

TAXONOMIC NOTES ON CTENUCHINA, EUCHROMIINA, AND
PHAEGOPTERINA (LEPIDOPTERA, EREBIDAE, ARCTIINAE, ARCTIINI)

LÍVIA R. PINHEIRO^{1,2,*} AND MARCELO DUARTE¹

¹Museu de Zoologia da Universidade de São Paulo, Avenida Nazaré 481, Ipiranga, 04263-000 São Paulo, SP, Brazil

²Curso de Pós-Graduação em Ciências Biológicas (Zoologia), Instituto de Biociências, Departamento de Zoologia, Universidade de São Paulo, Rua do Matão, travessa 14, número 321, Butantã, 05508-900 São Paulo, SP, Brazil

*Corresponding author; E-mail: lrpinheiro@gmail.com

Supplementary material for this article in Florida Entomologist 96(2) (2013), which shows Figs. 1-15 in color, is online at <http://purl.fcla.edu/fcla/entomologist/browse>

ABSTRACT

Taxonomic notes on specific and generic names of Ctenuchina, Euchromiina, and Phaegopterina are provided. Five **new synonymies** are established: *Cercopimorpha complexa* Gaede (= *Neacerea tetilla* Dognin), *Episcepsis scintillans* Rothschild (= *Heliura luctuosa* Möschler), *Eucereon theophanes* Schaus (= *Eucereon metoidesis* Hampson), *Delphyre leucomela* Kaye (= *Teucer apicalis* Rothschild), and *Cosmosoma albipuncta* (= *Cosmosoma harpalyce* Schaus). We also propose the following nomenclatural changes: *Ecdemus carmania* (Druce) **new combination**, *Episcepsis luctuosa* (Möschler) **new combination**, and *Pseudopharus nigra* (Schaus) **new combination**. Additionally, **lectotypes** are designated for *Neacerea tetilla* Dognin, *Pezaptera carmania* Druce, *Eucereon theophanes* Schaus *Delphyre leucomela* Kaye, and *Cosmosoma harpalyce* Schaus.

Key Words: taxonomy, new synonym, new combination, lectotype

RESUMO

Notas taxonômicas de nomes genéricos e específicos de Ctenuchina, Euchromiina e Phaegopterina são fornecidos. Cinco **sinônimos novos** são propostos: *Cercopimorpha complexa* Gaede (= *Neacerea tetilla* Dognin), *Episcepsis scintillans* Rothschild (= *Heliura luctuosa* Möschler), *Eucereon theophanes* Schaus (= *Eucereon metoidesis* Hampson), *Delphyre leucomela* Kaye (= *Teucer apicalis* Rothschild), e *Cosmosoma albipuncta* (= *Cosmosoma harpalyce* Schaus). Também são propostas as seguintes mudanças nomenclaturais: *Ecdemus carmania* (Druce) **combinação nova**, *Episcepsis luctuosa* (Möschler) **combinação nova** e *Pseudopharus nigra* (Schaus) **combinação nova**. Adicionalmente, **lectótipos** são designados para *Neacerea tetilla* Dognin, *Pezaptera carmania* Druce, *Eucereon theophanes* Schaus *Delphyre leucomela* Kaye e *Cosmosoma harpalyce* Schaus.

Palavras-Chave: taxonomia, sinônimo novo, combinação nova, lectótipo

Arctiinae is distributed worldwide, with around 11,000 described species, of which 6,000 inhabit the Neotropics (Watson & Goodger 1986). The current classification (Jacobson & Weller 2002) divides the subfamily into 3 tribes: Lithosiini, Syntomini, and Arctiini. This study is concerned with taxa belonging to 3 of the 5 subtribes of the Arctiini, i.e., Ctenuchina, Euchromiina, and Phaegopterina.

Ctenuchina and Euchromiina have always been considered closely related, with few exceptions. Kirby (1892), for example, considered that Euchromiinae belonged in Zygaenidae, and Ctenuchinae in Arctiidae. The first descriptions of species of these groups date from the very begin-

ning of lepidopteran taxonomy, when few genera of moths were defined. Hence they were placed together with species that are now classified in Sphingidae, Sesiidae, and Zygaenidae, for example. Later, species that now belong to Ctenuchina and Euchromiina were considered together with the current concept of Zygaenidae because of the overall similarity of the habitus. Herrich-Schäffer (1845) separated Zygaenidae from the Syntomidae, as understood at that time (which included Ctenuchina, Euchromiina, plus the Old World Syntomini, all of which are currently classified in Arctiinae). The concept of Syntomini as a separate taxon from Ctenuchina plus Euchromiina was first proposed by Forbes (1939), who separat-

ed what he termed Euchromiidae into Amatinae (= Syntomini), Euchromiina, and Ctenuchina. This scheme was later defended in the classification proposed by Jacobson & Weller (2002).

Together, Ctenuchina and Euchromiina now comprise around 3,000 valid species (Simmons et al. 2012), which occur from Argentina to the southern United States. The current usage of Euchromiina and Ctenuchina follows the formalization by Forbes (1939, 1960) of the diagram of phylogenetic relationships conceived by Hampson (1898). The literature on these groups is composed mainly of species descriptions. Only a few revisions exist (e.g., Field 1975; Dietz & Duckworth 1976; Travassos 1952; Simmons & Weller 2006; Pinheiro & Duarte 2010), with a similarly small number of faunal surveys (e.g., Águila 2004; Biezanko 1983; Grados 2002; Hernández-Baz & Grados 2004; Cerda 2008; Ferro & Teston 2009; Ferro et al. 2012), and scattered notes on morphology (e.g., Barth 1953; Forbes & Franclemont 1957) and ecology (e.g., Conner 1999; Conner et al. 2000).

Phaegopterina is almost exclusive to the New World, with nearly 1,600 species in the Neotropics (Watson & Goodger 1986); it is the second-largest group within Arctiini, after Arctiina (Weller et al. 2008). The group was created by Kirby (1892) as a subfamily of Arctiidae, in an arrangement that differs considerably from the current one. Hampson (1901) did not recognize the Phaegopterinae, listing most of its genera in his Arctiidae (which is more or less equivalent to Arctiina in the current classification). Draudt (1920-1922) reinstated Phaegopterinae, with a definition very close to that used today.

The studies of Luh (1937), Forbes (1939, 1960), and Forbes & Franclemont (1957) provide the basis for the only tentative groupings existing within Phaegopterina, namely the *Eupseudosoma*, *Halysidota*, *Euchaetes*, and *Belemnina* groups. Forbes (1939) assigned tribal status to the latter, for he considered them to be a "transitional" group between what he called Phaegopterinae and Ctenuchinae. Jacobson & Weller (2002) concluded that Phaegopterina is paraphyletic, and that in a strict sense, this group seems to be a sister clade of Euchromiina + Ctenuchina. However, the low number of representatives of phaegopterines available to Jacobson & Weller (op. cit.) prevented them from reaching a conclusion on the validity of the above-mentioned groups within the subtribe. The only work dealing with Forbes' groups of genera is that of DaCosta et al. (2006), with the *Euchaetes* complex.

Although the majority of the species of Ctenuchina, Euchromiina, and Phaegopterina occur in the Neotropics, the available information is strongly biased toward taxa from other biogeographical regions, mainly the Holarctic and Nearctic. The purpose of this paper is to contribute

to the straightening out of the taxonomic chaos of these groups, the basic step needed to encourage further studies on these moths.

MATERIALS AND METHODS

The new synonymies here established are based on the study of the types. The names are arranged alphabetically according to their current classification, following the generic arrangement of the latest catalogues available for each group (Draudt 1915-1917; Watson & Goodger 1986).

The following acronyms are used: (BMNH) Natural History Museum, London, UK; (MNHN) Muséum national d'Histoire naturelle, Paris, France; (MTD) Senckenberg Naturhistorische Sammlungen Dresden, Museum für Tierkunde, Dresden, Germany; (SMF) Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt-am-Main, Germany; (USNM) National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA; (ZMHB) Museum für Naturkunde der Humboldt-Universität, Berlin, Germany. The dates of older references follow Heppner (1982). Lectotype designations are made where appropriate, to ensure stability of the names. Illustrations are provided to aid visualization of the changes here proposed. Label information is transcribed in separate quotes for each label.

RESULTS AND DISCUSSION

Supplementary material for this article in Florida Entomologist 96(2) (2013), which shows Figs. 1-15 in color, is online at <http://purl.fcla.edu/fcla/entomologist/browse>

C TENUCHINA

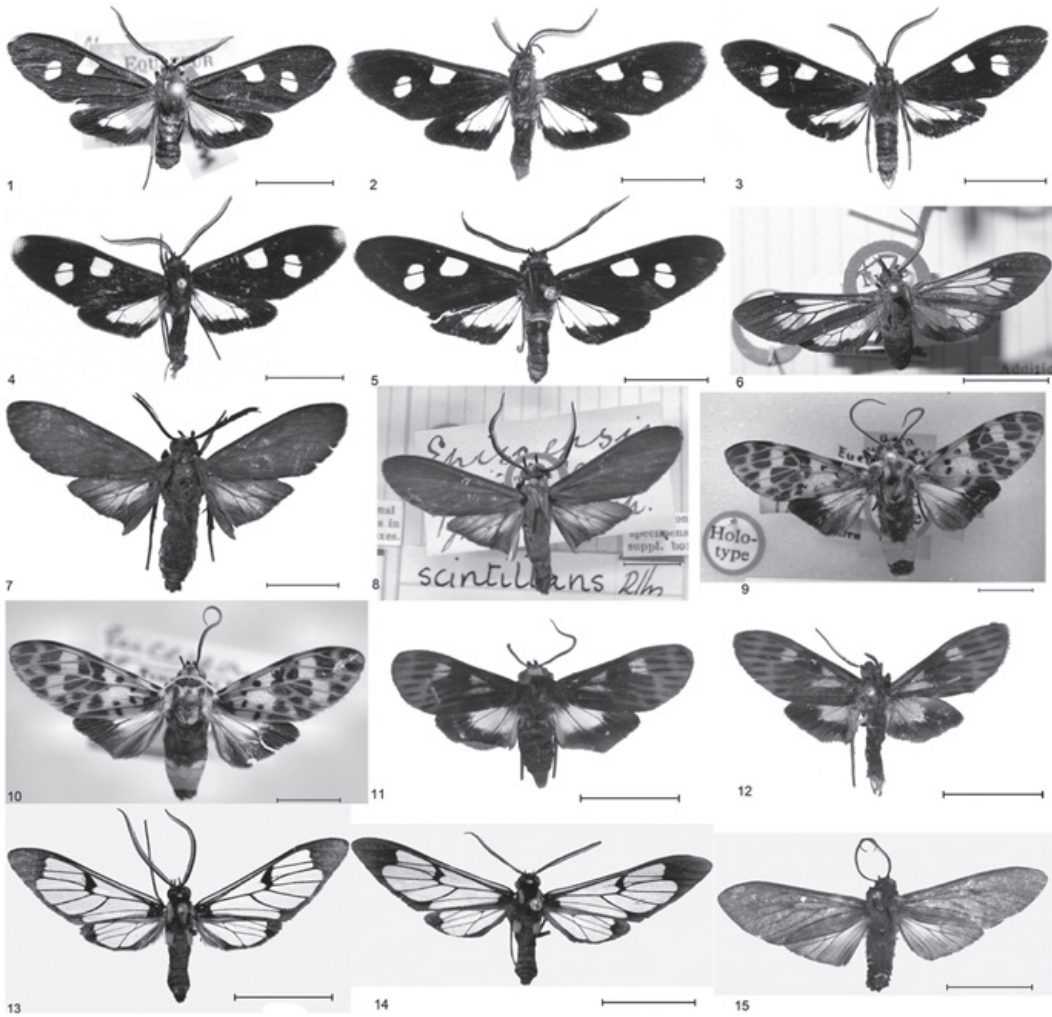
Delphyre tetilla (Dognin, 1898) (Fig. 1)

Neacerea tetilla Dognin, 1898: 344. **Lectotype hereby designated** male: ECUADOR. With 7 labels: 4 printed "Type No. 30774 U.S.N.M."; "Equateur, C. de Labonnefon"; "Dognin collection"; and "Kb-Dia-Nr. 1554 Kreusel dok.", and 3 handwritten "Neacerea tetilla type ♂ Dgn."; "not in B.M."; and "Neacerea sp not in B.M. Hampson." (USNM) [examined].

Delphyre tetilla; Zerny, 1912: 136; Hampson, 1915: pl. 17, fig. 5; Draudt, 1915: 167, pl. 24 row e.

Delphyre tetilla coerulescens Dognin, 1919: 4. Holotype male, by monotypy: COLOMBIA, Espinal, March 1918, Apolinaire-Marie. (USNM) [examined].

Neacerea elegans Lathy, 1899: 119. Holotype male, by evidence of monotypy: ECUADOR, Baños, with 5 labels "'Type"; "Banos"; "3"; "Neacerea elegans Lathy specimen typicum"; and "Adams Bequest B. M. 1912-399" (BMNH) [examined]. Synonymized by Hampson, 1914: 299.



Figs. 1-15. Photographs of the types of the names treated here. 1. Lectotype of *Neacerea tetilla* Dognin. 2. Holotype of *Neacerea elegans* Lathy. 3. Holotype of *Heliura bimaculata* Rothschild. 4. Syntype of *Napata boettgeri* Druce. 5. Holotype of *Cercopimorpha complexa* Gaede. 6. Lectotype of *Pezaptera carmania* Druce. 7. Holotype of *Heliura luctuosa* Möschler. 8. Holotype of *Episcepsis scintillans* Rothschild. 9. Holotype of *Euclereon metoidesis* Hampson. 10. Lectotype of *Euclereon theophanes* Schaus. 11. Lectotype of *Teucer apicalis* Rothschild. 12. Lectotype of *Delphyre leucomela* Kaye. 13. Lectotype of *Cosmosoma harpalyce* Schaus. 14. Holotype of *Cosmosoma albipuncta* Gaede. 15. Holotype of *Neacerea nigra* Schaus. Scale bar = 1 cm.

Delphyre elegans; Zerny, 1912: 135.

Heliura bimaculata Rothschild, 1912: 167. Holotype male, by evidence of monotypy: [COLOMBIA], Bogotá, 1898, with 4 labels "Bogota coll. 1898"; "Type"; "Heliura bimaculata tipo Rothschild."; and "Rothschild Bequest B. M. 1939-1" (BMNH) [examined]. Synonymized by Hampson, 1914: 299.

Cercopimorpha complexa Gaede, 1926: 128. Holotype male, by monotypy. PERU, Marcapoto [Marcapata], coll. Staudinger. (ZMHB) [examined]. **New synonym.**

Remarks

Neacerea tetilla was described from 4 males. We have compared all these specimens and confirm that they are conspecific. The specimen illustrated in Fig. 1 is here designated the lectotype, and the others henceforth are to be considered paralectotypes. *Delphyre tetilla coeruleascens* was described as a variety, but according to article 45.6.4 of the ICZN (1999), it is to be considered a subspecies. Although no data are available to support this status, it is left as such due to lack of information to determine whether it is merely a variation.

Neacerea elegans (Fig. 2) was described from an unspecified number of males. The ICZN (1999) is unclear on how to deal with cases such as this, given that article 73.1.2 allows external evidence to be taken into account in the determination of the type series, but article 72.4.7 states that a label is not necessarily evidence that the particular specimen that bears it is a type. Therefore we decided to consider the above-mentioned specimen as a holotype, based on the following facts: (i) all types of names described by Lathy are presumed to be held in the BMNH; (ii) this institution has a renowned history of good maintenance of its collections; (iii) the first author made a thorough search for specimens of the genus *Delphyre* in the BMNH; (iv) the above-mentioned specimen was the only one found with a label corresponding to the data provided in the original description, and the label saying "specimen typicum" is handwritten, presumably by Lathy; (v) we found another case of a name proposed by Lathy (*Heliura suffusa* Lathy, 1899) for which there are 2 specimens bearing labels with this same handwriting, one labelled "specimen typicum" and the other "paratype"; we believe that this suggests that Lathy intended to designate holotypes.

Heliura bimaculata (Fig. 3) was also described from an unknown number of males. The same argument used for *Ne. elegans* is used to advance the opinion that *H. bimaculata* has a holotype, and not a syntype.

Another species closely allied to *D. tetilla* could also be its synonym: *Napata boettgeri* Druce, 1909 (Fig. 4), currently placed in *Delphyre*. The only difference observed between the types of *Na. boettgeri* and *Ne. tetilla* is the forewing apex, which has more white in the former. Dognin (1919) regarded it as a variety of *D. tetilla*, but in our opinion, type dissections are required to substantiate this hypothesis. In case they are not synonymous, it might be worth investigating the synonymization of *Ne. elegans* as well, given that its forewings have the same white markings as *Na. boettgeri*. This is not the case with *C. complexa* (Fig. 5), which has forewings like those of *D. tetilla*.

Delphyre was described in the "Tribe Bomporcites, Family Lithosiidae" by Walker (1854), the same group in which he included several genera now placed in Ctenuchina, such as *Ctenucha* Kirby, 1837 (type genus of Ctenuchina), as well as some Pericopina, some Dioptinae, and of course, many Lithosiini. Kirby (1892) treated the genus in his "Lithosiidae" with only the type species included. The genus was not mentioned in the "Synptomidae" catalogue of Hampson (1898), but in the supplement to this work (Hampson 1914), he considered *Delphyre* as a senior subjective synonym of *Neacerea* Hampson, 1898 [Dec.], a junior homonym of *Neacerea* Druce, 1898 [May] (the name probably originated from Hampson but was made

available 7 months earlier by Druce; the type species of both concepts are currently considered to be congeneric). Hampson may have taken this decision because *Neacerea brunnea* Druce, 1898, a species that he included in *Neacerea* in the 1898 catalogue, is very similar to *Delphyre hebes* Walker, 1854 (type species of *Delphyre* Walker).

Delphyre has never been revised, and includes 44 valid specific names and 3 generic synonyms: *Nodoza* Schaus, 1896a, *Neacerea* Hampson, 1898, and *Neacerea* Druce, 1898. The type species of *Delphyre* and *Nodoza* are remarkably similar (in fact, *Nodoza tristis* Schaus, 1896a is a junior subjective synonym of *D. hebes*), and both are quite distinct from the type species of *Neacerea* Druce, *N. albiventus* Druce, 1898. Although *Neacerea* is probably a valid genus, its revalidation awaits an examination to determine which species belong to it. However, many other species are most likely misplaced in *Delphyre*, not to mention the possibility that the type species of the genus does not belong to Ctenuchina (L. R. Pinheiro, personal observation).

Ecdemus carmania (Druce, 1883), **new combination** (Fig. 6)

Pezaptera carmania Druce, 1883: 379. Lectotype male, **hereby designated**: ECUADOR, Sarayacu. With 5 labels: "Type H.T."; "Presented by J. J. Joicey Esq. Brit. Mus. 1931-444"; "Pezaptera carmania type Druce"; "Sarayacu, Ecuador, C. Buckley"; and "Kb-Dia-Nr. 783 B. Kreuzel dok." (BMNH) [examined]; Kirby, 1892: 153.

Teucer carmania; Hampson, 1898: 382, fig. 190; Zerny, 1912: 111; Draudt, 1915: 128, pl. 20 row a.

Remarks

Pezaptera carmania was described from an unspecified number of specimens. Only one was found at the BMNH, with labels according to the original description (it has a red type label). Although Druce provided a measurement in the original description, this should not be regarded as evidence of monotypy, because it is known (L. R. Pinheiro, personal observation) that this author often gave a single measurement for names described from more than one specimen. Consequently, in the absence of any evidence of monotypy it is safer to regard this specimen as the only known syntype (ICZN 1999, recommendation 73F), here designated as a lectotype.

Druce (1883) considered *P. carmania* allied to *Pezaptera sordida* (Walker, 1856). Apparently Hampson (1898) did not agree, because he transferred the former taxon to *Teucer* Kirby, 1892 (an unnecessary replacement name for *Telioneura* Felder, 1869), where it has remained to the pres-

ent date. The type species of *Pezaptera* Butler, 1876a and *Telioneura*, *Eunomia sordida* Walker, 1856 and *T. glaucopis* Felder, 1874, respectively, were examined, but they do not seem to be particularly close to *P. carmania*. On the other hand, we noted that *P. carmania* strikingly resembles the type species of *Ecdemus*, *E. hypoleucus* Herrich-Schäffer, 1855.

The transfer of *P. carmania* to *Ecdemus* Herrich-Schäffer, [1855] is supported by external characters shared with its type species, *E. hypoleucus* Herrich-Schäffer [1855], such as the wing venation and pattern of scaling on forewings (the type of *E. hypoleucus* was not examined, but it was illustrated by Hampson, 1898, Fig. 185 and Draudt, 1915, Plate 19 row k). Although no hypothesis of monophyly has been advanced for this genus and none is proposed here, the resemblance of these 2 species and the lack of characters supporting a close relationship of *E. carmania* and *Telioneura glaucopis* are considered valid reasons to justify the transfer.

Most of the remaining species that are currently placed in *Telioneura* are as dissimilar from their type species as is *E. carmania*. But even though it is a small genus with only 11 species, a proper revision is needed to determine the correct placement of the other species that apparently do not belong to *Telioneura*. On the other hand, *Ecdemus* is composed of 4 other species that share very similar features, and it could be one of the few monophyletic genera in Ctenuchina.

Episcepsis luctuosa (Möschler, 1877), **new combination** (Fig. 7)

Heliura luctuosa Möschler, 1877: 642, pl. 8, fig. 13. Holotype male, by monotypy: SURINAME, Paramaribo. (ZMHB) [examined]; Kirby, 1892: 165.

Hyaleucerea luctuosa; Hampson, 1898: 543. Draudt, 1915: 194.

Episcepsis scintillans Rothschild, 1911: 44. Holotype male, by original designation: BRAZIL, Rio Madeira, Allianca, below San Antonio, November-December 1907 (W. Hoffmanns) (BMNH) [examined]; Draudt, 1915: 131, pl. 20 row d. **New synonym.** (Fig. 8)

Remarks

Episcepsis scintillans was described based on 32 males from 6 different localities in Venezuela, Suriname, and northern Brazil. One male from Aliança (Allianca) was regarded by the author as "the type." The only specimen with a red holotype label and a label with Rothschild's handwriting is here considered the holotype, following the line of reasoning described above.

Hyaleucerea luctuosa was originally described in *Heliura* Butler, 1876b, perhaps because it bears hindwing androconia similar to those that are present in other species of *Heliura* (for example, *H. tetragramma* (Walker, 1854)). The transfer of *H. luctuosa* to *Hyaleucerea* Butler, 1875 by Hampson (1898) was probably based solely on wing venation (a customary practice at that time), given that neither the type species of this genus, *Glaucopis (Pheia) erythrotelus* Walker, 1854 nor any other species ever placed in *Hyaleucerea* shares any particular resemblance to *E. luctuosa*.

The transfer of *H. luctuosa* to *Episcepsis* is based on 2 features: overall similarity of its habitus to that of *E. venata* Butler, 1877, the type species of the genus; and on the peculiar androconia of these species. The androconia on the hindwing of some *Episcepsis* species such as *E. luctuosa* and *E. venata* are somewhat similar to the androconia examined in *Heliura*. They differ, however, in 2 respects: in *Episcepsis* no species shows a modification of the hindwing as extreme as noted in *Heliura*, and we did not observe glandular scales on the abdomen as part of the androconial complex.

Episcepsis littoralis Rothschild, 1911 may also be a synonym of *Heliura luctuosa*, although conspicuous differences in the color pattern may exist. Confirmation of this hypothesis is pending dissections of the types.

Eucereon metoidesis Hampson, 1905 (Fig. 9)

Eucereon cinctum Hampson, 1898: 486, not Schaus, 1896b: 134, misidentification.

Eucereon metoidesis Hampson, 1905: 430. Holotype male, by monotypy. [BRAZIL], Pará, Amazonas (BMNH) [examined]; Hampson, 1914: 317; Draudt, 1915: 171, pl. 24, row h.

Eucereon metoedesis [sic]; Zerny, 1912: 141, misspelling.

Eucereon metoidesis romani Bryk, 1953: 231. Lectotype male hereby designated. [BRAZIL], Amazonas, Taracua, 22.ii. [not examined].

Eucereon theophanes Schaus, 1924: 17. Lectotype male hereby designated. BRITISH GUYANA, Potaro River. (USNM) [examined] (Fig. 10). **New synonym.**

Remarks

Eucereon metoidesis was proposed by Hampson (1905) for his earlier misidentification (Hampson, 1898: 486, fig. 271) of *Eucereon cinctum* Schaus, 1896b. The specimen here regarded as the holotype is the only specimen mentioned by Hampson (1898) in the redescription of *E. cinctum* (*sensu* Hampson *nec* Schaus). This specimen was found correctly labeled as the holotype in the BMNH.

Eucereon Hübner [1819] 1816 is one of the largest genera of Ctenuchina, and is very likely

polyphyletic (Travassos 1959; Donahue 1993; L. R. Pinheiro, unpublished). In fact, even its position within the subtribe was disputed by Travassos (1959), who thought that the core concept of the genus belonged in the previous concept of Arctiidae (and not in the then-recognized family Ctenuchidae); this was in accordance with Kirby (1892), who treated *Eucereon* in his newly created subfamily Phaegopterinae. However, this change of classification was not formally made, and it was not recognized by subsequent authors (Watson et al. 1980; Donahue 1993; Kitching & Rawlins 1999). For this reason we treat *Eucereon* as a member of Ctenuchina, pending a comprehensive study of the limits of *Eucereon* and its subtribal position within Arctiini.

Eucereon metoidesis shares morphological similarities with the type species of the genus, *E. archias* Stoll, 1790, which might indicate that it is correctly placed in this genus. These characters are mainly from the scaling pattern of the forewings and abdomen, and characters of the male genitalia.

Eucereon metoidesis romani was originally described as a form, and according to the ICZN (article 45.6.4) is to be regarded as a subspecies. The validity of its subspecies status has not been evaluated.

Mesocerea apicalis (Rothschild, 1911) (Fig. 11)

Teucer apicalis Rothschild, 1911: 42. Lectotype male, by subsequent designation (Hampson, 1914: 303), SURINAME, Aroewarwa Creek, Maroewym Valley (S. M. Klages). (BMNH) [examined]; Zerny, 1912: 111; Draudt, 1915: 127.

Mesocerea apicalis; Hampson, 1914: 303, fig. 45.

Delphyre leucomela Kaye, 1919: 93. Lectotype male hereby designated: FRENCH GUYANA, coll. Joicey (BMNH) [examined]. With 5 labels: "Type HT"; "Delphyre leucomela Type Kaye Ann Mag Nat Hist IXth Series Vol IV (Aug 1919) p. 93"; "Fr. Guiana"; "Presented by J. J. Joicey Esq. Brit. Mus. 1931-444"; and "Kb-Dia-Nr. 1091 B. Kreusel dok." (BMNH) [examined] (Fig. 12) **New synonym.**

Remarks

Both *T. apicalis* and *D. leucomela* were described from an unspecified number of specimens. Only one specimen for each name was found in the collection of the BMNH; the specimen with the correct labels is here identified as the lectotype of *T. apicalis* designated by Hampson (1914). The male found under the label *D. leucomela* is here regarded as the lectotype. *Teucer apicalis* was transferred to *Mesocerea* when Hampson (1914) described this genus.

EUCHROMIINA

Mirandisca harpalyce (Schaus, 1892) (Fig. 13)

Cosmosoma harpalyce Schaus, 1892a: 275. Lectotype male hereby designated: BRAZIL, Petrópolis. With 6 labels: "Type No. 10727 U.S.N.M."; "Cosmosoma harpalyce Type Sch."; "Petropolis, Brazil"; "Collection WmSchaus"; "Spec fig."; "Kb-Dia-Nr 1711 B. Kreusel dok." (USNM) [examined]; Schaus, 1892b: pl. 1, fig. 11; Hampson, 1898: 253; Zerny, 1912: 71; Draudt, 1915: 83.

Mirandisca harpalyce; Travassos Filho, 1955: 670; Watson et al., 1980: 119.

Cosmosoma albipuncta Gaede, 1926: 123. Holotype male, by monotypy: [BRAZIL], Rio Grande do Sul, coll. Staudinger. (ZMHB) [examined] (Fig. 14).

New synonym.

Remarks

Cosmosoma harpalyce was described from an unknown number of specimens. According to recommendation 73F of the ICZN (1999), we here designate a lectotype rather than assuming a holotype.

Mirandisca Travassos Filho, 1955 was created to accommodate *C. harpalyce*, because it differs from other species classified in *Cosmosoma* Hübner, 1823. This taxonomic decision was based on the wing venation, as follows: vein R1 branching beyond the discal cell instead of on it, as occurs in the type species of *Cosmosoma*, *Sphinx auge* Linnaeus, 1767.

PHAEGOPTERINA

Pseudopharus nigra (Schaus, 1904), **New combination** (Fig. 15)

Neacerea nigra Schaus, 1904: 136. Holotype male, by evidence of monotypy. [PANAMA], Chiriqui. (USNM) [examined].

Delphyre nigra; Hampson, 1914: 302; Zerny, 1912: 136; Draudt, 1915: 166, pl. 30 row b; Draudt, 1917: 211.

Remarks

Two additional species, *Pseudopharus hades* Dognin, 1909 and *Delphyre spreta* Draudt, 1915, seem to be remarkably similar to *P. nigra*. Unfortunately, the holotype of the former, a female, lacks the abdomen. For this reason, a synonymy between these 2 species is not proposed here. The types of Draudt could be, according to Horn & Kahle (1935-1937), in the MNHN, MTD, or SMF. The first 2 collections were visited by the first author but the types were not found in ei-

ther of them. Draudt's types were also found in the BMNH, but the 3 syntypes of *Neacerea spreta* were not among them. Hence, it is possible that the types are in Frankfurt. Although Draudt's figure of *D. spreta* corresponds to the phenotype of *N. nigra*, we prefer not to make assumptions without inspecting the types.

ACKNOWLEDGMENTS

We thank the curators of the collections visited for access to the collections under their care, and also for their kindness and support: Alessandro Giusti, Geoff Martin and Martin Honey (BMNH), Jérôme Barbut and Joel Minet (MNHN), Matthias Nuss (MTD), Donald Harvey (USNM) and Wolfram Mey (ZMHB). Julian P. Donahue (former Lepidoptera curator of the Los Angeles County Museum of Natural History), Rafaela Falaschi (Museu de Zoologia da USP, São Paulo), and 2 anonymous reviewers made important comments for the improvement of the manuscript. J. P. Donahue also provided immense help with the taxonomy of Ctenuchina and Euchromiina. Janet Reid (Research Associate of the Virginia Museum of Natural History) edited the text. D. Harvey kindly sent images of USNM types. This research was funded by the Fundação de Amparo à Pesquisa do Estado de São Paulo (grants 2002/13898-0, 2009/11159-5, 2011/50225-3, and 2012/02444-0), Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq grant 563332/2010-7 - SISBIOTA/ Rede Nacional de Pesquisa e Conservação de Lepidópteros), and Pró-Reitoria de Pesquisa da Universidade de São Paulo (Projeto 1). The second author has also been supported by a CNPq fellowship (process number 305905/2012-0).

REFERENCES CITED

- ÁGUILA, R. N. 2004. Lepidoptera (Insecta) de Topes de Collantes, Sancti Spiritus, Cuba. *Bol. Soc. Entomol. Aragonesa* 34: 151-159.
- BARTH, R. 1953. Órgãos odoríferos masculinos de algumas Syntomidae brasileiras (= Ctenuchidae; Lepidoptera). *Mem. Inst. Oswaldo Cruz* 51: 227-237.
- BIEZANKO, C. M. 1983. Ctenuchidae, Nolidae, Arctiidae e Pericopidae da zona sudeste do Rio Grande do Sul. *Rev. Cent. Cienc. Rurais* 13(4): 229-263.
- BRYK, F. 1953. Lepidoptera aus dem Amazonasgebiete und aus Peru gesammelt von Dr. Douglas Melin und Dr. Abraham Roman. *Ark. zool.* 5: 1-268.
- BUTLER, A. G. 1875. Descriptions of new genera and species of Lepidoptera in the collection of the British Museum. *Ann. Mag. Nat. Hist.* 4(15): 396-400.
- _____. 1876a. Notes on the Lepidoptera of the family Zygaenidae, with descriptions of new genera and species. *J. Linn. Soc. (Zool.)* 12(60-62): 342-407.
- _____. 1876b. On the subfamilies Antichlorinae and Charideinae of the lepidopterous families Zygaenidae and Arctiidae. *J. Linn. Soc. (Zool.)* 12(63): 408-433.
- _____. 1877. Illustrations of Typical Specimens of Lepidoptera Heterocera in the collection of the British Museum. 1: 1-62.
- CERDA, J.-A. 2008. Euchromiini de Guyane Française (Lepidoptera: Arctiidae, Arctiinae). Published by the author. Place of publication unavailable. 172 pp.
- CONNER, W. E. 1999. 'Un chant d'appel amoureux': acoustic communication in moths. *J. Exp. Biol.* 202(13): 1711-1723.
- CONNER, W. E., BOADA, R., SCHROEDER, F. C., GONZÁLEZ, A., MEINWALD, J., AND EISNER, T. 2000. Chemical defense: bestowal of a nuptial alkaloidal garment by a male moth on its mate. *Proc. Natl. Acad. Sci. USA* 97: 14406-14411.
- DACOSTA, M. A., LARSON, P., DONAHUE, J. P., AND WELLER, S. J. 2006. Phylogeny of milkweed tussocks (Arctiidae: Arctiinae: Phaegopterini) and its implications for evolution of ultrasound communication. *Ann. Entomol. Soc. America* 99(5): 723-742.
- DIETZ, R. E., IV, AND DUCKWORTH, W. D. 1976. A review of the genus *Horama* Hübner and reestablishment of the genus *Poliopastea* Hampson (Lepidoptera: Ctenuchidae). *Smithson. Contrib. Zool.* 215: 1-53.
- DOGNIN, P. 1898. Hétérocères nouveaux de l'Amérique du Sud, I. Brussels, A. Breuer, pp. 1-7.
- _____. 1909. Hétérocères nouveaux de l'Amérique du Sud. *Ann. Soc. Entomol. Belgique* 53: 213-233.
- _____. 1919. Hétérocères nouveaux de l'Amérique du Sud, XVII. Oberthür, Rennes, 12 pp.
- DONAHUE, J. P. 1993. Six species of tiger moths (Arctiidae: Lithosiinae, Ctenuchinae) new to the United States fauna, with notes on their nomenclature and distribution in Middle America. *J. Lepid. Soc.* 47(3): 199-210.
- DRAUDT, M. [1913-1940]. Family Syntomidae *In* A. Seitz [ed.], *The Macrolepidoptera of the World*, volume 6. Stuttgart, A. Kernen.
- DRUCE, H. 1883. Descriptions of new species of Zygaenidae and Arctiidae. *Proc. Zool. Soc. London*, without number: 372-384.
- _____. 1898 [May]. Descriptions of some new species of Syntomidae, chiefly in the Oxford Museum. *Ann. Mag. Nat. Hist.* 7(1): 401-408.
- _____. 1909. Descriptions of some new species of Heterocera, chiefly from Tropical South America. *Ann. Mag. Nat. Hist.* 8(3): 457-467.
- FELDER, C., AND FELDER, R. 1865-1875. *Reise der Österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859 unter den Befehlen des Commodore B. von Willerstorff-Urbair*. Zoologischer Theil. Zweiter Band: Zweiter Abtheilung. Vienna. 5 parts, 140 pls.
- FERRO, V. G., RESENDE, I. M. H., AND DUARTE, M. 2012. Mariposas Arctiinae (Lepidoptera: Erebidae) do estado de Santa Catarina, Brasil. *Biota Neotropica* 12(4): <http://www.biotaneotropica.org.br/v12n4/en/abstract?inventory+bn01312042012>.
- FERRO, V. G., AND TESTON, J. A. 2009. Composição de espécies de Arctiidae (Lepidoptera) no sul do Brasil: relação entre tipos de vegetação e entre a configuração espacial do hábitat. *Rev. Brasileira entomol.* 53(2): 278-286.
- FIELD, W. D. 1975. Ctenuchid moths of *Ceramidia* Butler, *Ceramidiodes* Hampson, and the *caca* species group of *Antichloris* Hübner. *Smithson. Contrib. Zool.* 198: 1-44.
- FORBES, W. T. M. 1939. The Lepidoptera of Barro Colorado Island, Panama. *Bull. Mus. Comp. Zool.* 85(4): 97-322.
- _____. 1960. Lepidoptera of New York and neighboring states. Part IV. Agaristidae through Nymphalidae including butterflies. *Mem. Cornell Univ. Agric. Exp. Stn.* 371: 1-188.
- FORBES, W. T. M., AND FRANCLEMONT, J. G. 1957. The striated band (Lepidoptera, chiefly Arctiidae). *Lepid. News* 11: 147-150.

- GAEDE, M. 1926. Amatiden des Berliner Zoologischen Museums. (Lep.). Dtsch. Entomol. Z. 2: 113-136.
- GRADOS, J. 2002. Los Arctiidae y Sphingidae (Lepidoptera: Heterocera) del Santuario Histórico de Machu Picchu, Cuzco, Perú: estudio preliminar. Rev. Peruana Biol. 9(1): 16-22.
- HAMPSON, G. F. 1898 [Dec.]. Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. I: Catalogue of the Syntomidae in the collection of the British Museum. London. 559 pp.
- _____. 1901. Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. III. Catalogue of the Arctiidae (Arctiinae) and Agaristidae in the collection of the British Museum. London, 690 pp.
- _____. 1905. Descriptions of new genera and species of Syntomidae, Arctiidae, Agaristidae and Noctuidae. Ann. Mag. Nat. Hist. 7 (15): 425-455.
- _____. 1914. Catalogue of the Lepidoptera Phalaenae in the British Museum, Supplement. vol. I. Catalogue of the Amatidae and Arctiidae (Nolinae and Lithosianae) in the collection of the British Museum. London. 858 pp.
- _____. 1915. Catalogue of the Lepidoptera Phalaenae in the British Museum, Supplement. vol. I, plates I-XLI. London, 71 pl.
- HEPPNER, J. B. 1982. Dates of selected Lepidoptera literature for the Western Hemisphere fauna. J. Lepid. Soc. 36(2): 87-111.
- HERNÁNDEZ-BAZ, F., AND GRADOS, J. 2004. Lista de los Ctenuchinae (Insecta: Lepidoptera: Arctiidae) del estado de Veracruz, México y algunas notas sobre su riqueza en el continente americano. Folia Entomol. Mexicana 43(2): 203-213.
- HERRICH-SCHÄFFER, G. A. W. 1845. Systematische Bearbeitung der Schmetterlinge von Europa, zugleich als Text, Revision und Supplement zu Jakob Hübner's Sammlung europäischer Schmetterlinge. 2. Die Schwärmer, Spinner und Eulen. Regensburg. 450 pp.
- _____. 1850-[1869]. Sammlung neuer oder bekannter ausseuropäischer Schmetterlinge 1. 84 pp, 120 pls. Regensburg: G. J. Manz.
- HORN, W., AND KAHL, I. 1935-1937. Über entomologische Sammlungen, Entomologen und Entomomuseologie. Entomol. Beihefte aus Berlin-Dahlem 2-4: 1-536.
- HÜBNER, J. [1816-1826] 1816. Verzeichniß bekannter Schmettlinge (sic). Augsburg. 432 pp.
- ICZN (INTERNATIONAL COMMISSION OF ZOOLOGICAL NOMENCLATURE). 1999. International code of zoological nomenclature adopted by the XX General Assembly of the International Union of Biological Sciences. Intl. Trust Zool. Nomenclature. London. 206 pp.
- JACOBSON, N. L., AND WELLER, S. J. 2002. A cladistic study of the Arctiidae (Lepidoptera) by using characters of immatures and adults. Thomas Say Publications in Entomology: Monographs. Entomol. Soc. America. Lanham. 97 pp.
- KAYE, W. J. 1919. New species and genera of Nymphalidae, Syntomidae, and Sphingidae in the Joicey Collection. Ann. Mag. Nat. Hist. 9(4): 84-94.
- KIRBY, W. F. 1837. The insects, part 4 In J. Richardson [ed.], Fauna Boreali-Americana: zoology of the northern parts of British America. Josiah Fletcher, Norwich, United Kingdom. 325 pp.
- _____. 1892. A synonymic catalogue of Lepidoptera-Heterocera, volume 1, Sphingines and Bombyces. Gurney & Jackson, London. 951 pp.
- KITCHING, I. J., AND RAWLINS, J. E. 1998. The Noctuoidea, pp. 389-394 In N. P. Kristensen [ed.], Band/ Volume IV Arthropoda: Insecta. Lepidoptera, Moths and Butterflies: Evolution, systematics, and biogeography. Vol. 1. In M. Fischer [ed.], Handbuch der Zoologie/Handbook of Zoology. Walter de Gruyter, Berlin. 491 pp.
- LATHY, P. I. 1899. Descriptions of new species of Syntomidae in the collection of Mr. H. J. Adams, F.E.S. The Entomologist 32: 116-121.
- LINNAEUS, C. 1767. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tom. 1. Pars. II. 12th edition, pp. 533-1327, Holmiae.
- LUH, C. J. 1937. The skeletal structure of the tympanum of the Arctiidae (Order Lepidoptera). Peking Nat. Hist. Bull. 2: 83-91.
- MÖSCHLER, H. B. 1877. Beiträge zur Schmetterlings-Fauna von Surinam. II. Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien 27: 629-700.
- PINHEIRO, L. R., AND DUARTE, M. 2010. Revision of the Neotropical moth genera *Mallodeta* Butler and *Eruca* Walker, revalidated (Noctuidae, Arctiinae, Arctiini, Euchromiina). Zootaxa 2573: 1-34.
- ROTHSCHILD, W. 1911. New Syntomidae in the Tring Museum. Novit. Zool. 18: 24-45.
- _____. 1912. New Syntomidae. Novit. Zool. 19(2): 151-186.
- SCHAUS, W. 1892a. Descriptions of new species of Lepidoptera Heterocera from Brazil, Mexico and Peru - Part I. Proc. Zool. Soc. London, without number: 272-291.
- _____. 1892b. American Lepidoptera. Illustrations of new and rare species. Part I. R. H. Porter, London, 24 pp., 3 pl.
- _____. 1896a. New species of Heterocera from Tropical America. J. New York Entomol. Soc. 4: 147-154.
- _____. 1896b. New species of American Heterocera. J. New York Entomol. Soc. 4: 130-145.
- _____. 1904. New species of American Heterocera. Trans. American Entomol. Soc. 30: 135-178.
- _____. 1924. New species of moths in the United States National Museum. Proc. U. S. Natl. Mus. 65: 1-74.
- SIMMONS, R. B., WELLER, S. J., AND JOHNSON, S. J. 2012. The evolution of androconia in mimetic tiger moths (Noctuoidea: Erebiinae: Arctiinae: Ctenuchina and Euchromiina). Ann. Entomol. Soc. America 105(6): 804-816.
- SIMMONS, R. B., AND WELLER, S. J. 2006. Review of the *Sphecosoma* genus group using adult morphology (Lepidoptera: Arctiidae). Thomas Say Publications in Entomology: Monographs, published by the Entomol. Soc. America, Lanham, Maryland. 108 pp.
- STOLL, C. 1787-1790. Aanhansel van het Werk, de Uitlandsche Kapellen, voorkomende in de drie Waereld-Deelen Asia, Africa en America, door den Heere Pieter Cramer, vervattende naauwkeurige afbeeldingen van Surinaamsche Rupsen en Poppen; als mede van veele zeldzaame en nieuwe ontdekte Uitlandsche Dag-en Nagt-Kapellen. Amsterdam, Gravius. 184 pp., 42 pls.
- TRAVASSOS, L. 1952. Contribuição ao conhecimento dos "Arctiidae". XXVIII. (Lepidoptera, Heterocera). Rev. Brasileira Biol. 12(2): 151-160.
- _____. 1959. Contribuição ao conhecimento dos Arctiidae. XLII. Gênero *Eucereon* Huebner, 1819 (Lepidoptera, Heterocera). Mem. Inst. Oswaldo Cruz 57(2): 171-190.

- TRAVASSOS FILHO, L. 1955. *Mirandisca*, novo gênero par us (Lepidoptera - Ctenuchidae) 1892, com descrição do allotypa *Cosmosoma harpalyce* Schaus. Arq. Mus. Nac. 42: 669-676.
- WALKER, F. 1854. List of the specimens of lepidopterous insects in the collection of the British Museum. Lepidoptera - Heterocera. Part 1. Edward Newman, London. 278 pp.
- _____. 1856. List of specimens of lepidopterous insects in the collections of the British Mus. Part 7. Edward Newman, London. pp. 1509-1808.
- WATSON, A., FLETCHER, D. S., AND NYE, I. W. B. 1980. Noctuoidea (part), volume 2: Arctiidae, Cocytiidae, Ctenuchidae, Dilobidae, Diopsideae, Lymantriidae, Notodontidae, Strepsimanidae, Thaumetopoeidae, Thyretidae In I. W. B. Nye [ed.], The Generic Names of Moths of the World. British Museum (Natural History), London. 396 pp.
- WATSON, A., AND GOODGER, D. T. 1986. Catalogue of the Neotropical tiger-moths. Occas. Pap. Syst. Entomol. 1: 1-71.
- WELLER, S., DACOSTA, M., SIMMONS, R., DITTMAR, K., AND WHITING, M. 2008. Evolution and taxonomic confusion in Arctiidae, pp. 30 In W. E. Conner [ed.], Tiger Moths and Woolly Bears. Behavior, ecology, and evolution of the Arctiidae. Oxford University Press, Oxford. 328 pp.
- ZERNY, H. 1912. Syntomidae. In H. Wagner [ed.], Lepidopterorum Catalogus, Pars 7. W. Junk, Berlin. 179 pp.