

*Flight period.*—Late June to early August.

*Remarks.*—This species is closely allied to *E. pinifoliella* Chambers and *E. chillcotti* Freeman, but it is much darker than these two and has different genitalia. Although it was taken at the Central Experimental Farm at Ottawa in 1950 and 1951, it has not been found in the area since that time. Its presence in southernmost Ontario and directly across Lake Erie in Lake County, Ohio, suggests that it is an introduced species. However, I am unable to find an applicable name in the literature.

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## IDENTITY OF *CERATONYX SATANARIA*, AND THE LARVA AND PUPA OF *C. ARIZONENSIS* (GEOMETRIDAE, ENNOMINAE)

JOHN G. FRANCLEMONT

Department of Entomology, Cornell University, Ithaca, New York

In the late summer of 1959, the larvae of a geometrid were found feeding on a small sunflower-like composite (*Viguiera multiflora* (Nutt.) Blake) in Madera Canyon, Santa Rita Mountains, Arizona. The larvae were remarkable in that each possessed a pair of stout filaments on the prothoracic segment and a single, shorter one on the eighth abdominal segment. They immediately called to mind the figure of the larva of *Ceratonyx satanaria* Guenée, 1857. I was confident that once I had the adult, I would be on the way to solving the identity of the then unrecognized Guenée species and also the position of the genus. The moths emerged during the following year, 1960, in Madera Canyon; they proved to be *Stenocharis arizonensis* Capps, 1950.

In the fall of 1961, a visit was made to Harvard University to study manuscript Abbot plates in the Houghton Library. It was from one such plate that Guenée described *Ceratonyx satanaria*. In one of the sets, that which had formerly been the property of the Boston Society of Natural History and which the Society had purchased from Dr. Oemler of Georgia, the plate numbered 157 was obviously a duplicate of the one that had served as a basis for the figure of the larva and for the description of the moth. The moth figured was without any question congeneric with the species at present placed in *Stenocharis*, in fact very similar to *S. permagnaria* Grossbeck, 1912.

During February of 1961, Mrs. William Hills of Pensacola, Florida took two specimens of a geometrid that proved to be *Ceratonyx satanaria*. Although the course of the lines does not quite match that as shown in the

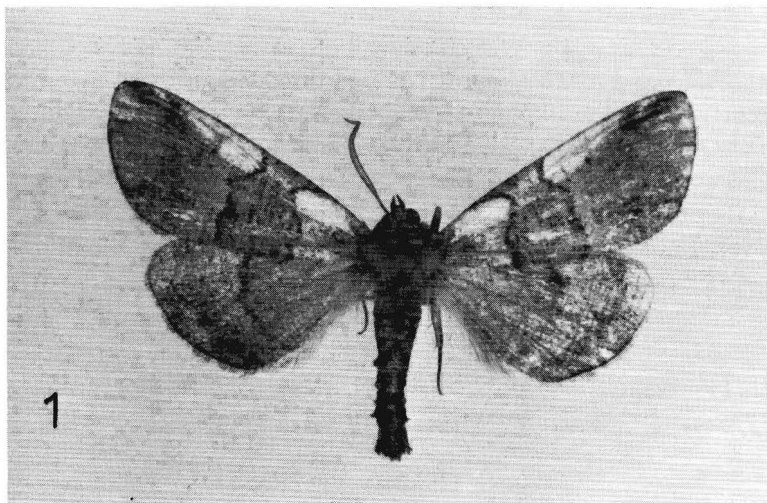


Fig. 1. *Ceratonyx satanaria* Gn. Male, Escambia County, Florida; February, 1961; S. M. Hills. Expanse 38 mm.

Abbot figure, all other features of the wing pattern are essentially the same. I have examined a large number of Abbot figures of Lepidoptera, and I have found similar small discrepancies between some other figures and the moths they represent.

Lastly, *Bombycia candida* Smith, 1890, formerly placed in the genus *Euthyatiria*, is also a member of the genus being considered and is the same species as that described by Guenée. Rindge (1961) has published on the generic position of *candida*. Kimball (1965) has commented on the synonymy of *candida* and *satanaria* in his Lepidoptera of Florida, basing his remarks on information that I gave to Dr. W. T. M. Forbes in 1961.

The following synopsis gives the species known to be congeneric with *satanaria* Guenée.

#### CERATONYX Guenée

*Ceratonyx* Guenée, 1857, Histoire Naturelle des Insectes, Species Général des Lépidoptères, 9 (Uranides et Phalénites, vol. 1): 193.

Type: *Ceratonyx satanaria* Guenée, 1857. Present designation. Guenée included two species, *satanaria* and *carmelitaria*, another new species, designated by Guenée as *Ceratophora carmelitaria* on plate 3, figure 6.)

*Stenocharis* Grossbeck, 1912, Bull. Amer. Mus. Nat. Hist., 31: 399. (NEW SYNONYMY)

Type: *Stenocharis permagnaria* Grossbeck, 1912. Monotypy.

## CERATONYX SATANARIA Guenée

## FIGURE 1

*Ceratonyx satanaria* Guenée, 1857, Histoire Naturelle des Insectes, Species Général des Lépidoptères, vol. 9 (Uranides et Phalénites, vol. 1): 194, pl. 2, fig. 2 (larva);

Kimball, 1965, Lepid. Florida, Anthrop. Fla., 1: 184, pl. 22 (Synonymy).

Type locality: "Géorgie americaine, en fevrier."

Location of type: Unknown; described from an Abbot drawing.

*Bombycia candida* Smith, 1890, Ent. Americana, 6: 179.

*Stenocharis candida* (Smith); Rindge, 1961, Amer. Mus. Novit., No. 2065, p. 10.

*Euthyatira candida*; Kimball, 1965, Lepid. Florida, Arthrop. Fla., 1: 160.

Type locality: "Florida."

Location of type: American Museum of Natural History, New York.

## CERATONYX PERMAGNARIA (Grossbeck), new combination

*Stenocharis permagnaria* Grossbeck, 1912, Bull. Amer. Mus. Nat. Hist., 31: 400.

Type locality: "Chiricahua Mts., Cochise Co., Arizona."

Location of type: United States National Museum.

## CERATONYX ARIZONENSIS (Capps), new combination

*Stenocharis arizonensis* Capps, 1950, Bull. So. California Acad. Sci., 49: 12, pl. 4, fig. 1-4.

Type locality: "Hereford, Arizona."

Location of type: United States National Museum.

## CERATONYX CORNIFRONS (Dyar), new combination

*Coenocharis cornifrons* Dyar, 1914, Proc. U. S. Natl. Mus., 47: 390.

*Stenocharis cornifrons*; Capps, 1950, Bull. So. California Acad. Sci., 49: 12.

Type locality: "Sierra de Guerrero, Mexico."

Location of type: United States National Museum.

## CERATONYX HOPLITARIA (Dyar), new combination

*Coenocharis hoplitaria* Dyar, 1912, Proc. U. S. Natl. Mus., 42: 92.

*Stenocharis hoplitaria*; Capps, 1950, Bull. So. California Acad. Sci., 49: 12.

Type locality: "Tehuacan, Mexico."

Location of type: United States National Museum.

## CERATONYX RHADINARIA (Dyar), new combination

*Caenocharis [sic] rhadinaria* Dyar, 1916, Proc. U. S. Natl. Mus., 51: 30.

*Stenocharis rhadinaria*; Capps, 1950, Bull. So. California Acad. Sci., 49: 12.

Type locality: "Cuernavaca, Mexico."

Location of type: United States National Museum.

## EARLY STAGES OF CERATONYX ARIZONENSIS

*Last instar larva* (Fig. 2).—Body moderate in build (of about average thickness for a geometrid of its length), approximately forty mm long when full-grown and at rest. Anterior, lateral margins of prothorax with a pair of long (10 mm), stout, horn-like filaments. Eighth abdominal segment with a short (3 mm), stout, median horn-like filament. Integument filaments included, densely covered with fine spicules. Pinacula of setae somewhat raised. Crochet rows of prolegs not

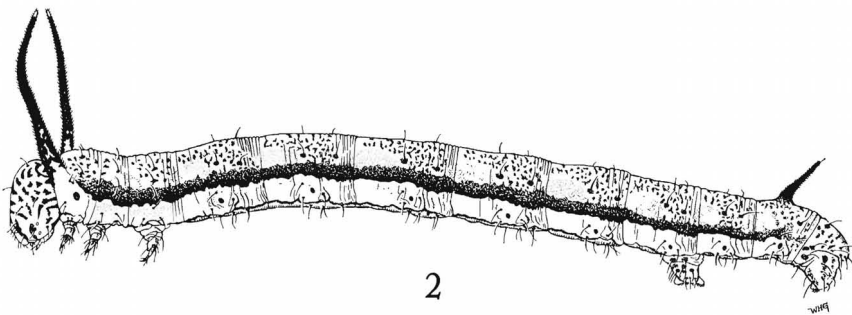


Fig. 2. *Ceratonyx arizonensis* Capps. Larva. Madera Canyon 7200', Santa Rita Mountains, Santa Cruz County, Arizona; September 1959.

interrupted. Head gray-white with a pattern of black dots in groups suggesting irregular lines. Prothoracic filaments black with some irregular white spotting near bases, tips white and contrasting; filament of eighth abdominal segment black. Dorsum of all segments grayish white with an irregular, open, reticulate pattern of black; 11 crimson subdorsal blotches, first and last small, remainder covering posterior and anterior parts of preceding and succeeding segments; a broad, black subdorsal line; a very broad, yellow stigmatal band; a narrow, black substigmatal line; venter grayish white with a slight pattern of irregular black dots near substigmatal line. Spiracles circular, black. Proleg of sixth segment grayish white, the pinacula of setae black.

*Pupa:* Heavily sclerotized, rugose and deeply pitted. Cremaster of two stout, curved hooks; dorsal groove present and deep, its posterior margin deeply and irregularly incised; lateral groove well formed, broad with a high, raised posterior margin; fifth segment without noticeable modifications; fifth, sixth, and seventh segments with marked, raised anterior ridges, most strongly developed ventrally; the sixth segment with two strong ventral callosities.

Five larvae collected (one preserved, four reared to adults); Madera Canyon, Santa Rita Mountains, Santa Cruz County, Arizona; two at 4,880 feet elevation and three at 7,200 feet elevation; in late September feeding on leaves of *Vigueria multiflora* (Nutt.) Blake.

I wish to express my thanks to Dr. W. H. Bond of the Houghton Library at Harvard University for the assistance and courtesy shown me during my use of the library.

The drawing of the larva of *C. arizonensis* was made by Mr. William H. Gotwald, graduate student in the Department of Entomology, Cornell University.

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