

DESCRIPTION OF *STROPHOTINA*, NEW GENUS, FROM CENTRAL AND SOUTH AMERICA (LEPIDOPTERA: TORTRICIDAE)

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Abstract.—*Strophotina*, new genus, is described to accommodate *S. strophota* (Meyrick 1926), **new combination**, type species, from Colombia, Venezuela, Perú, and Ecuador, and *S. curvidagus*, **new species**, from Costa Rica. The new genus is most similar to *Anoplinella* Powell, *Seticosta* Razowski, and *Galomecalpa* Razowski in general facies and characters of the genitalia. *Strophotina* may represent the sister group of *Galomecalpa* on the basis of the shared possession of extremely elongate, narrow, short-scaled socii; a short, uniformly slender uncus; and the absence of the male foreleg hairpencil. Putative autapomorphies for *Strophotina* include the greatly expanded patch of spinelike setae subbasally on the costa of the valva, the highly modified, elongate mesal processes of the transtilla, and the narrow, elongate, curved aedeagus.

Key Words: Neotropical, phylogeny, Euliini, systematics

Since the turn of the century, approximately 75 species of Neotropical tortricid moths have been described in the polyphyletic genus *Eulia* Hübner by Meyrick (1912, 1926, 1932), Clarke (1949), and others. While there has been considerable taxonomic progress in Euliini, many species of *Eulia* have little in common, and their appropriate generic and tribal assignments have remained obscure (Powell, Razowski, and Brown 1995). Under current concepts, the genus *Eulia* includes only the single species *E. ministrana* (Linnaeus), which has a holarctic, boreal distribution; consequently, all other species of “*Eulia*” lack meaningful generic assignment. In recent years, Powell (1986), Razowski (1982, 1986, 1987, 1988, 1990a, 1990b, 1991, 1995), Brown (1990b), and Brown and Powell (1991) have defined a large number of genera from this assemblage of Neotropical species that can be assigned to Euliini either

on the basis of a unique male foreleg hairpencil (Brown 1990a) or the suspected phylogenetic relationship to genera possessing this structure. The purpose of this paper is to describe *Strophotina*, new genus, to accommodate “*Eulia*” *strophota* Meyrick and *S. curvidagus*, new species, from Costa Rica.

MATERIALS AND METHODS

Specimens were obtained from the following institutions: The Natural History Museum, London, England (BMNH); Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica (INBio); National Museum of Natural History, Smithsonian Institution, Washington, D.C. (NMNH); and Essig Museum of Entomology, University of California, Berkeley (UCB).

Dissection methodology followed that summarized in Brown and Powell (1991). Illustrations of genitalia were drawn with

the aid of a microprojector. Forewing measurements were made with the aid of an ocular micrometer mounted in a dissecting microscope. Terminology for wing venation and genitalic structures follows Horak (1984). Abbreviations are as follows: FW = forewing; HW = hindwing; DC = discal cell.

SYSTEMATICS

Strophotina J. Brown, new genus

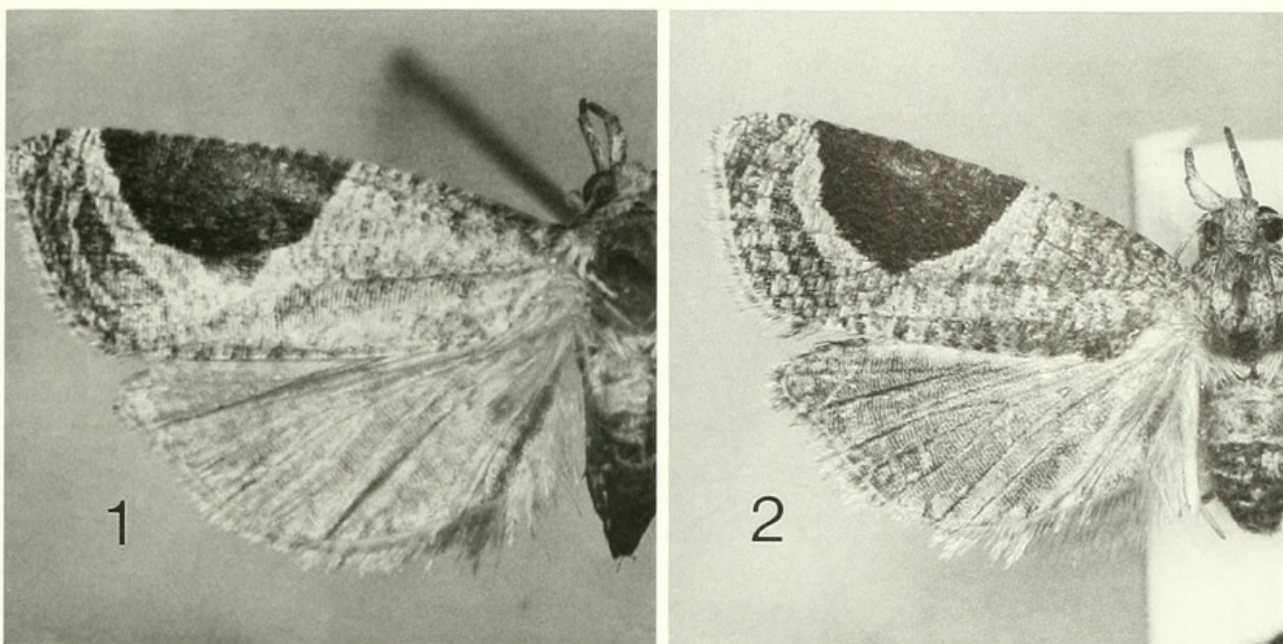
Eulia Hübner (in part); Meyrick, 1926: 252; Clarke, 1958: 139; Powell, Razowski and Brown, 1995: 144.

Type species.—*Eulia strophota* Meyrick, 1926.

Description.—*Head*: Antennal cilia in male approximately 1.7 times flagellar segment diameter, cilia extremely short in female. Labial palpus elongate, 1.6–1.8 times horizontal diameter of eye in male, 2.6–2.8 times horizontal diameter of eye in female; segment II weakly upturned, slightly expanded distally by scaling; segment III 0.3–0.4 as long as II, smooth-scaled, exposed. Maxillary palpus rudimentary. Proboscis well developed. Frons with overhanging tuft of scales. Ocelli present. Chaetosema present. *Thorax*: Smooth-scaled. Legs unmodified, male foreleg hairpencil absent. *Forewing*: Length 2.3–2.4 times width; length of DC about 0.55 FW length; width of DC about 0.20 DC length; CuA₂ originates about 0.60 along length of DC; all veins separate beyond DC; chorda and M-stem absent. No upraised scale tufts; male without costal fold. *Hindwing*: Sc+R and Rs closely approximate; M₃ and CuA₁ closely approximate; CuP present; M-stem absent; tuft of hairlike scales along 1A+2A, originating near base of wing. *Abdomen*: Dorsal pits absent; no modified corethrogynae scaling in female. *Male genitalia* (Figs. 3–4): Uncus simple, uniformly slender. Socius narrow, extremely elongate, with dense, fine, hairlike scales; not fused to gnathos. Gnathos simple, non-dentate, arms narrow, joined distally. Subscaphium

and hami absent. Transtilla a pair of extremely elongate, narrow, sclerotized arms, not joined mesally. Valva somewhat ovate, broadest subbasally; a row of long, strong, spinelike setae on costa; sacculus confined to basal one-fourth. Pulvinus absent. Vinculum complete, well developed. Juxta a broad, sclerotized plate. Aedeagus long, slender, strongly arched; phallobase simple; vesica with two small, curved cornuti (suspected to be deciduous). *Female genitalia* (Figs. 5–6): Papillae anales slender. Apophyses anteriores and posteriores extremely long. Sterigma a simple scobinate band. Ductus bursae moderately long, sclerotized in caudal 0.5. Corpus bursae subrectangular, with a faint patch of sclerotization caudally; spicules and signum lacking. Accessory bursa from near junction of corpus and ductus. Ductus seminalis from proximal region of corpus.

Diagnosis.—Superficially, adults of *Strophotina* are similar to *Anopinella* Powell, *Seticosta* Razowski, and *Galomecalpa* Razowski on the basis of the long, slender labial palpi, the elongate antennal cilia of the male, and the distinctive broad, dark, semi-circular patch bordering the costa of the forewing. *Strophotina*, *Anopinella*, and *Galomecalpa* lack the characteristic euline male foreleg hairpencil (Brown 1990a), which is retained in *Seticosta*. The male genitalia of *Strophotina* can be distinguished from those of *Anopinella*, *Seticosta*, and *Galomecalpa* by the following characters (see Figs. 3–4): (1) valva shorter and ovate compared to the long and narrow valva of *Anopinella* and *Seticosta*, and without the acute apex of *Galomecalpa*; (2) a row of spinelike setae subbasally on the costa of the valva, lacking in *Anopinella* and *Galomecalpa* but present in *Seticosta*; (3) extremely elongate, narrow socii, which are unmodified in *Anopinella* and *Seticosta* but similar to *Galomecalpa*; and (4) a highly modified transtilla, which is simple in *Anopinella*, *Seticosta*, and *Galomecalpa*. The female genitalia of these genera, with the exception of *Galomecalpa* of which no fe-



Figs. 1–2. Adults. 1, *Strophotina strophota*, 2, *S. curvidagus*.

male is known, possess an accessory bursa that arises from a slender ductus from the proximal portion of the corpus bursae. *Strophotina* may represent the sister group of *Galomecalpa* on the basis of the shared possession of extremely elongate, narrow, short-scaled socii and a uniformly slender uncus. However, in the absence of females of *Galomecalpa*, this hypothesis is only provisional. Putative autapomorphies for *Strophotina* include the greatly expanded patch of spinelike setae subbasally on the costa of the valva (which is much less extensive in *Seticosta*), highly modified, elongate mesal processes of the transtilla, and the narrow, elongate, curved aedeagus (see Figs. 3–4).

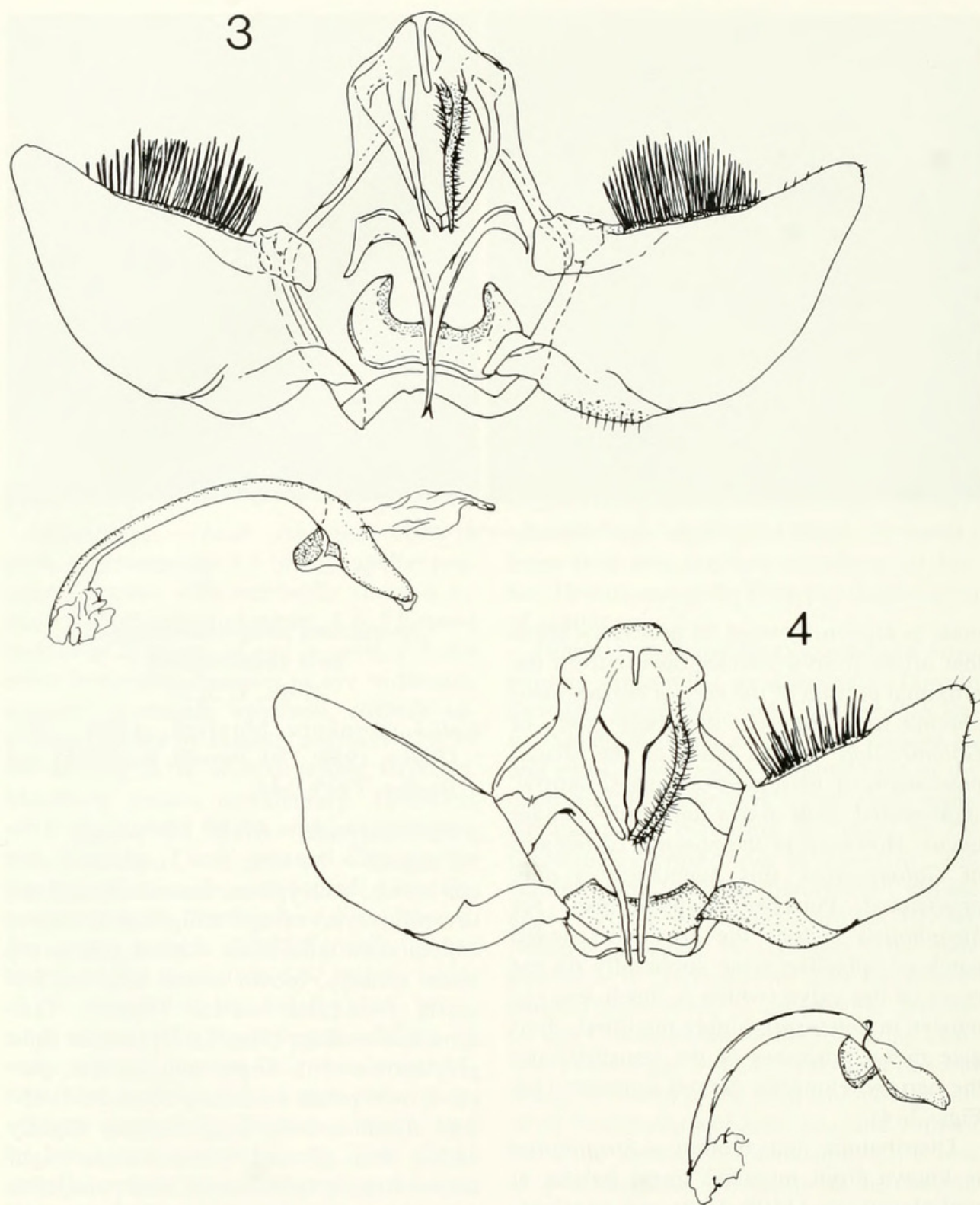
Distribution and biology.—*Strophotina* is known from montane forest habitat at mid-elevations (1100–1400 m) in Costa Rica, and from higher elevations (1500–3850 m) in Colombia, Venezuela, Ecuador, and Perú. Nothing is known of the early stages.

Etymology.—The name of the new genus is derived from the name of the type species; it is interpreted to be masculine in gender.

Strophotina strophota (Meyrick),
new combination
 (Figs. 1, 3, 5)

Eulia strophota Meyrick, 1926: 252;
 Clarke, 1958: 139; Powell, Razowski and
 Brown, 1995: 144.

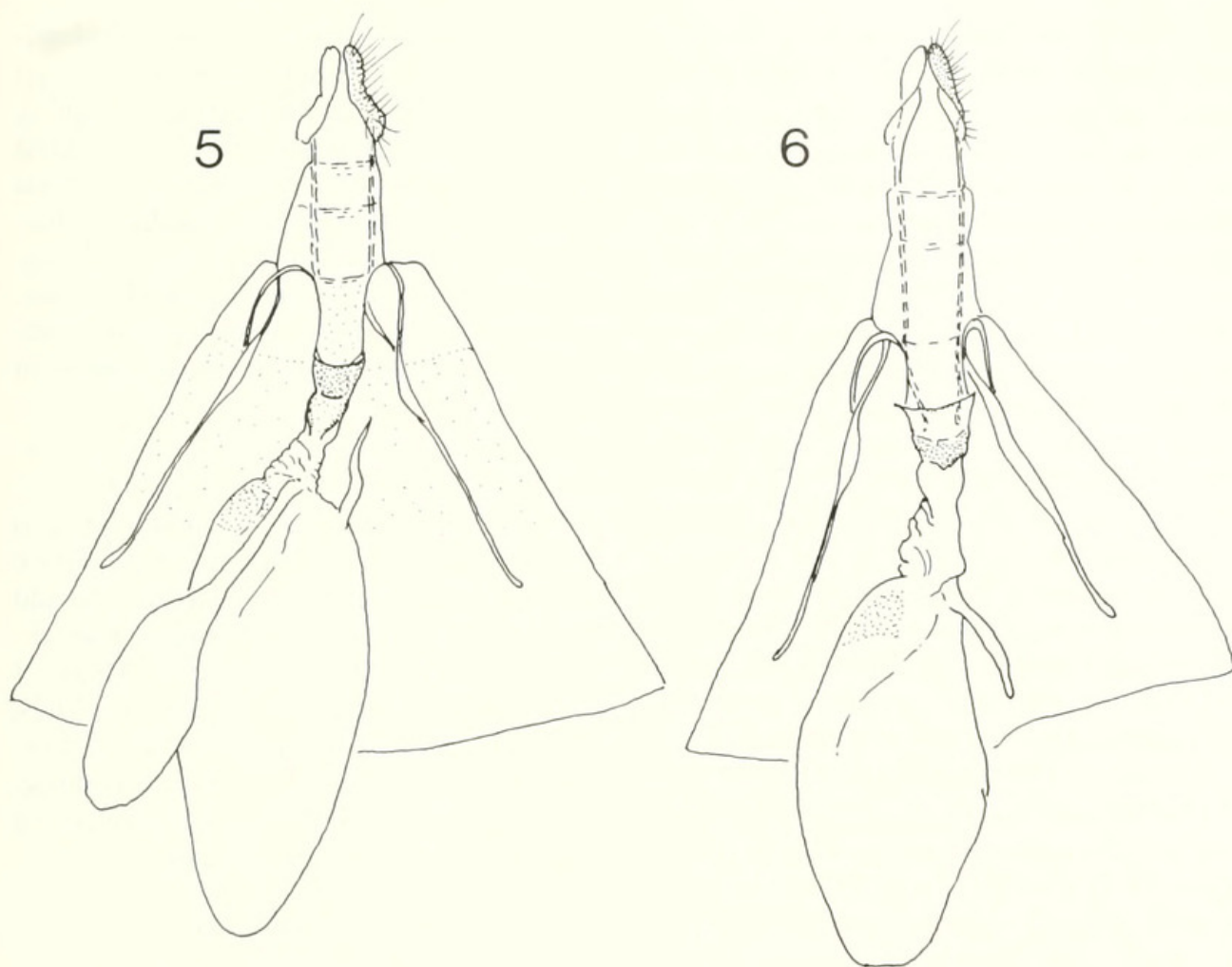
Redescription.—Male. FW length 9.0–9.5 mm (\bar{x} = 9.1 mm; n = 3). **Head:** Frons tan-brown, with sparse, smooth scaling below mid-eye, vertex roughened above, concolorous with frons. Labial palpus off white mesally, brown mixed with tan laterally. Antenna brown. **Thorax:** Tan-brown. **Forewing** (Fig. 1): Upperside light gray-brown with large, semicircular, purple-brown patch bordering costa ca. 0.45–0.85 distance from base; termen slightly darker than ground color; slender light brown line in subterminal area parallel to termen, narrowly bordered by light gray. Underside uniform dark tan with faint indication of upperside markings. **Hindwing:** Upperside light gray-brown with slightly darker gray-brown mottling. Underside light gray-brown with darker mottling. **Genitalia:** As in Fig. 3 (drawn from JWB slide 287, Ecuador; n = 2). Essentially as described for the genus. Gnathos arms uni-



Figs. 3-4. Male genitalia. 3, *Strophotina strophota*, 4, *S. curvidagus*.

form in width, gently curved from base to mesal junction. Juxta with two rounded excavations dorsally, roughly rounded w-shaped. Aedeagus with straight subapical region.

Female.—FW length 8.0–12.5 mm (\bar{x} = 10.4 mm; n = 8). Superficially as in male, except larger average forewing length, labial palpus conspicuously longer, and lacking elongate antennal cilia. *Genitalia*: As in



Figs. 5–6. Female genitalia. 5, *Strophotina strophota*, 6, *S. curvidagus*.

Fig. 5 (drawn from USNM slide no. 69904, Venezuela; $n = 6$) (Clarke 1958:139 provides a photograph of the female genitalia of the lectotype). As described for the genus.

Type.—Lectotype, ♀, Colómbia, Mt. Tolima, 12,500' [3850 m], 10.20 [October 1920] (BMNH). Designated by Clarke (1958).

Additional specimens examined.—COLOMBIA: Cuaca Province: 17 km SE Popayan, 2000 m, 1 ♀, 10-I-1959 (J. F. G. Clarke, NMNH). ECUADOR: Napo Province: via Santa Barbara-La Bonita, km 23, 2400 m, blacklight, 3 ♂, 4 ♀, 7/9-IV-1986 (S. McKamey, UCB). PERU: Divisoria, Route 15 [between Tingo Maria and Aguaytia], 6200' [1908 m], 1 ♀, 20/28-VI-1982 (C. Covell, NMNH). VENEZUELA: Lara Province: Yacambu National Park, 13

km SE Sanare, 4800' [1477 m], cloud forest, 1 ♀, 4/7-III-1978, bl[acklight] (J. B. Heppner, NMNH).

Comments.—It is possible that more than one species is represented in the material cited above. However, until additional male specimens become available, subtle differences in the female genitalia are assumed to reflect infraspecific variation in *S. strophota*.

***Strophotina curvidagus* J. Brown,
new species
(Figs. 2, 4, 6)**

Description.—Male. FW length 6.0–7.0 mm ($n = 2$). *Head*: Frons tan-brown, with sparse, smooth scaling below mid-eye, roughened above. Labial palpus off white mesally, brown mixed with tan laterally. Antenna brown. *Thorax*: Tan-brown. *Fore-*

wing (Fig. 2): Upperside light gray-brown with large, semicircular, purple-brown patch bordering costa ca. 0.45–0.85 from base; termen slightly darker than ground color; slender light brown line in subterminal area parallel to termen, narrowly bordered by light gray. Underside uniform tan with faint indication of upperside markings. *Hindwing*: Upperside light gray-brown with slightly darker gray-brown mottling. Underside light gray-brown with darker mottling. *Genitalia*: As in Fig. 4 (drawn from JWB slides 810 and 846; $n = 2$). Essentially as described for the genus. Gnathos arms angulate with short apical process at mesal junction. Ventral margin of valva with slightly undulate portion just before apex. Juxta with dorsal edge slightly rounded, lacking dorsal excavations present in *strophota*. Aedeagus evenly curved.

Female.—FW length 8.0–9.5 mm ($\bar{x} = 9.0$ mm; $n = 3$). Essentially as described for male. *Genitalia*: As in Fig. 6 (drawn from JWB slide 747; $n = 2$). As described for the genus, except sclerotization of ductus bursae restricted to antrum.

Types.—Holotype, ♂, Costa Rica, Puntarenas Province, Sector Altamira, 1 km SW Cerro Biolley, A.C. Amistad, 1300 m, 2/20-IV-1995, L. Angulo (INBio).

Paratypes, 1 ♂, 3 ♀ as follows: COSTA RICA: Alajuela Province: N slope Volcán Poas, 8 km N Vara Blanca, 1400 m, 1 ♀, 25-VII-1990 (S. Meredith & J. Powell, UCB). Cartago Province: Quebrada Segunda Ref., Nac. Fauna Silv. Tapantí, 1250 m, 1 ♀, III-1992 (G. Mora, INBio), 1150 m, 1 ♂, V-1994 (E. Mora, INBio). Puntarenas Province: Estac. Biol. Las Alturas, 12 air km NE San Vito, 1550 m, 1 ♀, 22/24-I-1993 (J. Powell, UCB).

Diagnosis.—*Strophotina curvidagus* is virtually indistinguishable from *S. strophota* in facies, although the two males of *S. curvidagus* examined are conspicuously smaller in forewing length than the three males of *S. strophota*. *Strophotina curvidagus* can be distinguished from *S. strophota* by its evenly curved aedeagus (that

of *strophota* has a straight portion subapically), the more simple juxta (the dorsal edge evenly rounded rather than w-shaped), the more complex shape of the arms of the gnathos, and the general shape of the distal portion of the valva. In the female, the ductus bursae of *S. curvidagus* has the sclerotization restricted to a well-defined antrum.

Etymology.—The specific epithet is derived from the evenly curved aedeagus in the male genitalia.

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