

## TAXONOMIC ANALYSIS OF THE GENUS *MEGISTO* (SATYRIDAE) IN THE EASTERN UNITED STATES.

### PART I: TYPES, TYPE LOCALITIES, AND TAXONOMIC RELATIONSHIPS OF THE AVAILABLE NAMES.

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**ABSTRACT.** The genus *Megisto* Hübner, 1819 in the eastern United States and southeastern Canada is currently comprised of the original epithets *Papilio eurytus* Fabricius, 1775, *Papilio cymela* Cramer, 1777, *Papilio eurytris*, Fabricius, 1793, and *Neonympha eurytris viola* Maynard, 1891. Because the eastern *Megisto* is considered by some, including the present author, to contain two or more sibling species, the types and type localities of each of these names were studied. Where no type was found and no type locality fixed, typification was established by lectotypification or neotypification and a type locality was fixed. The taxonomic relationship of these taxa were then overviewed. No syntypic specimens were located for *P. cymela* and thus a neotype was designated and the type locality fixed as: Colleton County, South Carolina. *P. eurytus* and *P. eurytris* are different spellings of the same Fabrician taxon. Syntypes of *P. eurytus/eurytris* were found in Glasgow, Scotland, and considered to represent a different species than *P. cymela*. A lectotype was designated for *P. eurytus/eurytris* and the type locality fixed as Berkeley County, South Carolina. The type specimens of *N. eurytris viola* were not located but are possibly at the Museum of Comparative Zoology, Harvard. Its type locality is Enterprise, Volusia County, Florida.

### FOUNDATIONAL EASTERN *MEGISTO* NAMES

The first taxon to be described in the Modern genus *Megisto* Hübner, 1819 was *Papilio eurytus* Fabricius, 1775. This name is however a junior primary homonym of *Papilio eurytus* Linnaeus, 1758 (a central African nymphalid known today as *Pseudacraea eurytus*), and as such, is an available but permanently invalid name in zoological nomenclature. The next oldest name is *Papilio cymela* Cramer, 1777. In 1781 and 1793 Fabricius again published on the taxon he named *eurytus*. In both instances, he repeated verbatim his 1775 original description: however, in the 1793 publication the spelling was given as *eurytris*. The 1793 text also differed in that therein the origin of the specimens was attributed to Banks while in the 1775 and 1781 texts they were attributed to Hunter. In both 1781 and 1793, Fabricius synonymized his taxon with Cramer's *cymela*, establishing that he then viewed these as the same taxon.

The situation today is that the oldest available name *cymela* has long and consistently been applied to a ventrally light tan, late spring to early fall entity, flying widely in the eastern states and southeast Canada. This name is thus established by prevailing usage to a specific taxon regardless of what the original types may have been (or are) and what the original description states. In these investigations, and by this author's taxonomic concept, the two syntypes of *eurytus/eurytris* represent a different species than *cymela*.

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Thus these three names, in this taxonomic view, are not synonyms. There is thus a difficult and unusual nomenclatural situation with the name *eurytus*. The author therefore presented this situation to the International Commission of Zoological Nomenclature (ICZN) official World Wide Web list serve for advice.

The name *eurytus* can not be a replacement name for the invalid homonym *eurytus* as Fabricius did not indicate that this was what it was intended to be in any way (Article 72.7). In fact, there is nothing to lead one to think that Fabricius even thought of his *eurytus* as a homonym to *Papilio eurytus* Linnaeus, 1758. After much discussion, it was deduced that the most likely explanation for the different spelling in 1793 was that it was simply a printer's misspelling – faulty type setting.

The etymology of *eurytus* is a reference to king Eurytus of Greek mythology. Fabricius was a very learned person and the informal opinion in the ICZN discussion was that there is no “proper” Latinized grammatical meaning with the word “*eurytus*,” and, thus, there is no reason to think he would have spelled this any other way than *eurytus*. Thus, it is an incorrect subsequent spelling, and, as such, is an unavailable name (Article 33.3). However, the epithet *eurytus* has a history of usage prior to about 40 years ago. The name therefore becomes available as a correct original spelling per Article 33.3.1 with the correct citation being *Papilio eurytus* Fabricius 1775 – not 1793. The only alternative is to consider both spellings as invalid names which would necessitate the erection of a totally new name for this species. This would seem to only add more confusion to what is already a nomenclatural mess. In addition, it is to be noted that Maynard's 1891 description of *viola* was correctly authored (Gatrelle, in press) as a subspecies of *eurytus* (*Neonympha eurytus viola*). In that work, he also first gave a species description of nominate *Neonympha eurytus*. To some, *eurytus* might be considered as available by adoption from Maynard's 1891 taxonomic act. In this view, *Neonympha eurytus* Maynard, 1891 would still have Fabricius's 1775 specimens as syntypes. The least disruptive way to deal with these names is to consider *eurytus* available per 33.3.1.

If indeed, the 1793 spelling of *eurytus* as *eurytus* was a typesetter's error, then there is an issue of why the type specimens were attributed in 1793 to Banks and not Hunter as in 1775 and 81. The explanation here is the same as before, a typesetter's error. The clue to this is that in the three identical 1775, 1781 and 1793 texts the type locality is stated as Jamaica. That being consistent, the origin would logically have been the same collector / collection. In this author's search for syntypic material, no Banks specimens were found, just the two syntypes in the Hunterian collection in the University of Glasgow, Scotland. (Even if Banks specimens of this taxon were found they would not be syntypes as only those of 1775 are eligible.)

A third error with these Fabrician names is the type locality. This taxon does not occur in Jamaica. This is addressed convincingly in the Miller & Brown Lep. Soc. checklist note #627. There was a switching of two type localities, and thus the correct type locality of these names is “Carolina”. This is most certainly today's South Carolina (Gatrelle, 2000) as several taxa described by various old workers are from the vicinity of the busy Colonial port and cultural center of Charleston. But the best evidence is the syntypes themselves as they are identical to specimens of this taxon which are still common today just inland in the coastal area of South Carolina, west and north of Charleston.

Thus, there are two *Megisto* species in the east originally described under the names *Papilio cymela* Cramer, 1777 and *Papilio eurytus* Fabricius, 1775. Today, these are *Megisto cymela* and *Megisto eurytus*.

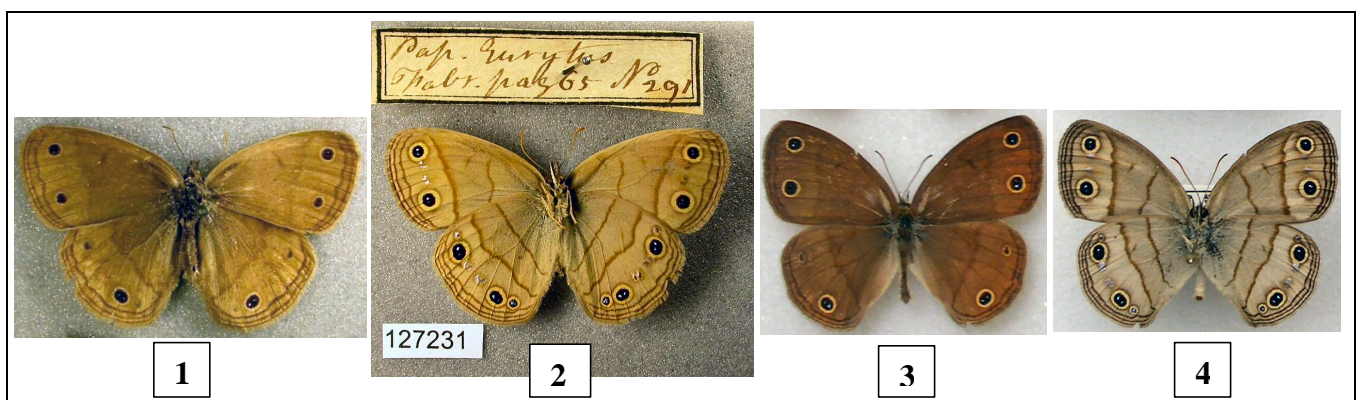
## ESTABLISHING TYPES AND TYPE LOCALITIES

Because there are two sibling species involved (Gatrelle, in press), it is essential that they be established objectively in accord with the Code's Principle of Typification. The original description of *eurytus* and its syntypes render it fairly self explanatory. Herein, the better conditioned of the syntypes is simply designated as the lectotype of both *Papilio eurytus* Fabricius, 1775 and *Papilio eurytus* Fabricius, 1793. The type locality is here further restricted to Goose Creek, Berkeley County, South Carolina. A red label with the words: Lectotype, *Papilio eurytus* and *Papilio eurytus*, has been sent to the Hunterian collection, University of Glasgow to be placed on this specimen (Figs. 1-2).

The author attempted to locate syntypic material of Cramer’s *cymela* at the Natural History Museum, London and the Natural History Museum, Leiden, The Netherlands. The staff at the Leiden facility confirmed that there are none there, and staff at the NHM, London likewise could not locate any. Due to the prevailing usage of the name *Megisto cymela*, and the presence of a sibling species in the same region in which it widely occurs, a neotype needs to be established for all of the reasons stated in the ICZN Code under Article 75.3 which by this reference are considered here quoted and met. The “exceptional” need for this as “considered” (75.1) by the author, is that the name *cymela* can not be objectively determined by the brief words of the original description nor by the stylized (=fictional) artistic rendering in the OD. The dorsal painting looks like all eastern *Megisto* and the ventral painting (both reproduced on header) does not look like any known *Megisto* anywhere. No population has the depicted extremely light buff yellow field on the outer HW. However, in nature in the clarified type locality, *cymela* does have a noticeably lighter outer one third on both ventral wings (Fig. 4) (esp. in females), while the sympatric *eurytris* tends to be concolorous rich warm brown as can be seen in the lectotype (Fig. 2). In other words, the taxon *cymela* can not be objectively determined for either taxonomic or systematic purposes by the OD alone.

The OD type locality of Cape of Good Hope (South Africa), is an obvious error as the Cramer figures of this taxon are clearly based on eastern North American *Megisto*. An examination of the type localities of the taxa Cramer described from the eastern U.S. shows that they ranged from New York southward along the Colonial seaboard. Thus, the types of *cymela* could have come from any number of places in NY, PA, VA or SC. Because these two species are 1) sympatric and 2) easily distinguished just by phenotype and phenology in coastal South Carolina, including the type localities of both, the *cymela* neotype is chosen from the mid coastal region at Jacksonboro, Colleton County, South Carolina (Figs. 3-4). It bears a red label with the words: Neotype, *Papilio cymela* Cramer 1777. It is deposited in the collection of The International Lepidoptera Survey (TILS) in Goose Creek South Carolina.

The taxonomic acts herein lay an essential and objective foundation for the ongoing taxonomic and systematic investigations into the *Megisto* of the eastern U.S. and southeastern Canada. All published research on this genus in the eastern region up to this point, has been speculative simply because without definitive typification no one could know exactly just what taxon they are commenting upon. The establishment of proximal type localities for both taxa where they occur sympatrically and are easily distinguished as species (Gatrelle, in press) greatly eliminates the subjectivity of human opinion from the study of their systematics and taxonomy.



**Figures 1-2.** Lectotype: *Papilio eurytris* [*Papilio eurytus*], dorsal 1, ventral 2; *Megisto eurytris* Fabricius, 1775. Colors and markings identical to modern fresh topotypes. **Figures 3-4.** Neotype: *Papilio cymela*, dorsal 3, ventral 4; *Megisto cymela* Cramer, 1777: 5 June 1992, Jacksonboro, Colleton Co., SC., leg. Gatrelle. Illustrations are natural size. Photos: 1-2 by Geoff Hancock, 3-4 by Joseph Mueller.

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