

SYSTEMATICS OF MOTHS IN THE GENUS *CATOCALA*  
(LEPIDOPTERA: NOCTUIDAE).  
II. TYPE MATERIAL AT THE MUSEUM OF  
COMPARATIVE ZOOLOGY, HARVARD UNIVERSITY,  
WITH LECTOTYPE DESIGNATIONS\*

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INTRODUCTION

The recognized Nearctic species in the noctuid moth genus *Catocala* Schrank (1802) presently number ca. 100, with a synonymy comprising over 350 names. The Nearctic *Catocala* will be revised in a forthcoming "Moths of America North of Mexico" Fascicle, the taxonomic groundwork for which is appearing first in articles discussing the types in institutional collections (see Gall & Hawks, 1990). The present paper examines the taxonomic status of 18 Nearctic *Catocala* names, based on type material at the Museum of Comparative Zoology (MCZ), Harvard University.

THE MCZ *CATOCALA* TYPES

A total of 7 *Catocala* holotypes was located during searches of the pinned MCZ Lepidoptera collection. The applicabilities and taxonomic ranks of these 7 *Catocala* names are without any question, and summary diagnoses are given in Tables 1–2. Syntype(s) located at the MCZ for another 9 *Catocala* names require lectotype designations and/or further discussion, as follows:

*Catocala adoptiva* Grote, 1874, p. 96.

In the text of the original description, Grote (1874b) states only that "a number of specimens [are] in the Museum of Comparative Zoology," but offers the notation "♂♀" in his formal diagnosis, suggesting a limitation of the syntype series to two specimens. This pair of specimens and others clearly from the original type lot were easily located at the MCZ, and the head male labelled "Type" is chosen here as LECTOTYPE for *adoptiva* (see Figure 1). The type locality

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is Dallas Co[unty], Texas, [USA]. The name *adoptiva* is a synonym of *Catocala delilah* Strecker (1874; see Gall & Hawks, 1990).

*Catocala ilia* var. *conspicua* Worthington, 1883, p. 41

Worthington authored 7 *Catocala* names in his 1883 paper, and did not indicate the number of types for any of these. Several Worthington specimens labelled “Presumed Type” are in the type cabinets and/or the main collection at the United States National Museum (USNM) in Washington. The MCZ collection contains 5 Worthington specimens labelled “Type,” one each for 5 of his 7 *Catocala* names (these specimens were not segregated into separate unit trays at the MCZ, as is the case for most of their noctuid types). While discussing names applicable to *Catocala ilia* Cramer (1775), Reiff (1920, p. 55) stated: “as it happened, all the Worthington types were once in my collection, but a set of these later was acquired by Dr. Barnes.” Thus, Worthington’s principal types apparently remained with Reiff, and came to the MCZ when Reiff’s collection was accessioned. The USNM specimens labelled “Presumed Type” are likely the Barnes set to which Reiff referred.

I give precedence to the MCZ material (here and below), and designate the MCZ female as LECTOTYPE for *Catocala conspicua* Worthington 1883 (see Figure 2). The type locality is North[ern] Illinois, [USA], almost certainly in Cook County (see Worthington, 1883, p. 40). The name *conspicua* is a synonym of *Catocala ilia*.

*Catocala ilia* var. *decorata* Worthington, 1883, p. 41.

As above, I designate the single MCZ female as LECTOTYPE for *Catocala decorata* (See Figure 3). The type locality is North[ern] Illinois, [USA], probably Cook County. The name *decorata* is a synonym of *Catocala ilia*.

*Catocala lucilla* Worthington, 1883, p. 39.

A single male labelled as the type is in the MCZ collection, and, as above, I designate it the LECTOTYPE for *Catocala lucilla* (see Figure 4). The type locality is North[ern] Indiana, [USA], probably Lake County. The name *lucilla* is a synonym of *Catocala unijuga* Walker (1858).

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Table 1. [facing page] Synopsis of taxonomic actions taken herein regarding names in the moth genus *Catocala* Schrank. Note that the taxon *lineella* Grote is a full species (REVISED STATUS), not a subspecies of *amica* Hübner; and that the lectotype designated here for *novangliae* Reiff is also the lectotype for *aurantiaca* Reiff (as designated by Dyar). See the text for further elaboration of these points.

## HOLOTYPE EXAMINED:

TAXON	AUTHOR & DATE	TAXONOMIC TREATMENT HEREIN	TYPE LOCALITY
<u>chiquita</u>	Bartsch (1916)	syn. of <u>coccinata</u> Grote (1872)	Concord, [Middlesex Co.], Mass.
<u>ellenensis</u>	Reiff (1920)	syn. of <u>aholibah</u> Strecker (1874)	Glen Ellen, [Sonoma Co.], Cal.
<u>helene</u>	Pilate (1882)	syn. of <u>micronympha</u> Gueneé (1852)	Dayton, [Montgomery Co.], Ohio]
<u>mcduffnoughi</u>	Brower (1937)	full species	Mt. Wilson, [Los Angeles Co.], Cal.
<u>normani</u>	Bartsch (1916)	syn. of <u>ilia</u> Cramer (1775)	Concord, [Middlesex Co.], Mass.
<u>nigra</u>	Eastman (1916)	syn. of <u>semirelictica</u> Grote (1874a)	Provo, [Utah Co.], Utah
<u>satanas</u>	Reiff (1920)	syn. of <u>ilia</u> Cramer (1775)	Willard, Greene Co., [Miss]o[uri]

## LECTOTYPES DESIGNATED:

TAXON	AUTHOR & DATE	TAXONOMIC TREATMENT HEREIN	TYPE LOCALITY
<u>adoptiva</u>	Grote (1874)	syn. of <u>delilah</u> Strecker (1874)	Dallas Co., Texas
<u>conspicua</u>	Worthington (1883)	syn. of <u>ilia</u> Cramer (1775)	North[ern] Illinois
<u>decorata</u>	Worthington (1883)	syn. of <u>ilia</u> Cramer (1775)	North[ern] Illinois
<u>lucilla</u>	Worthington (1883)	syn. of <u>unijuga</u> Walker (1858)	North[ern] Indiana
<u>melanotica</u>	Reiff (1916)	syn. of <u>lineella</u> Grote (1872)	Illinois
<u>novangliae</u>	Reiff (1916)	syn. of <u>lineella</u> Grote (1872)	Concord, [Middlesex Co.], Mass.
<u>obsolleta</u>	Worthington (1883)	syn. of <u>ilia</u> Cramer (1775)	North[ern] Illinois
<u>pensacola</u>	Reiff (1919)	syn. of consors J.E. Smith (1797)	Rye, Manatee Co., Florida
<u>unbrosa</u>	Worthington (1883)	syn. of <u>ilia</u> Cramer (1775)	N[orthern] Ill[inois]

*Catocala amica* form *melanotica* Reiff, 1916, p. 15.

Reiff did not indicate the number of *melanotica* types, nor did he figure any specimens. A single male specimen labelled *melanotica* is at the MCZ, and bears a red type label, and I hereby designate it as LECTOTYPE for *Catocala melanotica* (see Figure 5). The type locality is Illinois, [USA]. The name *melanotica* is a synonym of *Catocala lineella* Grote (1872).

It has recently been confirmed that *Catocala lineella* Grote (1872) and *Catocala amica* Hübner (1818) are indeed distinct species (as Grote claimed), the adults always breeding true, and the larvae showing points of morphological distinction as well as having differing foodplant preferences (Gall, 1990; my unpublished rearing data, and those of D. F. Schweitzer). Since previous taxonomic works in this century list *lineella* as a form or subspecies of *amica*, the appropriate rank of species for *lineella* should be indicated here (REVISED STATUS).

*Catocala amica* ssp. *novangliae* Reiff, 1916, p. 12.

The relevance of the name *aurantiaca* Reiff (1916) to the name *novangliae* should be addressed. Reiff (1916) published *aurantiaca* improperly as a collective epithet applying simultaneously to several infrasubspecific taxa. Dyar (1917, p. 31) restricted the name *aurantiaca* to the single female depicted in Figure 2, Plate 2 of Reiff's article, thus limiting the usage to *Catocala amica* subspecies *novangliae* form *aurantiaca* (*sensu* Reiff). Dyar's action constituted a valid lectotype designation for *aurantiaca*.

In his description of *Catocala amica* subspecies *novangliae*, Reiff listed a male and female as types, illustrating these specimens in Figures 1–2 of his Plate 2. Thus, the female *aurantiaca* lectotype designated by Dyar is an available *novangliae* syntype, and for the sake of parsimony, I designate this previously illustrated female as the LECTOTYPE for *novangliae* Reiff (see Figure 6). The type locality is Concord, [Middlesex County], Mass[achusetts, USA]. Both *aurantiaca* and *novangliae* are synonyms of *Catocala lineella* (NEW STATUS for each).

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Table 2. [facing page] Label information for type specimens of moths in the genus *Catocala* Schrank listed in Table 1. Nature of each label is indicated in brackets: m = machine printed, h = hand printed, red = on red paper or card stock; ink color is black or dark brown unless otherwise noted.

TAXON	LABELS ATTACHED TO SPECIMEN
<u>adoptiva</u>	"Dallas/Tex. Boll"[m]; "Type./1476"[red m, h number]; "C.adoptiva/Grotel/Delilah Stkri"[h]
<u>chiquita</u>	"Concord, Mass./July 18, 1914/Rudolf C.B. Bartsch"[m, h dates]; "GIFT OF R.C./B. BARTSCH"[m]; "TYPE"[red m]; "M.C.Z./Type/22950"[red m, h number]
<u>conspicua</u>	"North Illinois/August/Worthingt. Coll."[h]; "TYPE/No."[red m]; "Type/Cat.ilia.v.conspicua/Worth./ex Worthingt.coll."[h]
<u>decorata</u>	"North Illinois/August/Worthingt. Coll."[h]; "25542/M.C.Z./Type"[red m, h number]; "Type/Cat.ilia.v.decorata/Worth./ex Worthingt.coll."[h]
<u>ellenensis</u>	"Glen Ellen, Cal./vi.26.7."[h]; "C.aholiba/hellenensis/Reiff/Det.A.E.B."[h]; "C.J.Paine/Coll."[m]
<u>helene</u>	"δ"[h]; "874"[h]; "M.C.Z./Type/22495"[red m, h number]; "C./clintoni/var.helene/Pilate/1222 see his/label herewith"[h]; "874/C.Helene/Type./Described Jan 21st 1882/Caught June 10th 1880/Dayton, O. G.R.Pilate"[h]; "Collection of/Frederick/Allen Eddy"[m]
<u>lucilla</u>	"North Indiana/August/Worthingt. Coll."[h]; "M.C.Z./Type/1640"[red m, h number]; "Type/Cat.unijuga f.lucilla Worth."[h]; "TYPE/No."[red m]; "C.J.Paine/Collection"[m]
<u>mcduddnoughi</u>	"Mt. Wilson, Cal./July 30, 1917."[h]; "C.J.Paine/Collection"[m]; "M.C.Z./Type/23035"[red m, h number]; "Holotype o/Catocala/mcdunnoughi/Brower"[h]; "Slide No./M.C.Z./♂ genitalia/slide April 18, 1937/A.E.Brower #3/C.mcdunnoughi/Brower"[all h except second line m]
<u>melanotica</u>	"Illinois"[m]; "Col./Jacob Doll."[m]; "TYPE"[red m]; "melanotica"[h]
<u>nigra</u>	"GIFT OF R.C./B. BARTSCH"[m]; "XL/16-vii-14/Walter F.Eastman"[h, m name]; "Type"[red m]; "25537/M.C.Z./Type"[red m, h number]
<u>normani</u>	"Concord, Mass./July 15, 1914/Rudolf C.B. Bartsch"[m, h date]; "GIFT OF R.C./B. BARTSCH"[m]; "M.C.Z./Type/22951"[red m, h number]
<u>novangliae</u>	"Concord, Mass./VII 26, 1913/William Reiff"[m, h dates]; "TYPE/No."[red m]; "novangliae"[h]
<u>obsoleta</u>	"North Illinois/August/Worthingt. Coll."[h]; "25541/M.C.Z./Type"[red m, h number]; "Type/Cat.ilia.v.obsoleta/Worth./ex Worthingt.coll."[h]; "TYPE/No."[red m]; "C.J.Paine/Collection"[m]
<u>pensacola</u>	"Rye, Fla./IV.8.1919./William Reiff"[first two lines h, third line m]; "TYPE/No."[red m]; "25550/M.C.Z./Type"[red m, h number]; "C.J.Paine/Collection"[m]
<u>satanas</u>	"Willard"[m]; "Greene Co.Mo."[m]; "9-4-1917"[h]; "C.J.Paine/Collection"[m]; "25539/M.C.Z./Type"[red m, h number]; "Type of/Satanas Reiff/(A.E.Brower)"[h];
<u>umbrosa</u>	"Aug"[m]; "N.Ill."[m]; "TYPE/No."[red m]; "25540/M.C.Z./Type"[red m]; "Type/Cat.ilia.v.umbrosa/Worth./ex Worthingt.coll."[h]



Figures 1–9. Lectotypes of moths in the genus *Catocala* Schrank. Scale bar = 25 mm. 1: *adoptiva* Grote (1874); 2: *conspicua* Worthington (1883); 3: *decorata* Worthington (1883); 4: *lucilla* Worthington (1883); 5: *melanotica* Reiff (1916); 6: *novangliae* Reiff (1916); 7: *obsoleta* Worthington (1883); 8: *pensacola* Reiff (1919); 9: *umbrosa* Worthington (1883).

*Catocala ilia* var. *obsoleta* Worthington, 1883, p. 40.

A single female labelled as type is in the MCZ collection, and, following protocol above for the other Worthington names, I designate this female as the LECTOTYPE for *Catocala obsoleta* (see Figure 7). The type locality is North[ern] Illinois, [USA], probably Cook County. The name *obsoleta* is a synonym of *Catocala ilia*.

*Catocala consors* ssp. *pensacola* Reiff, 1919, p. 75.

Reiff lists a male and female as types, and I designate the MCZ male labelled "Type" as the LECTOTYPE for *Catocala pensacola* (see Figure 8). The type locality is Rye, Manatee County, Florida, [USA]. As Barnes & Benjamin (1927) noted, the name *pensacola* is a synonym of *Catocala consors* subspecies *consors* J. E. Smith (1797).

*Catocala ilia* var. *umbrosa* Worthington, 1883, p. 41.

As above, I designate the single MCZ female as LECTOTYPE for *Catocala umbrosa* Worthington. The type locality is N[orthern] Ill[inois], USA, probably Cook County. The name *umbrosa* is a synonym of *Catocala ilia*.

#### SUMMARY

The taxonomic status of 18 names in the noctuid moth genus *Catocala* is reviewed, based on type material housed at the Museum of Comparative Zoology at Harvard. Herein, a total of 7 holotypes and 1 previously designated lectotype are discussed, 9 new lectotypes are designated and illustrated, and 1 previously subspecific name is re-elevated to full species rank.

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