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Descriptions of and Notes on North American Geometridae (Lepidoptera), No. 5

By Frederick H. Rindge[1]

Several species of Geometridae have come to hand through the courtesy of Mr. Lloyd M. Martin of the Los Angeles County Museum, and of Mr. Harry K. Clench of the Carnegie Museum, and these have either needed to be named or to be properly placed generically. In order that this information may become available, the following descriptions and notes are given. Also included in this paper is the record of a food plant for *Glaucina,* a revision of the genus *Yermoia,* and notes on *Stenocharis* and *Itame.*

The author wishes to thank Mr. D. S. Fletcher of the British Museum (Natural History), who was kind enough to make comparisons with type material in his charge in order that the identification of a species included in this paper could be checked.

ENNOMINAE

Itame abruptata (Walker), new combination

Figures 1, 3–5

Camptogramma ? abruptata Walker, 1862, p. 1326.
Plemyria abruptata, Smith, 1891, p. 75.
Sciagraphia abruptata, Dyar, "1902" (1903), p. 307 (synonym of *granitata* Guenée). Smith, 1903, p. 73. Barnes and McDunnough, 1914, p. 207 (removed from the synonymy and placed as a distinct species).

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Macaria abruptata, BARNES AND MCDUNNOUGH, 1917, p. 112.
Semiothisa abruptata, MCDUNNOUGH, 1938, p. 158. FORBES, 1948, p. 44.

The status of this name has long been in doubt, owing primarily to a lack of material. Recently, Mr. Clench of the Carnegie Museum sent the author several pairs of specimens from southern Ontario and western Pennsylvania. One pair was forwarded to Mr. Fletcher of the British Museum (Natural History), who was kind enough to determine the species as *abruptata.* Walker described this species from a single male specimen taken at "St. Martin's Falls, Albany River, Hudson's Bay," Ontario. This specimen is now in the collection of the British Museum (Natural History).

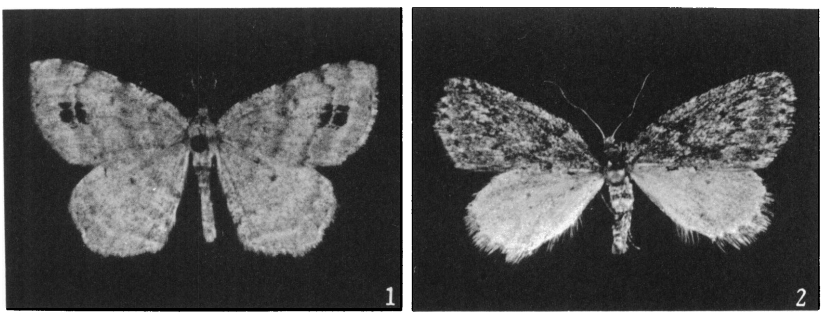
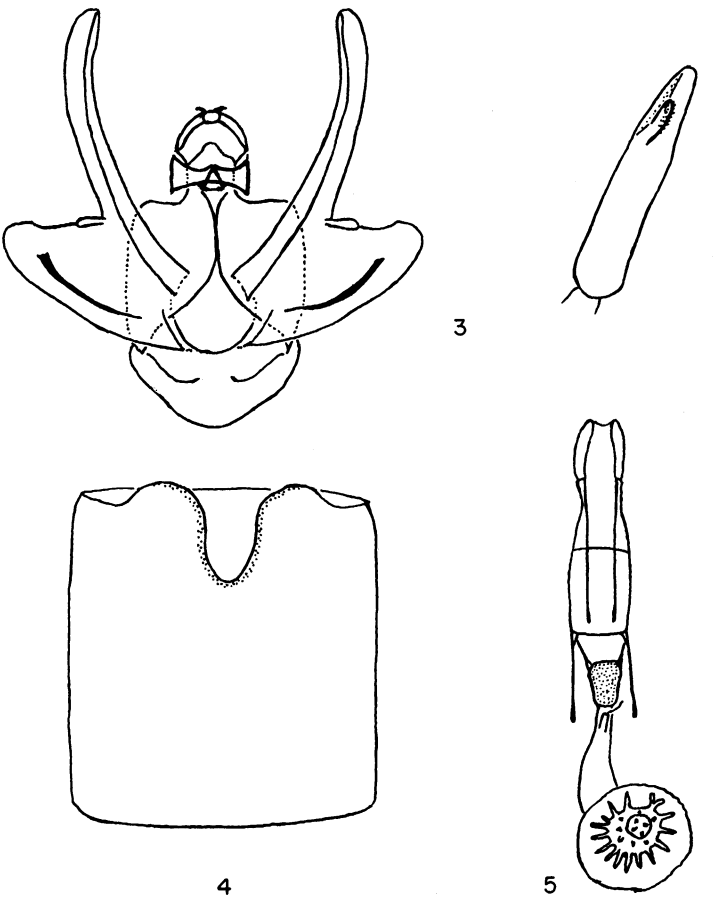


FIG. 1. *Itame abruptata* (Walker), male, upper side. Asperitos Island, Georgian Bay, Ontario, August 2, 1914 (Kahl; Carnegie Museum).
FIG. 2. *Yermoia glaucina,* new species, paratype female, upper side (Los Angeles County Museum).
Both figures × 2.

In the male of *abruptata,* the antennae are pectinate, with the pectinations being subequal in length to the length of the segments; the ventral surface of the third abdominal segment does not have a row of bristles; the hind tibia are not swollen nor do they have a hair pencil; and the two pairs of spurs are not reduced. In our species of the genus *Semiothisa* the male antennae are never pectinate, the row of bristles is present on the third abdominal segment, and a number of the species have the hind tibia swollen, with a hair pencil and reduced spurs. Based on these characters, it seems inadvisable to retain *abruptata* in its present genus, so it is transferred to *Itame.*

Based on the maculation, *abruptata* does not have any closely allied species in our fauna. In pattern and color it is reminiscent of the *Semiothisa granitata* complex, somewhat resembling the widespread *dispunctata*



FIGS. 3–5. Genitalia of *Itame abruptata* (Walker). 3. Male genitalia and aedeagus. 4. Ventral plate of male. 5. Female genitalia.

Walker. The ground color of the upper surface of the wings is white or creamy white, the forewings have three cross lines, the t. a. and the t. p. lines being angled outward after leaving the costa, and there are two prominent blackish brown spots in cells M_1 and M_2, divided medially by the pale t. p. line. The hind wings are concolorous with the forewings and have the cross lines repeated, and have a discal dot, which is usually absent on the primaries. Below, the wings are similar to the upper surface but lack the dark spots of the forewings, and the cross lines tend to be slightly more heavily marked.

The genitalia are of the same type as those of *Itame sulphurea* Pack-

ard. The male structures are small in size, with the valves having an elongate costal lobe, a simple middle lobe, and an elongate anterior ridge on the inner face of the lower lobe. The aedeagus is armed with two small, finely dentate plates, a coarse ventral one and a finer, slightly larger, dorsal one. The ventral surface of the last abdominal segment has a rather broad but shallow U-shaped indentation. The female genitalia have the sterigma widest near the posterior end, then evenly tapering to the ductus bursae, the latter having the broad base of the ductus seminalis located posteriorly. The elongate ductus bursae gradually widens anteriorly and contains a large, discoid, stellate signum.

Glaucina eupetheciaria lucida Rindge

Glaucina eupetheciaria lucida RINDGE, 1959, p. 291.

Among some specimens submitted for identification from the Los Angeles County Museum were a pair of this subspecies from north of Desert Center, Riverside County, California, reared from *Olneya tesota* Gray by C. Henne. The larvae were collected during the night of April 1, 1946, and the adults emerged July 23, 1947 (male), and August 15, 1947 (female). This is the first record of a food plant for this population. This tree, commonly called desert ironwood, belongs to the Leguminosae, and occurs on the Colorado Desert, extending to Arizona, Sonora, and Baja California. Possibly some of the other subspecies of *eupetheciaria* feed on it also.

GENUS *YERMOIA* MCDUNNOUGH

Yermoia MCDUNNOUGH, 1940, p. 93.

The discovery of a second species in this genus, described below, plus additional material of the type species, necessitate an amplification of the original description for *Yermoia.* This genus may now be redescribed as follows:

Head, front bulging, covered by appressed scales; eyes large, round; antennae of male ciliate, of female very shortly ciliate; tongue present; labial palpi of both sexes small, not exceeding front. Thorax without tufts, patagia elongate, with scales and hair-like scales; legs slender, middle tibia with one pair of spurs, hind tibia with two pairs of spurs, without hair pencil, not swollen. Abdomen without crests; ventral surfaces of third and eighth segments unmodified. Forewings thin, broad, triangular, the costal and outer margins slightly rounded, 12 veins, venation variable; radial venation either with R_1 free, R_2 shortly anastomosed with R_{3+4} to form areole, then free to costa, or with R_{1+2} anas-

tomosed with Sc, going separately and very weakly to costa, without areole, both with R_5 from stalk before R_{3+4}; udc either short or elongate and oblique; M_1 from upper angle, M_2 from middle of dc, M_3 from lower angle; Cu_1 from before angle, Cu_2 from two-thirds of distance to angle; fovea absent. Hind wings broad, slightly angled or rounded at apex; frenulum strong in both sexes; Sc extending along cell to one-third or one-half of length, then diverging; R and M_1 from before, or at, upper angle, M_3 from lower angle; Cu_1 from before lower angle, Cu_2 from about three-fourths of distance to lower angle. Forewings gray or grayish brown, hind wings grayish white, with poorly defined maculation. Beneath grayish white, without maculation except for discal spots.

MALE GENITALIA: Uncus slender, elongate, terminating in a single point; socius present or absent; gnathos well developed, with or without group of spines on medioventral enlargement; valves elongate, slender, simple, with sclerotized costa; transtilla complete or incomplete, extending from base of costa; cristae weakly represented or prominent; anellus small to moderate, with one or two pairs of posterolateral protuberances; furca absent; tegumen broadly rounded posteriorly; saccus projecting beyond base of valves, tapering and bluntly pointed or truncate anteriorly; aedeagus moderately slender, subequal in length to combined lengths of tegumen and saccus; vesica armed with small, lightly sclerotized cornutus, or a large, heavily sclerotized cornutus.

FEMALE GENITALIA: Sterigma simple, membranous; ductus bursae short, lightly sclerotized, slender or relatively broad; ductus seminalis arising from end of corpus bursae; corpus bursae small, either transverse, connected medially with ductus bursae, or globular in outline; signum absent; papillae anales either slender, with numerous setae, or enlarged, with numerous, ventral, capitate setae.

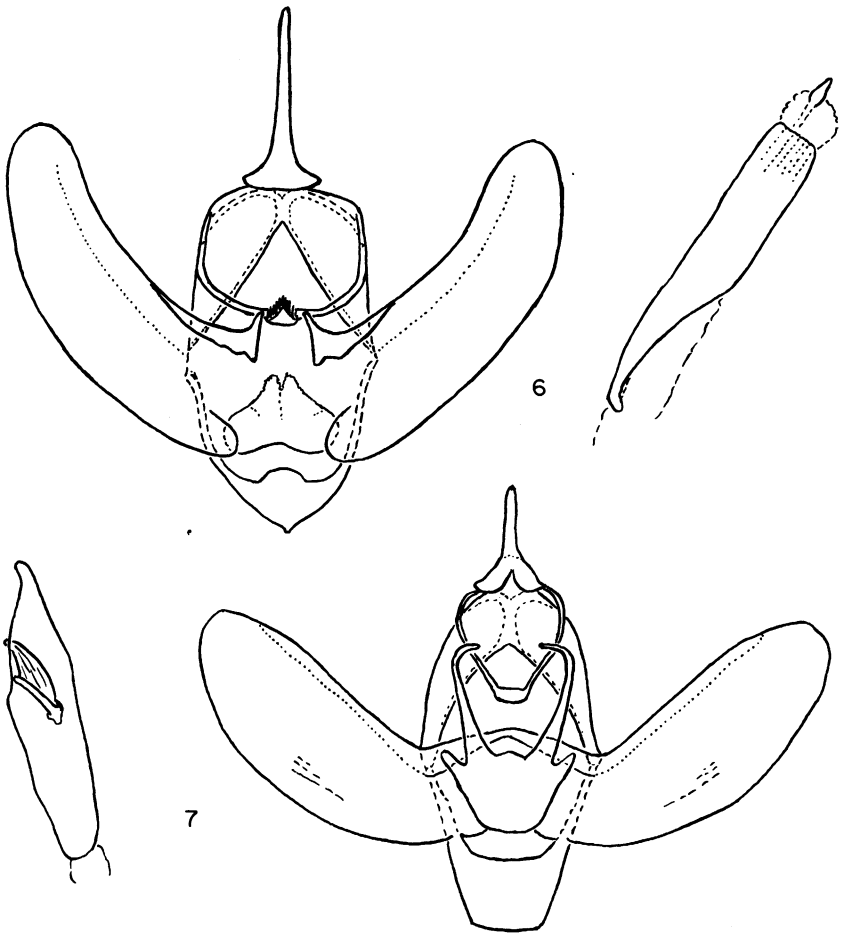
TYPE SPECIES: *Yermoia perplexata* McDunnough, by original designation.

The inclusion of a second species has necessitated an enlargement of the concept of *Yermoia,* as the two species are divergent in a number of characters. Rather than erect another monobasic genus for the species described below, it was thought advisable to include it here.

KEY TO SPECIES
BASED ON ADULTS

Forewing with R_1 free and with accessory cell; dorsal surface of basal segment of abdomen golden ..... *perplexata*

Forewing with R_{1+2} anastomosed with Sc, without accessory cell; dorsal surface of basal segment of abdomen gray ..... *glaucina*



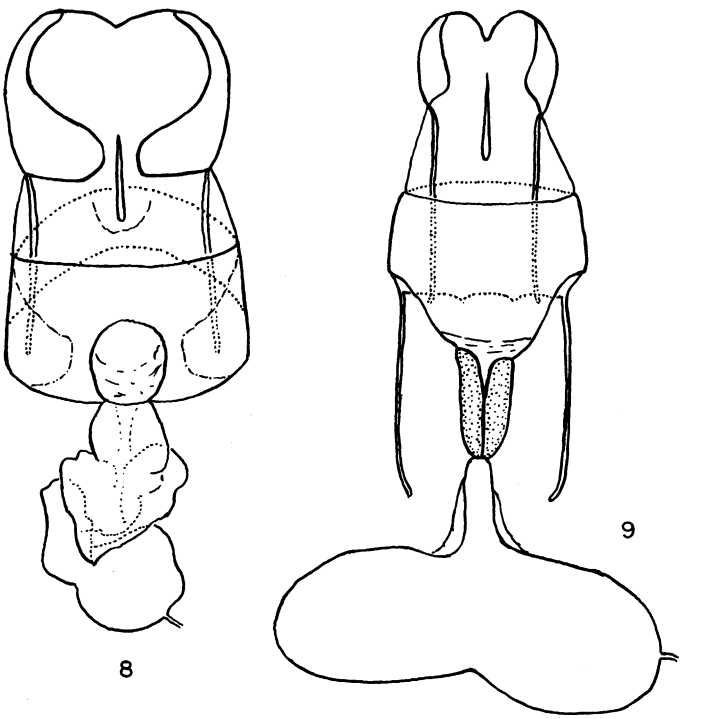
FIGS. 6, 7. Male genitalia of *Yermoia*. 6. *Y. perplexata* McDunnough, Palmdale, California, February 11, 1947 (C. I. Smith). 7. *Y. glaucina,* new species, holotype.

BASED ON MALE GENITALIA

Anellus small, not extending to transtilla; gnathos spined ..... *perplexata*
Anellus large, the elongate posterolateral projections extending to middle of unspined gnathos ..... *glaucina*

BASED ON FEMALE GENITALIA

Corpus bursae transverse; papillae anales slender ..... *perplexata*
Corpus bursae globular; papillae anales large, with numerous, ventral, capitate setae ..... *glaucina*



FIGS. 8, 9. Female genitalia of *Yermoia*. 8. *Y. glaucina*, new species, allotype. 9. *Y. perplexata* McDunnough, Yermo, California, January 30, 1940 (G. Beevor).

Yermoia perplexata McDunnough

Figures 6, 9

Yermoia perplexata McDUNNOUGH, 1940, p. 93, fig. 6 (male genitalia).

MALE: This is a medium-sized, obscurely marked species, with the upper surface of the forewings dark gray and with poorly defined cross lines. The secondaries are grayish white, becoming slightly darker towards the outer margin. The forewing venation has R_1 free, R_2 shortly anastomosed with R_{3+4} to form an areole, then free to costa, and with udc short. The antennae are very shortly ciliate. The first segment of the abdomen above is covered with appressed golden scaling.

LENGTH OF FOREWING: 16 to 18 mm.

FEMALE: Similar to male, but smaller.

LENGTH OF FOREWING: 13 to 15 mm.

MALE GENITALIA: Uncus long and slender, longer than length of

tegumen; socius absent; median enlargement of gnathos with numerous spines; transtilla incomplete; anellus small, not extending to costa of valves, subtriangular, posterior apex bifurcate; cristae weakly represented; saccus tapering and bluntly pointed; aedeagus longer than combined lengths of tegumen and saccus, truncate posteriorly; vesica armed with a small, lightly sclerotized cornutus.

FEMALE GENITALIA: Ductus bursae slender, short, lateral margins more heavily sclerotized than center; ductus seminalis arising from end of lobe of corpus bursae on right side; corpus bursae transverse, connected medially with ductus bursae; papillae anales slender, with numerous setae.

TYPE: Holotype, male, No. 4962 in the Canadian National Collection, Ottawa.

TYPE LOCALITY: Yermo, San Bernardino County, California.

RANGE: Southern and eastern California (the desert regions of Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties), Arizona (Cochise and Yavapai counties), and Utah (Juab County). On the wing from late January into May, with one of the Arizona males being labeled August. Most of the specimens have been taken in January and February in southern California.

REMARKS: Twenty-three specimens and five genitalic dissections were examined. This species can be recognized by the characters given above in the discussion and keys.

Yermoia glaucina, new species

Figures 2, 7, 8

This species is similar to *perplexata,* but differs in the venation, in having longer cilia in the male antennae, and by being smaller.

MALE: Head, vertex grayish white, the scales with broad, black terminal border; antenna with cilia longer than width of shaft, front of pedicel, scape and top of basal portion of shaft pure white, antennal bases connected by white band; front with mixed gray and black scales, darker laterally; palpi with mixed white and black scales. Thorax above with mixed black and black-tipped, grayish white scales; below with mixed brownish black and light gray scales; legs with mixed light gray and brown scales. Abdomen light gray, with scattered brown and brownish black scales above and below, first segment mostly gray above.

UNDER SURFACE OF WINGS: Forewings, R_{1+2} anastomosed with Sc, going separately and very weakly to costa, without areole, udc elongate; ground color light gray, heavily and evenly overlain with black

and brownish black scales; t. a. line weakly represented, black, outwardly oblique to middle of cell, angled basad, outwardly produced on anal vein; discal spot black, small; t. p. line black, represented by weakly connected dashes on veins, slightly more oblique than outer margin, poorly defined subterminal area slightly lighter in color than adjacent areas, outlining t. p. line; s. t. line absent; terminal line black, interrupted by veins; fringe elongate, concolorous with wing. Hind wings light gray, sparsely dotted with brown scales, especially towards outer margin; discal spot black; without other maculation except for weak terminal line; fringe concolorous with wing.

UNDER SURFACE OF WING: All wings shiny, pale gray, with scattered light brown scales; maculation absent except for dark discal spots on all wings, and for dark terminal line interrupted by veins.

LENGTH OF FOREWING: Holotype, 14 mm.

FEMALE: Similar to male, but with upper surface of forewings slightly darker, upper surface of hind wings more heavily covered with brown scales terminally, and with trace of extradiscal line in some specimens. Under surface similar to that of male but more heavily dusted with brown scales.

LENGTH OF FOREWING: 11.5 to 12.5 mm.; allotype, 11.5 mm.

MALE GENITALIA: Uncus rather short and thick, shorter than length of tegumen; socius present; gnathos slightly enlarged medially, without apical spines; transtilla complete; anellus increasing in width posteriorly, with small, finger-like projection on each side at base of costa of valve, with a pair of very long and slender, apically curved processes arising from posterolateral margins of anellus, extending to middle of gnathos; cristae extremely long, almost extending to base of uncus, arising from large area on lateral margins of anellus; saccus truncate anteriorly; aedeagus as long as combined lengths of tegumen and saccus, tapering posteriorly to slightly asymmetrical point; vesica armed with large, sclerotized, thorn-like cornutus.

FEMALE GENITALIA: Ductus bursae broad, lightly sclerotized posteriorly, enlarged, curved to left side and more heavily sclerotized anteriorly; ductus seminalis arising anteriorly from end of short, globular corpus bursae; papillae anales large, swollen, with numerous, ventral, capitate setae.

TYPES: Holotype, male, allotype, female, and two female paratypes, Morongo Wash, San Bernardino County, California, March 7, 1954 (L. M. Martin). Holotype, allotype, and one paratype in the collection of the Los Angeles County Museum; the remaining paratype in the collection of the American Museum of Natural History.

REMARKS: Superficially this species is similar to *perplexata,* but it is quite divergent in a number of characters, as outlined above. The male genitalia are characterized by the large anellus with the elongate posterolateral projections, and by the large, heavily sclerotized cornutus in the vesica. The female genitalia have papillae anales similar to those found in the genus *Glaucina* Hulst and its allies (Rindge, 1959), but there are virtually no other close similarities. From *perplexata,* the present species can be separated by the papillae anales, the larger ductus bursae, and by the globular corpus bursae.

Stenocharis candida (J. B. Smith), new combination

Bombycia candida SMITH, 1890, p. 179.
Euthyatira candida, DYAR, "1902" (1903), p. 259. GROSSBECK, 1917, p. 85. McDUNNOUGH, 1938, p. 139.

An examination of the unique male type in the collection of the American Museum of Natural History shows that this species should be transferred to the Geometridae from the Thyatiridae, as it belongs in the genus *Stenocharis* Grossbeck. Although the abdomen and genitalia of the type have been partially destroyed, enough remains of the latter to make the identification certain.

The type locality was given as Florida, the specimen having been collected by Mrs. A. T. Slosson. The only other specimen of this species known to the author is a male from Clinton, Hinds County, Mississippi, February 13, 1959 (Bryant Mather), now in the American Museum collection.

In size and maculation this species is reminiscent of *permagnaria* Grossbeck from Arizona. The present species is somewhat darker in color, and the forewing has white suffusion in the basal area and along the costa beyond the dark median area. The t. a. line is strongly outcurved, and the t. p. line is curved inwardly in the cell.

The male genitalia of *candida* are quite similar to those of *permagnaria,* the type species of *Stenocharis.* Both the lateral tooth-like extensions of the juxta and the aedeagus are slightly shorter in the present species than they are in *permagnaria.*

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