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World Checklist of Tribe Calpini (Lepidoptera: Noctuidae: Calpinae)

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World Checklist of Tribe Calpini (Lepidoptera: Noctuidae: Calpinae)

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Abstract. A preliminary checklist of Calpini is provided, incorporating corrections and changes to publication dates and nomenclature as presented in the checklists of Poole (1989), Fibiger and Lafontaine (2005), and Holloway (2005). *Culasta* Moore is removed from synonymy with *Calyptra* Ochsenheimer. *Eudocima talboti* (Prout) and *Graphigona antica* Walker are placed in synonymy with *E. cajeta* (Cramer) and *G. regina* (Guenée), respectively. *Africalpe* Krüger, *Ferenta* Walker, *Gonodonta* Hübner, *Graphigona* Walker, *Oraesia* Guenée, and *Tetrisia* Walker, are added to the tribe based on shared characters. The genera *Cecharismena* Möschler, *Goniapteryx* Perty, *Pharga* Walker, *Phyprosopus* Grote, *Psammathodoxa* Dyar, and *Radara* Walker are removed and considered *incertae sedis*. *Hemiceratoides* and *Phyllodes* are not considered to be members of Calpini.

Key words. Checklist, fruit-piercing moths, blood-feeding moths.

Introduction

The most recent classification places Calpinae in the family Noctuidae (Goater et al. 2003, Kitching and Rawlins 1998, Fibiger and Lafontaine 2005, Lafontaine and Fibiger 2006, Mitchell et al. 2006). Calpinae now consists of four tribes: Anomini Grote, Calpini Boisduval, Phyllodini Hampson, and Scoliopterygini Herrich-Schäffer (Fibiger and Lafontaine 2005, Lafontaine and Fibiger 2006, Holloway 2005). Calpini are defined by the presence of socketted tearing hooks on the proboscis that are used for piercing the skin of fruits and mammals (Bänziger 1968, 1971, 1979a, 1982, Zaspel et al. 2007, Zaspel 2008, Zaspel in press). Calpini are cosmopolitan; however, many calpine genera have geographic distributions that are more restricted (e.g., *Gonodonta* Hübner, *Graphigona* Walker, *Calyptra* Ochsenheimer). The tribe was recently catalogued by Fibiger and Lafontaine (2005) wherein they assigned genera to the tribe, suggesting Calpini consisted of approximately 200 species in eleven genera. This publication focused on the Palearctic region and was therefore not inclusive of all genera comprising the tribe. In addition, the fruit-piercing genus *Oraesia* Guenée, which has proboscis armature identical to that of *Calyptra* and *Gonodonta*, was excluded while seven genera lacking the diagnostic characteristics of the proboscis were included. The primary objective of the present checklist is to combine the works of Holloway (2005) and Fibiger and Lafontaine (2005) into an updated checklist to complement recent taxonomic studies (Bänziger 1983, Zilli and Hogenes 2002), a survey of calpine proboscis morphology (Zaspel et al. submitted), and phylogenetic research (Zaspel 2008). This checklist also serves to correct minor taxonomic errors in the checklist of Poole (1989).

All original descriptions for each genus, species, subspecies, and their synonyms have been studied. The checklist includes type localities if available, a list of references to the species, and corrections and changes to the nomenclature presented in the checklists of Poole (1989), Fibiger and Lafontaine (2005), and Holloway (2005). Authorship assignments for taxa described in the Lepidoptera Atlas of the "Reise der Novara" follow Nässig and Speidel (2007) and for convenience, are abbreviated "*In* F.F.R. 1874".

In summary, the following taxonomic changes are made: *Culasta* Moore is removed from synonymy from *Calyptra* Ochsenheimer. This genus lacks the proboscis characters that define Calpini and is not considered a member; the tribal placement of *Culasta* remains undetermined. *Eudocima talboti* (Prout) is placed in synonymy with *Eudocima cajeta* (Cramer) and *Graphigona antica* Walker is placed in synonymy with *G. regina* (Guenée *In* Boisduval and Guenée). Four *Eudocima* species, *E. behouneki, E. mazzeii, E. prolai,* and *E. treadawayi* described by Zilli and Hogenes (2002) are added to the checklist. Although Hilgartner et al. (2007) suggest *Hemiceratoides* Strand is a member of the Calpini, this placement remains uncertain as species in the genus are tear feeders lacking proboscis features found in all

other listed genera of Calpini. *Phyllodes* Boisduval, in tribe Phyllodini, has been associated with members of Calpini (e.g., *Eudocima*) but also with Ophiusini (e.g., *Miniodes* Guenée *In* Boisduval and Guenée) (Holloway 2005). Given the previous associations of *Phyllodes* with both calpine and ophiusine genera we recommend its continued placement in Phyllodini pending further morphological and molecular examination of additional species in the genus. Six genera: *Africalpe* Krüger, *Ferenta* Walker, *Gonodonta* Hübner, *Graphigona* Walker, *Oraesia* Guenée, and *Tetrisia* Walker, are added to Fibiger and Lafontaine's (2005) checklist based on characters of their proboscides. The following genera, previously treated as the tribe Calpini (*sensu* Fibiger and Lafontaine 2005), are removed based on their lack of proboscis characters present in other members of this tribe, and categorized as genera whose tribal placement are as yet undetermined: *Cecharismena* Möschler, *Goniapteryx* Perty, *Pharga* Walker, *Phyprosopus* Grote, *Psammathodoxa* Dyar, and *Radara* Walker.

Checklist

CALPINI

***AFRICALPE* Krüger, 1939: 348**

Type species: *Africalpe intrusa* Krüger, by monotypy.

A. intrusa Krüger, 1939 (*Africalpe*) Libya
A. nubifera (Hampson, 1907) (*Calpe*) India
A. vagabunda (Swinhoe, 1884) (*Oraesia*) Pakistan
    A. anubis (Rebel, 1947) (*Pseudocalpe*) Egypt
    A. anubia (Poole, 1989); misspelling

***CALYPTRA* Ochsenheimer, 1816: 78**

Type species: *Phalaena thalictri* Borkhausen, by subsequent designation of Duponchel 1826: [3].

    Calpe Treitschke, 1825
    Hypocalpe Butler, 1883
    Percalpe Berio, 1956

C. albivirgata (Hampson, 1926) (*Calpe*) China
C. bicolor (Moore, 1883) (*Calpe*) India
C. canadensis (Bethune, 1865) (*Calpe*) Canada
    C. purpurascens (Walker, 1865) (*Plusiodonta*) USA
    C. sobria (Walker, 1865) (*Oraesia*) USA
C. eustrigata (Hampson, 1926) (*Calpe*) Sri Lanka
C. fasciata (Moore, 1882) (*Calpe*) India
    C. labilis (Berio, 1970) (*Calpe*) India
C. fletcheri (Berio, 1956) (*Calpe*) China
C. gruesa (Draudt, 1950) (*Calpe*) China
C. hokkaida (Wileman, 1922) (*Calpe*) Japan
    C. hokkaido (Poole, 1989); misspelling
    C. hoenei (Berio, 1956) (*Calpe*) China
C. imperalis (Grünberg, 1910) (*Calpe*) India
C. lata (Butler, 1881) (*Calpe*) Japan
    C. aureola (Graeser, 1889) (*Calpe*) Russian Far East
C. minuticornis (Guenée *In* Boisduval and Guenée, 1852a) (*Calpe*) Indonesia
    C. novaepommeraniae (Strand, 1919) (*Calpe*) India
C. nyei Bänziger, 1979b (*Calyptra*) India
C. ophideroides (Guenée *In* Boisduval and Guenée, 1852a) (*Calpe*) East Indies

C. orthograpta (Butler, 1886) (*Calpe*) India
C. striata (Poujade, 1887) (*Calpe*) China
C. parva Bänziger, 1979b (*Calyptra*) India
C. pseudobicolor Bänziger, 1979b (*Calyptra*) India
C. subnubila (Prout, 1928) (*Calpe*) Indonesia
C. thalictri (Borkhausen, 1790) (*Phalaena*) Unknown
C. centralitalica (Dannehl, 1925) (*Calpe*) Unknown
C. pallida (Schwingenschuss, 1938) (*Calpe*) Turkey
C. sodalis (Butler, 1878a) (*Calpe*) Unknown

***EUDOCIMA* Billberg, 1820: 85**

Type species: *Phalaena salaminia* Cramer, by monotypy.

Elygea Billberg, 1820
Leptophara Billberg, 1820
Trissophaes Hübner, [1823] 1816
Othreis Hübner, [1823] 1816
Maenas Hübner, [1823] 1816
Rhytia Hübner, [1823] 1816
Acacallis Hübner, [1823] 1816
Ophideres Boisduval, 1832
Acacalis Agassiz, [1847] 1846
Ophioderes Agassiz, [1847] 1846
Othryis Agassiz, [1847] 1846
Khadira Moore, 1881b
Adris Moore, 1881b
Purbia Moore, 1881b
Vandana Moore, 1881b
Argadesa Moore, 1881b
Halastus Butler, 1892
Eumaenas Tams, 1924

E. anguina (Schaus, 1911b) (*Trissophaes*) Costa Rica
E. apta (Walker, [1858] 1857b) (*Ophideres*) Brazil
E. aurantia (Moore, 1877) (*Ophideres*) Andaman Islands
E. rutilus (Moore, 1881b) (*Adris*) Sri Lanka
E. bathyglypta (Prout, 1928) (*Othreis*) Indonesia
E. behouneki Zilli and Hogenes, 2002 (*Eudocima*) Philippines
E. boseae (Saalmüller, 1880) (*Ophideres*) Madagascar
E. caesar (Felder, 1861) (*Ophideres*) Indonesia
E. cajeta (Cramer, 1775) (*Phalaena Noctua*) India
E. multiscripta (Walker, [1858] 1857b) (*Ophideres*) Sri Lanka
E. talboti (Prout, 1922) (*Othreis*) Indonesia, **NEW SYNONYMY**
E. cocalus (Cramer, 1777) (*Phalaena Noctua*) East Indies
E. crepidolata (Lucas, 1894) (*Ophideres*) Australia
E. maculata (Weber, 1801) (*Noctua*) East Indies
E. plana (Walker, [1858] 1857b) (*Ophideres*) Indonesia
E. collusoria (Cramer, 1777) (*Phalaena Noctua*) Unknown
E. colubra (Schaus, 1911b) (*Trissophaes*) Costa Rica
E. discrepans (Walker, [1858] 1857b) (*Ophideres*) Singapore
E. archon (C. and R. Felder, *In* F.F.R. 1874) (*Ophideres*) Thailand
E. dividens (Walker, [1858] 1857b) (*Ophideres*) Indonesia
E. divitiosa (Walker, 1869b) (*Ophideres*) "Congo"

E. banakus (Plötz, 1880) (*Ophideres*) "Upper Guinea"
E. intricatus (Butler, 1892) (*Halastus*) Nigeria
E. euryzona (Hampson, 1926) (*Khadira*) Madagascar
E. felicia (Stoll, 1790) (*Phalaena Noctua*) Unknown
E. formosa (Griveaud and Viette, 1960) (Khadira) Madagascar
E. homaena (Hübner, [1823] 1816) (*Othreis*) India
E. ancilla (Cramer, 1777) (*Phalaena Noctua*) India
E. bilineosa (Walker, [1858] 1857b) (*Ophideres*) Sri Lanka
E. strigata (Donovan, 1804) (*Phalaena*) India
E. hypermnestra (Cramer, 1780) (*Phalaena Noctua*) India
E. imperator (Boisduval, 1833) (*Ophideres*) Madagascar
E. iridescens (Lucas, 1894) (*Ophideres*) Australia
E. pyrocrana (Turner, 1908) (*Ophideres*) Australia
E. jordani (Holland, 1900) (*Ophideres*) Indonesia
E. kinabaluensis (Feige, 1976) (*Othreis*) Borneo
E. kuehni (Pagenstecher, 1886) (*Othreis*) New Guinea
E. materna (Linnaeus, 1767) (*Phalaena Noctua*) "Indiis"
E. chalcogramma (Walker, 1865) (*Ophideres*) "Zambesi River"
E. hybrida (Fabricius, 1775) (*Noctua*) India, Australia.
E. mazzeii Zilli and Hogenes, 2002 (*Eudocima*) Philippines
E. memorans (Walker, [1858] 1857b) (*Ophideres*) "West Coast of America"
E. mionopastea (Hampson, 1926) (*Othreis*) Malaysia
E. muscigera (Butler, 1882) (*Purbia*) New Britain
E. nigricilia (Prout, 1924) (*Purbia*) Australia
E. okurai (Okano, 1964) (*Adris*) East-Palearctic
E. suthepensis Bänziger and Honey, 1984 (*Adris*) Burma
E. paulii (Robinson, 1968) (*Othreis*) Fiji
E. phalonia (Linneaus, 1763) (*Phalaena Noctua*) Africa
E. dioscoreae (Fabricius, 1775) (*Noctua*) East Indies
E. fullonia (Clerck, [1764] 1759) (*Phalaena*) Unknown
E. obliterans (Walker, [1858] 1857b) (*Ophideres*) Samoa
E. pomona (Cramer, 1776) (*Phalaena Noctua*) India
E. princeps (Boisduval, 1832) (*Ophideres*) New Guinea
E. pratti (Bethune-Baker, 1906) (*Lagoptera*) New Guinea, **REVISED STATUS**
E. prattorum (Prout, 1922) (*Othreis*) Indonesia
E. procus (Cramer, 1777) (*Phalaena Noctua*) Surinam
E. columbina (Guenée, *In* Boisduval and Guenée 1852b) (*Ophideres*) Colombia
E. scabellum (Guenée, *In* Boisduval and Guenée 1852b) (*Ophideres*) Unknown
E. prolai Zilli and Hogenes, 2002 (*Eudocima*) Irian Jaya
E. salaminia (Cramer, 1777) (*Phalaena Noctua*) China
E. serpentifera (Walker, [1858] 1857b) (*Ophideres*) Dominican Republic
E. sikhimensis (Butler, 1895) (*Adris*) Oriental
E. abathyglypta (Prout, 1928) (*Othreis*) Indonesia
E. smaragdipicta (Walker, [1858] 1857b) (*Ophideres*) Borneo
E. sultana (Snellen, 1886) (*Ophideres*) Indonesia
E. splendida (Yoshimoto, 1999) (*Othreis*) Oriental
E. srivijayana (Bänziger, 1985) (*Othreis*) Oriental
E. talboti (Prout, 1922) (*Othreis*) Wallacea
E. toddi (Zayas, 1965) (*Othreis*) Cuba
E. treadawayi Zilli and Hogenes, 2002 (*Eudocima*) Philippines
E. tyrannus (Guenée, *In* Boisduval and Guenée 1852b) India
E. amurensis (Staudinger, 1892) (*Ophideres*) Russian Far East

***FERENTA* Walker, [1858] 1857a: 961**

Type species: *Phalaena stolliana* Stoll, by monotypy.

F. cacica (Guenée, *In* Boisduval and Guenée 1852c) (*Ophideres*) Brazil
F. castula (Dognin, 1912) (*Darceta*) Venezuela
F. incaya Hampson, 1926 (*Ferenta*) Peru
F. stollii (Hübner, [1823] 1816) (*Coronis*)
F. stolliana (Stoll, *In* Cramer 1782) (*Phalaena Noctua*) Surinam

***GONODONTA* Hübner, 1818: 11**

Type species: *Gonodonta uncina* Hübner, by subsequent designation of Grote 1902: 472. Revision: Todd 1959:1.

Athysania Hübner, [1823] 1816
Dosa, Walker 1865

G. aequalis Walker, [1858] 1857a (*Gonodonta*) Brazil
G. aeratilinea Todd, 1973 (*Gonodonta*) Peru
G. amianta (Hampson , 1924) (*Athysania*) Guyana
G. biarmata Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Brazil
G. elegans Druce, *In* Godman and Salvin 1889 (*Gonodonta*) Mexico
G. evadens Walker, [1858] 1857a (*Gonodonta*) Galapagos Islands
G. galapagensis Todd, 1959 (*Gonodonta*) Galapagos Islands
G. bidens Geyer, 1832 (*Gonodonta*) Cuba
G. meridionalis Todd, 1959 (*Gonodonta*) Brazil
G. miranda Raymundo, 1908 (*Gonodonta*) Brazil
G. tenebrosa Todd, 1959 (*Gonodonta*) Costa Rica
G. chorinea (Cramer, 1782) (*Phalaena Noctua*) Surinam
G. clotilda (Stoll, 1790) (*Phalaena Noctua*) Surinam
G. clothilda (Poole, 1989); misspelling
G. correcta Walker, [1858] 1857a (*Gonodonta*) Mexico
G. distincta Todd, 1959 (*Gonodonta*) Venezuela
G. ditissima Walker, 1858 (*Gonodonta*) Brazil
G. fernandezi Todd, 1959 (*Gonodonta*) Guyana
G. fulvangula Geyer, 1832 (*Gonodonta*) Uruguay
G. chrysotornus (Hampson, 1926) (*Athysania*) Guyana
G. fulvidens Felder and Rogenhofer, *In* F.F.R. 1874 (*Gonodonta*) Colombia
G. flavidens (Hampson, 1926) (*Athysania*) Brazil
G. holosericea Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Colombia
G. immacula Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Fr. Guiana
G. panoana (Schaus, 1933) (*Athysania*) Brazil
G. incurva (Sepp, 1840) (*Phalaena*) Surinam
G. dentata Felder and Rogenhofer, *In* F.F.R. 1874 (*Gonodonta*) Brazil
G. elaborans Dyar, 1914 (*Gonodonta*) Dominica
G. temperata Walker, [1858] 1857a (*Gonodonta*) Venezuela
G. teretimacula Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Fr. Guiana
G. velata Walker, [1858] 1857a (*Gonodonta*) Unknown
G. indentata (Hampson, 1926) (*Athysania*) Venezuela
G. latimacula Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Colombia
G. lecha Schaus, 1911a (*Gonodonta*) Costa Rica
G. lincus (Cramer, 1775) (*Phalaena Bombyx*) Costa Rica
G. superba Möschler, 1880 (*Gonodonta*) Surinam

G. maria Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Brazil
G. avangareza Schaus, 1911a (*Gonodonta*) Costa Rica
G. mexicana Schaus, 1901 (*Gonodonta*) Mexico
G. nitidimacula Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Ile St. Thomas
G. nutrix (Cramer, 1780) (*Phalaena Noctua*) Surinam
G. acmeptera (Sepp, 1848) (*Phalaena*) Surinam
G. obsesa (Walker, [1865] 1864) (*Dosa*) Brazil
G. camora (Felder and Rogenhofer, *In* F.F.R. 1874) (*Canodia*) Brazil
G. paraequalis Todd, 1959 (*Gonodonta*) Mexico
G. parens Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Guadeloupe
G. plumbicincta Dyar, 1912 (*Gonodonta*) Mexico
G. primulina Druce, *In* Godman and Salvin 1887 (*Gonodonta*) Guatemala
G. pseudamianta Todd, 1959 (*Gonodonta*) Venezuela
G. pulverea Schaus, 1911a (*Gonodonta*) Costa Rica
G. pyrgo (Cramer, 1777) (*Phalaena Noctua*) Surinam
G. serix Guenée, *In* Boisduval and Guenée 1852a (*Gonodonta*) Colombia
G. separans Walker, [1858] 1857a (*Gonodonta*) Brazil
G. sicheas (Cramer, 1777) (*Phalaena Noctua*) Surinam
G. hesione (Drury, 1782) (*Phalaena Noctua*) Brazil
G. uncina Hübner, 1818 (*Gonodonta*) Brazil
G. sinaldus Guenée, *In* Boisduval and Guenée1852a (*Gonodonta*) Colombia
G. sitia Schaus, 1911a (*Gonodonta*) Costa Rica
G. soror (Cramer,1780) (*Phalaena Noctua*) Surinam
G. sphenostigma Todd, 1973 (*Gonodonta*) Brazil
G. syrna Guenée *In* Boisduval and Guenée1852a (*Gonodonta*) Fr. Guiana
G. unica Neumoegen, 1891 (*Gonodonta*) USA
G. uxor (Cramer, 1780) (*Phalaena Noctua*) Surinam
G. marmorata Schaus, 1906 (*Gonodonta*) Mexico
G. walkeri Todd, 1959 (*Gonodonta*) Costa Rica

***GRAPHIGONA* Walker, [1858] 1857b: 1230**

Type species: *Ophideres regina* Guenée, by subsequent designation of Berio 1966: 59.

G. regina (Guenée *In* Boisduval and Guenée 1852c) (*Ophideres*) Colombia
G. antica Walker [1858] 1857b (*Graphigona*) Brazil, NEW SYNONYMY
G. gubernatrix (Guenée *In* Boisduval and Guenée 1852c) (*Ophideres*) "Tropical America"

***ORAESIA* Guenée, *In* Boisduval and Guenée, 1852b: 362**

Type species: *Noctua emarginata* Fabricius, by subsequent designation of Warren *In* Seitz 1913.

O. aeneofusa (Hampson, 1926) (*Calpe*) Panama
O. albescens (Seitz, 1940) (*Calpe*) Unknown
O. argyrolampra (Hampson, 1926) (*Calpe*) Colombia
O. argyrosema (Hampson, 1926) (*Calpe*) Brazil
O. argyrosigna (Moore, [1884]) (*Oraesia*) Sri Lanka
O. basiplaga (Walker, 1865) (*Calpe*) Dominican Republic
O. camaguina Swinhoe, 1918 (*Oraesia*) Philippines
O. cerne (Fawcett, 1916) (*Calpe*) Ghana
O. emarginata (Fabricius, 1794) (*Noctua*) India
O. alliciens Walker, [1858] 1857a (*Oraesia*) India
O. metallescens Guenée, *In* Boisduval and Guenée 1852a (*Oraesia*) Unknown
O. tentans Walker, [1858] 1857a (*Oraesia*) India

O. excavata (Butler, 1878a) (*Calpe*) Japan
O. excitans Walker, [1858] 1857a (*Oraesia*) Dominican Republic
O. glaucocheila (Hampson, 1926) (*Calpe*) Brazil
O. honesta Walker, [1858] 1857a (*Oraesia*) Dominican Republic
O. igneceps (Hampson, 1926) (*Calpe*) Br. Guyana
O. nobilis Felder and Rogenhofer, *In* F.F.R. 1874 (*Oraesia*) Brazil
O. pierronii (Mabille, 1880) (*Odontina*) Madagascar
O. provocans Walker, [1858] 1857a (*Oraesia*) South Africa
O. cuprea Saalmüller, 1891 (*Oraesia*) Madagascar
O. hartmanni Möschler, 1883 (*Oraesia*) South Africa
O. rectistria Guenée, *In* Boisduval and Guenée 1852a (*Oraesia*) India
O. serpens Schaus, 1898 (*Oraesia*) Mexico
O. striolata Schaus, 1911a (*Oraesia*) Costa Rica
O. stupenda Dognin, 1912 (Oraesia) Colombia
O. subucula Dognin, 1910 (*Oraesia*) Paraguay
O. triobliqua (Saalmüller, 1880) (*Odontina*) Madagascar
O. wintgensi (Strand, 1909) (*Calpe*) Rwanda

***PLUSIODONTA* Guenée, *In* Boisduval and Guenée 1852b: 385**

Type species: *Plusiodonta chalsytoides* Guenée, by subsequent designation of Desmarest *In* Chenu 1857: 123.

Gadera Walker, [1858] 1857a
Deva Walker, [1858] 1857a
Odontina Guenée, 1862
Tafalla Walker, 1869a
Tinnodoa Nye, 1975

P. aborta Dognin, 1910 (*Plusiodonta*) Colombia
P. achalcea Hampson, 1926 (*Plusiodonta*) South Africa
P. amado Barnes, 1907 (*Plusiodonta*) USA
P. arctipennis Butler, 1886 (*Plusiodonta*) Australia
P. auripicta Moore, 1882 (*Plusiodonta*) India
P. basirhabdota Hampson, 1926 (*Plusiodonta*) Kenya
P. casta (Butler, 1878b) (*Platydia*) Japan
P. chalcomera Hampson, 1926 (*Plusiodonta*) Kenya
P. clavifera (Walker, 1869a) (*Tafalla*) Honduras
P. cobaltina Viette, 1956 (*Plusiodonta*) Madagascar
P. coelonota (Kollar and Redtenbacher, 1844) (*Plusia*) India
P. agens (Felder and Rogenhofer, *In* F.F.R. 1874) (*Plusia*) India
P. chalsytoides Guenée, *In* Boisduval and Guenée 1852a (*Plusiodonta*) Indonesia
P. conducens (Walker, [1858] 1857a) (*Deva*) Sri Lanka
P. commoda Walker, 1865 (*Plusiodonta*) Sierra Leone
P. compressipalpis Guenée, *In* Boisduval and Guenée 1852a (*Plusiodonta*) N. America
P. insignis Walker, 1865 (*Plusiodonta*) USA
P. suffusa Hill, 1924 (*Plusiodonta*) USA
P. cupristria Kaye, 1922 (*Plusiodonta*) Trinidad
P. dimorpha Robinson, 1975 (*Plusiodonta*) Fiji
P. effulgens Edwards, 1884 (*Plusiodonta*) Mexico
P. euchalcia Hampson, 1926 (*Plusiodonta*) Malawi
P. excavata (Guenée, 1862) (*Odontina*) Unknown
P. gueneei (Viette, 1968) (*Odontina*) Madagascar
P. incitans (Walker, [1858] 1857a) (*Gadera*) Unknown

P. ionochrota Hampson, 1926 (*Plusiodonta*) Ghana
P. macra Hampson, 1926 (*Plusiodonta*) Kenya
P. malagassy (Viette, 1968) (*Odontina*) Madagascar
P. megista Hampson, 1926 (*Plusiodonta*) Kenya
P. miranda Schaus, 1911a (*Plusiodonta*) Costa Rica
P. multicolora (Bethune-Baker, 1906) (*Deva*) New Guinea
P. natalensis Walker, 1865 (*Plusiodonta*) South Africa
P. detracta Walker, 1865 (*Plusiodonta*) South Africa
P. nummaria Felder and Rogenhofer, *In* F.F.R. 1874 (*Plusiodonta*) South Africa
P. tripartita Walker, 1865 (*Plusiodonta*) South Africa
P. nictites Hampson, 1902 (*Plusiodonta*) South Africa
P. nitissima Schaus, 1911a (*Plusiodonta*) Costa Rica
P. repellens (Walker, [1858] 1857a) (*Gadera*) Unknown
P. speciosissima (Holland, 1894) (*Deva*) Cameroon
P. stimulans (Walker, [1858] 1857a) (*Deva*) Dominican Republic
P. theresae Holloway, 1979 (*Plusiodonta*) New Caledonia
P. thomae Guenée, *In* Boisduval and Guenée 1852a (*Plusiodonta*) Virgin Islands
P. tripuncta (Bethune-Baker,1906) (*Marcipa*) New Guinea
P. wahlbergi (Felder and Rogenhofer, *In* F.F.R. 1874) (*Plusia*) South Africa
P. africana (Holland, 1894) (*Deva*) Gabon

***TETRISIA* Walker, 1867: 186**

Type species: *Tetrisia florigera* Walker, by monotypy.

T. florigera Walker, 1867 (*Tetrisia*) Colombia
T. magnifica (Schaus, 1911b) (*Graphigona*) Costa Rica
T. roseifer (Felder and Rogenhofer, *In* F.F.R. 1874) (*Graphigona*) Brazil
T. tricolor (Sulzer 1776) [*Phalaena Noctua*] Tropical America

Genus and tribal placement undetermined

1. *Cecharismena* Möschler, 1890
Checharismena, Fibiger and Lafontaine 2005; misspelling
2. *Culasta* Moore, 1881a
3. *Goniapteryx* Perty, *In* Spix 1833
4. *Hemiceratoides*, Strand 1911
5. *Hypsoropha* Hübner, 1818
6. *Pharga* Walker, 1863
7. *Phyprosopus* Grote, 1872
8. *Psammathodoxa* Dyar 1921
9. *Radara* Walker, 1862

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Literature cited

Agassiz, L. [1847] 1846. Nomenclator zoologici index universalis. Jent and Gassmann; Soldur. 393 p. vii.

Bänziger, H. 1968. Preliminary observations on a skin-piercing blood-sucking moth (*Calyptra eustrigata* (Hmps.) (Lep., Noctuidae)) in Malaya. Bulletin of Entomological Research 58: 159-163.

Bänziger, H. 1971. Bloodsucking moths of Malaya. Fauna 1: 3-16

Bänziger, H. 1979a. Skin-piercing blood-sucking moths II: studies on a further 3 adult *Calyptra* [*Calpe*] sp. (Lepid., Noctuidae). Acta Tropica 36: 23-37

Bänziger, H. 1979b. Descriptions of 3 new species of *Calyptra* Ochsenheimer (*Calpe* Treit.) (Lep. Noctuidae). Mitteilungen der Schweizerischen Entomologischen Gesellschaft 52: 107-108.

Bänziger, H. 1982. Fruit-piercing moths (Lep., Noctuidae) in Thailand: a general survey and some new perspectives. Mitteilungen der Schweizerischen Entomologischen Gesellschaft 55: 213-240.

Bänziger, H. 1983. A taxonomic revision of the fruit-piercing and blood-sucking moth genus *Calyptra* Ochsenheimer = *Calpe* Treitschke (Lepidoptera: Noctuidae). Entomologica Scandinavica 14: 467-491.

Bänziger, H. 1985. Description *Othreis srivijayana* n. sp., and notes on related fruit-piercing moths of the Indomalayan region (Lep., Noctuidae). Heterocera Sumatrana 2: 41-48.

Bänziger, H., and M. R. Honey. 1984. Description of *Adris suthepensis* n. sp., a suspected fruit-piercing moth (Lepidoptera: Noctuidae) from N. Thailand and contiguous mountain regions. Mitteilungen der Schweizerischen Entomologischen Gesellschaft 57: 173-177.

Barnes, W. 1907. New species of North American Lepidoptera. Canadian Entomologist 39: 10-15, 64-68, 93-989.

Berio, E. 1956. Appunti su alcune specie del genre *Calpe* Tr. (Lep. Noctuidae). Memorie della Società Entomologica Italiana 35: 109-119.

Berio, E. 1966. Nomi generici polispecifici di Noctuidae del globo con scelte di species tipo e osservazioni. Annali del Museo Civico di Storia Naturale Giacomo Doria 76: 42-67.

Berio, E. 1970. Diagnosi di nuove species exotiche di Noctuidae (Lepidoptera). Bolletino della Società Entomologica Italiana 102: 21-29.

Bethune, C. J. S. 1865. Descriptions of three new species of Canadian nocturnal Lepidoptera. Proceedings of the Entomological Society of Philadelphia 4: 213-215.

Bethune-Baker, G. T. 1906. New Noctuidae from British New Guinea. Novitates Zoologicae 13: 191-287.

Billberg, G. J. 1820. Enumeratio insectorum in Museo G. J. Billberg. Typis Gadelianus; Stockholm. 138 p. ii.

Boisduval, J. B. A. D. de. 1832. Voyage de découvertes de l'Astrolabe exécuté par ordre du Roi, pendant les années 1826-1827-1829 sous de commandement de M.J. Dumont D'Urville. Faune Entomologique d l'Ocean Pacifique. Première Partie, Lépidoptères. J. Tastu; Paris. 267 p.

Boisduval, J. B. A. D. de. 1833. Faune Entomologique de Madagascar, Bourbon et Maurice. Lépidoptères. Jules Didot L'aine; Paris. 122 p., 16 pls.

Boisduval, J. B. A. D. de. 1840. Genera et index methodicus Europaeorum Lepidopterorum. Roret; Paris. 238 p.

Boisduval, J. B. A. D. de, and A. Guenée. 1852a. Histoire naturelle de insectes, species général des Lépidoptères. Tome Cinquiéme, Noctuélites, Tome 1. Roret; Paris. 407 p.

Boisduval, J. B. A. D. de, and A. Guenée. 1852b. Histoire naturelle de insectes, species général des Lépidoptères. Tome Sixiéme, Noctuélites, Tome 2. Roret; Paris. 443 p.

Boisduval, J. B. A. D. de, and A. Guenée. 1852c. Histoire naturelle de insectes, species général des Lépidoptères. Tome Septiéme, Noctuélites, Tome 3. Roret; Paris. 441 p.

Borkhausen, M. B. 1790. Naturgeschichte der europaeischen Schmetterlinge nach systematischer Ordnung. Der Phalaenen erste Horden, die Spinner, Volume 3. Barrentrapp and Wenner; Frankfurt. 475 p.

Butler, A. G. 1878a. Descriptions of new species of Heterocera from Japan. Part-II. Noctuites. Annals and Magazine of Natural History, series 5, 1: 77-85, 161-169, 192-204, 287-295.

Butler, A. G. 1878b. Illustrations of typical specimens of Lepidoptera Heterocera in the collection of the British Museum, Volume 2. Taylor and Francis; London. 62 p., x, pls.

Butler, A. G. 1881. Descriptions of new genera and species of heterocerous Lepidoptera from Japan. Transactions of the Entomological Society of London 1881: 1-23, 171-200.

Butler, A. G. 1882. Descriptions of new species of Lepidoptera, chiefly from Duke-of-York Island and Great Britain. Annals and Magazine of Natural History, series 5, 10: 226-238.

Butler, A. G. 1883. On a collection of Indian Lepidoptera received from Lieut. -Colonel Charles Swinhoe; with numerous notes by the collector. Proceedings of the Zoological Society of London 1883: 144-175, 1 plate.

Butler, A. G. 1886. Descriptions of 21 new genera and 103 new species of Lepidoptera-Heterocera from the Australian region. Transactions of the Entomological Society of London 1886: 381-441, 2 pls.

Butler, A. G. 1892. On the *Ophideres princeps* of Guenée and its utter dissimilarity in structure and pattern from the *Ophideres princeps* of Boisduval. Annals and Magazine of Natural History, series 6, 9: 375-376.

Butler, A. G. 1895. *Adris sikhimensis*, a new form of the ophideroid group of noctuid moths. Annals and Magazine of Natural History, series 6, 15: 126.

Chenu, J. 1857. Encyclopédique d'histoire naturelle ou traité complet de cette science. Papillons nocturnes. Simon Racon et Cie.; Paris. 312 p., [4 unnumbered pages], 40 pls.

Clerck, C. [1764] 1759. Icones insectorum rariorum cum nominibus eorum trivialibus, locisque e C. Linnaei. [no publisher given]; Stockholm. pls. 13-55, Sectio Secundo.

Cramer, P. 1775. De uitlandsche kapellen voorkomende in drie waereld-deelen Asia, Africa, en America. S. J. Baalde; Amsterdam. Volume 1, p. 1-132.

Cramer, P. 1776. De uitlandsche kapellen voorkomende in drie waereld-deelen Asia, Africa, en America. S. J. Baalde; Amsterdam. Volume 2, p. 133-156.

Cramer, P. 1777. De uitlandsche kapellen voorkomende in drie waereld-deelen Asia, Africa, en America. S. J. Baalde; Amsterdam. Volume 2, p. 1-151.

Cramer, P. 1780. De uitlandsche kapellen voorkomende in drie waereld-deelen Asia, Africa, en America. S. J. Baalde; Amsterdam. Volume 3, p. 129-176.

Cramer, P. 1782. De uitlandsche kapellen voorkomende in drie waereld-deelen Asia, Africa, en America. S. J. Baalde; Amsterdam. Volume 4, p. 165-252.

Dannehl, F. 1925. Neue Formen und Lokalrassen. Entomologische Zeitschrift 39: 5-7, 11-12.

Dognin, P. 1910. Hétérocères nouveaux de l'Amérique du Sud. Mémoires de la Société Entomologique de Belgique 18: 151-188.

Dognin, P. 1912. Hétérocères nouveaux de l'Amérique du Sud. Fascicule VI. Oberthür; Rennes. 51 p.

Donovan, E. 1804. An epitome of the natural history of the insects of India, and the islands in the Indian Seas. T. Bensley; London. 70 p., 58 pls.

Draudt, M. 1950. Beiträge zur Kenntnis der Agrotiden-Fauna chinas. Aus den Ausbeuten Dr. H. Höne's (Beitrag zur Fauna Sinica). Mitteilungen der Münchner Entomologischen Gesellschaft 40: 1-174, 18 pls.

Drury, D. 1782. Illustrations of natural history wherein are exhibited upwards of two hundred and forty figures of exotic insects, according to their different genera: very few of which have hitherto been figured by any author, being engraved and coloured from nature, with the greatest accuracy, and under the author's own inspection on fifty copper-plates. Volume 3. B. White; London. 76 p., 50 pls.

Duponchel, P. A. J. 1826. Histoire naturelle des Lépidoptères ou Papillons de France. Volume 6. Firmin Didot; Paris. 475 p., pls. 72-100.

Dyar, H. G. 1912. Descriptions of new species and genera of Lepidoptera, chiefly from Mexico. Proceedings of the United States National Museum 42: 39-106.

Dyar, H. G. 1914. Lepidoptera of the Yale-Dominican expedition of 1913. Proceedings of the United States National Museum 47: 423-426.

Dyar, H. G. 1921. New American Noctuidae and notes (Lepidoptera). Insecutor Inscitiae Menstruus 9: 40-45.

Edwards, H. 1884. Notes on Mexican Lepidoptera, with descriptions of new species. Papilio 4: 75-80.

Fabricius, J. C. 1775. Systema entomologiae, sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus. Libraria Kortius; Flensburg. 832 p. + 28 unnumbered pages.

Fabricius, J. C. 1794. Entomologiae systematica emendata et aucta, secundum, classes, ordines, genera, species adjectis synonimis, locis, observationibus, descriptionibus. Volume 3, Part 2. C.G. Proft, fil et Soc.; Copenhagen. 349 p.

Fawcett, J. M. 1916. Notes on a collection of Heterocera made by Mr. W. Feather in British East Africa, 1911-13. Proceedings of the Zoological Society of London 1916: 707-737, 1 plate.

Feige R. 1976. Eine übersehene Noctuidae aus Malaysia: *Othreis kinabaluensis* n. sp. (Lep.). Entomologische Zeitschrift 86: 188-190.

Felder, C. 1861. Lepidopterorum amboienesium a Dre. L. Doleschall annis 1856-58 collectorum species novae diagnosibus collustratae a Dre. C. Felder. II. Heterocera. Sitzungsberichte der Kaiserlichen Akademie de Wissenschaften. Mathematisch-Naturwissenschaftliche Classe 43: 26-44.

Felder, C., R. Felder, and A. F. Rogenhofer. 1874. "Heft 4" plates 108-120. *In*: C. Felder, R. Felder, and A. F. Rogenhofer (eds.) ["1864"] 1865-1875). Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859. Zoologischer Theil, Zweiter Band, Zweite Abtheilung: Lepidoptera. K.-k. Hof- und Staatsdruckerei; Vienna. pls. 1-140 with associated letter press.

F. F. R. 1874. Lepidoptera Atlas of the "Reise der Novara. (See Nässig and Speidel 2007).

Fibiger, M., and D. Lafontaine. 2005. A review of the higher classification of the Noctuoidea (Lepidoptera) with special reference to the Holarctic fauna. Esperiana Buchreihe zur Entomologie 11: 1-205.

Geyer, C. 1832. Zuträge zur Sammlung exotischer Schmetterlinge, bestehend in Bekanntmachung einzelner Geschlechter neuer oder seltener nichteuropäischer Arten. (Fortsebung des Hübner'schen Werkes). Viertes Hundert. J. Hübner; Augsburg. 48 p. figs. 601-800, 33 pls. issued [1826-1832].

Goater, B., L. Ronkay, and M. Fibiger. 2003. Catocalinae and Plusiinae. Noctuidae Europeae Vol. 10. Entomological Press; Sorø. 452 p.

Godman, F. D., and O. Salvin. 1887. Biologia Centrali-Americana; or contributions to the knowledge of the fauna of Mexico and Central America. Zoology. Lepidoptera. Heterocera by H. Druce. Volume 1. Taylor and Francis; London. 490 p., pls. 1-64.

Godman, F. D., and O. Salvin. 1889. Biologia Centrali-Americana; or contributions to the knowledge of the fauna of Mexico and Central America. Zoology. Lepidoptera. Heterocera by H. Druce. Volume 1. Taylor and Francis; London. 490 p., pls. 1-64.

Graeser, L. 1889. Beiträge zur Kentniss der Lepidopteren-Fauna des Amurlandes. Berliner Entomologische Zeitschrift 33: 251-268.

Griveaud, P., and P. E. L. Viette. 1960. Nouvelles espéces malgaches de noctuelles quadrifides (Lepidopteres). Bulletin de l'Academie Malgache, nouvelle serie 38: 53-62, 1 plate.

Grote, A. R. 1872. Descriptions of North American Noctuidae, no. 2. Transactions of the American Entomological Society 4: 89-108.

Grote, A. R. 1882. New checklist of North American Moths. [no publisher named]; New York. 73 p.

Grote, A. R. 1902. Die Gattungsname der europäischer Noctuiden. Allgemeine Zeitschrift für Entomologie 7: 395-400.

Grünberg, K. 1910. Eine Lepidoptera-Ausbeute von Kiwu-See. Societas Entomologica 24: 145-148.

Guenée, A. 1862. *In*: L. Maillard. Notes sur l'Île de la Réunion (Bourbon). Annex G. Lépidoptéres. Dentu; Paris. 72 p., 2 pls.

Hampson, G. F. 1902. The moths of South Africa (Part II). Annals of the South African Museum 2: 255-446.

Hampson, G. F. 1907. The moths of India. Supplementary paper to the volumes in "The fauna of British India." Series III, part III. Journal of the Bombay Natural History Society 17: 447-498, 645-677.

Hampson, G. F. 1913. Catalogue of the Lepidoptera Phalaenae of the British Museum, Volume 12. British Museum (Natural History). Taylor and Francis; London. 626 p., pls. 192-221.

Hampson, G. F. 1924. Descriptions of new genera and species of Trinidad and other S. American Noctuidae. Annals and Magazine of Natural History, series 9, 13: 425-454.

Hampson G. F. 1926. Descriptions of new genera and species of Lepidoptera Phalaenae of the subfamily Noctuinae (Noctuidae) in the British Museum (Natural History). Taylor and Francis; London. 641 p.

Herrich-Schäffer, G. A. W. [1852] (1843-1856). Systematische Bearbeitung der Schmetterlinge von Europa, zugleich als Text, Revision und Supplement zu Jakob Hübner's Sammlung europäischer Schmetterlinge. G. J. Manz; Regensburg. 6 vols.

Hilgartner, R., M. Raoilison, W. Büttiker, D. C. Lees, and H. W. Krenn. 2007. Malagasy birds as hosts for eye-frequenting moths. Biology Letters 3: 117-120.

Hill, C. A. 1924. Pacific coast Lepidoptera no. 1 (Noctuidae). Some apparently new species of moths in the family Noctuidae and one saturnid aberration from the southwestern United States. Bulletin of the Southern California Academy of Sciences 23: 182-186, 1 plate.

Holland, W. J. 1894. New and undescribed genera and species of West African Noctuidae. Psyche 7: 7-10, 27-34, 36, 47-50, 67-70, 83-90, 109-128, 141-144, 5 pls.

Holland, W. J. 1900. The Lepidoptera of Buru. Part II. Heterocera. Novitates Zoologicae 7: 555-591.

Holloway, J. D. 1979. A survey of the Lepidoptera, biogeography, and ecology of New Caledonia. W. Junk B.V. Publishers; The Hague. 588 p., 153 text figures, 87 pls.

Holloway, J. D. 2005. The Moths of Borneo, Parts 15 & 16 (Noctuidae: Catocalinae), subfamilies Euteliinae, Stictopterinae, Plusiinae, Pantheinae. Southdene Sendirian Berhad; Kuala Lumpur. 529 p.

Hübner, J. 1818. Zuträge zur Sammlung exotischer Schmetterlinge, bestehend in Etundigung einzeiner Fliegmuster neuer oder rarer nichteuropäischer Gattungen. Erstes Hundert. J. Hübner; Augsburg. 32 p. + 8 unnumbered pages, figures 1-200, 35 pls. published [1808-1818].

Hübner, J. [1823] 1816. Verzeichniss bekannter Schmetterlinge. J. Hübner; Augsburg. 431 p.

Kaye, W. J. 1922. New species of Trinidad moths. Proceedings of the Zoological Society of London 1922: 991-998, 1 plate.

Kitching, I. J., and J. E. Rawlins. 1998. The Noctuoidea. Lepidoptera, Moths and Butterflies, Vol. 1: Evolution, Systematics and Biogeography. Zoology, Vol. IV. Arthropoda: Insecta. *In:* Handbuch der Zoologie/Handbook of Zoology N. P. Kristensen (ed.). Walter de Gruyter; Berlin. p. 355-401.

Kollar, V., and L. Redtenbacher. 1844. Aufzählung und Beschreibung der von Freiherrn Carl v. Hügel auf seiner Reise durch Kaschmir und des Himaleya Gebirge gesammelten Insectin. *In*: Kaschmir und das Reich der Siek C. F. Hügel (ed.). Viertes Band; Stuttgart. p. 393-564, 28 pls.

Krüger, E. 1939. Elenco e descrizioni dei Lepidotteri raccolti nella Sirtica occidentale. Annali del Museo Libico di Storia Naturale 1: 320-357.

Lafontaine, D., and M. Fibiger. 2006. Revised classification of the Noctuoidea (Lepidoptera). Canadian Entomologist 138: 610-635.

Linnaeus, C. 1763. Centuria Insectorum Rariorum. 28. Upsalia. 32 p.

Linnaeus, C. 1767. Systema naturae. Editio duodecima reformata. Tom. I. Part II. L. Salvius; Stockholm. p. 533-1327, [37 unnumbered pages].

Lucas, T. P. 1894. Australian Lepidoptera: Thirty new species. Transactions of the Natural History Society of Queensland 1: 103-116.

Mabille, M. P. 1880. Diagnoses Lepidopterorum Malgassicorum. Comptes Rendus des Séances de la Société Entomologique de Belgique 23: 16-27.

Mitchell, A., C. Mitter, and J. C. Regier. 2006. Systematics and evolution of the cutworm moths (Lepidoptera: Noctuidae): evidence from two protein-coding nuclear genes. Systematic Entomology 31: 21-46.

Moore, F. 1877. The lepidopterous fauna of the Andaman and Nicobar Islands. Proceedings of the Zoological Society of London 1877: 580-632, 3 pls.

Moore, F. 1881a. Descriptions of new genera and species of Asiatic nocturnal Lepidoptera. Proceedings of the Zoological Society of London 1881: 326-380, 2 pls.

Moore, F. 1881b. On the genera and species of the lepidopterous subfamily Ophiderinae inhabiting the India region. Transactions of the Zoological Society of London 11: 63-76, 3 pls.

Moore, F. 1882. Descriptions of new Indian lepidopterous insects from the collection of the Late Mr. W.S. Atkinson. Heterocera (continued) (Cymatophoridae-Herminiidae). Part II. Taylor and Francis; London. 89-198 p., pls. 4-6.

Moore, F. 1883. Descriptions of some new genera and Asiatic Lepidoptera Heterocera. Proceedings of the Zoological Society of London 1883: 15-30, 2 pls.

Moore, F. [1884] 1884-1887. The Lepidoptera of Ceylon. Volume 3. L. Reeve and Co.; London. 578 p., pls. 144-215.

Möschler, H. B. 1880. Beiträge zur Schmetterlings-Fauna von Surinam. III. Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien 30: 379-486, 2 pls.

Möschler, H. B. 1883. Beiträge zur Schmetterlinge-Fauna des Kaffernlandes. Verhandlungen der k.k. Zoologisch-Botanischen Gesellschaft in Wien 33: 267-310, 1 plate.

Möschler, H. B. 1890. Die Lepidopteren-Fauna der Insel Portorico. Abhandlungen der Senkenbergischen Naturforschenden Gesellschaft 16: 70-360, 1 plate.

Nässig, W. A., and W. Speidel. 2007. On the authorships of the Lepidoptera Atlas of the Reise der Novara, with a list of the taxa of Bombycoidea [s. l.] therein described (Insecta, Lepidoptera, Bombycoidea). Senckenbergiana Biologica 87: 63-74.

Neumoegen, B. 1891. New Rhopalocera and Heterocera. Canadian Entomologist 23: 122-126.

Nye, I. W. B. 1975. The generic names of the moths of the world. Volume I. Noctuoidea (part): Noctuidae, Agaristidae, and Nolidae. Unwin Brothers Ltd.; London. 568 p., 1 plate.

Ochsenheimer, F. 1816. Die Schmetterlinge von Europa. Volume 4. Gerhard Fleischer; Leipzig. 224 p.

Okano, M. 1964. New or little known moths from Formosa (5). Tohoku Konchu (Morioka) 1: 41-44, 1 plate (4).

Pagenstecher, A. 1886. Beiträge zur Lepidopteren-Fauna des malayischen Archipels. III. Jahrbücher des Nassauischen Vereins für Naturkunde 39: 104-194.

Plötz, C. 1880. Verzeichniss der vom Prof. Dr. R Bucholz in West-Africa gesammelten Schmetterlinge. (Schluss). Entomologische Zeitung. Entomologischen Vereine zu Stettin 41: 76-88.

Poole, R. W. 1989. Lepidopterum Catalogus, Fascicle 118, Noctuidae. E. J. Brill/Flora Fauna Publications; New York. 1314 p. in 3 parts.

Poujade, G. A. 1887. [no title]. Bulletin de la Société Entomologique de France 1887: 139.

Prout, A. E. 1922. On some apparently new species and forms of Noctuidae. Collected by C., F., and J. Pratt, in the mountains of central Ceram, October, 1919 to February, 1920. Bulletin of the Hill Museum 1: 193-251.

Prout, A. E. 1924. Some apparently new Noctuidae from Sumatra, New Guinea, Mefor, and Buru. Bulletin of the Hill Museum 1: 427-450, 3 pls.

Prout, A. E. 1928. Descriptions of some Indo-Australian Noctuidae. Bulletin of the Hill Museum 2: 256-270.

Raymundo, B. 1908. Lepidopterologia Brasileira una nova borboleta. O Entomologista Brasileira 1: 79-80.

Rebel, H. 1947. Neue Heteroceren aus Aegypten. Zeitschrift der Wiener Entomologischen Gesellschaft 32: 48-60.

Robinson, G. S. 1968. Some new species of Lepidoptera from the Fiji Islands. Entomologist's Record and Journal of Variation 80: 249-255, 1 plate.

Robinson, G. S. 1975. Macrolepidoptera of Fiji and Rotuma. A taxonomic and geographic study. Classey Ltd.; Faringdon. 362 p. 12 maps, 357 pls., 172 text figures, 6 p. index.

Saalmüller, M. 1880. Neue Lepidopteren aus Madagascar. Bericht über die Senckenbergische Naturforschende Gesellschaft 1879-1880: 258-310.

Saalmüller, M. 1891. Lepidopteren von Madagascar. Neue und wenig bekannte Arten zumeist aus der Sammlung der Senckenberg'schen Naturforschenden Gesellschaft zu Frankfurt am Main unter Berücksichtigung der gesammten Lepidopteren-fauna Madagascars. Werner and Winter; Frankfurt am Main. p. 249-531, pls. 7-14.

Schaus, W. 1898. New species of Noctuidae from tropical America. Journal of the New York Entomological Society 6: 107-120, 138-149.

Schaus, W. 1901. New species of Noctuidae from tropical America. Annals and Magazine of Natural History, series 7, 8: 38-51, 77-99.

Schaus, W. 1906. Descriptions of new South American moths. Proceedings of the United States National Museum 30: 85-141.

Schaus, W. 1911a. New species of Heterocera from Costa Rica - IV. Annals and Magazine of Natural History, series 8, 7: 33-84.

Schaus 1911b. New species of Heterocera from Costa Rica - IV. Annals and Magazine of Natural History, series 8, 7: 173-193.

Schaus, W. 1933. New species of Heterocera in the National Museum, Washington. Annals and Magazine of Natural History, series 10, 12: 368-387.

Schwingenschuss, L. 1938. A. Sechster Beitrag zur Lepidopterenfauna Inner-Anatoliens. Entomologische Rundschau 55: 181-184. 199-202, 223-226, 299-300, 337-340, 411-412, 454-457.

Seitz, A. 1913. Die Gross-Schmetterlinge der Erde. Die Gross Schmetterlinge des amerikanischen Faunengebietes Volume 6. Die amerikanischen Spinner und Schwärmer. Alfred Kernen; Stuttgart. 1452 p., 186 pls.

Seitz, A. 1940. Die Gross-Schmetterlinge der Erde. Afrikanischen Faunengebietes. Volume 15. Eulenartige Nachtfalter. Alfred Kernen; Stuttgart. 358 p., 41 pls.

Sepp, J. C. 1840. Surinamische Vlinders. Naar Het Leven Geteekend. Sepp and Son; Amsterdam. Part 1: p. 1828-1848, pls. 1-50; Part 2: [1832-1840], p. 109-224, pls. 51-100; Part 3: [1852]-1855, p. 225-328, pls. 101-152.

Sepp, J. C. 1848. Surinamische Vlinders. Naar Het Leven Geteekend. Sepp and Son; Amsterdam. Part 1: 1828-1848, pls. 1-50; Part 2: [1832-1840], p. 109-224, pls. 51-100; Part 3: [1852]-1855, p. 225-328, pls. 101-152.

Snellen, P. C. T. 1886. Beschrijvingen van nieuwe Oost-Indische Lepidopteren Heterocera. Tijdschrift voor Entomologie 29: 33-50, 2 pls.

Spix, J. B. de. 1833. Delectus animalium articulorum, quae in itinere per Brasiliam annis MDCCXCII-MDCCCXX jussu et auspiciis Maximiliani Josephi I. Bavariae Regis augustissimi peracto, etc. Frid. Fleischer; Leipzig. p. 44, 224, 40 pls.

Staudinger, O. 1892. Die Macrolepidopteren des Amurgebiets. I. Theil. Rhopalocera, Sphinges, Bombyces, Noctuae. Mémoires sur les Lépidoptères 6: 83-658, 10 pls.

Stoll, C. 1790. Aahangsel van het Werk, de Uitlandsche Kapellen, Voorkomende in Drie Waereld-Deelen Asia, Africa, en America. Nic. Th. Gravius; Amsterdam. p. 1-42 [1787]; p. 43-184 [1790].

Strand, E. 1909. Lepidoptera aus Deutsch-Ostafrika gesammelt von Herrn Oberleutnant Wintgens. Deutsche Entomologische Zeitschrift Iris 22: 104-121.

Strand, E. 1911. Fünf neue exotische Heterocera. Fauna Exotica 1: 41-43.

Strand, E. 1919. H. Sauter's Formosa-Ausbeute: Noctuidae I. Archiv für Naturgeschichte 83: 129-162.

Sulzer, J. H. 1776. Dr. Sulzer's Abgekürzte Geschichte der Insecten nach dem Linaeischen [sic] System. Erster Theil, Zurich, 274 p.

Swinhoe, C. 1884. On the Lepidoptera collected at Kurrachee. Proceedings of the Zoological Society of London 1884: 503-529.

Swinhoe, C. 1918. New species of Indo-Malayan Heterocera, and descriptions of genitalia, with reference to the geographical distribution of species resembling each other. Annals and Magazine of Natural History, series 9, 2: 65-95, 4 pls.

Tams, W. H. T. 1924. List of the moths collected in Siam by E.J. Godfrey B. Sc., F.E.S. Journal of the Natural History Society of Siam 6: 229-289, 1 plate.

Todd, E. L. 1959. The fruit-piercing moths of the genus *Gonodonta* Hübner (Lepidoptera: Noctuidae). Technical Bulletin No. 1201. Agricultural Research Service United States Department of Agriculture; Washington D.C. 52 p., 12 pls.

Todd, E. L. 1973. Two new species of *Gonodonta* Hübner (Lepidoptera: Noctuidae). Proceedings of the Biological Society of Washington 86: 243-246.

Treitschke, F. 1825. Die Schmetterlinge von Europa. Volume 5. Abtheilung 2. Gerhard Fleischer; Leipzig. 448 p.

Turner, A. J. 1908. New Australian Lepidoptera of the families Noctuidae and Pyralidae. Transactions and Proceedings of the Royal Society of South Australia 32: 55-120.

Viette, P. E. L. 1956. Description de nouvelles espèces de noctuelles quadrifies. Mémoires de l'Institut Scientifique de Madagascar, Série E, 7: 117-139.

Viette, P. E. L. 1968. Noctuelles quadrifies de Madagascar nouvelles ou peu connus, III. [Lep. Noctuidae]. Lambillionea 67: 9-20.

Walker, F. [1858] 1857a. List of the specimens of lepidopterous insects in the collection of the British Museum. Volume 12. Edward Newman; London. p. 764-982.

Walker, F. [1858] 1857b. List of the specimens of lepidopterous insects in the collection of the British Museum. Volume 13. Edward Newman; London. p. 983-1236.

Walker, F. 1858. List of the specimens of lepidopterous insects in the collection of the British Museum. Volume 15. Edward Newman; London. p. 1521-1888.

Walker, F. 1862. Characters of undescribed Lepidoptera in the collection of W.W. Saunders, esq. Transactions of the Entomological Society of London, series 3, 1: 70-128.

Walker, F. 1863. List of the specimens of lepidopterous insects in the collection of the British Museum. Volume 27. Edward Newman; London. p. 1-286.

Walker, F. [1865] 1864. List of the specimens of lepidopterous insects in the collection of the Bristish Museum. Volume 31. Edward Newman; London. p. 1-321.

Walker, F. 1865. List of the specimens of lepidopterous insects in the collection of the British Museum. Volume 33. Edward Newman; London. p. 707-1120.

Walker, F. 1867. Characters of undescribed heterocerous Lepidoptera. Journal of the Proceedings of the Linnean Society 9: 181-199.

Walker, F. 1869a. Characters of undescribed Lepidoptera Heterocera. E. W. Janson; London. 112 p.

Walker, F. 1869b. *In*: T. Chapman. On some lepidopterous insects from Congo. Proceedings of the Natural History Society of Glasgow, series 2, 1: 325-378, 3 pls.

Weber, F. 1801. Observationes entomologicae, continentes novorum quae condidit generum characteres et nuper detectarum specierum descriptiones. Academicus Novus Kiel. 116 p.

Wileman, A. E. 1922. On a new species of genus *Calpe* from Japan. Entomologist 56: 197-199.

Yoshimoto, H. 1999. A new species of the genus *Othreis* Hübner (Noctuidae, Ophiderinae) from Myanmar. Transactions of the Lepidopterological Society of Japan 50: 60-62.

Zaspel, J. M. 2008. Systematics, biology, and behavior of fruit-piercing and blood-feeding moths in the subfamily Calpinae (Lepidoptera: Noctuidae). Ph.D. dissertation, University of Florida, Gainesville.

Zaspel, J. M. [in press]. Skin-piercing and blood-feeding moths. *In:* Encyclopedia of Entomology J. L. Capinera (ed.). Springer; Dordrecht.

Zaspel, J. M., V. S. Kononenko, and P. Z. Goldstein. 2007. Another blood feeder? Experimental feeding by a fruit-piercing moth on human blood in the Primorye Region of Far Eastern Russia. Journal of Insect Behavior 20: 437-451.

Zaspel, J. M., H. Bänziger, and M. A. Branham [submitted]. A comparative survey of proboscis morphology and associated structures in fruit-piercing and blood-sucking moths in the subfamily Calpinae (Lepidoptera: Noctuidae). Zoomorphology.

Zayas, F. 1965. Dos nuevas especies de insectos cubanos de los ordres Lepidoptera (Noctuidae) y Orthoptera (Tettigoniidae). Poeyana, series A, 5: 1-8 figures.

Zilli, A., and W. Hogenes. 2002. An annotated list of the fruit-piercing moth genus *Eudocima* Billberg, 1820 (sensu Poole) with descriptions of four new species (Lepidoptera: Noctuidae, Catocalinae). Quadrifina 5: 153-207.

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