cydia*, but the monophyly of the group has not been investigated thoroughly, and it is highly likely that many species assigned to the genus belong elsewhere. As currently defined, *Cydia* is worldwide in distribution, occurring in every major biogeographic realm; the type species, *Cydia pomonella*, is a nearly cosmopolitan pest of apples. Male genitalia are characterized by the reduction or loss of the uncus, socii, and gnathos. Hence, it is possible that many species are assigned to *Cydia* on the basis of parallel reductions in these structures, including the species described herein.

Species of *Cydia* have been recorded from a wide range of plant families, including Arecaceae, Betulaceae, Boraginaceae, Cupressaceae, Cyperaceae, Fabaceae, Fagaceae, Juglandaceae, Moraceae, Oleaceae, Pinaceae,

Rosaceae, Rubiaceae, Salicaceae, and Sapindaceae (Brown *et al.* 2011). Most species feed internally on fruit, with the majority of host records from Fabaceae; as mentioned above, the codling moth (*Cydia pomonella*) is an economically important pest of the fruit of Rosaceae (e.g., apples, pears, peaches, plums).

***Cydia sennae*, sp. n.**
Figs. 10, 24, 35

Diagnosis. *Cydia sennae* resembles *Fulcrifera aphrospila* (Meyrick, 1921) from South Africa in facies, but the male genitalia of *C. sennae* have a large triangular lobe at the ventral edge of the cucullus similar to that of *Cydia microgrammana* (Guenée, 1845) and some Palearctic species. The male genitalia lack the elongate, strongly sclerotized process that parallels the phallus dorsally (e.g., Horak 2006: fig. 876), which is one of the most conspicuous synapomorphies for *Fulcrifera* Danilevsky and Kuznetsov, 1968.

Description. Male. *Head*: Vertex and frons dark gray; labial palpus gray with scattered whitish scales, length about 1.2 times horizontal diameter of compound eye. *Thorax*: Notum pale brownish gray, longer scales tipped with cream, especially those of tegula; legs unmodified. Forewing length 4.8–5.5 mm (mean = 5.2; n = 8); costal fold absent; forewing slightly expanding distally; costa nearly straight; termen weakly oblique to costa, with concave notch below apex; ground color pale brownish gray, some scales tipped with white, subbasal facia expressed as narrow, dark brown line, expanded slightly at dorsum into triangular spot; speculum concolorous with ground color, situated in preterminal area, with two or three black inner spots; costal strigulae present throughout entire length of costa, white and grayish white, divisions brownish gray; remainder of wing slightly paler than costal divisions, in terminal area sprinkled with whitish; fringe dark gray. Hindwing pale brownish, lighter basally, almost white; fringe pale brownish, whitish in anal half. *Abdomen*: Genitalia (Fig. 24) with tegumen slender; socii atrophied; valva broad, neck weakly defined; ventral lobe of cucullus projecting downward as triangular process, lacking spines; cucullus semi-oval; phallus moderately curved in basal 0.3, distal half extremely slender, straight, slightly attenuate distally; vesica without cornuti.

Female. *Head and thorax*: Essentially as described for male, except forewing length 4.8–5.5 mm (mean = 5.3; n = 8); forewing overall slightly darker; hindwing uniformly grayish brown, frenulum with three bristles. *Abdomen*: Genitalia (Fig. 35) with papillae anales slender; apophyses anteriores slightly longer than posteriores; sterigma weakly sclerotized, surrounding large ostium bursae; ductus bursae slender; corpus bursae ovoid, with two large, bladelike signa.

Holotype (♂): Kenya, Eastern Province, near Kiangombe Hill, 1185 m, 0°32.517'S, 37°42.101'E, 29 Aug 2002, A&M Coll. #2224, r.f. *Senna* sp. [Fabaceae].

Paratypes (11♂, 12♀). Same data as holotype; GS USNM 124,461 (♂), 124,462 (♀), 124,427 (♂), 124,637 (♀), 128,817 (♂), 128,818 (♀).

Etymology. The species name refers to the generic name of the food plant.

***Cydia connara*, sp. n.**
Figs. 11, 25

Diagnosis. *Cydia connara* is similar to *C. anthracotis* (Meyrick, 1913), new combination, from South Africa (see Razowski and Krüger 2007: figs. 136, 255), but *C. anthracotis* lacks the complex orange scaling of the distal 0.33 of the forewing (present in *C. connara*), and its male genitalia have a rounded excavation along the venter of the valva immediately basad of the cucullus (absent in *C. connara*). *Cydia connara* is most similar to the Neotropical *Eriosocia guttifera* (Meyrick, 1913) (see Razowski and Brown 2008: figs. 1–4) in facies (i.e., complex orange scaling in the distal 0.33 of the forewing and a deep notch near mid-termen) and in the shape of the phallus (i.e., a strongly curved, narrow distal part; a bulbous, dilated median part; and a broad, curved basal part). However, *C. connara* lacks the unusual socius that characterize *Eriosocia* Razowski and Brown, 2008.

Description. Male. *Head*: Vertex and frons olive brown; labial palpus upcurved, white, length ca. 1.1 times horizontal diameter of compound eye. *Thorax*: Notum olive brown; legs unmodified. Forewing length 5.0–6.8 mm (mean = 5.9; n = 2); costal fold absent; forewing slightly expanding distally with basal 0.8 of costa straight, apical 0.2 weakly convex, termen weakly oblique to costa; a conspicuous notch near mid-termen; ground color olive

brown in postmedian 0.5 of wing, orange scaling in form of spots and indistinct interfascia; speculum concolorous with inner spots but without lines; costal strigulae white, followed by shades of orange; divisions of strigulae dark brown; fringe paler than ground color. Hindwing brown; cubital pecten well developed, with linear patch of fine hairlike scales along 3A; fringe cream. *Abdomen*: Male genitalia (Fig. 25) with tegumen subrectangular, slightly broadened dorsally, no trace of uncus or socius; valva broad, expanded apically, cucullus oval, with long and short spines around perimeter; basal cavity short; phallus with bulbous median part and slender, strongly curved distal part; vesica lacking cornuti.

Female. Unknown.

Holotype (♂): Kenya, Coast Province, Shimba Hills, 407 m, 4°17.62'S, 39°21.19'E, 8 Feb 2003, A&M Coll. #2494, r.f. *Connarus longistipitatus* [Connaraceae]; GS USNM 124,425.

Paratypes (2♂). Same data as holotype.

Etymology. The species name refers to the generic name of the food plant.

Remarks. One of the paratypes is much larger than the other paratype and holotype (6.8 mm vs. 5.0 mm), but is lacking its abdomen. However, based on the extremely similar forewing maculation and the fact that all three are from the same rearing lot, their conspecificity is almost certain. The size of the large paratype suggests that this species may typically be considerably larger than the holotype (i.e., lab rearing may have resulted in a smaller individual).

Cydia anthracotis (Meyrick), comb. n.

Laspeyresia anthracotis Meyrick, 1913: 279; Razowski and Krüger 2007: 133.
"Grapholitini unplaced species" *anthracotis*: Brown 2005: 364.

Cydia anthracotis was described from Mpumalanga, South Africa. Razowski and Krüger (2007) provide illustrations of the holotype male and its genitalia, along with a brief description of its genitalia. Based on facies and the male genitalia, the species is transferred to *Cydia*.

Fulcrifera Danilevsky and Kunzetsov, 1968

Type species: *Laspeyresia luteiceps* Kuznetsov, 1962.

According to Horak (2006), "The monophyly of *Fulcrifera* is supported by the short to very long, heavily sclerotised process that seemingly looks like a dorsal process of the aedeagus but originates from the dorsal portion of the anellus next to the aedeagus." Illustrations of the genitalia can be found in Clarke (1958), Danilevsky and Kunzetsov (1968), and Horak (2006).

Brown (2005) included 14 species in *Fulcrifera*, distributed through the eastern Palearctic, Oriental, and Afrotropical regions; Horak (2006) described one new species from Australia and indicated that at least seven additional unidentified species are known from that continent. Razowski and Krüger (2007) transferred four South African species to the genus, bringing to 19 the number of described species assigned to *Fulcrifera*.

Although there is little doubt that *F. crotalariae*, described below, is congeneric with *F. aphrospila* (Meyrick, 1921) (TL: South Africa), *F. halmyris* (Meyrick, 1909) (TL: South Africa), and *F. periculosa* (Meyrick, 1913) (TL: South Africa), it is possible that these four Afrotropical species are not congeneric with other Old World species of *Fulcrifera*. All four lack the elongate, heavily sclerotized process that originates from the dorsal portion of the anellus and parallels the phallus. However, it is possible that the much shorter structure situated immediately dorsal to the basal portion of the phallus and referred to as the "fulcrum" by Razowski and Krüger (2007) is homologous with that of other Old World *Fulcrifera*.

Fulcrifera crotalariae, sp. n.
Figs. 12, 26, 36

Diagnosis. *Fulcrifera crotalariae* is superficially most similar to *F. aphrospila* (see Razowski and Krüger 2007: fig 128) and *F. halmyris* (see Razowski and Krüger 2007: fig 130), with the forewing markings somewhat longitudi-

nally streaked, and with an ill-defined, oblique, whitish area extending from near mid-dorsum to about the distal end of the discal cell. *Fulcrifera crotalariae* can be distinguished superficially by the absence of the slender, dark brown dash from the forewing costa ca. 0.65 the distance from the base to the apex that is conspicuous in the holotypes of both *F. aphrospila* and *F. halmyris*. The male genitalia of *F. crotalariae* are most similar to those of *F. aphrospila*, but they can be distinguished by a straighter valva (more upcurved or bent near the middle in *aphrospila*), a broader base of the patch of elongate setae from the distal end of the socius (the setae originating from a concentrated circular area at the distal end of the socius in *aphrospila*), and a longer, distally curved phallus (shorter and nearly straight distally in *aphrospila*).

Description. Male. *Head*: Vertex and frons smooth scaled, pale beige; labial palpus short, pale beige, ca. 1.2 times horizontal diameter of compound eye; ocellus moderately large. *Thorax*: Notum pale beige; tegula extending to about middle of metathorax; metathorax without posterior crest; legs unmodified. Forewing length 5.7–7.5 mm (mean = 6.7; n = 5); costal fold absent; forewing ground color pale beige with parallel longitudinal streaks and lines of brown; speculum with three small black dashes bordered distally by small semicircular patch of whitish gray scales; nine pairs of beige costal strigulae, each with a narrow brown space separating the two; each pair separated from other pairs by slightly wider brown areas (fascia alternating with interfascial areas); the preterminal fascia (between pairs 8 and 9) abruptly narrowed below costa, postmedial fascia (between pairs 6 and 7) extending from costa to near mid-termen; fringe yellow ochreous with pale brown terminal edge. Hindwing uniformly brown, scaling slightly lighter, less dense along costa; fringe pale beige with basal brown line. *Abdomen*: Lacking modified scales. Genitalia (Fig. 26) with posterior portion of tegumen broad; socii together forming a narrow rectangular plate across posterior portion of tegumen, each socius with a patch of long, fine setae 0.5 length of valva, arising from circular spot at distal end of socius; valva broad throughout, costa slightly concave immediately before cucullus; cucullus rounded, with dense spines of variable size and length around perimeter; an oblique patch of large spines extending from ventral edge of valva to ca. 0.5 distance to costa; phallus ca. 0.9 times length of valva, slender, curved dorsad apically, phallobase (= caulis) with slender dorsal plate extending ca. 0.4 length of phallus, distally with a U-shaped notch.

Female. *Head and thorax*: Essentially as described for male; forewing length 6.5–7.0 mm (mean = 6.8; n = 3), frenulum with two or three bristles (i.e., 3&2, 3&2, and 3&3 in three paratypes). *Abdomen*: Genitalia (Fig. 36) with papillae anales slender throughout; apophyses relatively stout, about equal in length, posteriores slightly clubbed distally; sterigma with membranous triangular region surrounding cone-shaped, dimpled sclerite; ductus bursae slender at ostium bursae, slightly broadened to junction with corpus bursae; ductus seminalis from near middle of ductus bursae; corpus bursae pear-shaped, faintly punctate throughout, with two moderately flattened, somewhat keel-shaped signa, one larger than the other.

Holotype (♂): Kenya, Central Province, Ololua Forest, 1830 m, 1°21.84’S, 36°42.79’E, 24 Aug 2002, A&M Coll. # 2184, r.f. *Crotalaria goodiiformis* [Fabaceae]; GS USNM 118,730.

Paratypes (4♂, 3♀). Same data as holotype; GS USNM 85,886 (♀), 85,885 (♂).

Additional specimens examined. KENYA: CENTRAL PROVINCE: Njuki-ini Forest, 1475 m, 0°31.07’S, 37°25.27’E, 26 May 2002 (1♂, 2♀), A&M Coll. #2037, r.f. *Crotalaria* sp.; GS USNM 118,731.

Etymology. The species name refers to the host plant genus, *Crotalaria*.

Remarks. The specimens excluded from the type series are undoubtedly conspecific with the holotype, but they are in very poor condition.

Stenentoma Diakonoff, 1969

Type species: *Stenentoma chrysolampra* Diakonoff, 1969.

Stenentoma was described by Diakonoff (1969) to accommodate two species from Aldabra Island, *S. chrysolampra* Diakonoff, 1969 (male genitalia of holotype illustrated by Diakonoff 1969: fig. 30) and *S. onychosema* Diakonoff, 1969 (male genitalia of holotype illustrated by Diakonoff 1969: fig. 39). Razowski and Krüger (2007) recently transferred *S. bisecta* (Meyrick, 1918) and *S. plectocosma* (Meyrick, 1921) to the genus. Diakonoff (1969) concluded that *Stenentoma* belonged to the “*Laspeyresia*, *Pammene*, or *Hemimene* group of species” (*Cydia* group of genera *sensu* Komai 1999). The male genitalia are characterized by a very narrow tegumen and long, narrow valvae with a rounded subapical excavation along the venter. Host plants previously were unreported for the genus.

***Stenentoma sorindeiae*, sp. n.**
Figs. 13, 27, 37

Diagnosis. *Stenentoma sorindeiae* is superficially most similar to *S. bisecta* (see Razowski and Krüger 2007: fig. 126), with a dark forewing ground color. The male genitalia of *S. sorindeiae* are most similar to those of *S. chrysolampra*, but in *S. sorindeiae* the top of the tegumen is pointed rather than rounded; the valva is entirely sclerotized and much broader basally; the neck of the valva is very slender and strongly curved; and the very short cucullus is somewhat elliptical.

Description. Male. *Head*: Vertex and upper portion of frons blackish, lower portion of frons whitish; labial palpus upcurved, white, length ca. 1.2 times horizontal diameter of compound eye. *Thorax*: Notum dark brown, with sparse whitish scales; tegula paler distally. Forewing length 4.1–4.5 mm (mean = 4.2; n = 4); costal fold absent; forewing slightly expanding distally; costa almost straight in basal 0.65, then gently arched to apex; apex rounded; termen weakly convex, with notch just before middle; ground color dark brown with fine gray lines and distinct refractive bluish lines; orange and yellow-orange spots in postmedian and terminal areas; three faint, white costal strigulae in distal 0.5, separated by blackish divisions; fringe gray, whiter at tornus. Hindwing black-brown, with narrow costal fold in basal 0.6; fringe white with blackish basal line. *Abdomen*: Genitalia (Fig. 27) with tegumen long, attenuate to apical prominence at top; pedunculi long, very slender; valva broadest basally, tapering to termination of sacculus; neck short, very slender, strongly curved ventrad; cucullus rounded-triangular, mostly strongly sclerotized, with dense linear row of long spines along caudal edge; phallus long, slender, very weakly sclerotized, about 0.66 as long as valva, with distal 0.2 more narrow, apex flared dorsally, cornuti not evident.

Female. *Head and thorax*: Essentially as described for male; forewing length 3.9–4.5 mm (mean 4.3; n = 5); hindwing without costal fold, frenulum with three bristles. *Abdomen*: Segment VIII with pair of large, rounded-triangular, lightly sclerotized, lateral regions surrounded by longitudinal wrinkles. Genitalia (Fig. 37) with papillae anales unmodified; sterigma ill-defined; ductus bursae long, slender, slightly longer than corpus bursae; ductus seminalis originating postmedially; corpus bursae elongate-ovoid; signa a pair of slender blades, each from a rounded base.

Holotype (♂): Kenya, Coast Province, Shimba Hills, 436 m, 4°14.27’S, 39°23.74’E, 8 Aug 2002, A&M Coll. #2092, r.f. *Sorindeia madagascariensis* [Anacardiaceae], GS USNM 95,904.

Paratypes (4♂, 28♀). KENYA: COAST PROVINCE: Muhaka Forest, 52 m, 4°19.481’S, 39°31.413’E, 7 Feb 2003 (1♂, 16♀), A&M Coll. #2481, r.f. *Sorindeia madagascariensis*; GS USNM 95913 (♀), 124,6261 (♂), 124,627 (♀). Diani Forest, 32 m, 4°20.00’S, 39°34.012’E, 8 Dec 1999 (1♂, 5♀), KIP Coll. #261, and 82 m, 4°20.02’S, 39°33.83’E, 3 Nov 1999 (1♂, 7♀), A&M Coll. #331, r.f. *Sorindeia madagascariensis*. Arabuko Sokoke Forest, 82 m, 3°13.10’S, 39°55.87’E, 9 Jan 2000 (1♂), KIP Coll. #331, r.f. *Strychnos madagascariensis* [Loganiaceae].

Etymology. The specific epithet refers to the generic name of the food plant.

Thylacogaster Diakonoff, 1988

Type species: *Thylacogaster rhodomenia* Diakonoff, 1988.

Thylacogaster was described by Diakonoff (1988a) for the single species *T. rhodomenia*. Razowski (2004) provided a brief diagnosis of the genus in his review of the genera of the Afrotropical region. Brown (2005) added *Argyroploce cyanophaea* Meyrick, 1927 (TL: “Tanganyika”) and *Argyroploce monospora* Meyrick, 1939 (TL: “Belgian Congo”) without comment, based on input from Leif Aarvik (in litt.). The adult and male and female genitalia of *T. rhodomenia* are illustrated by Diakonoff (1988a: figs. 13–16), the adult and female genitalia of *T. cyanophaea* are illustrated by Clarke (1958: 500), and the adult and male and female genitalia of *T. monospora* are illustrated by Razowski *et al.* (2010).

Razowski and Brown (2008) mentioned several similarities between the Neotropical genus *Eriosocia* Razowski and Brown, 2008 and the Afrotropical *Thylacogaster*, including the conspicuous notch near mid-termen of the forewing; the overall shape of the phallus; the dorsolateral position of the socii; the pair of small, finely and sparsely setose lobes at the lateroposterior corners of the ostium bursae; the extremely long, slender ductus bursae; the slightly telescopic ovipositor; and the fact that both genera have been reared only from *Garcinia* species (Clusiaceae).

***Thylacogaster garcinivora*, sp. n.**
(Figs. 14, 28, 38)

Diagnosis. *Thylacogaster garcinivora* is superficially similar to other species in the genus. The male genitalia are similar to those of *T. rhodomenia* and *T. monospora* with an elongate-rectangular tegumen, socii in the form of an expanded patch of fine setae from a membranous region subdorsally on the tegumen, simple valvae with a conspicuous distal spine, and a mesally expanded phallus. *Thylacogaster rhodomenia* has a rounded-triangular, densely bristled fold of the valva near mid-costa and a blunt spine along the venter of the valva ca. 0.6 the distance from the base to the apex that are absent in *T. garcinivora*; and *T. monospora* has a dorsally-projecting spine subapically from the costa of the valva that is absent in *T. garcinivora*.

Description. Male. *Head*: Vertex and frons dark brown mixed with dark gray; labial palpus upcurved, mostly grayish white with white ventral scales, length ca. 1.3 times horizontal diameter of compound eye. *Thorax*: Notum dark grayish brown; venter mostly pale beige; tegula long, scales grayish brown with yellow tips; hindtibia with conspicuous, expanded patch of grayish white secondary scales. Forewing length 7.0–7.8 mm (mean = 7.5; n = 5); costal fold absent; forewing oblong-subovate, costa gently curved throughout; apex broadly rounded, confluent with costal 0.5 of termen**,** basal 0.5 of termen convexly rounded, forming a distinct notch near mid-termen at junction of rounded halves; ground color dark gray brown, with many scales tipped with yellow, especially in tornal region; three faint, slender, oblique, iridescent leaden gray lines from costa toward termen, each bordered by one or two rows of yellow-orange scales; speculum mostly yellow orange with a single black spot; fringe bronze brown, somewhat iridescent in costal 0.5. Hindwing uniform brown; fringe much lighter. *Abdomen*: Genitalia (Fig. 28) with tegumen broadly rectangular; socius represented by moderately dense patch of hairs subdorsally from tegumen; valva large, oblong, costa and venter slightly undulate, falcate distally with a conspicuous stout spine at apex; cucullus occupying distal 0.3 of valva, with long setae directed inward toward tegumen; phallus long, ca. 0.5 length of valva, bulbous in middle, slender, strongly curved in distal 0.6, broader, less curved in basal 0.2; cornuti not apparent in vesica.

Female. *Head and thorax*: Essentially as described for male; forewing length 7.0–8.0 mm (mean = 7.5; n = 10), frenulum usually with three bristles, rarely with two or four. *Abdomen*: Genitalia (Fig. 38) with ovipositor somewhat telescopic; papillae anales slender; apophyses slender, slightly dilated at anterior tips, posteriores ca. 1.2 as long as anteriores; ostium bursae within simple, shallow cup; lamella postvaginalis faintly punctate with a small group of short bristles on each posterolateral corner distad of ostium bursae; colliculum absent; ductus bursae very narrow, ductus seminalis originating approximately mid-length of ductus bursae; corpus bursae round, faintly and evenly dimpled; two horn-shaped signa, each from a rounded basal plate.

Holotype (♂): Kenya, Eastern Province, Kirimiri Forest, 1710 m, 0°25.62’S, 37°32.83’E, 21 Jan 2003, A&M Coll. #2378, r.f. *Garcinia volkensii* [Clusiaceae].

Paratypes (12♂, 32♀). Same data as holotype (11♂, 23♀). Same data as holotype, except 8 Nov 2001 (1♂, 9♀), A&M Coll. #1513; GS USNM 124,478 (♀), 124,477 (♂), 124,412 (♂), 124,413 (♀), 126, 286 (♂), 126,287 (♀).

Etymology. The specific epithet refers to the genus of the new species’ host plant – *Garcinia*.

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APPENDIX 1. Current generic assignments of species of *Anthozela*, *Loboschiza*, and *Cimeliomorpha*.

Anthozela Meyrick, 1913; type species: *Anthozela chrysoxantha* Meyrick.
= *Gephyroneura* Obraztsov, 1968 (preoccupied); type species: *Laspeyresia hemidoxa* Meyrick.
= *Meheteria* Koçak, 1981 (replacement name for *Gephyroneura*).
anonidii Ghesquière, 1940; TL: Zaire.
bathysema (Diakonoff, 1984); TL: Indonesia.
chrysoxantha Meyrick, 1913; TL: South Africa.
hemidoxa (Meyrick, 1907); TL: India.
hilaris (Turner, 1916); TL: Australia.
psychotriae Razowski and Brown, n. sp.; TL: Kenya.

Loboschiza Diakonoff, 1968; type species: *Argyroploce clytocarpa* Meyrick.
= *Rhadinoscolops* Obraztsov, 1968; type species: *Pyralis koenigiana* Fabricius.
cinnabaritis (Meyrick, 1928); TL: Papua New Guinea.
clytocarpa (Meyrick, 1920); TL: Philippine Islands.
gratulata (Meyrick, 1916); TL: Philippine Islands.
halysideta (Walsingham, 1900); TL: Christmas Island.
koenigiana (Fabricius, 1775); TL: India.
= *aurantiana* (Pryer, 1877); TL: China.
= *delectana* (Snellen, 1902); TL: Indonesia.
= *vulnerata* (Walsingham, 1900); TL: Myanmar.
mediana (Walker, 1866); TL: Papua New Guinea.
= *sulfurella* (Pagenstecher, 1900); TL: Solomon Islands.
turifera (Meyrick, 1912); TL: India.
theonarcha (Meyrick, 1911); TL: Australia.

Cimeliompha Diakonoff, 1966; type species *Copromorpha cymbalora* Meyrick.
cymbalora (Meyrick, 1907); TL: India.
egregiana (Felder and Rogenhofer, 1875); TL: Indonesia.
nabokovi Kuznetsov, 1997; TL: Vietnam.
novarana (Felder and Rogenhofer, 1875); TL: India.

incertae sedis
perdigna Kuznetsov, 1976 (*Gephyroneura*); TL: China.