

Tropiduchidae (Homoptera: Fulgoroidea) of the United States

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ABSTRACT Two species of Tropiduchidae, *Pelitropis rotulata* Van Duzee and *Tangia breviceps* (Metcalf & Bruner), **new combination**, on *Coccolobis uvifera* (L.), are found in the United States. Two species previously reported from the United States, *Monopsis tabida* Spinola and *Neurotmeta sponsa* (Guérin), are in doubt. *P. rotulata*, *T. breviceps*, and *N. sponsa* are redescribed.

KEY WORDS Insecta, Tropiduchidae, *Coccolobis uvifera*, systematics

THREE SPECIES OF TROPIDUCHIDAE have been reported from the United States. *Pelitropis rotulata* Van Duzee (1908), described from Florida and subsequently reported from North Carolina (Metcalf & Bruner 1930), Mississippi, and Cuba, is a valid U.S. species feeding on 19 host plant species (U.S. and Wheeler 1984).

History. *Monopsis tabida* Spinola was described and illustrated (frons and clypeus, apex of head in lateral view, and tegmen) in 1839 from "des états-Unis de l'Am.-Sept.—Mâle de la collection de M. Serville." Uhler (1884) expanded the distribution of *M. tabida* from the United States to Cuba and the Dominican Republic: "*Monopsis tabida* is a similar, but smaller form, which inhabits the same regions, and nearly the same kind of places, as the preceding" (*Neurotmeta sponsa* (Guérin). Swezey (1904) and Van Duzee (1917) included *M. tabida* in their catalogs, and Metcalf (1923) illustrated the frons and tegmen "after Spinola." Metcalf & Bruner (1930) stated that they had no basis for Uhler's reporting *M. tabida* from Cuba, or Van Duzee's reporting it from Florida. Van Duzee sold an extensive collection of Hemiptera to Iowa State College in 1897 (Essig & Usinger 1940); in this material I found two specimens of *P. rotulata* misidentified by him as *M. tabida*. Spinola's type is supposed to be from Serville's collection, which Horn & Kahle (1935) place in Vienna. There is a specimen labeled *M. tabida* there, but there is no indication that it is from Serville's collection (O'Brien 1988); its wing venation does not match that figured by Spinola. I believe it is easier to explain its absence in U.S. collections by a label error than by rarity or extinction.

Neurotmeta sponsa (Guérin) (1856) was described from Cuba. The name was included in reviews and catalogs without additional information until Uhler (1884) expanded the distribution and host information (as *Tangia sponsa*) to "Cuba, San Domingo, and southern Florida . . . and lives on reedy plants near water." Metcalf

(1923) illustrated a dorsal view of the insect, the dorsal view of head and thorax, frons and clypeus, antenna, and tegmen. Metcalf & Bruner (1930) said the species was common in Cuba, but their specimens were collected on *Coffea arabica* (L.) at light or with no host given. I have never seen any specimen labeled from the United States in any collection in the United States or Europe in 30 yr of visiting museums and examining identified and unidentified specimens. Uhler's collection is in the National Museum of Natural History, and no specimens of this species are there. Because of this lack of preserved specimens, I do not believe *N. sponsa* occurs in the United States.

A fourth species was found in 1965 in the Florida keys on seagrapes, *Coccoloba uvifera* (L.) (Polygonaceae), on separate trips. I believe it to be *Tangia breviceps* (Metcalf & Bruner), new combination, described from Cuba. All external characters that have been described and illustrated agree with this conclusion. This species was first identified as *Neurotmeta breviceps* by F. W. Mead (personal communication). It properly should be placed in *Tangia* and should have been moved when Fennah (1965) placed four other species of *Neurotmeta* there. I have been unable to borrow males from Cuba to determine if they are conspecific but I am using the name and illustrating the male genitalia until this question can be resolved.

Fennah (1945, 1949) keyed the West Indian genera and revised (Fennah 1982) the tribes of the world.

Genitalia. Male genitalia were examined after being cleared and stained in an aqueous solution of KOH and chlorazol black E (Carayon 1969). Internal articulated rods extend the aedeagus in these and other genera studied, unlike any other families of Fulgoroidea known, so a general description of the male genitalia is given. The pygofer, anal flap, and styles are bilaterally symmetrical in these species, although the aedeagus

is not. The periandrium (phallobase of Fennah) is suspended from below the anal flap; the aedeagus is suspended separately from the same area, moves through the periandrium, and has sclerotized interior rods that extend the aedeagus when they are aligned, pushing it farther out of the periandrium, thus everting lateral spines. The aedeagus and periandrium are retracted at rest and lie against a C-shaped connective. A membrane connected to the pygofer from below the anal flap to the base of the styles holds the periandrium within the pygofer. The female genitalia are ditrysic in most genera and have teeth on both the first and third valvulae; these are among the main characters in Fennah's tribal placement.

Key to the U.S. Species of Tropiduchidae

1. Frons ecarinate; veins of tegmen spotted with brown, lateral fields of pronotum narrower than medial fields (Florida, Mississippi, North Carolina, Cuba)
 *Pelitropis rotulata* Van Duzee
 Frons medially carinate; veins of tegmen not spotted with brown, lateral fields of pronotum about as wide as median fields 2
2. Vertex longer than broad 3
 Vertex broader than long (Florida, Cuba)
 ... *Tangia breviceps* (Metcalf & Bruner)
3. Tegmen with M forking 1/3 from base (described from United States [error?])
 *Monopsis tabida* Spinola
 Tegmen with M forking at level of or behind Cu fork (Cuba)
 *Neurotmeta sponsa* (Guérin)

Pelitropis rotulata Van Duzee

Fig. 1-3, 12, 16-18

Pelitropis rotulata Van Duzee 1908: 474.

Salient Features. Length 5.5-8.5 mm. Ground color tawny with brown mottling on head and thorax. Tegmen pale translucent tawny, spotted with brown along veins, spots often connected with thin brown line through cell, sometimes with margins of carinae and veins and parts of legs suffused with red. Frons, clypeus, venter, and legs tawny; dorsal brown spots on apices of femora, tips of spines of hind legs dark. Abdomen above tawny, apices of segments slightly darker, segments 7-11 enfumed.

Frons ecarinate, 0.7 times as wide as long, widened at antenna, slightly narrowed anterad before eye, slightly wider again at eye. Vertex about as long as broad, dorsolateral carinae of frons narrower than median carina. Pronotum with lateral fields narrower than median fields (Fig. 1), 2 humeral carinae diverging caudad. Tegmen with Cu branched at level of claval

veins, M with single fork slightly distad (in 15 of 55 specimens examined, one wing had M 2-branched), Sc+R branched near nodal line. Nodal line irregular, slightly bowed anteriorly, most anterior portion in M2.

Male Genitalia. Anal flap short, bifurcate, about 0.7 length of styles. Styles with dorsal projection an equilateral triangle, height about equal to that of spines, outer spine about half size of inner (in Cuban specimens about equal). Periandrium with dorsal projection with distinctive small spine (Fig. 16 and 17). Aedeagus with expandable membrane with spatulate apical projection on left, with two apical spines about the length of the 10th segment, left one broadly acuminate, right one bilobed, ventral lobe shorter and with rounded tip. Basal (inside periandrium) ventral spine about half length of others. Slight sclerotization along median dorsal line of aedeagus. With periandrium pulled away from aedeagus (Fig. 17), 2 additional small hooked spines visible.

Female Genitalia. First valvulae with 1 ventral and 5 dorsal teeth; third valvulae with 7 apical and 3 ventral teeth.

Lectotype. Three labels: "Bisc. Bay, Fla.," "Lectotype rotulata," "E. P. Van Duzee Collection." (California Academy of Sciences #2266.)

Material Examined. 55 specimens as follows: Florida: Alachua Co., Gainesville; Clay Co., Gold Head Branch St. Pk.; Collier Co., Collier Seminole St. Pk.; Columbia Co.; Dade Co., Miami; Franklin Co., St. Teresa Beach; Highlands Co., Archbold Biol. Stn., Highlands Hammock St. Pk.; Indian River Co., 3 mi. N. Indian River; Monroe Co., Upper Key Largo. Mississippi: Harrison Co., Gulfport. CUBA: Pinar del Rio Prov., Aspiro-Rangel. Taken every month except January and November.

Notes. The genus *Pelitropis* is quickly identified by the medially ecarinate frons and the brown markings on a tawny background on head, thorax, and tegmina. Four species have been described, *P. rotulata* from the United States, also found in Cuba; *P. insularis* Schmidt (1932), Cuba; *P. cazieri* Metcalf (1954), Bahamas; and *P. haitiana* Fennah (1965), Haiti. The species are separated by coloring, shape of the frons and vertex, and male genitalia. The nymphs and 19 host plants were described by Wilson & Wheeler (1984).

Tangia breviceps (Metcalf & Bruner), new combination

Fig. 4-6, 13, 19-20.

Neurotmeta breviceps Metcalf & Bruner 1930: 398.

Salient Features. Length 7.2-8.5 mm. Green, fading to tawny; tips of spines of hind legs dark.

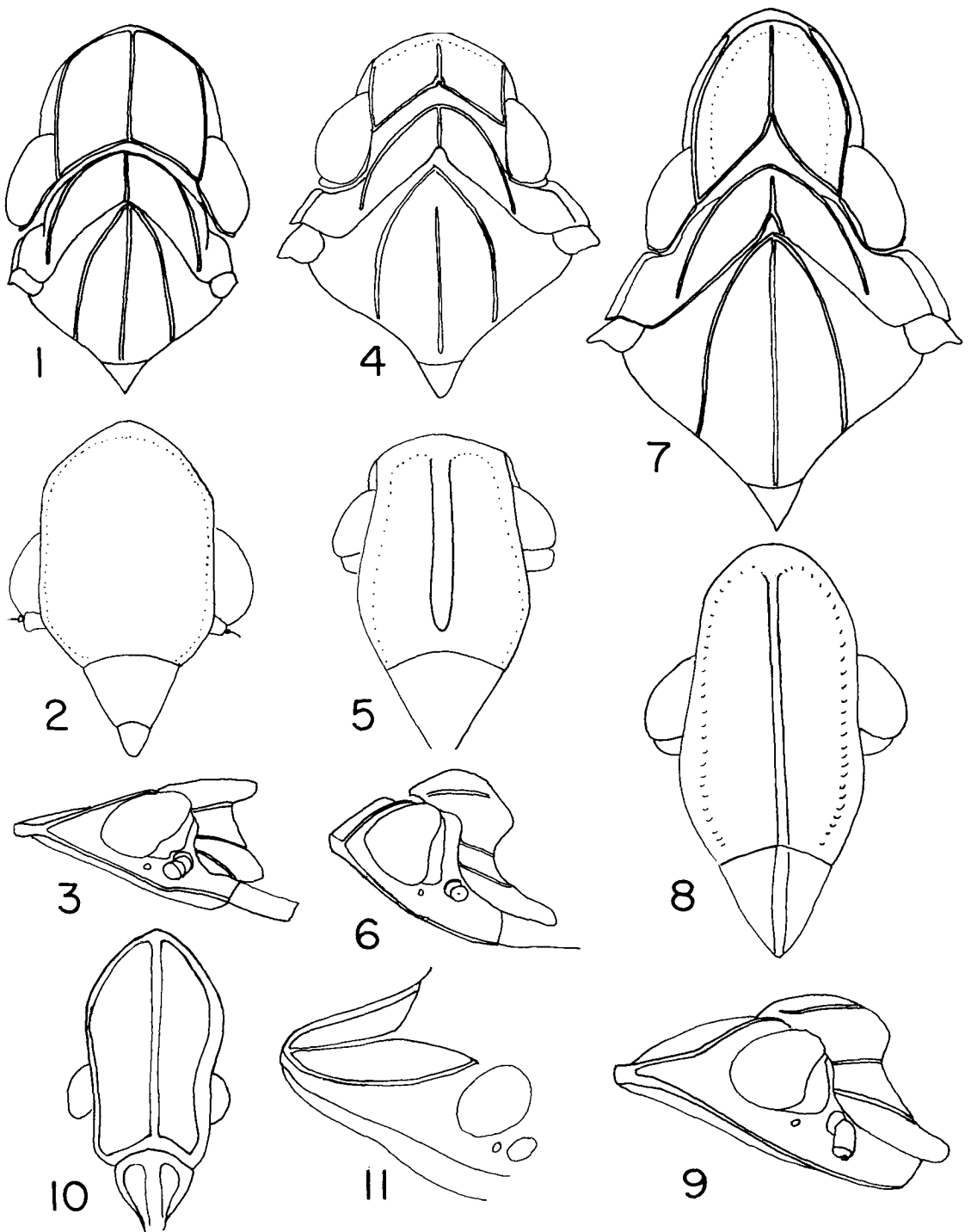


Fig. 1-11. (1-3) *Pelitropis rotulata* Van Duzee. (1) Head and thorax, dorsal view. (2) Frons. (3) Head, lateral view. (4-6) *Tangia breviceps* (Metcalf & Bruner). (4) Head and thorax, dorsal view. (5) Frons. (6) Head, lateral view. (7-9) *Neurotmeta sponsa* (Guérin) (identified following Metcalf & Bruner [1930]). (7) Head and thorax, dorsal view. (8) Frons. (9) Head, lateral view. (10-11) *Monopsis tabida* Spinola (after Spinola). (10) Frons. (11) dorso-lateral view of head.

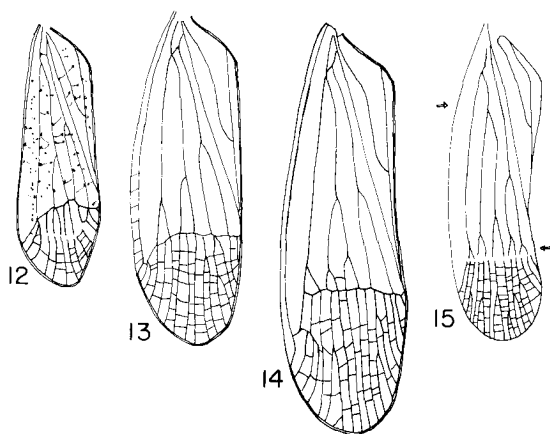


Fig. 12-15. Tegmina. (12) *Pelitropis rotulata* Van Duzee. (13) *Tangia breviceps* (Metcalf & Bruner). (14) *Neurotmeta spona* (Guérin). (15) *Monopsis tabida* Spinola (after Spinola).

Frons 0.8 times as broad as long, broadest near antenna; medially carinate, carina broader than carinae of vertex and pronotum. Vertex half as long as broad (measured along median line and at base), as long as pronotum in median line, flat, depressed below carinae. Pronotum with lateral fields almost equal to median fields, 2 humeral carinae parallel. Tegmen with Cu branched just behind anterior third, M with single fork slightly distad, Sc+R branched near nodal line, branching points almost forming straight line. Nodal line smooth, slightly bowed anteriorly, most anterior portion in M, most caudal in Sc.

Male Genitalia. Anal flap short, bifurcate, about 0.7 length of styles. Styles with dorsal projection an acuminate equilateral triangle, projection as high as spines, outer spine shorter than inner. Periandrium subquadrangular, dorsal margin slightly elongate medially. Aedeagus with 4 curved apical spines. Two basal ventral spines, outer left bilobed (Fig. 19 and 20), inner acuminate, bent downward. Slight sclerotization along median dorsal line of aedeagus.

Female Genitalia. First valvulae with 1 ventral and 5 dorsal teeth; third valvulae with 6 apical and 4 ventral teeth.

Type. "from Havana, Cuba, Dr. J. Gundlach, collector, in Gundlach Museum, Havana, No. 289, labeled *Monopsis tabida* Spin." (Metcalf & Bruner 1930). Type not seen.

Material Examined. 16 specimens. Florida: Monroe Co., Upper Matecubey Key, Key Largo; Martin Co., Jupiter Island. All specimens were on *Coccoloba uvifera* (L.), a strand plant, in June 1965 and again in Upper Key Largo in May 1976.

Notes. This genus is identified by the lateral margins of frons meeting the lateral margins of the vertex (Fig. 3 and 6) (not angling to dorsal margin of frons before joining anterior margin of vertex, Fig. 9), median carina of vertex only mi-

nutely forked at base, this fork basad of level of anterior margin of eyes (Fig. 4), M in tegmen 2-branched at level of nodal line (Fennah 1965). Seven species are found in the West Indies, *T. breviceps* from Cuba, *T. plistanax* Fennah from the Caymans, *T. viridis* (Walker) from Puerto Rico and St. Thomas, *T. litoralis* (Fennah) from Antigua and Bermuda (Wilson & Hilburn 1991), and the remainder from islands from St. Kitts to Dominica. The species are separated by the shape of the vertex and frons and by the male genitalia.

Neurotmeta spona (Guérin)

Fig. 7-9, 14, 21-22.

Fulgora (*Pseudophana*[?]) *spona* Guérin 1856: 180.

Tangia spona: Uhler 1884: 231.

Neurotmeta spona: Melichar 1912: 174.

Salient Features. Length 10.3-13.8 mm. Color green, green with costal margin tawny, or all tawny; tips of spines of hind legs dark.

Frons 0.6 times as broad as long, broadest near antenna; medially carinate, carina not broadened. Vertex 0.7 times as long as broad (measured along median line and at base), twice as long as pronotum in median line, flat, depressed below carinae. Pronotum with lateral fields almost equal to median fields, 2 humeral carinae slightly diverging. Tegmen with Cu and M branched just behind anterior third, M branched again once or twice at level of Sc+R branch, Sc+R branched near nodal line. Nodal line smooth, nearly straight after costal cell.

Male Genitalia. Anal flap short, bifurcate, about 0.5 length of styles. Styles with dorsal projection higher than an equilateral triangle, height exceeding that of spines, outer spine narrow, inner broad and blunt. Periandrium with greatest length ventral, surface textured. Aedeagus slightly sclerotized, slightly thickened medially dorsally and ventrally, single apical spine, but second elongate sclerotized area seen from right side.

Female Genitalia. First valvulae with no ventral and 4 dorsal teeth; third valvulae with 7 apical and 7 ventral teeth.

Type. Not seen. Presumably in Naples, Italy (Museo de Zoologia di Napoli). I have been unable to obtain a response from the Museum, although J. T. Medler borrowed Guérin types in 1986 (pers. comm.). I identified the species from Metcalf & Bruner's (1930) illustrations and description.

Material Examined. 17 specimens. CUBA: Camaguey: Baragua. Santa Clara [sic; now Las Villas Province]: Soledad, San José. Province unknown: Ceballos. Isla del Pinos, Punta del Este, collected from June to September.

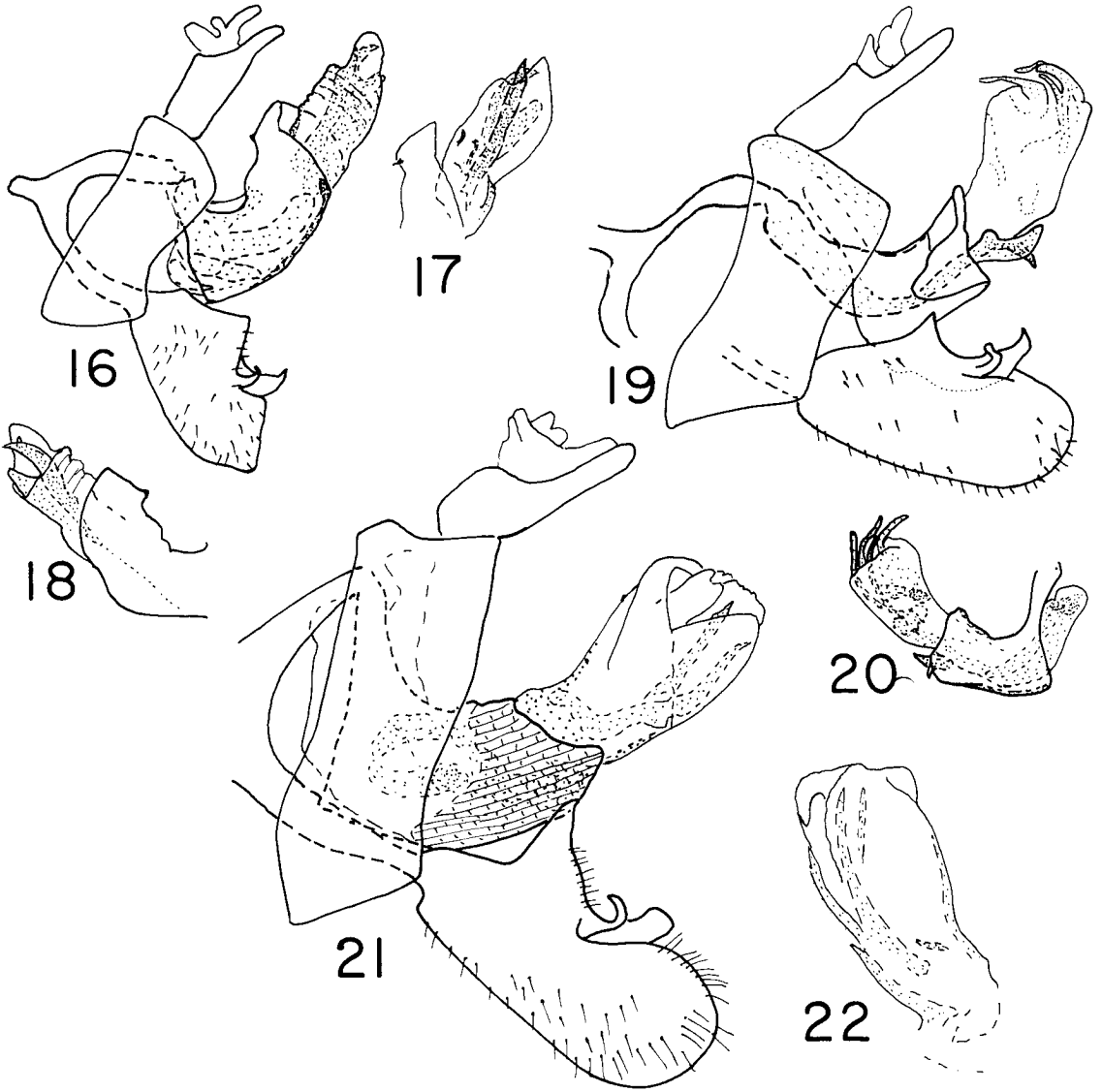


Fig. 16–22. (16–18) *Pelitropis rotulata* Van Duzee. (16) Left lateral view of genitalia. (17) Left lateral view of aedeagus with perianthium pulled away. (18) Right lateral view of aedeagus. (19–20) *Tangia breviceps* (Metcalf & Bruner). (19) Left lateral view of genitalia. (20) Right lateral view of aedeagus. (21–22) *Neurotmeta sponsa* (Guérin). (21) Left lateral view of genitalia. (22) Right lateral view of aedeagus.

Notes. This monotypic genus is identified by the lateral carinae of frons becoming dorsal carinae before meeting anterior (not lateral) carinae of vertex (Fig. 9, not Fig. 3, 6); median carina of vertex widely forked basally, distinctly before level of anterior margin of eyes (Fig. 7); M in tegmen 3-branched at level of nodal line (Fig. 14) (Fennah 1965).

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