SI Appendix to "Genomes of skipper butterflies reveal extensive convergence of wing patterns" by Wenlin Li, Qian Cong, Jinhui Shen, Jing Zhang, Winnie Hallwachs, Daniel H. Janzen and Nick V. Grishin

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Taxonomic Appendix (pages 3 to 55)

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and is illustrated with Figure 1 in the main text and Figure S1 in the SI Appendix (pp. 91-92 below)

T1. Taxonomic abstract

On the basis of genome-scale phylogenetic analysis augmented with the analysis of COI barcodes and morphology, we revised higher classification of the family Hesperiidae Latreille, 1809 (Lepidoptera). As a result, the family is partitioned into 9 subfamilies, and 23 tribes and 20 subtribes are delineated. New status (a subfamily) is given to Tagiadinae Mabille, 1878 (includes Celaenorrhinini Swinhoe, 1912) and Pyrrhopyginae Mabille, 1877 is reinstated as a subfamily. The subfamily Eudaminae Mabille, 1877 is reclassified into 50 genera and a comprehensive taxonomic list is provided at the subspecies level. The status of a tribe is given to: Phocidini Tutt, 1906, Astictopterini Swinhoe, 1912, Erionotini Distant, 1886, and Megathymini Comstock & Comstock, 1895. Six tribes are described as new: Entheini Grishin, **trib. n.**, Oileidini Grishin, **trib. n.**, Netrocorynini Grishin, **trib. n.**, Jerini Grishin, **trib. n.**, Butleriini Grishin, **trib. n.**, and Pericharini Grishin, **trib. n.** New status (a subtribe) is given to: Thymelicina Tutt, 1905, Calpodina Clark, 1948, Carystina Mabille 1878, Anthoptina A. Warren, 2009, and Moncina A. Warren, 2008. Six subtribes are described as new: Loboclina Grishin, **subtr. n.**, Cephisina Grishin, **subtr. n.**, Telemiadina Grishin, **subtr. n.**, Typhedanina Grishin, **subtr. n.**, Pythonidina Grishin, **subtr. n.**, and Clitina Grishin, **subtr. n**. The following genera are transferred: *Emmelus* O. Mielke & Casagrande, 2016 to Phocidini; *Jera* Lindsey, 1925 to Pyrrhopyginae; *Cornuphallus* Austin, 1997 to Carcharodini Verity, 1940; *Cabirus* Hübner, [1819], *Grais* Godman & Salvin, 1894, *Tosta* Evans, 1953, *Morvina* Evans, 1953, *Myrinia* Evans, 1953, *Xispia* Lindsey, 1925, *Pseudodrephalys* Burns, 1999, *Mimia* Evans, 1953, *Eracon* Godman & Salvin, 1894, *Spioniades* Hübner, [1819] to Achlyodina Burmeister, 1878; *Clito* Evans, 1953 to Erynnini Brues & Carpenter, 1932; *Asbolis* Mabille, 1904, *Choranthus* Scudder, 1872, and *Pyrrhocalles* Mabille, 1904 to Anthoptina; *Lychnuchus* Hübner, [1831], *Wahydra* Steinhauser, 1991, and *Zalomes* E. Bell, 1947 to Moncina; *Molo* Godman, 1900, *Pyrrhopygopsis* Godman, 1901 and *Pseudosarbia* Berg, 1897 to Carystina; *Orphe* Godman, 1901, *Pseudorphe* A. Warren & Dolibaina, 2015, *Lychnuchoides* Godman, 1901, *Orses* Godman, 1901, *Alera* Mabille, 1891, and *Lycas* Godman, 1901 to Pericharini. Nine new genera are described (TS = type species): *Tekliades* Grishin, **gen. n.** (TS: *Thymele ramanatek* Boisduval, 1833) in Coeliadinae Evans, 1937; *Salantoia* Grishin, **gen. n.** (TS: *Eudamus eriopis* Hewitson, 1867), *Spicauda* Grishin, **gen. n.** (TS: *Goniurus procne* Plötz, 1881), *Zeutus* Grishin, **gen. n.** (TS: *Cecropterus zeutus* Möschler, 1879), *Lobotractus* Grishin, **gen. n.** (TS: *Eudamus valeriana* Plötz, 1881) in Eudaminae; *Tiana* Grishin, **gen. n.** (TS: *Ebrietas niger* Williams & Bell, 1940) in Carcharodini; *Chirgus* Grishin, **gen. n.** (TS: *Hesperia (Syrichthus* [sic]*) limbata* Erschoff, 1876) and *Burnsius* Grishin, **gen. n.** (TS: *Syricthus* [sic] *communis* Grote, 1872) in Pyrgini Burmeister, 1878; and *Duroca* Grishin, **gen. n.** (TS: *Hesperia duroca* Plötz, 1882) in Moncina. Three new subgenera of Eudamini are described: *Urbanoides* Grishin, **subgen. n.** (TS: *Goniurus esmeraldus* A. Butler, 1877), *Caudatractus* Grishin, **subgen. n.** (TS: *Eudamus alcaeus* Hewitson, 1867), and *Asina* Grishin, **subgen. n.** (TS: *Eudamus asine* Hewitson, 1867). The following genus-group names are removed from synonymy and are treated as valid genera: *Cecropterus* Herrich-Schäffer, 1869 and *Telegonus* Hübner, 1819; or subgenera: *Murgaria* Watson, 1893 (of *Cecropterus*); *Euthymele* Mabille, 1878 and *Rhabdoides* Scudder, 1889 (of *Telegonus*). The following genera are treated as subgenera: *Thorybes* Scudder, 1872 (of *Cecropterus*) and *Calliades* Mabille & Boullet, 1912 (of *Autochton*). The following genera are treated as subjective junior synonyms: *Ocyba* Lindsey, 1925 of *Porphyrogenes* Watson, 1893; *Paracogia* O. Mielke, 1977 of *Cecropterus*; *Achalarus* Scudder, 1872 of *Thorybes*; *Thessia* Steinhauser, 1989 of *Murgaria*; *Cabares* Godman & Salvin, 1894 of *Autochton* Hübner, 1823; *Polythrix* E. Watson, 1893, *Hypocryptothrix* E. Watson, 1893, *Chrysoplectrum* E. Watson, 1893, *Heronia* Mabille & Boullet, 1912 and *Speculum* Austin, 2008 of *Ectomis* Mabille, 1878; *Fuscocimex* Austin, 2008 of *Morvina*; *Linka* Evans, 1955 of *Atalopedes* Scudder, 1872 and *Levina* Evans, 1955 of *Ludens* Evans, 1955. The following 30 species are elevated from the subspecies rank (new name combinations given in the next sentence are employed for some taxa here): *Hyalothyrus infa* Evans, 1952, *Hyalothyrus neda* Evans, 1952, *Euriphellus lama* (Evans, 1952), *Euriphellus mena* (Evans, 1952), *Euriphellus polygius* (Latreille, [1824]), *Cecropterus takuta* (Evans, 1952), *Cecropterus rica* (Evans, 1952), *Cecropterus barra* (Evans, 1952), *Telegonus catemacoensis* (H. Freeman, 1967), *Telegonus azul* (Reakirt, [1867]), *Telegonus heriul* Mabille & Boullet, 1912, *Telegonus cassius* (Evans, 1952), *Narcosius granadensis* (Möschler, 1879), *Narcosius helen* (Evans, 1952), *Epargyreus orizaba* Scudder, 1872, *Epargyreus dicta* Evans, 1952, *Epargyreus pseudexadeus* Westwood, 1852, *Epargyreus cruza* Evans, 1952, *Codatractus rowena* Evans, 1952, *Codatractus apulia* Evans, 1952, *Telemiades contra* Evans, 1953, *Telemiades brazus* E. Bell, 1949, *Oileides guyanensis* (Mabille & Boullet, 1912), *Oechydrus evelinda* (A. Butler, 1870), *Cogia goya* (Evans, 1952), *Marela tamba* Evans, 1953, *Austinus heroica* (Evans, 1953), *Ephyriades dominicensis* E. Bell & W. Comstock, 1948, *Chirgus nigella* (Weeks, 1902), and *Heliopetes orbigera* (Mabille, 1888). Changes (compared to the latest treatment) to result in the following 160 genus-species combinations are proposed: *Pseudonascus prax* (Evans, 1952), *Pseudonascus broteas* (Cramer, 1780), *Pseudonascus solon* (Plötz, 1882), *Aurina azines* (Hewitson, 1867), *Porphyrogenes calathana* (Hewitson, 1868), *Salantoia dinka* (Evans, 1952), *Salantoia eriopis* (Hewitson, 1867), *Euriphellus lama* (Evans, 1952), *Euriphellus phraxanor* (Hewitson, 1876), *Euriphellus mena* (Evans, 1952), *Euriphellus marian* (Evans, 1952), *Cecropterus (Cecropterus) acanthopoda* (O. Mielke, 1977), *Cecropterus (Cecropterus) rinta* (Evans, 1952), *Cecropterus (Cecropterus) zarex* (Hübner, 1818), *Cecropterus (Cecropterus) longipennis* Plötz, 1882, *Cecropterus (Cecropterus) evenus* (Ménétriés, 1855), *Cecropterus (Thorybes) lyciades* (Geyer, 1832), *Cecropterus (Thorybes) casica* (Herrich-Schäffer, 1869), *Cecropterus (Thorybes) tehuacana* (Draudt, 1922), *Cecropterus (Thorybes) confusis* (E. Bell, 1923), *Cecropterus (Thorybes) bathyllus* (J. E. Smith, 1797), *Cecropterus (Thorybes) mexicana* (Herrich-Schäffer, 1869), *Cecropterus (Thorybes) diversus* (E. Bell, 1927), *Cecropterus (Thorybes) pylades* (Scudder, 1870), *Cecropterus (Thorybes) drusius* (W. H. Edwards, [1884]), *Cecropterus (Thorybes) cincta* Plötz, 1882, *Cecropterus (Thorybes) vectilucis* (A. Butler, 1872), *Cecropterus (Thorybes) pseudocellus* (Coolidge & Clemence, [1910]), *Cecropterus (Thorybes) palliolum* (H. Druce, 1908), *Cecropterus (Thorybes) egregius* (A. Butler, 1870), *Cecropterus (Thorybes) virescens* (Mabille, 1877), *Cecropterus (Thorybes) dorantes* (Stoll, 1790), *Cecropterus (Thorybes) obscurus* (Hewitson, 1867), *Cecropterus (Murgaria) albociliatus* (Mabille, 1877), *Cecropterus (Murgaria) toxeus* (Plötz, 1882), *Cecropterus (Murgaria) jalapus* (Plötz, 1881), *Cecropterus (Murgaria) athesis* (Hewitson, 1867), *Cecropterus (Murgaria) phalaecus* (Godman & Salvin, 1893), *Cecropterus (Murgaria) reductus* (N. Riley, 1919), *Cecropterus (Murgaria) doryssus* (Swainson, 1831), *Cecropterus (Murgaria) albimargo* (Mabille, 1875), *Cecropterus (Murgaria) takuta* (Evans, 1952), *Cecropterus (Murgaria) rica* (Evans, 1952), *Cecropterus (Murgaria) trebia* (Möschler, 1879), *Cecropterus (Murgaria) carmelita* (Herrich-Schäffer, 1869), *Cecropterus (Murgaria) barra* (Evans, 1952), *Spicauda teleus* (Hübner, 1821), *Spicauda tanna* (Evans, 1952), *Spicauda ambiguus* (de Jong, 1983), *Spicauda cindra* (Evans, 1952), *Spicauda zagorus* (Plötz, 1881), *Spicauda simplicius* (Stoll, 1790), *Spicauda procne* (Plötz, 1881), *Urbanus megalurus* (Mabille, 1877), *Urbanus tucuti* (R. Williams, 1927), *Telegonus (Telegonus) brevicauda* (Plötz, 1886), *Telegonus (Telegonus) chalco* (Hübner, 1823), *Telegonus (Telegonus) fulgerator* (Walch, 1775), *Telegonus (Telegonus) catemacoensis* (H. Freeman, 1967), *Telegonus (Telegonus) azul* (Reakirt, [1867]), *Telegonus (Telegonus) fulgor* Hayward, 1939, *Telegonus (Telegonus) naxos* (Hewitson, 1867), *Telegonus (Telegonus) christyi* Sharpe, 1898, *Telegonus (Telegonus) xagua* (Lucas, 1857), *Telegonus (Telegonus) talus* (Cramer, 1777), *Telegonus (Telegonus) apastus* (Cramer, 1777), *Telegonus (Rhabdoides) elorus* (Hewitson, 1867), *Telegonus (Rhabdoides) alardus* (Stoll, 1790), *Telegonus (Rhabdoides) habana* (Lucas, 1857), *Telegonus (Rhabdoides) heriul* Mabille & Boullet, 1912, *Telegonus (Rhabdoides) alector* (C. Felder & R. Felder, 1867), *Telegonus (Rhabdoides) cretatus* Hayward, 1939, *Telegonus (Rhabdoides) creteus* (Cramer, 1780), *Telegonus (Rhabdoides) bifascia* (Herrich-Schäffer, 1869), *Telegonus (Rhabdoides) latimargo* (Herrich-Schäffer, 1869), *Telegonus (Rhabdoides) tinda* (Evans, 1952), *Telegonus (Rhabdoides) chiriquensis* Staudinger, 1876, *Telegonus (Rhabdoides) weymeri* (Plötz, 1882), *Telegonus (Rhabdoides) jaira* (A. Butler, 1870), *Telegonus (Rhabdoides) cassander* (Fabricius, 1793), *Telegonus (Rhabdoides) galesus* Mabille, 1888, *Telegonus (Rhabdoides) cassius* (Evans, 1952), *Telegonus (Rhabdoides) anaphus* (Cramer, 1777), *Telegonus (Rhabdoides) hyster* (Dyar, 1916), *Telegonus (Rhabdoides) cellus* (Boisduval & Le Conte, [1837]), *Telegonus (Rhabdoides) siermadror* (Burns, 1984), *Autochton (Autochton) potrillo* (Lucas, 1857), *Autochton (Calliades) oryx* (C. Felder & R. Felder, 1862), *Zeutus zeutus* (Möschler, 1879), *Lobotractus valeriana* (Plötz, 1881), *Lobotractus uvydixa* (Dyar, 1914), *Lobotractus cyda* (Godman, 1901), *Ectomis (Asina) gyges* (Evans, 1952), *Ectomis (Asina) hirtius* (A. Butler, 1870), *Ectomis (Asina) roma* (Evans, 1952), *Ectomis (Asina) asine* (Hewitson, 1867), *Ectomis (Asina) mexicanus* (H. Freeman, 1969), *Ectomis (Ectomis) octomaculata* (Sepp, [1844]), *Ectomis (Ectomis) maizae* (Hellebuyck, 1998), *Ectomis (Ectomis) ceculus* (Herrich-Schäffer, 1869), *Ectomis (Ectomis) caunus* (Herrich-Schäffer, 1869), *Ectomis (Ectomis) auginus* (Hewitson, 1867), *Ectomis (Ectomis) metallescens* (Mabille, 1888), *Ectomis (Ectomis) kanshul* (Shuey, 1991), *Ectomis (Ectomis) eudoxus* (Stoll, 1781), *Ectomis (Ectomis) minvanes* (R. Williams, 1926), *Ectomis (Ectomis) labriaris* (A. Butler, 1877), *Ectomis (Ectomis) speculum* (Austin, 2008), *Ectomis (Ectomis) teutas* (Hewitson, 1876), *Ectomis (Ectomis) pervivax* (Hübner, [1819]), *Ectomis (Ectomis) bahiana* (Herrich-Schäffer, 1869), *Ectomis (Ectomis) orphne* (Plötz, 1881), *Ectomis (Ectomis) otriades* (Hewitson, 1867), *Ectomis (Ectomis) epicincea* (A. Butler & H. Druce, 1872), *Ectomis (Ectomis) perniciosus* (Herrich-Schäffer, 1869), *Ectomis (Ectomis) cuminaensis* (R.F. d'Almeida, 1976), *Ectomis (Ectomis) orpheus* (Plötz, 1881), *Ectomis (Ectomis) perna* (Evans, 1952), *Ectomis (Ectomis) albovenae* (E. Bell, 1932), *Typhedanus cajeta* (Herrich-Schäffer, 1869), *Typhedanus aventinus* (Godman & Salvin, 1894), *Typhedanus mala* (Evans, 1953), *Typhedanus buena* (A. Warren, Dolibaina & Hernández-Mejía, 2015), *Cogia crameri* (McHenry, 1960), *Cogia undulatus* (Hewitson, 1867), *Cogia galbula* (Plötz, 1881), *Cogia optica* (Evans, 1952), *Cogia goya* (Evans, 1952), *Cogia stylites* (Herrich-Schäffer, 1869), *Cogia cursinoi* (O. Mielke, 1979), *Cogia eliasi* (O. Mielke, 1979), *Cogia aziris* (Hewitson, 1867), *Tiana niger* (Williams & Bell, 1940), *Tiana platypterus* (Mabille, 1895), *Morvina caecus* (Austin, 2008), *Clito mnemon* (Schaus, 1913), *Chirgus limbata* (Erschoff, 1876), *Chirgus nigella* (Weeks, 1902), *Chirgus barrosi* (Ureta, 1956), *Chirgus fides* (Hayward, 1940), *Chirgus bocchoris* (Hewitson, 1874), *Chirgus veturius* (Plötz, 1884), *Burnsius notatus* (Blanchard, 1852), *Burnsius crisia* (Herrich-Schäffer, 1865), *Burnsius communis* (Grote, 1872), *Burnsius albescens* (Plötz, 1884), *Burnsius adepta* (Plötz, 1884), *Burnsius orcynoides* (Giacomelli, 1928), *Burnsius chloe* (Evans, 1942), *Burnsius titicaca* (Reverdin, 1921), *Burnsius philetas* (W. H. Edwards, 1881), *Burnsius oileus* (Linnaeus, 1767), *Burnsius orcus* (Stoll, 1780), *Burnsius brenda* (Evans, 1942), *Heliopetes americanus* (Blanchard, 1852), *Heliopetes domicella* (Erichson, [1849]), *Heliopetes sublinea* Schaus, 1902, *Ludens levina* (Plötz, 1884), *Duroca duroca* (Plötz, 1882), and *Atalopedes lina* (Plötz, 1883). Furthermore, the following 7 species of *Urbanus* were placed in the new subgenus *Urbanoides*: *U. esmeraldus* (A. Butler, 1877), *U. esma* Evans, 1952, *U. prodicus* E. Bell, 1956, *U. elmina* Evans, 1952, *U. evona* Evans, 1952, *U. esta* Evans, 1952, *U. viridis* H. Freeman, 1970; the following 6 species of *Codatractus* were placed in the new subgenus *Caudatractus*: *C. carlos* Evans, 1952, *C. rowena* Evans, 1952 (including *C. r. arguta* Evans, 1952 as its subspecies), *C. alcaeus* (Hewitson, 1867), *C. apulia* Evans, 1952, *C. yucatanus* H. Freeman, 1977, *C. aminias* (Hewitson, 1867); and *Heliopetes purgia* Schaus, 1902 was placed in the subgenus *Heliopyrgus* Herrera, 1957. All of the above-listed changes are propagated to all names treated as subspecies and synonyms of these taxa. Finally, taxa not mentioned in this work are considered to remain at the ranks and in taxonomic groups (genera, tribes or subtribes resulting from proposed here status change of a tribe to subtribe) they have been previously assigned to.

T2. Subfamilies, tribes and subtribes in the family Hesperiidae

The family Hesperiidae consists of 4 major phylogenetic lineages "Auls", "Regents", "Flats" and "Grass skippers" (Fig. 1 in the main text), with the first two found exclusively in the Old Word and the last two having worldwide distribution. It should be noted that these commonly used English group names are not perfect. "Grass skippers" are indeed mostly monocot feeders as caterpillars, but many also feed of palms (Arecaceae) and sedges (Cyperaceae) among other monocots in addition to grasses (Poaceae). A large number of "Flats" hold their wings erect, not spread-out flat. See Warren et al. (2009) for data on caterpillar foodplants and resting posture of adults.

The following higher classification of Hesperiidae is proposed here. New tribes and subtribes are described in Table 1 in the main text. Comprehensive species list for the subfamily Eudaminae (focus of this study) is given below (pp. 10-27). Genera included in other subfamilies and tribes are given in Warren et al. (2009) and Warren et al. (2013), and for the new tribes and subtribes are listed below (p. 8). Changes in taxonomic status or new taxa are indicated in red font after the name. New taxa are additionally highlighted yellow. "Reinstated status" means that the rank of the taxon is changed from its latest treatment to that used previously. Synonyms are denoted by "=" in front of the name.

Warren AD, Ogawa JR, Brower AVZ. 2009. Revised classification of the family Hesperiidae (Lepidoptera: Hesperioidea) based on combined molecular and morphological data. *Systematic Entomology* **34**(3): 467-523;

Warren AD, Davis KJ, Stangeland EM, Pelham JPP, Willmott KR, Grishin NV. 2013. Illustrated Lists of American Butterflies. [21-XI-2017] <http://www.butterfliesofamerica.com/L/Hesperiidae.htm> (accessed on March 2, 2019).

"Auls"

1. Subfamily **Coeliadinae** Evans, 1937; confirmed status

"Regents"

2. Subfamily **Euschemoninae** Kirby, 1897; confirmed status

"Flats"

3. Subfamily **Eudaminae** Mabille, 1877; confirmed status
    - 3.1. Tribe **Entheini** Grishin, new tribe
    - 3.2. Tribe **Phocidini** Tutt, 1906; new status
    - 3.3. Tribe **Eudamini** Mabille, 1877
        - 3.3.1. Subtribe **Eudamina** Mabille, 1877
        - 3.3.2. Subtribe **Loboclina** Grishin, new subtribe
        - 3.3.3. Subtribe **Cephisina** Grishin, new subtribe
        - 3.3.4. Subtribe **Telemiadina** Grishin, new subtribe
    - 3.4. Tribe **Oileidini** Grishin, new tribe
        - 3.4.1. Subtribe **Oileidina** Grishin
        - 3.4.2. Subtribe **Typhedanina** Grishin, new subtribe
4. Subfamily **Tagiadinae** Mabille, 1878; new status
    - 4.1. Tribe **Celaenorrhinini** Swinhoe, 1912; confirmed status
    - 4.2. Tribe **Netrocorynini** Grishin, new tribe
    - 4.3. Tribe **Tagiadini** Mabille, 1878
5. Subfamily **Pyrrhopyginae** Mabille, 1877; reinstated status
    - 5.1. Tribe **Pyrrhopygini** Mabille, 1877
        - 5.1.1. Subtribe **Passovina** Mielke, 2001; confirmed status
        - 5.1.2. Subtribe **Zoniina** Mielke, 2001; confirmed status
        - 5.1.2. Subtribe **Oxynetrina** Mielke, 2001; confirmed status
        - 5.1.4. Subtribe **Pyrrhopygina** Mabille, 1877; confirmed status
    - 5.2. Tribe **Jerini** Grishin, new tribe

6. Subfamily **Pyrginae** Burmeister, 1878
- 6.1. Tribe **Carcharodini** Verity, 1940; confirmed status
- 6.2. Tribe **Achlyodini** Burmeister, 1878; confirmed status
  - 6.2.1. Subtribe **Achlyodina** Burmeister, 1878
  - 6.2.2. Subtribe **Pythonidina** Grishin, new subtribe
- 6.3. Tribe **Erynnini** Brues & Carpenter, 1932; confirmed status
  - 6.3.1. Subtribe **Erynnina** Brues & Carpenter, 1932
  - 6.3.2. Subtribe **Clitina** Grishin, new subtribe
- 6.4. Tribe **Pyrgini** Burmeister, 1878; confirmed status

"Jets" or "Grass skippers"

7. Subfamily **Heteropterinae** Aurivillius, 1925; confirmed status
- 7.1. Tribe **Heteropterini** Aurivillius, 1925
- 7.2. Tribe **Butleriini** Grishin, new tribe

8. Subfamily **Trapezitinae** Waterhouse & Lyell, 1914; confirmed status

9. Subfamily **Hesperiinae** Latreille, 1809
- 9.1. Tribe **Aeromachini** Tutt, 1906; confirmed status
- 9.2. Tribe **Astictopterini** Swinhoe, 1912; new status
  - =Isoteinonini Chou, 1994
  - =Eogenina Koçak & Seven, 1997
- 9.3. Tribe **Erionotini** Distant, 1886; reinstated status
  - =Suastinae Doherty, 1886
  - =Matapinae Swinhoe, 1912
  - =Notocryptinae Swinhoe, 1912
  - =Plastingiinae Swinhoe, 1913
  - =Ancistroidini Chou, 1994
  - =Unkanina Koçak & Seven, 1997
- 9.4. Tribe **Taractrocerini** Voss, 1952; confirmed status
- 9.5. Tribe **Baorini** Doherty, 1886; confirmed status
- 9.6. Tribe **Hesperiini** Latreille, 1809
  - 9.6.1. Subtribe **Thymelicina** Tutt, 1905; new status
  - 9.6.2. Subtribe **Calpodina** Clark, 1948; new status
  - 9.6.3. Subtribe **Carystina** Mabille 1878; new status
  - 9.6.4. Subtribe **Anthoptina** A. Warren, 2009; new status
  - 9.6.5. Subtribe **Moncina** A. Warren, 2008; new status
  - 9.6.6. Subtribe **Hesperiina** Latreille, 1809
- 9.7. Tribe **Pericharini** Grishin, new tribe
- 9.8. Tribe **Megathymini** Comstock & Comstock, 1895; new status
  - =Aegialini Stallings & Turner, 1958
  - =Agathymini Stallings & Turner, 1959

T3. New tribes and subtribes described in Table 1

with their ZooBank registration URLs and lists of included genera. For tribes and substribes in the subfamily Eudaminae complete lists of species included are given below (pp. 10-27) and are omitted here.

Entheini Grishin, new tribe
http://zoobank.org/303C1FD0-07CB-4919-900E-EA3D6347E5DD

Loboclina Grishin, new subtribe
http://zoobank.org/C606FC35-323D-4E55-AF5A-A86C6366BAFA

Cephisina Grishin, new subtribe
http://zoobank.org/22B59811-F174-4FDF-A9D2-799897F4D44E

Telemiadina Grishin, new subtribe
http://zoobank.org/4AE0E59C-8B92-4C84-8651-E7A1C45C93C1

Oileidini Grishin, new tribe
http://zoobank.org/CF9C3D29-523A-4D17-B140-9A69CFA98731

Typhedanina Grishin, new subtribe
http://zoobank.org/B4D56F93-67F9-476F-B69C-133D98BFBD58

Netrocorynini Grishin, new subtribe
http://zoobank.org/DE61F048-02CF-4F8E-9392-D18A4618BABD
Genera included: *Netrocoryne* C. Felder & R. Felder, [1867], *Chaetocneme* Felder 1860, and *Exometoeca* Meyrick, 1888.

Jerini Grishin, new tribe
http://zoobank.org/AF3B5CEA-880A-4CB2-AF40-E6D87C39C040
Genera included: *Jera* Lindsey, 1925.

Pythonidina Grishin, new subtribe
http://zoobank.org/CB890271-5483-4B5A-A7BC-27DBC5E23DE5
Genera included: *Ouleus* Lindsey, 1925, *Zera* Evans, 1953, *Quadrus* Lindsey, 1925, *Gindanes* Godman & Salvin, 1895, *Pythonides* Hübner, [1819], *Haemactis* Mabille, 1903, *Atarnes* Godman & Salvin, 1897, *Eburuncus* Grishin, 2012, *Milanion* Godman & Salvin, 1895, *Paramimus* Hübner, [1819], and *Charidia* Mabille, 1903.

Clitina Grishin, new subtribe
http://zoobank.org/971884E2-E5F7-46A3-B182-657729B6A778
Genera included: *Clito* Evans, 1953.

Butleriini Grishin, new tribe
http://zoobank.org/D621EF81-FA65-4858-9450-E0C041598D7A
Genera included: *Butleria* Kirby, 1871 and *Argopteron* E. Watson, 1893.

Pericharini Grishin, new tribe
http://zoobank.org/94B68BD2-7F83-4E58-80E1-7F5AC8C56511
Genera included: *Perichares* Scudder, 1872, *Alera* Mabille, 1891, *Orses* Godman, 1901, *Lycas* Godman, 1901, *Lychnuchoides* Godman, 1901, *Pseudorphe* A. Warren & Dolibaina, 2015, and *Orphe* Godman, 1901.

T4. New genera and subgenera described in Table 2

with their ZooBank registration URLs and lists of included species. For genera and subgenera in the subfamily Eudaminae (placement not indicated) and for the genera *Chirgus* and *Burnsius* complete lists of species included are given below (pp. 10-27 & 46-47) and are omitted here. Names of type species are underlined.

Tekliades Grishin, new genus
http://zoobank.org/081564BA-DA0C-4C46-AEAB-6C00131AC8BD
Placed in subfamily Coeliadinae.
Species included: *Thymele ramanatek* Boisduval, 1833.

Salantoia Grishin, new genus
http://zoobank.org/3F82E9DE-A5A2-44B3-A13D-53CF8A673FAE

Spicauda Grishin, new genus
http://zoobank.org/14D26B57-940C-407B-8E70-4E25203044B8

Urbanoides Grishin, new subgenus
http://zoobank.org/20FAC3B6-F038-40A0-B182-3C7F32A40702

Zeutus Grishin, new genus
http://zoobank.org/75715B9C-46AB-40F5-B738-420DABD56B63

Lobotractus Grishin, new genus
http://zoobank.org/C6E5B5DF-1C74-4DBD-85C3-7285209F6F03

Caudatractus Grishin, new subgenus
http://zoobank.org/DF0F3C91-F56E-4B65-B86C-385A36F9D7FD

Asina Grishin, new subgenus
http://zoobank.org/B3B7A6F6-A95C-4A2E-B9FB-80A7A8F86761

Tiana Grishin, new genus
http://zoobank.org/B9382699-24FB-4466-B39B-94E6B544C425
Placed in the tribe Carcharodini.
Species included: *Ebrietas niger* Williams & Bell, 1940 and *Anastrus platypterus* Mabille, 1895.

Chirgus Grishin, new genus
http://zoobank.org/7B1905F1-9471-4BBF-90BF-32360783AB1E
Placed in the tribe Pyrgini.

Burnsius Grishin, new genus
http://zoobank.org/48996B74-3AB1-4DEA-9A64-B8F112E62343
Placed in the tribe Pyrgini.

Duroca Grishin, new genus
http://zoobank.org/476FE13C-5895-4139-BB11-44F835E21565
Placed in the subtribe Moncina.
Species included: *Hesperia duroca* Plötz, 1882.

T5. Systematic list of Eudaminae proposed in this work

The list is modified from the one shown below (pp. 28-45) to incorporate the results of our genomic analyses augmented with mitochondrial DNA COI barcodes, genitalia, and facies. The changes are supported by phylogenetic trees shown in Fig. 1 (main text) and Fig. S1 (below, pp. 91-92) and justifications given below in sections T8 & 9 (pp. 48-52). Synonymic names are included for genera and subgenera. Names treated as synonyms (genera and names of type species that are considered to be synonyms) are preceded by "=": not followed by daggers are subjective junior synonyms; † objective junior synonyms; ‡ unavailable names (such as homonyms and nomina nuda); "preocc." indicates preoccupied and "repl." indicates replacement name, the taxonomic order (for insects) or class of the senior name is shown in brackets. Synonyms are attributed to subgenera where possible. Type species (TS) for genera and subgenera are listed with their author names (parenthesis not used and genus name not given). For type species that are considered to be synonyms, valid names are shown in parenthesis. For valid genera and subgenera (not their synonyms), names of the type species, or its nominal subspecies for not monotypic species, or names which type species are considered to be synonyms of, are underlined in the list. Genus-group name highlighted yellow indicates a new taxon described in this work. Species with name highlighted yellow is elevated from subspecies in this work (see T9, pp. 49-52 for justification). Genus name in red font indicates different genus-species combination (new or reinstated) than that used prior to this work (pp. 28-45). The type of change is explained in red font after the name, and the genus of former placement (if different from the one used here) is listed.

Subfamily Eudaminae Mabille, 1877

Tribe Entheini Grishin, new tribe

Drephalys E. Watson, 1893; TS: *helixus* Hewitson

Subgenus *Paradrephalys* Burns, 2000; TS: *dumeril* Latreille

Drephalys oria Evans, 1952
Drephalys oriander (Hewitson, 1867)
Drephalys talboti (Le Cerf, 1922)
Drephalys dumeril (Latreille, [1824])
Drephalys croceus Austin, 1995
Drephalys tortus Austin, 1995

Subgenus *Drephalys* E. Watson, 1893; TS: *helixus* Hewitson
=*Paradros* Watson, 1893; TS: *phoenice* Hewitson

Drephalys alcmon (Cramer, 1780)
Drephalys mourei O. Mielke, 1968
Drephalys helixus (Hewitson, 1877)
Drephalys kidonoi Burns, 2000
Drephalys phoenicoides (Mabille & Boullet, 1919)
Drephalys phoenice (Hewitson, 1867)
Drephalys heraclides E. Bell, 1942
Drephalys citrinus Madruga, Siewert, O. Mielke & Casagrande, 2018
Drephalys dracarys Madruga, Siewert, O. Mielke & Dolibaina, 2018
Drephalys electrinus Siewert, Madruga, O. Mielke & Dolibaina, 2018
Drephalys miersi O. Mielke, 1968
Drephalys opifex Evans, 1952
Drephalys olvina Evans, 1952
Drephalys olva Evans, 1952
Drephalys eous (Hewitson, 1867)

Udranomia A. Butler, 1870; TS: *orcinus* C. Felder & R. Felder
=†*Hydraenomia* Butler, 1870; TS: *orcinus* C. Felder & R. Felder

Udranomia eurus (Mabille & Boullet, 1919)

Udranomia tomdaleyi Burns, 2017
Udranomia sallydaleyae Burns, 2017
Udranomia kikkawai (Weeks, 1906)
Udranomia orcinus (C. Felder & R. Felder, 1867)
Udranomia spitzi (Hayward, 1942)

Phanus Hübner, [1819]; TS: *vitreus* Stoll
Phanus australis L. Miller, 1965
Phanus vitreus (Stoll, 1781)
Phanus ecitonorum Austin, 1993
Phanus confusis Austin, 1993
Phanus albiapicalis Austin, 1993
Phanus rilma Evans, 1952
Phanus grandis Austin, 1993
Phanus obscurior Kaye, 1925
Phanus obscurior obscurior Kaye, 1925
Phanus obscurior prestoni L. Miller, 1965
Phanus marshalli (W. F. Kirby, 1880)

Hyalothyrus Mabille, 1878; TS: *nitocris* Stoll
=*Lignyostola* Mabille, 1888; TS: *pemphigargyra* Mabille
=‡*Mionectes* Mabille, 1903 (preocc. *Mionectes* Cabanis, 1844 [Aves]); TS: *infernalis* Möschler
=*Plagiothyrus* Mabille & Boullet, 1919; TS: *leucomelas* Geyer
=*Onzis* Lindsey, 1925 (repl. *Mionectes* Mabille); TS: *infernalis* Möschler
Hyalothyrus infernalis (Möschler, 1877)
Hyalothyrus infa Evans, 1952; new status
Hyalothyrus leucomelas (Geyer, 1832)
Hyalothyrus nitocris (Stoll, 1782)
Hyalothyrus mimicus Mabille & Boullet, 1919
Hyalothyrus neleus (Linnaeus, 1758)
Hyalothyrus neleus pemphigargyra (Mabille, 1888)
Hyalothyrus neleus neleus (Linnaeus, 1758)
Hyalothyrus neda Evans, 1952; new status

Entheus Hübner, [1819]; TS: =*peleus* Linnaeus, 1763 (*priassus* Linnaeus)
=‡*Peleus* Swainson, 1831 (preocc. *Peleus* Rafinesque, 1815 [Crustacea]); TS: =*peleus* Linnaeus (*priassus* Lin.)
=†*Brachycneme* C. Felder & R. Felder, 1862; TS: =*peleus* Linnaeus (*priassus* Linnaeus)
Entheus eumelus (Cramer, 1777)
Entheus ninyas H. Druce, 1912
Entheus eunyas Austin, O. Mielke & Steinhauser, 1997
Entheus lemna (A. Butler, 1870)
Entheus gentius (Cramer, 1777)
Entheus bombus Austin, O. Mielke & Steinhauser, 1997
Entheus aureolus Austin, O. Mielke & Steinhauser, 1997
Entheus huertasae Grishin, 2013
Entheus telemus Mabille, 1898
Entheus latebrosus Austin, 1997
Entheus priassus (Linnaeus, 1758)
Entheus priassus priassus (Linnaeus, 1758)
Entheus priassus pralina Evans, 1952
Entheus aureanota Austin, O. Mielke & Steinhauser, 1997

Entheus curvus Austin, 1997
Entheus matho Godman & Salvin, 1879
Entheus matho matho Godman & Salvin, 1879
Entheus matho latifascius M. Hering, 1925
Entheus matho marmato Salazar & Vargas, 2017
Entheus matho aequatorius Mabille & Boullet, 1919
Entheus matho dius Mabille, 1898
Entheus crux Steinhauser, 1989
Entheus warreni Grishin, 2012

Augiades Hübner, [1819]; TS: *crinisus* Cramer
Augiades <u>crinisus</u> (Cramer, 1780)
Augiades epimethea (Plötz, 1883)
Augiades epimethea bicolor (Mabille & Boullet, 1919)
Augiades epimethea epimethea (Plötz, 1883)

Tarsoctenus E. Watson, 1893; TS: *plutia* Hewitson
Tarsoctenus praecia (Hewitson, 1857)
Tarsoctenus praecia praecia (Hewitson, 1857)
Tarsoctenus praecia rufibasis Boullet, 1910
Tarsoctenus praecia <u>plutia</u> (Hewitson, 1857)
Tarsoctenus praecia luna Evans, 1952
Tarsoctenus corytus (Cramer, 1777)
Tarsoctenus corytus gaudialis (Hewitson, 1876)
Tarsoctenus corytus corytus (Cramer, 1777)
Tarsoctenus corytus corba Evans, 1952
Tarsoctenus papias (Hewitson, 1857)

Tribe Phocidini Tutt, 1906

Phocides Hübner, [1819]; TS: =*cruentus* Hübner, [1819] (*polybius* Fabricius)
=*Erycides* Hübner, [1819]; TS: *pigmalion* Cramer
=*Dysenius* Scudder, 1872; TS: =*albicilla* Herrich-Schäffer, 1869 (*lilea* Reakirt)
Phocides polybius (Fabricius, 1793)
Phocides polybius lilea (Reakirt, [1867])
Phocides polybius <u>polybius</u> (Fabricius, 1793)
Phocides polybius phanias (Burmeister, 1880)
Phocides charon (C. Felder & R. Felder, 1859)
Phocides petroleum Siewert, Leviski, Mielke & Casagrande, 2018
Phocides distans (Herrich-Schäffer, 1869)
Phocides distans licinus (Möschler, 1879)
Phocides distans distans (Herrich-Schäffer, 1869)
Phocides distans silva Evans, 1952
Phocides perillus (Mabille, 1888)
Phocides metrodorus E. Bell, 1932
Phocides metrodorus nigrescens E. Bell, 1938
Phocides metrodorus metrodorus E. Bell, 1932
Phocides metrodorus metron Evans, 1952
Phocides vulcanides Röber, 1925
Phocides novalis Evans, 1952
Phocides thermus (Mabille, 1883)
Phocides thermus thermus (Mabille, 1883)

Phocides thermus bellina Evans, 1952
Phocides thermus valgus (Mabille, 1883)
Phocides partia Evans, 1952
Phocides padrona Evans, 1952
Phocides belus Godman & Salvin, 1893
Phocides pigmalion (Cramer, 1779)
Phocides pigmalion pigmalion (Cramer, 1779)
Phocides pigmalion hewitsonius (Mabille, 1883)
Phocides pigmalion okeechobee (Worthington, 1881)
Phocides pigmalion batabanoides (W. Holland, 1902)
Phocides pigmalion batabano (Lucas, 1857)
Phocides pigmalion bicolora (Boddaert, 1783)
Phocides johnsoni E. Bell, 1947
Phocides urania (Westwood, 1852)
Phocides urania urania (Westwood, 1852)
Phocides urania vida (A. Butler, 1872)
Phocides pialia (Hewitson, 1857)
Phocides pialia maximus (Mabille, 1888)
Phocides pialia intermedia O. Mielke, 1992
Phocides pialia pialia (Hewitson, 1857)
Phocides oreides (Hewitson, [1875])
Phocides oreides colombiana E. Bell, 1938
Phocides oreides oreides (Hewitson, [1875])
Phocides yokhara (A. Butler, 1870)
Phocides yokhara yokhara (A. Butler, 1870)
Phocides yokhara inca Le Cerf, 1922
Phocides yokhara dryas Le Cerf, 1922
Phocides yokhara charonotis (Hewitson, 1874)
Phocides lincea (Herrich-Schäffer, 1869)
Phocides perkinsi (Kaye, 1931)

Pseudonascus Austin, 2008; TS: *paulliniae* Sepp
Pseudonascus paulliniae (Sepp, [1842])
Pseudonascus prax (Evans, 1952); new combination, was in *Nascus*
Pseudonascus broteas (Cramer, 1780); new combination, was in *Nascus*
Pseudonascus solon (Plötz, 1882); new combination, was in *Nascus*
Pseudonascus solon corilla (Evans, 1952)); new combination, was in *Nascus*
Pseudonascus solon solon (Plötz, 1882)); new combination, was in *Nascus*

Nascus E. Watson, 1893; TS: *phocus* Cramer
Nascus phocus (Cramer, 1777)
Nascus phintias Schaus, 1913

Aurina Evans, 1937; TS: *dida* Evans
Aurina dida Evans, 1937
Aurina azines (Hewitson, 1867); new combination, was in *Oileides*

Emmelus O. Mielke & Casagrande , 2016; new placement, was in Pyrginae; TS: *purpurascens* Mabille & Boullet
Emmelus purpurascens (Mabille & Boullet, 1912)

Porphyrogenes E. Watson, 1893; TS: *omphale* A. Butler

=‡*Caecina* Hewitson, 1868 (preocc. *Caecina* Stål, 1863 [Hemiptera]); new synonym; TS: *calathana* Hewitson
=*Physalea* Mabille, 1903; TS: *vulpecula* Plötz
=*Ocyba* Lindsey, 1925 (repl. *Caecina* Hewitson); new synonym; TS: *calathana* Hewitson
Porphyrogenes stupa Evans, 1952
Porphyrogenes omphale (A. Butler, 1871)
Porphyrogenes passalus (Herrich-Schäffer, 1869)
Porphyrogenes speciosus Austin & O. Mielke, 2008
Porphyrogenes convexus Austin & O. Mielke, 2008
Porphyrogenes sparus Austin & O. Mielke, 2008
Porphyrogenes spadix Austin & O. Mielke, 2008
Porphyrogenes peterwegei Burns, 2010
Porphyrogenes sororcula (Mabille & Boullet, 1912)
Porphyrogenes specularis Austin & O. Mielke, 2008
Porphyrogenes probus (Möschler, 1877)
Porphyrogenes vulpecula (Plötz, 1882)
Porphyrogenes zohra (Möschler, 1879)
Porphyrogenes virgatus (Mabille, 1888)
Porphyrogenes eudemus (Mabille, 1888)
Porphyrogenes splendidus Austin & O. Mielke, 2008
Porphyrogenes simulator Austin & O. Mielke, 2008
Porphyrogenes sula (R. Williams & E. Bell, 1940)
Porphyrogenes spina Austin & O. Mielke, 2008
Porphyrogenes sporta Austin & O. Mielke, 2008
Porphyrogenes stresa Evans, 1952
Porphyrogenes boliva Evans, 1952
Porphyrogenes spoda Evans, 1952
Porphyrogenes ferruginea (Plötz, 1883)
Porphyrogenes despecta (A. Butler, 1870)
Porphyrogenes pausias (Hewitson, 1867)
Porphyrogenes spanda Evans, 1952
Porphyrogenes sparta Evans, 1952
Porphyrogenes glavia Evans, 1952
Porphyrogenes calathana (Hewitson, 1868); new combination, was in *Ocyba*
Porphyrogenes calathana calanus (Godman & Salvin, 1894); new combination, was in *Ocyba*
Porphyrogenes calathana calathana (Hewitson, 1868); new combination, was in *Ocyba*
Porphyrogenes calathana compusa (Hewitson, 1868); new combination, was in *Ocyba*

Nicephellus Austin, 2008; TS: *nicephorus* Hewitson
Nicephellus nicephorus (Hewitson, 1876)

Salatis Evans, 1952; TS: *salatis* Stoll
Salatis canalis (Skinner, 1920)
Salatis salatis (Stoll, 1782)
Salatis cebrenus (Cramer, 1777)
Salatis fulvius (Plötz, 1882)
Salatis scyrus (E. Bell, 1934)
Salatis flavomarginatus (Sepp, [1851])

Salantoia Grishin, new genus; TS: *eriopis* Hewitson
Salantoia dinka (Evans, 1952); new combination, was in *Sarmientoia*
Salantoia eriopis (Hewitson, 1867); new combination, was in *Sarmientoia*

Sarmientoia Berg, 1897; TS: *faustinus* Burmeister
- ***Sarmientoia phaselis*** (Hewitson, 1867)
- ***Sarmientoia faustinus*** (Burmeister, 1878)
- ***Sarmientoia haywardi*** O. Mielke, 1967
- ***Sarmientoia similis*** O. Mielke, 1967
- ***Sarmientoia almeidai*** O. Mielke, 1967
- ***Sarmientoia browni*** O. Mielke, 1967

Bungalotis E. Watson, 1893; TS: *midas* Cramer
- ***Bungalotis erythus*** (Cramer, 1775)
- ***Bungalotis diophorus*** (Möschler, 1883)
- ***Bungalotis gagarini*** O. Mielke, 1967
- ***Bungalotis midas*** (Cramer, 1775)
- ***Bungalotis aureus*** Austin, 2008
- ***Bungalotis astylos*** (Cramer, 1780)
- ***Bungalotis milleri*** H. Freeman, 1977
- ***Bungalotis quadratum*** (Sepp, [1845])
  - *Bungalotis quadratum quadratum* (Sepp, [1845])
  - *Bungalotis quadratum barba* Evans, 1952
- ***Bungalotis sipa*** de Jong, 1983
- ***Bungalotis clusia*** Evans, 1952
- ***Bungalotis borax*** Evans, 1952
- ***Bungalotis lactos*** Evans, 1952

Euriphellus Austin, 2008; TS: *euribates* Stoll
- ***Euriphellus lama*** (Evans, 1952); new status, new combination, was in *Dyscophellus*
- ***Euriphellus phraxanor*** (Hewitson, 1876); new combination, was in *Dyscophellus*
- ***Euriphellus mena*** (Evans, 1952); new status, new combination, was in *Dyscophellus*
- ***Euriphellus marian*** (Evans, 1952); new combination, was in *Dyscophellus*
- ***Euriphellus euribates*** (Stoll, 1782)
- ***Euriphellus polygius*** (Latreille, [1824]); reinstated status

Dyscophellus Godman & Salvin, 1893 (repl. *Dyscophus* Burmeister); TS: *sebaldus* Stoll
=‡*Dyscophus* Burmeister, 1878 (preoc. *Dyscophus* Grandidier, 1872 [Amphibia]); TS: *sebaldus* Stoll
- ***Dyscophellus porcius*** (C. Felder & R. Felder, 1862)
  - *Dyscophellus porcius porcius* (C. Felder & R. Felder, 1862)
  - *Dyscophellus porcius doriscus* (Hewitson, 1867)
- ***Dyscophellus sebaldus*** (Stoll, 1781)
- ***Dyscophellus erythras*** (Mabille, 1888)
- ***Dyscophellus mielkei*** Austin, 2008
- ***Dyscophellus diaphorus*** (Mabille & Boullet, 1912)
- ***Dyscophellus porsena*** (E. Bell, 1934)
- ***Dyscophellus ramon*** Evans, 1952
- ***Dyscophellus ramusis*** (Stoll, 1781)
- ***Dyscophellus damias*** (Plötz, 1882)

Phareas Westwood, 1852; TS: *coeleste* Westwood
=†*Grynopsis* Watson, 1893; TS: *coeleste* Westwood
- ***Phareas burnsi*** Grishin, 2013
- ***Phareas coeleste*** Westwood, 1852

Tribe Eudamini Mabille, 1877

Subtribe Eudamina Mabille, 1877

Cecropterus Herrich-Schäffer, 1869 (repl. *Cecrops* Hübner); TS: *zarex* Hübner

Subgenus *Cecropterus* Herrich-Schäffer, 1869; TS: *zarex* Hübner

=‡*Cecrops* Hübner, 1818 (preoc. *Cecrops* Leach, 1816 [Crustacea]); TS: *zarex* Hübner

=*Paracogia* O. Mielke, 1977; new synonym; TS: *acanthopoda* O. Mielke

Cecropterus acanthopoda (O. Mielke, 1977); new combination, was in *Paracogia*

Cecropterus rinta (Evans, 1952); new combination, was in *Cabares*

Cecropterus zarex (Hübner, 1818); new combination, was in *Autochton*

Cecropterus longipennis Plötz, 1882; new combination, was in *Autochton*

Cecropterus evenus (Ménétriés, 1855); new combination, was in *Urbanus*

Subgenus *Thorybes* Scudder, 1872; TS: *bathyllus* J. E. Smith

=*Achalarus* Scudder, 1872; new synonym; TS: =‡*lycidas* J. E. Smith, 1797 (*lyciades* Geyer)

=*Cocceius* Godman & Salvin, 1894; TS: *pylades* Scudder

Cecropterus lyciades (Geyer, 1832); new combination, was in *Achalarus*

Cecropterus casica (Herrich-Schäffer, 1869); new combination, was in *Achalarus*

Cecropterus tehuacana (Draudt, 1922); new combination, was in *Achalarus*

Cecropterus confusis (E. Bell, 1923); new combination, was in *Thorybes*

Cecropterus bathyllus (J. E. Smith, 1797); new combination, was in *Thorybes*

Cecropterus mexicana (Herrich-Schäffer, 1869); new combination, was in *Thorybes*

Cecropterus mexicana aemilea (Skinner, 1893); new combination, was in *Thorybes*

Cecropterus mexicana blanca (Scott, 1981); new combination, was in *Thorybes*

Cecropterus mexicana nevada (Scudder, 1872); new combination, was in *Thorybes*

Cecropterus mexicana dobra (Evans, 1952); new combination, was in *Thorybes*

Cecropterus mexicana mexicana (Herrich-Schäffer, 1869); new combination, was in *Thorybes*

Cecropterus mexicana ducia (Evans, 1952); new combination, was in *Thorybes*

Cecropterus diversus (E. Bell, 1927); new combination, was in *Thorybes*

Cecropterus pylades (Scudder, 1870); new combination, was in *Thorybes*

Cecropterus pylades indistinctus (Austin & J. Emmel, 1998); new combination, was in *Thorybes*

Cecropterus pylades albosuffusa (H. Freeman, 1943); new combination, was in *Thorybes*

Cecropterus pylades pylades (Scudder, 1870); new combination, was in *Thorybes*

Cecropterus drusius (W. H. Edwards, [1884]); new combination, was in *Thorybes*

Cecropterus cincta Plötz, 1882; new combination, was in *Autochton*

Cecropterus vectilucis (A. Butler, 1872); new combination, was in *Autochton*

Cecropterus pseudocellus (Coolidge & Clemence, [1910]); new combination, was in *Autochton*

Cecropterus palliolum (H. Druce, 1908); new combination, was in *Astraptes*

Cecropterus egregius (A. Butler, 1870); new combination, was in *Astraptes*

Cecropterus egregius egregius (A. Butler, 1870); new combination, was in *Astraptes*

Cecropterus egregius coxeyi (R. Williams, 1931); new combination, was in *Astraptes*

Cecropterus virescens (Mabille, 1877); new combination, was in *Urbanus*

Cecropterus dorantes (Stoll, 1790); new combination, was in *Urbanus*

Cecropterus dorantes calafia (R. Williams, 1926); new combination, was in *Urbanus*

Cecropterus dorantes dorantes (Stoll, 1790); new combination, was in *Urbanus*

Cecropterus dorantes cramptoni (W. Comstock, 1944); new combination, was in *Urbanus*

Cecropterus dorantes santiago (Lucas, 1857); new combination, was in *Urbanus*

Cecropterus dorantes galapagensis (F. Williams, 1911); new combination, was in *Urbanus*

Cecropterus obscurus (Hewitson, 1867); new combination, was in *Urbanus*

Subgenus *Murgaria* Watson, 1893; TS: *albociliatus* Mabille

=*Thessia* Steinhauser, 1989; new synonym; TS: *athesis* Hewitson

Cecropterus albociliatus (Mabille, 1877); new combination, was in *Achalarus*

Cecropterus albociliatus albociliatus (Mabille, 1877); new combination, was in *Achalarus*
Cecropterus albociliatus leucophrys (Mabille, 1898); new combination, was in *Achalarus*
Cecropterus albociliatus nocera (Plötz, 1882); new combination, was in *Achalarus*
Cecropterus toxeus (Plötz, 1882); new combination, was in *Achalarus*
Cecropterus jalapus (Plötz, 1881); new combination, was in *Thessia*
Cecropterus athesis (Hewitson, 1867); new combination, was in *Thessia*
Cecropterus phalaecus (Godman & Salvin, 1893); new combination, was in *Astraptes*
Cecropterus reductus (N. Riley, 1919); new combination, was in *Urbanus*
Cecropterus doryssus (Swainson, 1831); new combination, was in *Urbanus*
Cecropterus doryssus chales (Godman & Salvin, 1893); new combination, was in *Urbanus*
Cecropterus doryssus doryssus (Swainson, 1831); new combination, was in *Urbanus*
Cecropterus doryssus albicuspis (Herrich-Schäffer, 1869); new combination, was in *Urbanus*
Cecropterus albimargo (Mabille, 1875); new combination, was in *Urbanus*
Cecropterus takuta (Evans, 1952); new status, new combination, was in *Urbanus*
Cecropterus rica (Evans, 1952); new status, new combination, was in *Urbanus*
Cecropterus trebia (Möschler, 1879); new combination, was in *Urbanus*
Cecropterus carmelita (Herrich-Schäffer, 1869); new combination, was in *Urbanus*
Cecropterus barra (Evans, 1952); new status, new combination, was in *Urbanus*

Spicauda Grishin, new genus; TS: *procne* Plötz
Spicauda teleus (Hübner, 1821); new combination, was in *Urbanus*
Spicauda tanna (Evans, 1952); new combination, was in *Urbanus*
Spicauda ambiguus (de Jong, 1983); new combination, was in *Urbanus*
Spicauda cindra (Evans, 1952); new combination, was in *Urbanus*
Spicauda zagorus (Plötz, 1881); new combination, was in *Urbanus*
Spicauda simplicius (Stoll, 1790); new combination, was in *Urbanus*
Spicauda procne (Plötz, 1881); new combination, was in *Urbanus*

Urbanus Hübner, [1807]; TS: *proteus* Linnaeus
Subgenus *Urbanoides* Grishin, new subgenus; TS: *esmeraldus* A. Butler
Urbanus esmeraldus (A. Butler, 1877)
Urbanus esma Evans, 1952
Urbanus prodicus E. Bell, 1956
Urbanus elmina Evans, 1952
Urbanus evona Evans, 1952
Urbanus esta Evans, 1952
Urbanus viridis H. Freeman, 1970

Subgenus *Urbanus* Hübner, [1807]; TS: *proteus* Linnaeus
=‡*Thymele* [Illiger], 1807 (Suppr. I.C.Z.N. Opinion 232); TS: *proteus* Linnaeus
=†*Goniurus* Hübner, [1819]; TS: *proteus* Linnaeus
=†*Eudamus* Swainson, 1831; TS: *proteus* Linnaeus
=‡*Lyroptera* Plötz, 1881 (nomen nudum); TS: *proteus* Linnaeus
Urbanus velinus (Plötz, 1881)
Urbanus proteus (Linnaeus, 1758)
Urbanus proteus proteus (Linnaeus, 1758)
Urbanus proteus domingo (Scudder, 1872)
Urbanus magnus Steinhauser, 1981
Urbanus pronus Evans, 1952
Urbanus pronta Evans, 1952
Urbanus parvus Austin, 1998

Urbanus longicaudus Austin, 1998
Urbanus villus Austin, 1998
Urbanus huancavillcas (R. Williams, 1926)
Urbanus belli (Hayward, 1935)
Urbanus bernikerni Burns, 2014
Urbanus ehakernae Burns, 2014
Urbanus segnestami Burns, 2014
Urbanus viterboana (Ehrmann, 1907)
Urbanus dubius Steinhauser, 1981
Urbanus megalurus (Mabille, 1877); new combination, was in *Astraptes*
Urbanus tucuti (R. Williams, 1927); new combination, was in *Astraptes*

Telegonus Hübner, [1819]; TS: *talus* Cramer
Subgenus *Telegonus* Hübner, [1819]; TS: *talus* Cramer
=*Euthymele* Mabille, 1878; TS: =*mercatus* Fabricius, 1793 (*fulgerator* Walch)
Telegonus brevicauda (Plötz, 1886); new combination, was in *Astraptes*
Telegonus chalco (Hübner, 1823); new combination, was in *Urbanus*
Telegonus fulgerator (Walch, 1775); new combination, was in *Astraptes*
Telegonus catemacoensis (H. Freeman, 1967); reinstated status, new combination, was in *Astraptes*
Telegonus azul (Reakirt, [1867]); reinstated status, new combination, was in *Astraptes*
Telegonus fulgor Hayward, 1939; new combination, was in *Astraptes*
Telegonus naxos (Hewitson, 1867); new combination, was in *Astraptes*
Telegonus christyi Sharpe, 1898; new combination, was in *Astraptes*
Telegonus xagua (Lucas, 1857); new combination, was in *Astraptes*
Telegonus xagua harveyi (Clench, Steinhauser and J. Miller, 2017); new combination, was in *Astraptes*
Telegonus xagua xagua (Lucas, 1857); new combination, was in *Astraptes*
Telegonus talus (Cramer, 1777); new combination, was in *Astraptes*
Telegonus apastus (Cramer, 1777); new combination, was in *Astraptes*
Telegonus apastus apastus (Cramer, 1777); new combination, was in *Astraptes*
Telegonus apastus pusa (Evans, 1952); new combination, was in *Astraptes*

Subgenus *Rhabdoides* Scudder, 1889; TS: *cellus* Boisduval & Le Conte
Telegonus elorus (Hewitson, 1867); new combination, was in *Astraptes*
Telegonus alardus (Stoll, 1790); new combination, was in *Astraptes*
Telegonus alardus latia (Evans, 1952); new combination, was in *Astraptes*
Telegonus alardus aquila (Evans, 1952); new combination, was in *Astraptes*
Telegonus alardus alardus (Stoll, 1790); new combination, was in *Astraptes*
Telegonus habana (Lucas, 1857); new combination, was in *Astraptes*
Telegonus heriul Mabille & Boullet, 1912; reinstated status, new combination, was in *Astraptes*
Telegonus alector (C. Felder & R. Felder, 1867); new combination, was in *Astraptes*
Telegonus alector hopfferi (Plötz, 1881); new combination, was in *Astraptes*
Telegonus alector alector (C. Felder & R. Felder, 1867); new combination, was in *Astraptes*
Telegonus cretatus Hayward, 1939; new combination, was in *Astraptes*
Telegonus cretatus cretatus Hayward, 1939; new combination, was in *Astraptes*
Telegonus cretatus adoba (Evans, 1952); new combination, was in *Astraptes*
Telegonus creteus (Cramer, 1780); new combination, was in *Astraptes*
Telegonus creteus crana (Evans, 1952); new combination, was in *Astraptes*
Telegonus creteus crilla (Evans, 1952); new combination, was in *Astraptes*
Telegonus creteus cyprus (Evans, 1952); new combination, was in *Astraptes*
Telegonus creteus creteus (Cramer, 1780); new combination, was in *Astraptes*
Telegonus creteus siges Mabille, 1903; new combination, was in *Astraptes*

Telegonus bifascia (Herrich-Schäffer, 1869); new combination, was in *Astraptes*
Telegonus latimargo (Herrich-Schäffer, 1869); new combination, was in *Astraptes*
Telegonus tinda (Evans, 1952); new combination, was in *Astraptes*
Telegonus chiriquensis Staudinger, 1876; new combination, was in *Astraptes*
Telegonus chiriquensis chiriquensis (Staudinger, 1876); new combination, was in *Astraptes*
Telegonus chiriquensis erana (Evans, 1952); new combination, was in *Astraptes*
Telegonus chiriquensis meretrix (Hewitson, 1876); new combination, was in *Astraptes*
Telegonus chiriquensis oenander (Hewitson, 1876); new combination, was in *Astraptes*
Telegonus weymeri (Plötz, 1882); new combination, was in *Astraptes*
Telegonus jaira (A. Butler, 1870); new combination, was in *Astraptes*
Telegonus cassander (Fabricius, 1793); new combination, was in *Astraptes*
Telegonus galesus Mabille, 1888; new combination, was in *Astraptes*
Telegonus cassius (Evans, 1952); new status, new combination, was in *Astraptes*
Telegonus anaphus (Cramer, 1777); new combination, was in *Astraptes*
Telegonus anaphus annetta (Evans, 1952); new combination, was in *Astraptes*
Telegonus anaphus anaphus (Cramer, 1777); new combination, was in *Astraptes*
Telegonus anaphus anoma (Evans, 1952); new combination, was in *Astraptes*
Telegonus anaphus aniza (Evans, 1952); new combination, was in *Astraptes*
Telegonus anaphus anausis Godman & Salvin, 1896; new combination, was in *Astraptes*
Telegonus hyster (Dyar, 1916); new combination, was in "*Codatractus*"
Telegonus cellus (Boisduval & Le Conte, [1837]); new combination, was in *Autochton*
Telegonus siermadror (Burns, 1984); new combination, was in *Autochton*

Autochton Hübner, 1823; TS: *itylus* Hübner
Subgenus *Autochton* Hübner, 1823; TS: *itylus* Hübner
=*Cabares* Godman & Salvin, 1894; new synonym; TS: *potrillo* Lucas
Autochton sulfureolus (Mabille, 1883)
Autochton reflexus (Mabille & Boullet, 1912)
Autochton neis (Geyer, 1832)
Autochton integrifascia (Mabille, 1891)
Autochton itylus Hübner, 1823
Autochton bipunctatus (Gmelin, [1790])
Autochton potrillo (Lucas, 1857); new combination, was in *Cabares*
Autochton potrillo potrillo (Lucas, 1857); new combination, was in *Cabares*
Autochton potrillo reducta (Mabille & Boullet, 1919); new combination, was in *Cabares*

Subgenus *Calliades* Mabille & Boullet, 1912; new status; TS: =*phrynicus* Hewitson, 1867 (*oryx* C. & R. Felder)
Autochton oryx (C. Felder & R. Felder, 1862); new combination, was in *Calliades*

Spathilepia A. Butler, 1870; TS: *clonius* Cramer
Spathilepia clonius (Cramer, 1775)

Astraptes Hübner, [1819]; TS: =‡*aulestes* Cramer, 1780 (*janeira* Schaus)
Astraptes erycina (Plötz, 1881)
Astraptes mabillei Steinhauser, 1989
Astraptes halesius (Hewitson, 1877)
Astraptes aulus (Plötz, 1881)
Astraptes enotrus (Stoll, 1781)
Astraptes janeira (Schaus, 1902)

Narcosius Steinhauser, 1986; TS: *narcosius* Stoll

Narcosius colossus (Herrich-Schäffer, 1869)
Narcosius granadensis (Möschler, 1879); reinstated status
Narcosius dosula (Evans, 1952)
Narcosius hercules (E. Bell, 1956)
Narcosius steinhauseri Austin, 1996
Narcosius <u>narcosius</u> (Stoll, 1790)
Narcosius aulina (Evans, 1952)
Narcosius helen (Evans, 1952); new status
Narcosius parisi (R. Williams, 1927)
Narcosius odysseus Austin, 1996
Narcosius mura (R. Williams, 1927)
Narcosius pseudomura Austin, 1996
Narcosius nazaraeus Steinhauser, 1986
Narcosius samson (Evans, 1952)

Proteides Hübner, [1819]; TS: *mercurius* Fabricius
=*Dicranaspis* Mabille, 1878; TS: =‡*idas* Cramer, [1779] (*mercurius* Fabricius)
Proteides mercurius (Fabricius, 1787)
Proteides mercurius <u>mercurius</u> (Fabricius, 1787)
Proteides mercurius sanantonio (Lucas, 1857)
Proteides mercurius sanchesi E. Bell & W. Comstock, 1948
Proteides mercurius jamaicensis Skinner, 1920
Proteides mercurius pedro (Dewitz, 1877)
Proteides mercurius vincenti E. Bell & W. Comstock, 1948
Proteides mercurius angasi Godman & Salvin, 1884
Proteides mercurius grenadensis Enrico & Pinchon, 1969
Proteides maysi (Lucas, 1857)

Epargyreus Hübner, [1819]; TS: =*tityrus* Fabricius, 1775 (*clarus* Cramer)
=*Eridamus* Burmeister, 1875; TS: *tmolis* Burmeister
Epargyreus zestos (Geyer, 1832)
Epargyreus zestos zestos (Geyer, 1832)
Epargyreus zestos inaguarum Clench & Bjorndal, 1980
Epargyreus clarus (Cramer, 1775)
Epargyreus clarus californicus MacNeill, 1975
Epargyreus clarus <u>clarus</u> (Cramer, 1775)
Epargyreus clarus huachuca Dixon, 1955
Epargyreus clarus profugus Austin, 1998
Epargyreus antaeus (Hewitson, 1867)
Epargyreus spanna Evans, 1952
Epargyreus orizaba Scudder, 1872; reinstated status
Epargyreus dicta Evans, 1952; new status
Epargyreus socus (Hübner, [1825])
Epargyreus socus chota Evans, 1952
Epargyreus socus sinus Evans, 1952
Epargyreus socus socus (Hübner, [1825])
Epargyreus pseudexadeus Westwood, 1852; reinstated status
Epargyreus windi H. Freeman, 1969
Epargyreus cruza Evans, 1952; new status
Epargyreus exadeus (Cramer, 1780)
Epargyreus nutra Evans, 1952

Epargyreus aspina Evans, 1952
Epargyreus spina Evans, 1952
Epargyreus spina spina Evans, 1952
Epargyreus spina verruga Evans, 1952
Epargyreus spinta Evans, 1952
Epargyreus spinosa Evans, 1952
Epargyreus clavicornis (Herrich-Schäffer, 1869)
Epargyreus clavicornis gaumeri Godman & Salvin, 1893
Epargyreus clavicornis tenda Evans, 1955
Epargyreus clavicornis clavicornis (Herrich-Schäffer, 1869)
Epargyreus brodkorbi H. Freeman, 1969
Epargyreus deleoni H. Freeman, 1977
Epargyreus tmolis (Burmeister, 1875)
Epargyreus barisses (Hewitson, 1874)
Epargyreus barisses barisses (Hewitson, 1874)
Epargyreus barisses argentina Mabille, 1903
Epargyreus enispe (Hewitson, 1867)
Epargyreus enispe elta Evans, 1952
Epargyreus enispe enispe (Hewitson, 1867)

Chioides Lindsey, 1921; TS: *albofasciatus* Hewitson
Chioides albofasciatus (Hewitson, 1867)
Chioides catillus (Cramer, 1780)
Chioides catillus albius Evans, 1952
Chioides catillus catillus (Cramer, 1780)
Chioides catillus jethira (A. Butler, 1870)
Chioides churchi E. Bell & W. Comstock, 1948
Chioides cinereus (Mabille & Vuillot, 1891)
Chioides concinnus (Mabille, 1877)
Chioides vintra Evans, 1952
Chioides iverna Evans, 1952
Chioides zilpa (A. Butler, 1872)
Chioides ixion (Plötz, 1881)
Chioides marmorosa (Herrich-Schäffer, 1865)

Subtribe Loboclina Grishin, new subtribe

Aguna R. Williams, 1927; TS: *camagura* R. Williams
=‡*Tmetocerus* Poujade, 1895 (preocc. *Tmetocerus* Hartert, 1891 [Aves]); TS: *asander* Hewitson
Aguna megaeles (Mabille, 1888)
Aguna megaeles malia Evans, 1952
Aguna megaeles megaeles (Mabille, 1888)
Aguna metophis (Latreille, [1824])
Aguna camagura (R. Williams, 1926)
Aguna asander (Hewitson, 1867)
Aguna asander asander (Hewitson, 1867)
Aguna asander haitensis (Mabille & Boullet, 1912)
Aguna asander jasper Evans, 1952
Aguna albistria (Plötz, 1880)
Aguna albistria albistria (Plötz, 1880)
Aguna albistria leucogramma (Mabille, 1888)
Aguna claxon Evans, 1952

Aguna prasinus Siewert, Leviski, O. Mielke & Casagrande, 2015
Aguna clina Evans, 1952
Aguna latifascia Austin & O. Mielke, 1998
Aguna coelus (Stoll, 1781)
Aguna cirrus Evans, 1952
Aguna coeloides Austin & O. Mielke, 1998
Aguna nicolayi Austin & O. Mielke, 1998
Aguna venezuelae O. Mielke, 1971
Aguna latimacula Austin & O. Mielke, 1998
Aguna aurunce (Hewitson, 1867)
Aguna aurunce aurunce (Hewitson, 1867)
Aguna aurunce hypozonius (Plötz, 1881)
Aguna glaphyrus (Mabille, 1888)
Aguna penicillata Austin & O. Mielke, 1998
Aguna spicata Austin & O. Mielke, 1998
Aguna longicauda Austin & O. Mielke, 1998
Aguna ganna (Möschler, 1879)
Aguna panama Austin & O. Mielke, 1998
Aguna spatulata Austin & O. Mielke, 1998
Aguna similis Austin & O. Mielke, 1998
Aguna mesodentata Austin & O. Mielke, 1998
Aguna squamalba Austin & O. Mielke, 1998
Aguna parva Austin & O. Mielke, 1998

Zeutus Grishin, new genus; TS: *zeutus* Möschler
Zeutus zeutus (Möschler, 1879); new combination, was in *Calliades*

Lobocla Moore, 1884; TS: *liliana* Atkinson
Lobocla liliana (Atkinson, 1871)
Lobocla liliana ignatius (Plötz, 1882)
Lobocla liliana liliana (Atkinson, 1871)
Lobocla aborica (Tytler, 1915)
Lobocla aborica aborica (Tytler, 1915)
Lobocla aborica zesta Evans, 1949
Lobocla aborica tonka Evans, 1949
Lobocla quadripunctata Fan & Wang, 2004
Lobocla disparalis Murayama, 1995
Lobocla bifasciatus (Bremer & Grey, 1853)
Lobocla contractus (Leech, 1894)
Lobocla germanus (Oberthür, 1886)
Lobocla nepos (Oberthür, 1886)
Lobocla nepos nepos (Oberthür, 1886)
Lobocla nepos phyllis (Hemming, 1933)
Lobocla proximus (Leech, 1891)
Lobocla simplex (Leech, 1891)

Lobotractus Grishin, new genus; TS: *valeriana* Plötz
Lobotractus valeriana (Plötz, 1881); new combination, was in *Codatractus*
Lobotractus uvydixa (Dyar, 1914); new combination, was in *Codatractus*
Lobotractus cyda (Godman, 1901); new combination, was in *Codatractus*

Codatractus Lindsey, 1921 (repl. *Heteropia* Mabille); TS: =*imitatrix* Mabille, 1889 (*imalena* A. Butler)
Subgenus *Codatractus* Lindsey, 1921; TS: =*imitatrix* Mabille, 1889 (*imalena* A. Butler)
=‡*Heteropia* Mabille, 1889 (preocc. *Heteropia* Carter, 1886 [Porifera]); TS: =*imitatrix* Mab. (*imalena* A. Butler)
Codatractus cyledis (Dyar, 1912)
Codatractus bryaxis (Hewitson, 1867)
Codatractus imalena (A. Butler, 1872)
Codatractus arizonensis (Skinner, 1905)
Codatractus sallyae A. Warren, 1995
Codatractus melon (Godman & Salvin, 1893)

Subgenus *Caudatractus* Grishin, new subgenus; TS: *alcaeus* Hewitson, 1867
Codatractus carlos Evans, 1952
Codatractus rowena Evans, 1952; new status
Codatractus rowena rowena Evans, 1952
Codatractus rowena arguta Evans, 1952; new combination
Codatractus alcaeus (Hewitson, 1867)
Codatractus apulia Evans, 1952; new status
Codatractus yucatanus H. Freeman, 1977
Codatractus aminias (Hewitson, 1867)

Zestusa Lindsey, 1925 (repl. *Plestia* Mabille); TS: *staudingeri* Mabille
=‡*Plestia* Mabille, 1888 (preocc. *Plestia* Stål, 1871 [Hemiptera]); TS: *staudingeri* Mabille
Zestusa dorus (W. H. Edwards, 1882)
Zestusa elwesi (Godman & Salvin, 1893)
Zestusa staudingeri (Mabille, 1888)
Zestusa levona Steinhauser, 1972

Ridens Evans, 1952; TS: *ridens* Hewitson
Ridens crison (Godman & Salvin, 1893)
Ridens crison crison (Godman & Salvin, 1893)
Ridens crison howarthi Steinhauser, 1974
Ridens crison cachinnans (Godman, 1901)
Ridens ridens (Hewitson, 1876)
Ridens fieldi Steinhauser, 1974
Ridens toddi Steinhauser, 1974
Ridens biolleyi (Mabille, 1900)
Ridens mercedes Steinhauser, 1983
Ridens panche (R. Williams, 1927)
Ridens telegonoides (Mabille & Boullet, 1912)
Ridens tristis (Draudt, [1922])
Ridens nora Evans, 1952
Ridens harpagus (C. Felder & R. Felder, 1867)
Ridens philistus (Hopffer, 1874)
Ridens philistus philistus (Hopffer, 1874)
Ridens philistus philia Evans, 1952
Ridens mephitis (Hewitson, 1876)
Ridens fulminans (Herrich-Schäffer, 1869)
Ridens fulima Evans, 1952
Ridens pacasa (R. Williams, 1927)
Ridens bidens Austin, 1998
Ridens allyni H. Freeman, 1979

Ridens bridgmani (Weeks, 1902)
Ridens miltas (Godman & Salvin, 1893)

Venada Evans, 1952; TS: *advena* Mabille
Venada nevada Burns, 2005
Venada advena (Mabille, 1889)
Venada daneva Burns, 2005
Venada lamella Burns, 2013
Venada cacao Burns, 2005
Venada naranja Burns, 2005

Subtribe Cephisina Grishin, new subtribe

Cephise Evans, 1952; TS: *cephise* Herrich-Schäffer
Cephise impunctus Austin & O. Mielke, 2000
Cephise cephise (Herrich-Schäffer, 1869)
Cephise nuspesez Burns, 1996
Cephise malesedis Austin & O. Mielke, 2000
Cephise maculatus Austin & O. Mielke, 2000
Cephise burnsi Austin & O. Mielke, 2000
Cephise mexicanus Austin & O. Mielke, 2000
Cephise glarus (Mabille, 1888)
Cephise aelius (Plötz, 1881)
Cephise callias (Mabille, 1888)
Cephise procerus (Plötz, 1881)
Cephise guatemalaensis (H. Freeman, 1977)

Subtribe Telemiadina Grishin, new subtribe

Ectomis Mabille, 1878; TS: =*adoxa* Mabille, 1878 (*cythna* Hewitson)
Subgenus *Asina* Grishin, new subgenus; TS: *asine* Hewitson
Ectomis gyges (Evans, 1952); new combination, was in *Polythrix*
Ectomis hirtius (A. Butler, 1870); new combination, was in *Polythrix*
Ectomis roma (Evans, 1952); new combination, was in *Polythrix*
Ectomis asine (Hewitson, 1867); new combination, was in *Polythrix*
Ectomis mexicanus (H. Freeman, 1969); new combination, was in *Polythrix*

Subgenus *Ectomis* Mabille, 1878; TS: =*adoxa* Mabille, 1878 (*cythna* Hewitson)
=*Hypocryptothrix* E. Watson, 1893; new synonym; TS: *teutas* Hewitson
=*Polythrix* E. Watson, 1893; new synonym; TS: *metallescens* Mabille
=*Chrysoplectrum* E. Watson, 1893; new synonym; TS: *otriades* Hewitson
=*Heronia* Mabille & Boullet, 1912; new synonym; TS: *labriaris* A. Butler
=*Basslerodea* Bell, 1940; TS: =*mida* Bell, 1940 (*cythna* Hewitson)
=*Speculum* Austin, 2008; new synonym; TS: *speculum* Austin, 2008
Ectomis octomaculata (Sepp, [1844]); new combination, was in *Polythrix*
Ectomis maizae (Hellebuyck, 1998); new combination, was in *Polythrix*
Ectomis ceculus (Herrich-Schäffer, 1869); new combination, was in *Polythrix*
Ectomis caunus (Herrich-Schäffer, 1869); new combination, was in *Polythrix*
Ectomis auginus (Hewitson, 1867); new combination, was in *Polythrix*
Ectomis metallescens (Mabille, 1888); new combination, was in *Polythrix*
Ectomis kanshul (Shuey, 1991); new combination, was in *Polythrix*
Ectomis eudoxus (Stoll, 1781); new combination, was in *Polythrix*
Ectomis minvanes (R. Williams, 1926); new combination, was in *Polythrix*

***Ectomis* labriaris** (A. Butler, 1877); new combination, was in *Heronia*
Ectomis cythna (Hewitson, 1878)
Ectomis cythna cythna (Hewitson, 1878)
Ectomis cythna ega Evans, 1953
***Ectomis* speculum** (Austin, 2008); new combination, was in *Speculum*
***Ectomis* teutas** (Hewitson, 1876); new combination, was in *Hypocryptothrix*
***Ectomis* pervivax** (Hübner, [1819]); new combination, was in *Chrysoplectrum*
***Ectomis* bahiana** (Herrich-Schäffer, 1869); new combination, was in *Chrysoplectrum*
***Ectomis* orphne** (Plötz, 1881); new combination, was in *Chrysoplectrum*
***Ectomis* otriades** (Hewitson, 1867); new combination, was in *Chrysoplectrum*
***Ectomis* epicincea** (A. Butler & H. Druce, 1872); new combination, was in *Chrysoplectrum*
***Ectomis* perniciosus** (Herrich-Schäffer, 1869); new combination, was in *Chrysoplectrum*
***Ectomis* cuminaensis** (R.F. d'Almeida, 1976); new combination, was in *Chrysoplectrum*
***Ectomis* orpheus** (Plötz, 1881); new combination, was in *Chrysoplectrum*
***Ectomis* perna** (Evans, 1952); new combination, was in *Chrysoplectrum*
***Ectomis* albovenae** (E. Bell, 1932); new combination, was in *Chrysoplectrum*

Telemiades Hübner, [1819]; TS: *avitus* Stoll
=*Pyrdalus* Mabille, 1903; TS: *corbulo* Stoll
Telemiades delalande (Latreille, [1824])
Telemiades litanicus (Hewitson, 1876)
Telemiades vansa Evans, 1953
Telemiades gallius (Mabille, 1888)
Telemiades chrysorrhoea (Godman & Salvin, 1893)
Telemiades contra Evans, 1953; new status
Telemiades centrites (Hewitson, 1870)
Telemiades vespasius (Fabricius, 1793)
Telemiades squanda Evans, 1953
Telemiades trenda Evans, 1953
Telemiades nicomedes (Möschler, 1879)
Telemiades meris (Plötz, 1886)
Telemiades brazus E. Bell, 1949; reinstated status
Telemiades choricus (Schaus, 1902)
Telemiades megallus Mabille, 1888
Telemiades sila Evans, 1953
Telemiades epicalus Hübner, [1819]
Telemiades penidas (Hewitson, 1867)
Telemiades avitus (Stoll, 1781)
Telemiades antiope (Plötz, 1882)
Telemiades antiope antiope (Plötz, 1882)
Telemiades antiope tosca Evans, 1953
Telemiades fides E. Bell, 1949
Telemiades amphion (Geyer, 1832)
Telemiades amphion pekahia (Hewitson, 1868)
Telemiades amphion amphion (Geyer, 1832)
Telemiades amphion misitheus Mabille, 1888
Telemiades amphion marpesus (Hewitson, 1876)
Telemiades laogonus (Hewitson, 1876)
Telemiades laogonus nicola (Plötz, 1882)
Telemiades laogonus laogonus (Hewitson, 1876)
Telemiades corbulo (Stoll, 1781)

Telemiades oiclus (Mabille, 1889)

Polygonus Hübner, [1825]; TS: =*lividus* Hübner, [1825] (*leo* Gmelin)
=‡*Acolastus* Scudder, 1872 (preocc. *Acolastus* Gerstaecker, 1855 [Coleoptera]); TS: *savigny* Latreille
=†*Nennius* Kirby, [1902] (repl. *Polygonus* Hübner); TS: =*lividus* Hübner, [1825] (*leo* Gmelin)
Polygonus leo (Gmelin, [1790])
Polygonus leo arizonensis (Skinner, 1911)
Polygonus leo pallida Röber, 1925
Polygonus leo histrio Röber, 1925
Polygonus leo leo (Gmelin, [1790])
Polygonus leo hagar Evans, 1952
Polygonus savigny (Latreille, [1824])
Polygonus savigny savigny (Latreille, [1824])
Polygonus savigny punctus E. Bell & W. Comstock, 1948

Tribe Oileidini Grishin, new tribe

Subtribe Oileidina Grishin

Oileides Hübner, [1825]; TS: *vulpinus* Hübner
=†*Ablepsis* Watson, 1893; TS: *vulpinus* Hübner
Oileides fenestratus (Gmelin, [1790])
Oileides guyanensis (Mabille & Boullet, 1912); reinstated status
Oileides vulpinus Hübner, [1825]
Oileides amazonensis (E. Bell, 1947)
Oileides amazonensis amazonensis (E. Bell, 1947)
Oileides amazonensis renta (Evans, 1952)

Subtribe Typhedanina Grishin, new subtribe

Typhedanus A. Butler, 1870; TS: =*zephus* Butler, 1870 (*umber* Herrich-Schäffer)
Typhedanus umber (Herrich-Schäffer, 1869)
Typhedanus ampyx (Godman & Salvin, 1893)
Typhedanus salas H. Freeman, 1977
Typhedanus cajeta (Herrich-Schäffer, 1869); new combination, was in *Cogia*
Typhedanus cajeta cajeta (Herrich-Schäffer, 1869); new combination, was in *Cogia*
Typhedanus cajeta eluina (Godman & Salvin, 1894); new combination, was in *Cogia*
Typhedanus aventinus (Godman & Salvin, 1894); new combination, was in *Cogia*
Typhedanus mala (Evans, 1953); new combination, was in *Cogia*
Typhedanus buena (A. Warren, Dolibaina & Hernández-Mejía, 2015); new combination, was in *Cogia*

Oechydrus E. Watson, 1893; TS: *chersis* Herrich-Schäffer
Oechydrus chersis (Herrich-Schäffer, 1869)
Oechydrus chersis chersis (Herrich-Schäffer, 1869)
Oechydrus chersis ochrilinea (Schaus, 1902)
Oechydrus chersis rufus Evans, 1953
Oechydrus evelinda (A. Butler, 1870); reinstated status

Cogia A. Butler, 1870; TS: *hassan* A. Butler
=*Phoedinus* Godman & Salvin, 1894; TS: *caicus* Herrich-Schäffer
=‡*Anaperus* Mabille & Boullet, 1919 (preocc. *Anaperus* Tröschel, 1846 [Echinodermata]); TS: *caicus* H.-S.
=†*Caicella* Hemming, 1934 (repl. *Phoedinus* Godman & Salvin); TS: *caicus* Herrich-Schäffer
Cogia crameri (McHenry, 1960); new combination, was in *Typhedanus*
Cogia undulatus (Hewitson, 1867); new combination, was in *Typhedanus*

***Cogia* galbula** (Plötz, 1881); new combination, was in *Typhedanus*
***Cogia* optica** (Evans, 1952); new combination, was in *Typhedanus*
Cogia goya (Evans, 1952); new status, new combination, was in *Typhedanus*
***Cogia* stylites** (Herrich-Schäffer, 1869); new combination, was in *Typhedanus*
***Cogia* cursinoi** (O. Mielke, 1979); new combination, was in *Typhedanus*
***Cogia* eliasi** (O. Mielke, 1979); new combination, was in *Typhedanus*
***Cogia* aziris** (Hewitson, 1867); new combination, was in *Typhedanus*
Cogia hassan A. Butler, 1870
Cogia hassan hassan A. Butler, 1870
Cogia hassan evansi E. Bell, 1937
Cogia abdul Hayward, 1947
Cogia troilus Mabille, 1898
Cogia punctilia Plötz, 1882
Cogia cerradicola (O. Mielke, 1967)
Cogia outis (Skinner, 1894)
Cogia hippalus (W. H. Edwards, 1882)
Cogia hippalus peninsularis L. Miller & MacNeill, 1969
Cogia hippalus hippalus (W. H. Edwards, 1882)
Cogia hippalus hiska Evans, 1953
Cogia hippalus hester Evans, 1953
Cogia azila Evans, 1953
Cogia caicus (Herrich-Schäffer, 1869)
Cogia caicus moschus (W. H. Edwards, 1882)
Cogia caicus caicus (Herrich-Schäffer, 1869)
Cogia calchas (Herrich-Schäffer, 1869)
Cogia grandis N. Riley, 1921
Cogia elaites (Hewitson, 1867)

Nerula Mabille, 1888; TS: =*nautes* Mabille, 1888 (*fibrena* Hewitson)
Nerula fibrena (Hewitson, 1877)
Nerula tuba Evans, 1953

Marela Mabille, 1903; TS: *tamyroides* C. Felder & R. Felder
Marela tamyroides (C. Felder & R. Felder, 1867)
Marela tamyris Mabille, 1903
Marela tamba Evans, 1953; new status

Removed from Eudaminae to Pyrginae: Achlyodini: Achlyodina

Cabirus Hübner, [1819]
Cabirus procas (Cramer, 1777)
Cabirus procas procas (Cramer, 1777)
Cabirus procas junta Evans, 1952
Cabirus procas purda Evans, 1952

T6. Systematic list of Eudaminae prior to this publication

The list is maintained at the Butterflies of America website:

Warren AD, Davis KJ, Stangeland EM, Pelham JPP, Willmott KR, Grishin NV. 2013. Illustrated Lists of American Butterflies. [21-XI-2017] <http://www.butterfliesofamerica.com/L/Hesperiidae.htm> (accessed on March 2, 2019),

which is based on:

Mielke OHH. 2004. Hesperiidae, pp. 25-86. In: Lamas, G. (Ed.), Checklist: Part 4A. Hesperioidea - Papilionoidea. In: Heppner, J. B. (Ed.), Atlas of Neotropical Lepidoptera. Volume 5A. Gainesville, Association for Tropical Lepidoptera; Scientific Publishers;

Mielke OHH. 2005. Catalogue of the American Hesperioidea: Hesperiidae (Lepidoptera). Curitiba, Sociedade Brasileira de Zoologia. 1: xiii + 125 pp.; 2: [ii] + 127-410; 3: [ii] + 411-771; 4: [ii] + 773-1055; 5: [ii] + 1057-1383; 6: [ii] + 1385-1536;

Evans WH. 1949. A Catalogue of the Hesperiidae from Europe, Asia, and Australia in the British Museum (Natural History). London, British Museum (Natural History). xix + 502 pp., 53 pls. (for *Lobocla*);

Warren AD, Ogawa JR, Brower AVZ. 2009. "Revised classification of the family Hesperiidae (Lepidoptera: Hesperioidea) based on combined molecular and morphological data." *Systematic Entomology* **34**(3): 467-523,

with modifications and updates from:

Murayama S. 1995. Description of 3 new species and 5 new races of Chinese butterflies from Yunnan Province [in Japanese]. "*Konchu to Shizen*" (*Insects and Nature*) **30**(14): 32-35 (for *Lobocla*);

Fan ZL, Wang M. 2004. Notes on the genus *Lobocla* Moore with description of a new species (Lepidoptera: Hesperiidae). *Acta Zootaxonomica Sinica* **29**(3): 523–526 (for *Lobocla*);

Burns JM, Janzen DH. 2005. Pan-Neotropical genus Venada (Hesperiidae: Pyrginae) is not monotypic: Four new species occur on one volcano in the Area de Conservación Guanacaste, Costa Rica. *Journal of the Lepidopterists' Society* **59**(1): 19-34;

Austin GT. 2008. Hesperiidae of Rondônia, Brazil: Taxonomic comments on "night" skippers, with descriptions of new genera and species (Lepidoptera: Eudaminae). *Insecta Mundi* **29**: 1-36;

Austin GT, Mielke OHH. 2008. Hesperiidae of Rondônia, Brazil: *Porphyrogenes* Watson (Lepidoptera: Pyrginae: Eudamini), with descriptions of new species from Central and South America. *Insecta Mundi* **44**: 1-56;

Burns JM, Janzen DH, Hallwachs WD. 2010. Of many similar species in the Neotropical genus *Porphyrogenes* (Lepidoptera: Hesperiidae), a new one, repeatedly reared in Costa Rica, is relatively distinct. *Proceedings of the Entomological Society of Washington* **112**(1): 32-42;

Grishin NV. 2012. A new species of *Entheus* from Ecuador (Lepidoptera, Hesperiidae, Eudaminae). *Tropical Lepidoptera Research* **22**(1): 24-28;

Burns JM, Janzen DH, Hallwachs WD, Hajibabaei M. 2013. DNA barcodes reveal yet another new species of Venada (Lepidoptera: Hesperiidae) in northwestern Costa Rica. *Proceedings of the Entomological Society of Washington* **115**(1): 37-47;

Grishin NV. 2013. A new *Entheus* (Hesperiidae: Eudaminae) from Colombia and Panama is most distinctive in the *E. gentius* group. *Journal of Research on the Lepidoptera* **46**: 91-103;

Bertrand C, Janzen DH, Hallwachs WD, Burns JM, Gibson JF, Shokralla S, Hajibabaei M. 2014. Mitochondrial and nuclear phylogenetic analysis with Sanger and next-generation sequencing shows that, in Área de Conservación Guanacaste, northwestern Costa Rica, the skipper butterfly named *Urbanus belli* (family Hesperiidae) comprises three morphologically cryptic species. *BMC evolutionary Biology* **14**(153): 1-18;

Siewert RR, Leviski GL, Mielke OHH, and Casagrande MM. 2015. A new species of *Aguna* Williams (Lepidoptera, Hesperiidae) from Panamá belonging to the "*claxon* group." *Revista brasileira de Entomologia* **59**(4): 320-322;

Warren AD, Dolibaina DR, Hernández-Mejía C. 2015. A new species of *Cogia* from Oaxaca, Mexico (Lepidoptera: Hesperiidae, Eudaminae). *Zootaxa* **3941**(2): 239-246;

Steinhauser SR, Miller JY, Grishin NV. 2017. Review of the West Indian *Astraptes xagua* (Lucas) complex (Hesperiidae: Eudaminae) with the description of a new subspecies from the Bahamas. *Journal of Research on the Lepidoptera* **49**: 81-90;

Delgado F. Vargas JI. [2017]. Descripción de nuevos rhopaloceros para Colombia y Panamá (Insecta: Lepidoptera). Boletín científico. Museo de Historia natural, Universidad de Caldas **20**(1): 166-195;

Janzen DH, Burns JM, Cong Q, Hallwachs WD, Dapkey T, Manjunath R, Hajibabaei M, Hebert PDN, Grishin NV. 2017. Nuclear genomes distinguish cryptic species suggested by their DNA barcodes and ecology. *Proceedings of the National Academy of Sciences of the United States of America* **114**(31): 8313-8318;

Turner TV, Turland VA. 2017. Discovering Jamaican butterflies and their relationships around the Caribbean. Safety Harbor, Caribbean Wildlife Publications. xiv + 492 pp., 1021 figs.;

Siewert RR, Leviski GL, Mielke OHH, Casagrande MM. 2018. A remarkable new species of *Phocides* (Lepidoptera: Hesperiidae) from Bolivia and taxonomic considerations on Phocides charon. *Iheringia, Série Zoologia* **108**: e2018023;

Siewert RR, Madruga J, Dolibaina DR, Mielke OHH, Casagrande MM. 2018. Hidden in plain sight: a morphological study revealing three new species of the skipper genus *Drephalys* Watson, 1893 (Lepidoptera: Hesperiidae) from Brazil. *Zootaxa* **4472**(3):573-580.

Subfamily Eudaminae

Phocides Hübner, [1819]

- ***Phocides polybius*** (Fabricius, 1793)
  - *Phocides polybius lilea* (Reakirt, [1867])
  - *Phocides polybius polybius* (Fabricius, 1793)
  - *Phocides polybius phanias* (Burmeister, 1880)
- ***Phocides charon*** (C. Felder & R. Felder, 1859)
- ***Phocides petroleum*** Siewert, Leviski, Mielke & Casagrande, 2018
- ***Phocides distans*** (Herrich-Schäffer, 1869)
  - *Phocides distans licinus* (Möschler, 1879)
  - *Phocides distans distans* (Herrich-Schäffer, 1869)
  - *Phocides distans silva* Evans, 1952
- ***Phocides perillus*** (Mabille, 1888)
- ***Phocides metrodorus*** E. Bell, 1932
  - *Phocides metrodorus nigrescens* E. Bell, 1938
  - *Phocides metrodorus metrodorus* E. Bell, 1932
  - *Phocides metrodorus metron* Evans, 1952
- ***Phocides vulcanides*** Röber, 1925
- ***Phocides novalis*** Evans, 1952
- ***Phocides thermus*** (Mabille, 1883)
  - *Phocides thermus thermus* (Mabille, 1883)
  - *Phocides thermus bellina* Evans, 1952
  - *Phocides thermus valgus* (Mabille, 1883)
- ***Phocides partia*** Evans, 1952
- ***Phocides padrona*** Evans, 1952

Phocides belus Godman & Salvin, 1893
Phocides pigmalion (Cramer, 1779)
Phocides pigmalion pigmalion (Cramer, 1779)
Phocides pigmalion hewitsonius (Mabille, 1883)
Phocides pigmalion okeechobee (Worthington, 1881)
Phocides pigmalion batabanoides (W. Holland, 1902)
Phocides pigmalion batabano (Lucas, 1857)
Phocides pigmalion bicolora (Boddaert, 1783)
Phocides johnsoni E. Bell, 1947
Phocides urania (Westwood, 1852)
Phocides urania urania (Westwood, 1852)
Phocides urania vida (A. Butler, 1872)
Phocides pialia (Hewitson, 1857)
Phocides pialia maximus (Mabille, 1888)
Phocides pialia intermedia O. Mielke, 1992
Phocides pialia pialia (Hewitson, 1857)
Phocides oreides (Hewitson, [1875])
Phocides oreides colombiana E. Bell, 1938
Phocides oreides oreides (Hewitson, [1875])
Phocides yokhara (A. Butler, 1870)
Phocides yokhara yokhara (A. Butler, 1870)
Phocides yokhara inca Le Cerf, 1922
Phocides yokhara dryas Le Cerf, 1922
Phocides yokhara charonotis (Hewitson, 1874)
Phocides lincea (Herrich-Schäffer, 1869)
Phocides perkinsi (Kaye, 1931)

Hypocryptothrix E. Watson, 1893
Hypocryptothrix teutas (Hewitson, 1876)

Tarsoctenus E. Watson, 1893
Tarsoctenus papias (Hewitson, 1857)
Tarsoctenus corytus (Cramer, 1777)
Tarsoctenus corytus gaudialis (Hewitson, 1876)
Tarsoctenus corytus corytus (Cramer, 1777)
Tarsoctenus corytus corba Evans, 1952
Tarsoctenus praecia (Hewitson, 1857)
Tarsoctenus praecia praecia (Hewitson, 1857)
Tarsoctenus praecia rufibasis Boullet, 1910
Tarsoctenus praecia plutia (Hewitson, 1857)
Tarsoctenus praecia luna Evans, 1952

Phanus Hübner, [1819]
Phanus australis L. Miller, 1965
Phanus vitreus (Stoll, 1781)
Phanus ecitonorum Austin, 1993
Phanus confusis Austin, 1993
Phanus albiapicalis Austin, 1993
Phanus rilma Evans, 1952
Phanus grandis Austin, 1993
Phanus obscurior Kaye, 1925

Phanus obscurior obscurior Kaye, 1925
Phanus obscurior prestoni L. Miller, 1965
Phanus marshalli (W. F. Kirby, 1880)

Udranomia A. Butler, 1870
Udranomia orcinus (C. Felder & R. Felder, 1867)
Udranomia tomdaleyi Burns, 2017
Udranomia sallydaleyae Burns, 2017
Udranomia kikkawai (Weeks, 1906)
Udranomia eurus (Mabille & Boullet, 1919)
Udranomia spitzi (Hayward, 1942)

Drephalys E. Watson, 1893
Drephalys alcmon (Cramer, 1780)
Drephalys mourei O. Mielke, 1968
Drephalys helixus (Hewitson, 1877)
Drephalys kidonoi Burns, 2000
Drephalys phoenicoides (Mabille & Boullet, 1919)
Drephalys phoenice (Hewitson, 1867)
Drephalys heraclides E. Bell, 1942
Drephalys citrinus Madruga, Siewert, O. Mielke & Casagrande, 2018
Drephalys dracarys Madruga, Siewert, O. Mielke & Dolibaina, 2018
Drephalys electrinus Siewert, Madruga, O. Mielke & Dolibaina, 2018
Drephalys miersi O. Mielke, 1968
Drephalys opifex Evans, 1952
Drephalys olvina Evans, 1952
Drephalys olva Evans, 1952
Drephalys eous (Hewitson, 1867)
Drephalys croceus Austin, 1995
Drephalys dumeril (Latreille, [1824])
Drephalys oria Evans, 1952
Drephalys oriander (Hewitson, 1867)
Drephalys talboti (Le Cerf, 1922)
Drephalys tortus Austin, 1995

Augiades Hübner, [1819]
Augiades crinisus (Cramer, 1780)
Augiades epimethea (Plötz, 1883)
Augiades epimethea bicolor (Mabille & Boullet, 1919)
Augiades epimethea epimethea (Plötz, 1883)

Hyalothyrus Mabille, 1878
Hyalothyrus infernalis (Möschler, 1877)
Hyalothyrus infernalis infernalis (Möschler, 1877)
Hyalothyrus infernalis infa Evans, 1952
Hyalothyrus leucomelas (Geyer, 1832)
Hyalothyrus nitocris (Stoll, 1782)
Hyalothyrus mimicus Mabille & Boullet, 1919
Hyalothyrus neleus (Linnaeus, 1758)
Hyalothyrus neleus pemphigargyra (Mabille, 1888)
Hyalothyrus neleus neleus (Linnaeus, 1758)

Hyalothyrus neleus neda Evans, 1952

Phareas Westwood, 1852
Phareas burnsi Grishin, 2013
Phareas coeleste Westwood, 1852

Entheus Hübner, [1819]
Entheus eumelus (Cramer, 1777)
Entheus ninyas H. Druce, 1912
Entheus eunyas Austin, O. Mielke & Steinhauser, 1997
Entheus lemna (A. Butler, 1870)
Entheus gentius (Cramer, 1777)
Entheus bombus Austin, O. Mielke & Steinhauser, 1997
Entheus aureolus Austin, O. Mielke & Steinhauser, 1997
Entheus huertasae Grishin, 2013
Entheus telemus Mabille, 1898
Entheus latebrosus Austin, 1997
Entheus priassus (Linnaeus, 1758)
Entheus priassus priassus (Linnaeus, 1758)
Entheus priassus pralina Evans, 1952
Entheus aureanota Austin, O. Mielke & Steinhauser, 1997
Entheus curvus Austin, 1997
Entheus matho Godman & Salvin, 1879
Entheus matho matho Godman & Salvin, 1879
Entheus matho latifascius M. Hering, 1925
Entheus matho marmato Salazar & Vargas, 2017
Entheus matho aequatorius Mabille & Boullet, 1919
Entheus matho dius Mabille, 1898
Entheus crux Steinhauser, 1989
Entheus warreni Grishin, 2012

Cabirus Hübner, [1819]
Cabirus procas (Cramer, 1777)
Cabirus procas procas (Cramer, 1777)
Cabirus procas junta Evans, 1952
Cabirus procas purda Evans, 1952

Proteides Hübner, [1819]
Proteides mercurius (Fabricius, 1787)
Proteides mercurius mercurius (Fabricius, 1787)
Proteides mercurius sanantonio (Lucas, 1857)
Proteides mercurius sanchesi E. Bell & W. Comstock, 1948
Proteides mercurius jamaicensis Skinner, 1920
Proteides mercurius pedro (Dewitz, 1877)
Proteides mercurius vincenti E. Bell & W. Comstock, 1948
Proteides mercurius angasi Godman & Salvin, 1884
Proteides mercurius grenadensis Enrico & Pinchon, 1969
Proteides maysi (Lucas, 1857)

Epargyreus Hübner, [1819]
Epargyreus zestos (Geyer, 1832)

Epargyreus zestos zestos (Geyer, 1832)
Epargyreus zestos inaguarum Clench & Bjorndal, 1980
Epargyreus clarus (Cramer, 1775)
Epargyreus clarus californicus MacNeill, 1975
Epargyreus clarus clarus (Cramer, 1775)
Epargyreus clarus huachuca Dixon, 1955
Epargyreus clarus profugus Austin, 1998
Epargyreus antaeus (Hewitson, 1867)
Epargyreus spanna Evans, 1952
Epargyreus barisses (Hewitson, 1874)
Epargyreus barisses barisses (Hewitson, 1874)
Epargyreus barisses argentina Mabille, 1903
Epargyreus tmolis (Burmeister, 1875)
Epargyreus socus (Hübner, [1825])
Epargyreus socus orizaba Scudder, 1872
Epargyreus socus chota Evans, 1952
Epargyreus socus dicta Evans, 1952
Epargyreus socus sinus Evans, 1952
Epargyreus socus socus (Hübner, [1825])
Epargyreus socus pseudexadeus Westwood, 1852
Epargyreus windi H. Freeman, 1969
Epargyreus exadeus (Cramer, 1780)
Epargyreus exadeus cruza Evans, 1952
Epargyreus exadeus exadeus (Cramer, 1780)
Epargyreus nutra Evans, 1952
Epargyreus aspina Evans, 1952
Epargyreus spina Evans, 1952
Epargyreus spina spina Evans, 1952
Epargyreus spina verruga Evans, 1952
Epargyreus spinta Evans, 1952
Epargyreus spinosa Evans, 1952
Epargyreus clavicornis (Herrich-Schäffer, 1869)
Epargyreus clavicornis gaumeri Godman & Salvin, 1893
Epargyreus clavicornis tenda Evans, 1955
Epargyreus clavicornis clavicornis (Herrich-Schäffer, 1869)
Epargyreus brodkorbi H. Freeman, 1969
Epargyreus deleoni H. Freeman, 1977
Epargyreus enispe (Hewitson, 1867)
Epargyreus enispe enispe (Hewitson, 1867)
Epargyreus enispe elta Evans, 1952

Polygonus Hübner, [1825]
Polygonus leo (Gmelin, [1790])
Polygonus leo arizonensis (Skinner, 1911)
Polygonus leo pallida Röber, 1925
Polygonus leo histrio Röber, 1925
Polygonus leo leo (Gmelin, [1790])
Polygonus leo hagar Evans, 1952
Polygonus savigny (Latreille, [1824])
Polygonus savigny savigny (Latreille, [1824])
Polygonus savigny punctus E. Bell & W. Comstock, 1948

Chioides Lindsey, 1921

- ***Chioides albofasciatus*** (Hewitson, 1867)
- ***Chioides catillus*** (Cramer, 1780)
  - *Chioides catillus albius* Evans, 1952
  - *Chioides catillus catillus* (Cramer, 1780)
  - *Chioides catillus jethira* (A. Butler, 1870)
- ***Chioides churchi*** E. Bell & W. Comstock, 1948
- ***Chioides cinereus*** (Mabille & Vuillot, 1891)
- ***Chioides concinnus*** (Mabille, 1877)
- ***Chioides vintra*** Evans, 1952
- ***Chioides iverna*** Evans, 1952
- ***Chioides zilpa*** (A. Butler, 1872)
- ***Chioides ixion*** (Plötz, 1881)
- ***Chioides marmorosa*** (Herrich-Schäffer, 1865)

Aguna R. Williams, 1927

- ***Aguna asander*** (Hewitson, 1867)
  - *Aguna asander asander* (Hewitson, 1867)
  - *Aguna asander haitensis* (Mabille & Boullet, 1912)
  - *Aguna asander jasper* Evans, 1952
- ***Aguna megaeles*** (Mabille, 1888)
  - *Aguna megaeles malia* Evans, 1952
  - *Aguna megaeles megaeles* (Mabille, 1888)
- ***Aguna albistria*** (Plötz, 1880)
  - *Aguna albistria albistria* (Plötz, 1880)
  - *Aguna albistria leucogramma* (Mabille, 1888)
- ***Aguna metophis*** (Latreille, [1824])
- ***Aguna camagura*** (R. Williams, 1926)
- ***Aguna claxon*** Evans, 1952
- ***Aguna prasinus*** Siewert, Leviski, O. Mielke & Casagrande, 2015
- ***Aguna clina*** Evans, 1952
- ***Aguna latifascia*** Austin & O. Mielke, 1998
- ***Aguna coelus*** (Stoll, 1781)
- ***Aguna cirrus*** Evans, 1952
- ***Aguna coeloides*** Austin & O. Mielke, 1998
- ***Aguna nicolayi*** Austin & O. Mielke, 1998
- ***Aguna venezuelae*** O. Mielke, 1971
- ***Aguna latimacula*** Austin & O. Mielke, 1998
- ***Aguna aurunce*** (Hewitson, 1867)
  - *Aguna aurunce aurunce* (Hewitson, 1867)
  - *Aguna aurunce hypozonius* (Plötz, 1881)
- ***Aguna glaphyrus*** (Mabille, 1888)
- ***Aguna penicillata*** Austin & O. Mielke, 1998
- ***Aguna spicata*** Austin & O. Mielke, 1998
- ***Aguna longicauda*** Austin & O. Mielke, 1998
- ***Aguna ganna*** (Möschler, 1879)
- ***Aguna panama*** Austin & O. Mielke, 1998
- ***Aguna spatulata*** Austin & O. Mielke, 1998
- ***Aguna similis*** Austin & O. Mielke, 1998
- ***Aguna mesodentata*** Austin & O. Mielke, 1998

Aguna squamalba Austin & O. Mielke, 1998
Aguna parva Austin & O. Mielke, 1998

Typhedanus A. Butler, 1870
Typhedanus crameri McHenry, 1960
Typhedanus undulatus (Hewitson, 1867)
Typhedanus galbula (Plötz, 1881)
Typhedanus optica Evans, 1952
Typhedanus optica optica Evans, 1952
Typhedanus optica goya Evans, 1952
Typhedanus stylites (Herrich-Schäffer, 1869)
Typhedanus aziris (Hewitson, 1867)
Typhedanus umber (Herrich-Schäffer, 1869)
Typhedanus ampyx (Godman & Salvin, 1893)
Typhedanus salas H. Freeman, 1977
Typhedanus cursinoi O. Mielke, 1979
Typhedanus eliasi O. Mielke, 1979

Polythrix E. Watson, 1893
Polythrix octomaculata (Sepp, [1844])
Polythrix maizae Hellebuyck, 1998
Polythrix mexicanus H. Freeman, 1969
Polythrix roma Evans, 1952
Polythrix asine (Hewitson, 1867)
Polythrix hirtius (A. Butler, 1870)
Polythrix gyges Evans, 1952
Polythrix minvanes (R. Williams, 1926)
Polythrix ceculus (Herrich-Schäffer, 1869)
Polythrix caunus (Herrich-Schäffer, 1869)
Polythrix auginus (Hewitson, 1867)
Polythrix metallescens (Mabille, 1888)
Polythrix kanshul Shuey, 1991
Polythrix eudoxus (Stoll, 1781)

Cephise Evans, 1952
Cephise cephise (Herrich-Schäffer, 1869)
Cephise impunctus Austin & O. Mielke, 2000
Cephise glarus (Mabille, 1888)
Cephise nuspesez Burns, 1996
Cephise malesedis Austin & O. Mielke, 2000
Cephise maculatus Austin & O. Mielke, 2000
Cephise burnsi Austin & O. Mielke, 2000
Cephise mexicanus Austin & O. Mielke, 2000
Cephise procerus (Plötz, 1881)
Cephise aelius (Plötz, 1881)
Cephise callias (Mabille, 1888)
Cephise guatemalaensis (H. Freeman, 1977)

Venada Evans, 1952
Venada nevada Burns, 2005
Venada advena (Mabille, 1889)

Venada daneva Burns, 2005
Venada lamella Burns, 2013
Venada cacao Burns, 2005
Venada naranja Burns, 2005

Heronia Mabille & Boullet, 1912
Heronia labriaris (A. Butler, 1877)

Chrysoplectrum E. Watson, 1893
Chrysoplectrum pervivax (Hübner, [1819])
Chrysoplectrum bahiana (Herrich-Schäffer, 1869)
Chrysoplectrum orphne (Plötz, 1881)
Chrysoplectrum otriades (Hewitson, 1867)
Chrysoplectrum epicincea (A. Butler & H. Druce, 1872)
Chrysoplectrum perniciosus (Herrich-Schäffer, 1869)
Chrysoplectrum cuminaensis R.F. d'Almeida, 1976
Chrysoplectrum orpheus (Plötz, 1881)
Chrysoplectrum perna Evans, 1952
Chrysoplectrum albovenae E. Bell, 1932

Zestusa Lindsey, 1925
Zestusa dorus (W. H. Edwards, 1882)
Zestusa elwesi (Godman & Salvin, 1893)
Zestusa staudingeri (Mabille, 1888)
Zestusa levona Steinhauser, 1972

Lobocla Moore, 1884
Lobocla liliana (Atkinson, 1871)
Lobocla liliana ignatius (Plötz, 1882)
Lobocla liliana liliana (Atkinson, 1871)
Lobocla aborica (Tytler, 1915)
Lobocla aborica aborica (Tytler, 1915)
Lobocla aborica zesta Evans, 1949
Lobocla aborica tonka Evans, 1949
Lobocla quadripunctata Fan & Wang, 2004
Lobocla disparalis Murayama, 1995
Lobocla bifasciatus (Bremer & Grey, 1853)
Lobocla contractus (Leech, 1894)
Lobocla germanus (Oberthür, 1886)
Lobocla nepos (Oberthür, 1886)
Lobocla nepos nepos (Oberthür, 1886)
Lobocla nepos phyllis (Hemming, 1933)
Lobocla proximus (Leech, 1891)
Lobocla simplex (Leech, 1891)

Codatractus Lindsey, 1921
Codatractus carlos Evans, 1952
Codatractus carlos carlos Evans, 1952
Codatractus carlos arguta Evans, 1952
Codatractus carlos rowena Evans, 1952
Codatractus alcaeus (Hewitson, 1867)

Codatractus alcaeus alcaeus (Hewitson, 1867)
Codatractus alcaeus apulia Evans, 1952
Codatractus yucatanus H. Freeman, 1977
Codatractus aminias (Hewitson, 1867)
Codatractus arizonensis (Skinner, 1905)
Codatractus sallyae A. Warren, 1995
Codatractus melon (Godman & Salvin, 1893)
Codatractus bryaxis (Hewitson, 1867)
Codatractus imalena (A. Butler, 1872)
Codatractus cyledis (Dyar, 1912)
Codatractus cyda (Godman, 1901)
Codatractus uvydixa (Dyar, 1914)
Codatractus valeriana (Plötz, 1881)
"***Codatractus***" ***hyster*** (Dyar, 1916); removed from *Codatractus* by Burns (1996), but not placed in any genus

Ridens Evans, 1952
Ridens crison (Godman & Salvin, 1893)
Ridens crison crison (Godman & Salvin, 1893)
Ridens crison howarthi Steinhauser, 1974
Ridens crison cachinnans (Godman, 1901)
Ridens ridens (Hewitson, 1876)
Ridens fieldi Steinhauser, 1974
Ridens toddi Steinhauser, 1974
Ridens biolleyi (Mabille, 1900)
Ridens mercedes Steinhauser, 1983
Ridens harpagus (C. Felder & R. Felder, 1867)
Ridens philistus (Hopffer, 1874)
Ridens philistus philistus (Hopffer, 1874)
Ridens philistus philia Evans, 1952
Ridens mephitis (Hewitson, 1876)
Ridens fulminans (Herrich-Schäffer, 1869)
Ridens fulima Evans, 1952
Ridens panche (R. Williams, 1927)
Ridens pacasa (R. Williams, 1927)
Ridens bidens Austin, 1998
Ridens allyni H. Freeman, 1979
Ridens miltas (Godman & Salvin, 1893)
Ridens bridgmani (Weeks, 1902)
Ridens nora Evans, 1952
Ridens tristis (Draudt, [1922])
Ridens telegonoides (Mabille & Boullet, 1912)

Urbanus Hübner, [1807]
Urbanus proteus (Linnaeus, 1758)
Urbanus proteus proteus (Linnaeus, 1758)
Urbanus proteus domingo (Scudder, 1872)
Urbanus viterboana (Ehrmann, 1907)
Urbanus dubius Steinhauser, 1981
Urbanus belli (Hayward, 1935)
Urbanus bernikerni Burns, 2014
Urbanus ehakernae Burns, 2014

Urbanus segnestami Burns, 2014
Urbanus huancavillcas (R. Williams, 1926)
Urbanus pronta Evans, 1952
Urbanus longicaudus Austin, 1998
Urbanus parvus Austin, 1998
Urbanus pronus Evans, 1952
Urbanus esmeraldus (A. Butler, 1877)
Urbanus esma Evans, 1952
Urbanus evona Evans, 1952
Urbanus elmina Evans, 1952
Urbanus viridis H. Freeman, 1970
Urbanus esta Evans, 1952
Urbanus prodicus E. Bell, 1956
Urbanus magnus Steinhauser, 1981
Urbanus velinus (Plötz, 1881)
Urbanus villus Austin, 1998
Urbanus dorantes (Stoll, 1790)
Urbanus dorantes calafia (R. Williams, 1926)
Urbanus dorantes dorantes (Stoll, 1790)
Urbanus dorantes cramptoni W. Comstock, 1944
Urbanus dorantes santiago (Lucas, 1857)
Urbanus dorantes galapagensis (F. Williams, 1911)
Urbanus obscurus (Hewitson, 1867)
Urbanus teleus (Hübner, 1821)
Urbanus tanna Evans, 1952
Urbanus ambiguus de Jong, 1983
Urbanus cindra Evans, 1952
Urbanus zagorus (Plötz, 1881)
Urbanus simplicius (Stoll, 1790)
Urbanus procne (Plötz, 1881)
Urbanus evenus (Ménétriés, 1855)
Urbanus trebia (Möschler, 1879)
Urbanus carmelita (Herrich-Schäffer, 1869)
Urbanus carmelita carmelita (Herrich-Schäffer, 1869)
Urbanus carmelita barra Evans, 1952
Urbanus reductus (N. Riley, 1919)
Urbanus doryssus (Swainson, 1831)
Urbanus doryssus chales (Godman & Salvin, 1893)
Urbanus doryssus doryssus (Swainson, 1831)
Urbanus doryssus albicuspis (Herrich-Schäffer, 1869)
Urbanus albimargo (Mabille, 1875)
Urbanus albimargo albimargo (Mabille, 1875)
Urbanus albimargo takuta Evans, 1952
Urbanus albimargo rica Evans, 1952
Urbanus virescens (Mabille, 1877)
Urbanus chalco (Hübner, 1823)

Astraptes Hübner, [1819]
Astraptes talus (Cramer, 1777)
Astraptes fulgerator (Walch, 1775)
Astraptes fulgerator azul (Reakirt, [1867])

Astraptes fulgerator fulgerator (Walch, 1775)
Astraptes fulgor (Hayward, 1939)
Astraptes naxos (Hewitson, 1867)
Astraptes xagua (Lucas, 1857)
Astraptes xagua xagua (Lucas, 1857)
Astraptes xagua harveyi Clench, Steinhauser and J. Miller, 2017
Astraptes christyi (Sharpe, 1898)
Astraptes apastus (Cramer, 1777)
Astraptes apastus apastus (Cramer, 1777)
Astraptes apastus pusa Evans, 1952
Astraptes megalurus (Mabille, 1877)
Astraptes tucuti (R. Williams, 1927)
Astraptes brevicauda (Plötz, 1886)
Astraptes palliolum (H. Druce, 1908)
Astraptes phalaecus (Godman & Salvin, 1893)
Astraptes egregius (A. Butler, 1870)
Astraptes egregius egregius (A. Butler, 1870)
Astraptes egregius coxeyi (R. Williams, 1931)
Astraptes erycina (Plötz, 1881)
Astraptes halesius (Hewitson, 1877)
Astraptes mabillei Steinhauser, 1989
Astraptes aulus (Plötz, 1881)
Astraptes enotrus (Stoll, 1781)
Astraptes janeira (Schaus, 1902)
Astraptes elorus (Hewitson, 1867)
Astraptes alardus (Stoll, 1790)
Astraptes alardus latia Evans, 1952
Astraptes alardus aquila Evans, 1952
Astraptes alardus alardus (Stoll, 1790)
Astraptes habana (Lucas, 1857)
Astraptes habana habana (Lucas, 1857)
Astraptes habana heriul (Mabille & Boullet, 1912)
Astraptes alector (C. Felder & R. Felder, 1867)
Astraptes alector hopfferi (Plötz, 1881)
Astraptes alector alector (C. Felder & R. Felder, 1867)
Astraptes cretatus (Hayward, 1939)
Astraptes cretatus cretatus (Hayward, 1939)
Astraptes cretatus adoba Evans, 1952
Astraptes creteus (Cramer, 1780)
Astraptes creteus crana Evans, 1952
Astraptes creteus crilla Evans, 1952
Astraptes creteus cyprus Evans, 1952
Astraptes creteus creteus (Cramer, 1780)
Astraptes creteus siges (Mabille, 1903)
Astraptes bifascia (Herrich-Schäffer, 1869)
Astraptes latimargo (Herrich-Schäffer, 1869)
Astraptes tinda Evans, 1952
Astraptes chiriquensis (Staudinger, 1876)
Astraptes chiriquensis chiriquensis (Staudinger, 1876)
Astraptes chiriquensis erana Evans, 1952

Astraptes chiriquensis meretrix (Hewitson, 1876)
Astraptes chiriquensis oenander (Hewitson, 1876)
Astraptes weymeri (Plötz, 1882)
Astraptes jaira (A. Butler, 1870)
Astraptes cassander (Fabricius, 1793)
Astraptes galesus (Mabille, 1888)
Astraptes galesus cassius Evans, 1952
Astraptes galesus galesus (Mabille, 1888)
Astraptes anaphus (Cramer, 1777)
Astraptes anaphus annetta Evans, 1952
Astraptes anaphus anaphus (Cramer, 1777)
Astraptes anaphus anoma Evans, 1952
Astraptes anaphus aniza Evans, 1952
Astraptes anaphus anausis (Godman & Salvin, 1896)

Narcosius Steinhauser, 1986
Narcosius narcosius (Stoll, 1790)
Narcosius aulina (Evans, 1952)
Narcosius samson (Evans, 1952)
Narcosius mura (R. Williams, 1927)
Narcosius pseudomura Austin, 1996
Narcosius colossus (Herrich-Schäffer, 1869)
Narcosius colossus colossus (Herrich-Schäffer, 1869)
Narcosius colossus granadensis (Möschler, 1879)
Narcosius dosula (Evans, 1952)
Narcosius hercules (E. Bell, 1956)
Narcosius parisi (R. Williams, 1927)
Narcosius parisi helen (Evans, 1952)
Narcosius parisi parisi (R. Williams, 1927)
Narcosius odysseus Austin, 1996
Narcosius nazaraeus Steinhauser, 1986
Narcosius steinhauseri Austin, 1996

Calliades Mabille & Boullet, 1912
Calliades oryx (C. Felder & R. Felder, 1862)
Calliades zeutus (Möschler, 1879)

Autochton Hübner, 1823
Autochton cellus (Boisduval & Le Conte, [1837])
Autochton siermadror Burns, 1984
Autochton pseudocellus (Coolidge & Clemence, [1910])
Autochton cincta (Plötz, 1882)
Autochton vectilucis (A. Butler, 1872)
Autochton integrifascia (Mabille, 1891)
Autochton neis (Geyer, 1832)
Autochton reflexus (Mabille & Boullet, 1912)
Autochton longipennis (Plötz, 1882)
Autochton zarex (Hübner, 1818)
Autochton bipunctatus (Gmelin, [1790])
Autochton sulfureolus (Mabille, 1883)
Autochton itylus Hübner, 1823

Thessia Steinhauser, 1989
- ***Thessia athesis*** (Hewitson, 1867)
- ***Thessia jalapus*** (Plötz, 1881)

Achalarus Scudder, 1872
- ***Achalarus toxeus*** (Plötz, 1882)
- ***Achalarus albociliatus*** (Mabille, 1877)
  - *Achalarus albociliatus albociliatus* (Mabille, 1877)
  - *Achalarus albociliatus leucophrys* (Mabille, 1898)
  - *Achalarus albociliatus nocera* (Plötz, 1882)
- ***Achalarus lyciades*** (Geyer, 1832)
- ***Achalarus casica*** (Herrich-Schäffer, 1869)
- ***Achalarus tehuacana*** (Draudt, 1922)

Thorybes Scudder, 1872
- ***Thorybes confusis*** E. Bell, 1923
- ***Thorybes bathyllus*** (J. E. Smith, 1797)
- ***Thorybes mexicana*** (Herrich-Schäffer, 1869)
  - *Thorybes mexicana aemilea* (Skinner, 1893)
  - *Thorybes mexicana blanca* Scott, 1981
  - *Thorybes mexicana nevada* Scudder, 1872
  - *Thorybes mexicana dobra* Evans, 1952
  - *Thorybes mexicana mexicana* (Herrich-Schäffer, 1869)
  - *Thorybes mexicana ducia* Evans, 1952
- ***Thorybes diversus*** E. Bell, 1927
- ***Thorybes drusius*** (W. H. Edwards, [1884])
- ***Thorybes pylades*** (Scudder, 1870)
  - *Thorybes pylades indistinctus* Austin & J. Emmel, 1998
  - *Thorybes pylades albosuffusa* H. Freeman, 1943
  - *Thorybes pylades pylades* (Scudder, 1870)

Cabares Godman & Salvin, 1894
- ***Cabares potrillo*** (Lucas, 1857)
  - *Cabares potrillo potrillo* (Lucas, 1857)
  - *Cabares potrillo reducta* Mabille & Boullet, 1919
- ***Cabares rinta*** Evans, 1952

Spathilepia A. Butler, 1870
- ***Spathilepia clonius*** (Cramer, 1775)

Oechydrus E. Watson, 1893
- ***Oechydrus chersis*** (Herrich-Schäffer, 1869)
  - *Oechydrus chersis chersis* (Herrich-Schäffer, 1869)
  - *Oechydrus chersis ochrilinea* (Schaus, 1902)
  - *Oechydrus chersis rufus* Evans, 1953
  - *Oechydrus chersis evelinda* (A. Butler, 1870)

Ectomis Mabille, 1878
- ***Ectomis cythna*** (Hewitson, 1878)
  - *Ectomis cythna cythna* (Hewitson, 1878)

Ectomis cythna ega Evans, 1953

Nerula Mabille, 1888
Nerula fibrena (Hewitson, 1877)
Nerula tuba Evans, 1953

Marela Mabille, 1903
Marela tamyroides (C. Felder & R. Felder, 1867)
Marela tamyris Mabille, 1903
Marela tamyris tamyris Mabille, 1903
Marela tamyris tamba Evans, 1953

Cogia A. Butler, 1870
Cogia hassan A. Butler, 1870
Cogia hassan hassan A. Butler, 1870
Cogia hassan evansi E. Bell, 1937
Cogia abdul Hayward, 1947
Cogia cajeta (Herrich-Schäffer, 1869)
Cogia cajeta cajeta (Herrich-Schäffer, 1869)
Cogia cajeta eluina Godman & Salvin, 1894
Cogia troilus Mabille, 1898
Cogia punctilia Plötz, 1882
Cogia cerradicola (O. Mielke, 1967)
Cogia outis (Skinner, 1894)
Cogia hippalus (W. H. Edwards, 1882)
Cogia hippalus peninsularis L. Miller & MacNeill, 1969
Cogia hippalus hippalus (W. H. Edwards, 1882)
Cogia hippalus hiska Evans, 1953
Cogia hippalus hester Evans, 1953
Cogia azila Evans, 1953
Cogia caicus (Herrich-Schäffer, 1869)
Cogia caicus moschus (W. H. Edwards, 1882)
Cogia caicus caicus (Herrich-Schäffer, 1869)
Cogia calchas (Herrich-Schäffer, 1869)
Cogia grandis N. Riley, 1921
Cogia aventinus (Godman & Salvin, 1894)
Cogia buena A. Warren, Dolibaina & Hernández-Mejía, 2015
Cogia mala Evans, 1953
Cogia elaites (Hewitson, 1867)

Paracogia O. Mielke, 1977
Paracogia acanthopoda O. Mielke, 1977

Telemiades Hübner, [1819]
Telemiades delalande (Latreille, [1824])
Telemiades litanicus (Hewitson, 1876)
Telemiades vansa Evans, 1953
Telemiades gallius (Mabille, 1888)
Telemiades chrysorrhoea (Godman & Salvin, 1893)
Telemiades centrites (Hewitson, 1870)
Telemiades centrites contra Evans, 1953

Telemiades centrites centrites (Hewitson, 1870)
Telemiades vespasius (Fabricius, 1793)
Telemiades squanda Evans, 1953
Telemiades trenda Evans, 1953
Telemiades nicomedes (Möschler, 1879)
Telemiades meris (Plötz, 1886)
Telemiades meris meris (Plötz, 1886)
Telemiades meris brazus E. Bell, 1949
Telemiades choricus (Schaus, 1902)
Telemiades megallus Mabille, 1888
Telemiades sila Evans, 1953
Telemiades epicalus Hübner, [1819]
Telemiades penidas (Hewitson, 1867)
Telemiades avitus (Stoll, 1781)
Telemiades antiope (Plötz, 1882)
Telemiades antiope antiope (Plötz, 1882)
Telemiades antiope tosca Evans, 1953
Telemiades fides E. Bell, 1949
Telemiades amphion (Geyer, 1832)
Telemiades amphion pekahia (Hewitson, 1868)
Telemiades amphion amphion (Geyer, 1832)
Telemiades amphion misitheus Mabille, 1888
Telemiades amphion marpesus (Hewitson, 1876)
Telemiades laogonus (Hewitson, 1876)
Telemiades laogonus nicola (Plötz, 1882)
Telemiades laogonus laogonus (Hewitson, 1876)
Telemiades corbulo (Stoll, 1781)
Telemiades oiclus (Mabille, 1889)

Bungalotis E. Watson, 1893
Bungalotis erythus (Cramer, 1775)
Bungalotis diophorus (Möschler, 1883)
Bungalotis gagarini O. Mielke, 1967
Bungalotis midas (Cramer, 1775)
Bungalotis aureus Austin, 2008
Bungalotis astylos (Cramer, 1780)
Bungalotis milleri H. Freeman, 1977
Bungalotis quadratum (Sepp, [1845])
Bungalotis quadratum quadratum (Sepp, [1845])
Bungalotis quadratum barba Evans, 1952
Bungalotis sipa de Jong, 1983
Bungalotis clusia Evans, 1952
Bungalotis borax Evans, 1952
Bungalotis lactos Evans, 1952

Salatis Evans, 1952
Salatis canalis (Skinner, 1920)
Salatis salatis (Stoll, 1782)
Salatis cebrenus (Cramer, 1777)
Salatis fulvius (Plötz, 1882)
Salatis scyrus (E. Bell, 1934)

Salatis flavomarginatus (Sepp, [1851])

Sarmientoia Berg, 1897
Sarmientoia dinka Evans, 1952
Sarmientoia eriopis (Hewitson, 1867)
Sarmientoia phaselis (Hewitson, 1867)
Sarmientoia faustinus (Burmeister, 1878)
Sarmientoia haywardi O. Mielke, 1967
Sarmientoia similis O. Mielke, 1967
Sarmientoia almeidai O. Mielke, 1967
Sarmientoia browni O. Mielke, 1967

Nicephellus Austin, 2008
Nicephellus nicephorus (Hewitson, 1876)

Euriphellus Austin, 2008
Euriphellus euribates (Stoll, 1782)
Euriphellus euribates euribates (Stoll, 1782)
Euriphellus euribates polygius (Latreille, [1824])

Dyscophellus Godman & Salvin, 1893
Dyscophellus phraxanor (Hewitson, 1876)
Dyscophellus phraxanor lama Evans, 1952
Dyscophellus phraxanor phraxanor (Hewitson, 1876)
Dyscophellus phraxanor mena Evans, 1952
Dyscophellus marian Evans, 1952
Dyscophellus porcius (C. Felder & R. Felder, 1862)
Dyscophellus porcius porcius (C. Felder & R. Felder, 1862)
Dyscophellus porcius doriscus (Hewitson, 1867)
Dyscophellus sebaldus (Stoll, 1781)
Dyscophellus erythras (Mabille, 1888)
Dyscophellus mielkei Austin, 2008
Dyscophellus diaphorus (Mabille & Boullet, 1912)
Dyscophellus porsena (E. Bell, 1934)
Dyscophellus ramon Evans, 1952
Dyscophellus ramusis (Stoll, 1781)
Dyscophellus damias (Plötz, 1882)

Nascus E. Watson, 1893
Nascus phintias Schaus, 1913
Nascus phocus (Cramer, 1777)
Nascus solon (Plötz, 1882)
Nascus solon corilla Evans, 1952
Nascus solon solon (Plötz, 1882)
Nascus broteas (Cramer, 1780)
Nascus prax Evans, 1952

Pseudonascus Austin, 2008
Pseudonascus paulliniae (Sepp, [1842])

Porphyrogenes E. Watson, 1893

Porphyrogenes boliva Evans, 1952
Porphyrogenes ferruginea (Plötz, 1883)
Porphyrogenes despecta (A. Butler, 1870)
Porphyrogenes omphale (A. Butler, 1871)
Porphyrogenes pausias (Hewitson, 1867)
Porphyrogenes probus (Möschler, 1877)
Porphyrogenes vulpecula (Plötz, 1882)
Porphyrogenes sororcula (Mabille & Boullet, 1912)
Porphyrogenes specularis Austin & O. Mielke, 2008
Porphyrogenes spanda Evans, 1952
Porphyrogenes stresa Evans, 1952
Porphyrogenes zohra (Möschler, 1879)
Porphyrogenes sparus Austin & O. Mielke, 2008
Porphyrogenes speciosus Austin & O. Mielke, 2008
Porphyrogenes peterwegei Burns, 2010
Porphyrogenes convexus Austin & O. Mielke, 2008
Porphyrogenes spadix Austin & O. Mielke, 2008
Porphyrogenes splendidus Austin & O. Mielke, 2008
Porphyrogenes simulator Austin & O. Mielke, 2008
Porphyrogenes sula (R. Williams & E. Bell, 1940)
Porphyrogenes spina Austin & O. Mielke, 2008
Porphyrogenes sporta Austin & O. Mielke, 2008
Porphyrogenes glavia Evans, 1952
Porphyrogenes sparta Evans, 1952
Porphyrogenes spoda Evans, 1952
Porphyrogenes stupa Evans, 1952
Porphyrogenes passalus (Herrich-Schäffer, 1869)
Porphyrogenes virgatus (Mabille, 1888)
Porphyrogenes eudemus (Mabille, 1888)

Ocyba Lindsey, 1925
Ocyba calathana (Hewitson, 1868)
Ocyba calathana calanus (Godman & Salvin, 1894)
Ocyba calathana calathana (Hewitson, 1868)
Ocyba calathana compusa (Hewitson, 1868)

Oileides Hübner, [1825]
Oileides azines (Hewitson, 1867)
Oileides fenestratus (Gmelin, [1790])
Oileides vulpinus Hübner, [1825]
Oileides vulpinus guyanensis (Mabille & Boullet, 1912)
Oileides vulpinus vulpinus Hübner, [1825]
Oileides amazonensis (E. Bell, 1947)
Oileides amazonensis amazonensis (E. Bell, 1947)
Oileides amazonensis renta (Evans, 1952)

Aurina Evans, 1937
Aurina dida Evans, 1937

T7. New World *Pyrgus*, *Heliopetes* and *Heliopyrgus* reclassified

A note: According to Balletto, Cassulo & Bonelli (2014:78), *Syrichtus* Boisduval, [1834] is a synonym of *Carcharodus* Hübner, [1819] and not of *Pyrgus* Hübner, [1819] or *Muschampia* Tutt, 1906. We agree, although the type species of *Syrichtus* is not *Papilio malvarum* Hoffmansegg, 1804 as suggested by Balletto et al., but *Papilio alceae* Esper, 1780, making *Syrichtus* an objective junior synonym of *Carcharodus*. This is because: (1) "*malvae*" in Hübner ([1803] Samml. eur. Schmett., p. 69, Pl. Pap. 90, Figs 450, 451) is a species known today as *Carcharodus alceae*, and it is a misidentification of *Papilio malvae* Linnaeus, 1758; (2) Boisduval ([1834]: 231) has mentioned *alceae* in his description of *Syrichtus*; and (3) Blanchard has not designated *malvae* sensu Hübner "as an expressly stated misidentification or misapplication" (IZCN Art. 69.2.4.) of *Papilio malvae* Linnaeus. Therefore, this situation falls under ICZN Art. 70.3., and here **we fix *Papilio alceae* Esper, 1780**, i. e., "the taxonomic species actually involved in the misidentification," (Art. 70.3.2.) misidentified as *Papilio malvae* Linnaeus, 1758 "cited as type species" by Blanchard (1845: 348), **as the type species of *Syrichtus* Boisduval, [1834]**.

This taxonomic list is formatted the same way as the Eudaminae list above (see T5. p. 10), except that the names of subspecies are not shown pending further studies. Exclusively Old World species of *Pyrgus* are not included in the list, other genera consist of New World species only. *Heliopetes purgia* Schaus, 1902 is placed in the subgenus *Heliopyrgus* Herrera, 1957 due to similarity in genitalia and COI barcodes.

Pyrgus Hübner, [1819]; TS: =*alveolus* Hübner, [1803] (*malvae* Linnaeus, 1758)
=‡*Urbanus* Hübner, [1806] (suppr. ICZN Op. 97); TS: *malvae* Linnaeus, 1758
=*Scelotrix* Rambur, 1858; TS: *carthami* Hübner, [1813]
=‡*Bremeria* Tutt, 1906 (preocc. *Bremeria* Alpheraky, 1892 [Nymphalidae]); TS: *bieti* Oberthür, 1886
=‡*Teleomorpha* B. Warren, 1926; TS: *carthami* Hübner, [1813]
=*Hemiteleomorpha* B. Warren, 1926; TS: *malvae* Linnaeus, 1758
=*Ateleomorpha* B. Warren, 1926; TS: *onopordi* Rambur, [1842]
Pyrgus centaureae (Rambur, [1842])
Pyrgus ruralis (Boisduval, 1852)
Pyrgus xanthus W. H. Edwards, 1878
Pyrgus scriptura (Boisduval, 1852)

Chirgus Grishin, new genus; TS: *limbata* Erschoff, 1876
Chirgus limbata (Erschoff, 1876); new combination, was in *Pyrgus*
Chirgus nigella (Weeks, 1902); reinstated status, new combination, was in *Pyrgus*
Chirgus barrosi (Ureta, 1956); new combination, was in *Pyrgus*
Chirgus fides (Hayward, 1940); new combination, was in *Pyrgus*
Chirgus bocchoris (Hewitson, 1874); new combination, was in *Pyrgus*
Chirgus veturius (Plötz, 1884); new combination, was in *Pyrgus*

Burnsius Grishin, new genus; TS: *communis* Grote, 1872
Burnsius notatus (Blanchard, 1852); new combination, was in *Pyrgus*
Burnsius crisia (Herrich-Schäffer, 1865); new combination, was in *Pyrgus*
Burnsius communis (Grote, 1872); new combination, was in *Pyrgus*
Burnsius albescens (Plötz, 1884); new combination, was in *Pyrgus*
Burnsius adepta (Plötz, 1884); new combination, was in *Pyrgus*
Burnsius orcynoides (Giacomelli, 1928); new combination, was in *Pyrgus*
Burnsius chloe (Evans, 1942); new combination, was in *Pyrgus*
Burnsius titicaca (Reverdin, 1921); new combination, was in *Pyrgus*
Burnsius philetas (W. H. Edwards, 1881); new combination, was in *Pyrgus*
Burnsius oileus (Linnaeus, 1767); new combination, was in *Pyrgus*

Burnsius orcus (Stoll, 1780); new combination, was in *Pyrgus*
Burnsius brenda (Evans, 1942); new combination, was in *Pyrgus*

Heliopetes Billberg, 1820; TS: =*niveus* Cramer, 1775 (*arsalte* Linnaeus, 1758)
Subgenus *Heliopyrgus* Herrera, 1957; TS: *americanus* Blanchard, 1852
Heliopetes americanus (Blanchard, 1852); changed combination
Heliopetes domicella (Erichson, [1849]); changed combination
Heliopetes sublinea Schaus, 1902; reinstated combination
Heliopetes purgia Schaus, 1902; new subgeneric placement

Subgenus *Leucoscirtes* Scudder, 1872; TS: *ericetorum* Boisduval, 1852
Heliopetes ericetorum (Boisduval, 1852)
Heliopetes omrina (A. Butler, 1870)
Heliopetes laviana (Hewitson, 1868)
Heliopetes libra Evans, 1944

Subgenus *Heliopetes* Billberg, 1820; TS: =*niveus* Cramer, 1775 (*arsalte* Linnaeus, 1758)
Heliopetes macaira (Reakirt, [1867])
Heliopetes nivella (Mabille, 1883)
Heliopetes orbigera (Mabille, 1888); reinstated status
Heliopetes arsalte (Linnaeus, 1758)
Heliopetes marginata Hayward, 1940
Heliopetes leucola (Hewitson, 1868)
Heliopetes ochroleuca J. Zikán, 1938
Heliopetes petrus (Hübner, [1819])
Heliopetes chimbo Evans, 1953
Heliopetes alana (Reakirt, 1868)

References:

Balletto E, Cassulo LA, Bonelli S. 2014. An annotated checklist of the Italian butterflies and skippers (Papilionoidea, Hesperiioidea). *Zootaxa* **3853**: 1-114.

Blanchard CE. 1845. Sixième ordre. Les lépidoptères, pp. 318-410, pls. 16-18. In: Histoire des insectes, traitant de leurs moeurs et de leurs métamorphoses en général, et comprenant une nouvelle classification fondée sur leurs rapports naturels. Paris, Didot. **2**: [iv] + 524 pp., 20 pls.

Boisduval JA. [1834]. Icones historique des lépidoptères nouveaux ou peu connus: collection, avec figures coloriées, des papillons d'Europe nouvellement découverts; ouvrage formant le complément de tous les auteurs iconographes. Paris, Librairie Encyclopédique de Roret. **1**: 251 pp., 47 pls.

T8. Justification for changes to Hesperiidae genera

For Eudaminae, at least one representative of every genus was sampled for DNA and whole genomic shotgun reads were obtained. Genera were delineated by the cut through the time-calibrated genome-scale phylogenetic tree at about 15 Mya (Fig. 1 in the main text). **Every branch crossed by this cut was defined as a genus.** A genus-group name was either available for at least one of its representatives (46 genera), or a new name for it is proposed here (4 genera, Table 2 in the main text). Composition of each genus was determined by monophyly in the trees constructed from the nuclear genome (Fig. 1) and mitogenomes augmented with COI barcodes (Fig. S1, pp. 91-92 below). As a result, a number of species were transferred between genera (i.e., placed in a genus different from how it was classified prior to this study). In case no DNA data were available for a species possibly involved in the transfer between genera, morphology of genitalia was the primary consideration combined with similarities in facies. See names of genera in red font in the taxonomic list above (pp. 10-27) for the changes.

For other Hesperiidae subfamilies, sampling of species was not as balanced as for Eudaminae, and we refrained from their extensive rearrangements due to possible problems with timing of the tree. The timing may be problematic for the groups with poor phylogenetic sampling. In this study, we focused on monotypic genera to understand their relationships with others and to determine whether they are sufficiently distinct to be valid. We were conservative in our criteria. As a result, we suggest to synonymize three monotypic genera for the reasons given below. Generally, if a monotypic genus renders existing genus non-monophyletic (i.e., it branches "within" another genus in phylogenetic trees), and/or COI barcode distance between monotypic genus and the type species in another genus is less than 8.5%, in conjunction with the similarity in genitalia, we consider the monotypic genus a synonym of that other genus.

Fuscocimex caecus Austin, 2008 branches within the genus *Morvina* Evans, 1953 in the mitogenome tree (Fig. S1, pp. 91-92 below) and the difference between COI barcodes of *F. caecus* and *Morvina falisca* (Hewitson, 1878) is 7.5% (49 bp). Therefore, we consider *Fuscocimex* Austin, 2008 a junior subjective synonym of *Morvina*.

Linka lina (Plötz, 1883) branches within the genus *Atalopedes* Scudder, 1872 in the mitogenome tree (Fig. S1, pp. 91-92 below) and the difference between COI barcodes of *L. lina* and *Atalopedes campestris* (Boisduval, 1852) is 4.7% (31 bp). Therefore, we consider *Linka* Evans, 1955 a junior subjective synonym of *Atalopedes*.

Levina levina (Plötz, 1884), which is the sole species in the genus *Levina* Evans, 1955, is similar to *Ludens ludens* (Mabille, 1891) in COI barcodes (8.4%, 55bp, Fig. S1, pp. 91-92 below), wing pattern (e.g. sharp yellow veins below) and genitalia. Genera *Levina* and *Ludens* were described in the same work by Evans (1955). Being the First Reviser (ICZN Art 24.2.2.), we select *Ludens* as the senior name and treat *Levina* as its junior subjective synonym.

Furthermore, in the mitogenome tree (Fig. S1, pp. 91-92 below), species known before as *Eracon mnemon* (Schaus, 1913) did not group with *Eracon* Godman & Salvin, 1894 (in Achlyodini), but clustered with *Clito* Evans, 1953 (in Erynnini) instead. Phenotypes of *E. mnemon* and *Clito clada* (Evans, 1953) are similar, and Evans (1953: 38) considered them to be subspecies of the same species. Therefore, we transfer *mnemon* from *Eracon* to *Clito*.

Finally, based on the two trees (Fig. 1 in the main text and Fig. S1 below on pp. 91-92), we transferred several genera between tribes and subtribes, judging from their monophyletic placement with the type genera of these tribes and subtribes. These changes are listed in the taxonomic abstract above (p. 3).

References:

Evans WH. 1953. A catalogue of the American Hesperiidae indicating the classification and nomenclature adopted in the British Museum (Natural History). Part III (Groups E, F, G) Pyrginae. Section 2. London, British Museum (Natural History). v + 246 pp., pls. 26-53;

Evans WH. 1955. A catalogue of the American Hesperiidae indicating the classification and nomenclature adopted in the British Museum (Natural History). Part IV (Groups H to P) Hesperiinae and Megathyminae. London, British Museum (Natural History). v + 499 pp., pls. 54-88.

T9. Justifications for the change of status from subspecies to species

Status of 30 taxa has been changed from subspecies to species, and the reasons are briefly outlined here. This change is either new ("new status", i.e. the name was originally proposed as a subspecies and was a subspecies prior to this work in the latest taxonomic list above, pp. 28-45), or returning species status to the taxon originally described as a species but treated as a subspecies in the latest taxonomic list ("reinstated status"). The reasons for changes from subspecies to species were: (1) genitalic differences and/or wing shape differences at the level consistent with the differences between taxa treated as species; (2) combination of mitochondrial DNA COI barcode differences above 2% or sympatry with either wing pattern differences, or subtle genitalic differences, or both.

1. ***Hyalothyrus infa*** Evans, 1952; new status

Proposed as a subspecies of *Hyalothyrus infernalis* (Möschler, 1877) by Evans (1952: 29) who noted consistent wing pattern differences in B.8.1(b). COI barcodes of *infernalis* and *infa* differ by 5.0% (33 differences, Fig. S1). Type series in BMNH inspected and holotype photographed by NVG.

2. ***Hyalothyrus neda*** Evans, 1952; new status

Proposed as a subspecies of *Hyalothyrus neleus* (Linnaeus, 1758) by Evans (1952: 30) who noted consistent wing pattern differences in B.8.5(c). COI barcodes of *neleus* and *neda* differ by 8.6% (56 bp, Fig. S1). Type series in BMNH inspected and holotype and sole male paratype photographed by NVG.

3. ***Euriphellus lama*** (Evans, 1952); new status, new combination, was in *Dyscophellus*

Proposed as a subspecies of *Dyscophellus phraxanor* (Hewitson, 1876) by Evans (1952: 146) who in D.4.2(a) noted wing pattern differences and genitalic differences that are sufficiently prominent to warrant species status. Type series in BMNH inspected and holotype with its genitalia photographed by NVG.

4. ***Euriphellus mena*** (Evans, 1952); new status, new combination, was in *Dyscophellus*

Proposed as a subspecies of *Dyscophellus phraxanor* (Hewitson, 1876) by Evans (1952: 146) who in D.4.2(c) noted wing pattern and wing shape differences that are sufficiently prominent to warrant species status. Type series in BMNH inspected and holotype with its genitalia photographed by NVG.

5. ***Euriphellus polygius*** (Latreille, [1824]); reinstated status

Treated as a subspecies of *Dyscophellus euribates* (Stoll, 1782) by Evans (1952: 147) who noted wing pattern differences in D.4.4(b) and illustrated genitalic differences in the shape of valva (Plate 23) that warrants species status. Series in BMNH inspected (including Evans' dry dissections) and the type photographed by NVG.

6. ***Cecropterus takuta*** (Evans, 1952); new status, new combination, was in *Urbanus*

Proposed as a subspecies of *Urbanus albimargo* (Mabille, 1875) by Evans (1952: 100) who in C.13.26(b) described wing pattern, wing shape and genitalic differences that are sufficiently prominent to warrant species status. Type series in BMNH inspected and holotype with its genitalia photographed by NVG.

7. ***Cecropterus rica*** (Evans, 1952); new status, new combination, was in *Urbanus*

Proposed as a subspecies of *Urbanus albimargo* (Mabille, 1876) by Evans (1952: 100) who in C.13.26(c) described wing pattern and genitalic differences that are sufficiently prominent to warrant species status. Type series in BMNH inspected and holotype with its genitalia photographed by NVG.

8. ***Cecropterus barra*** (Evans, 1952); new status, new combination, was in *Urbanus*

Proposed as a subspecies of *Urbanus carmelita* (Herrich-Schäffer, 1869) by Evans (1952: 98) who in C.13.22(c) described wing pattern, wing shape (short tail) and genitalic differences that are sufficiently prominent to warrant species status. Holotype and its genitalia inspected and photographed by NVG.

9. ***Telegonus catemacoensis*** (H. Freeman, 1967); reinstated status, new combination, was in *Astraptes*

We sequenced the genome (including mitochondrial genome) of the holotype of this species (Figs. 1 & S1) and found that it falls in the group of species not easily distinguishable by COI barcodes (Hebert at al. 2004). The identity of this species is now clear due to the genomic sequence available. Among a dozen North American fulgerator-group species, it is likely that *catemacoensis* is distinct from those with older names, so it is resurrected from synonymy with *azul*. Holotype in AMHN inspected and photographed by NVG.

10. ***Telegonus azul*** (Reakirt, [1867]); reinstated status, new combination, was in *Astraptes*
Both the identify of this species and its type series (from Mexico) remain a mystery. However, South American *fulgerator* group species differ in COI barcodes from Mexican species by about 4% and *azul* is the oldest North American name, so it would be a species-level taxon.

11. ***Telegonus heriul*** Mabille & Boullet, 1912; reinstated status, new combination, was in *Astraptes*
Treated as a subspecies of *Astraptes alardus* (Stoll, 1790) from Hispaniola by Evans (1952: 112) who noted wing pattern differences in C.14.25(c). Closest to Cuban species *Telegonus habana* (Lucas, 1857), it differs from it by 2.9% (19 bp) in COI barcode (GenBank JN270032 & JN270044). Series in BMNH inspected and type photographed by NVG.

12. ***Telegonus cassius*** (Evans, 1952); new status, new combination, was in *Astraptes*
Proposed as a subspecies of *Astraptes galesus* (Mabille, 1888) by Evans (1952: 118) who noted wing pattern differences in C.14.33(a). COI barcodes of *galesus* and *cassius* differ by 5.2% (34 bp). Series in BMNH inspected and holotype photographed by NVG.

13. ***Narcosius granadensis*** (Möschler, 1879); reinstated status
Mistaking this species identity, Evans renamed it *Astraptes colossus rhoda* (1952: 109) and noted wing pattern differences from nominal *colossus* in C.14.20(b). COI barcodes of *colossus* and *granadensis* differ by 2.9% (19 bp). Holotypes of *N. granadensis* in ZMHB and *N. rhoda* in BMNH inspected and photographed by NVG.

14. ***Narcosius helen*** (Evans, 1952); new status
Proposed as a subspecies of *Narcosius parisi* (R. Williams, 1927) by Evans (1952: 110) who noted genitalic differences in B.14.21(a). COI barcodes of *parisi* and *helen* differ by 3.4% (22 bp). Type series in BMNH inspected and holotype photographed by NVG.

15. ***Epargyreus orizaba*** Scudder, 1872; reinstated status
Mistakenly, Evans renamed this species as *E. socus cama* (1952: 48) and in C.2.8(a) noted prominent wing pattern differences and the distribution gap from *socus*. Series in BMNH inspected and *cama* holotype and its genitalia photographed by NVG.

16. ***Epargyreus dicta*** Evans, 1952; new status
Proposed as a subspecies of *Epargyreus socus* (Hübner, [1825]) by Evans (1952: 48) who noted size and ample wing pattern differences in C.2.8(c). Type series in BMNH inspected and holotype photographed by NVG.

17. ***Epargyreus pseudexadeus*** Westwood, 1852; reinstated status
Treated as a subspecies of *E. socus* by Evans (1952: 49) who in C.2.8(e) & (f) noted prominent wing pattern differences from and sympatry with *socus*. Series in BMNH inspected and type photographed by NVG.

18. ***Epargyreus cruza*** Evans, 1952; new status
Proposed as a subspecies of *Epargyreus exadeus* (Cramer, 1780) by Evans (1952: 49-50) who noted wing pattern and shape differences in C.2.9(a). Type series in BMNH inspected and holotype photographed by NVG.

19 ***Codatractus rowena*** Evans, 1952; new status
Proposed as a subspecies of *Codatractus carlos* Evans, 1952 by Evans (1952: 77) who noted consistent wing pattern differences in C.11.1(b). Partial COI barcodes of *carlos* and *rowena* differ by 2.7%. Type series from BMNH inspected and holotype with its genitalia photographed by NVG.

20. ***Codatractus apulia*** Evans, 1952; new status
Proposed as a subspecies of *Codatractus alcaeus* (Hewitson, 1867) by Evans (1952: 78) who noted consistent wing

pattern differences in C.11.2(b). Partial COI barcodes of *alcaeus* and *apulia* differ by 2.5%. Holotype and paratype from BMNH and their genitalia are inspected photographed by NVG.

21. ***Telemiades contra*** Evans, 1953; new status
Proposed as a subspecies of *Telemiades centrites* (Hewitson, 1870) by Evans (1953: 25) who in E.6.4(b) noted prominent wing pattern differences and possible sympatry in Ecuador. Type series in BMNH inspected and holotype with its genitalia photographed by NVG. Genitalic valva of the holotype has a more developed tooth on harpe directed dorsad and the harpe is shorter in *contra* compared to *centrites*.

22. ***Telemiades brazus*** E. Bell, 1949; reinstated status
Treated as a subspecies of *Telemiades nicomedes* (Möschler, 1879) by Evans (1953: 27) who noted wing pattern differences and genitalic differences in E.6.8(b). Based on genitalic comparison of *T. nicomedes* and *T. meris* syntypes, suggested to be a subspecies of *Telemiades meris* (Plötz, 1886) by Mielke & Casagrande (1998: 990), who noted differences in the shape of valva between *brazus* and *meris*, which in our opinion are indicative of speciation. A series in BMNH, syntypes of *nicomedes* and *meris* in ZMHB and the holotype of *brazus* in AMNH inspected by NVG.

23. ***Oileides guyanensis*** (Mabille & Boullet, 1912); reinstated status
Treated as a subspecies of *Oileides vulpinus* Hübner, [1825] by Evans (1952: 162) who noted wing pattern differences in D.9.3(a). COI barcodes of *vulpinus* and *guyanensis* differ by 3.7% (24 bp, Fig. S1). Series in BMNH and the photograph of the type in MNHP inspected and type photographed by NVG.

24. ***Oechydrus evelinda*** (A. Butler, 1870); reinstated status
Treated as a subspecies of *Oechydrus chersis* (Herrich-Schäffer, 1869) by Evans (1953: 18) who noted wing pattern differences in E.2(c) and illustrated genitalic differences in Plate 26. COI barcodes of *chersis* and *evelinda* differ by 3.7% (24 bp, Fig. S1). Series in BMNH inspected and type with its genitalia photographed by NVG.

25. ***Cogia goya*** (Evans, 1952); new status, new combination, was in *Typhedanus*
Proposed as a subspecies of *Typhedanus optica* Evans, 1952 by Evans (1952: 66) who noted wing pattern differences and genitalic differences in C.4.6(b). COI barcodes of *optica* and *goya* differ by 2.1% (14 bp, Fig. S1). Type series in BMNH inspected and holotype photographed by NVG.

26. ***Marela tamba*** Evans, 1953; new status
Proposed as a subspecies of *Marela tamyris* Mabille, 1903 by Evans (1953: 19) who noted wing pattern differences in E.4.2(b) and illustrated genitalic differences in Plate 26. COI barcodes of *tamyris* and *tamba* differ by 2.1% (14 bp, Fig. S1). Series in BMNH inspected and holotype with its genitalia photographed by NVG.

27. ***Austinus heroica*** (Evans, 1953); new status
Proposed as a subspecies of *Iliana heros* (Mabille & Boullet, 1917) by Evans (1953: 40) who noted wing pattern differences in E.16.1(a). COI barcodes of *heros* and *heroica* differ by 4.6% (30 bp, Fig. S1). Type series in BMNH inspected and holotype with its genitalia photographed by NVG.

28. ***Chirgus nigella*** (Weeks, 1902); reinstated status, new combination, was in *Pyrgus*
Treated as a subspecies of *Pyrgus limbata* (Erschoff, 1876) by Evans (1953: 215) who noted wing pattern differences in G.1.2(b) and illustrated genitalic differences in Plate 52. COI barcodes of *limbata* and *nigella* differ by 2.1% (14 bp, Fig. S1). Series in BMNH inspected by NVG. Ampulla of the genitalic valva is more robust in *limbata*; *limbata* and *nigella* may be sympatric in Peru.

29. ***Heliopetes orbigera*** (Mabille, 1888); reinstated status
Treated as a subspecies of *Heliopetes macaira* (Reakirt, [1867]) by Evans (1953: 225) who noted wing pattern differences and genitalic differences in G.2.3(c). Series in BMNH inspected by NVG.

30. ***Ephyriades dominicensis*** E. Bell & W. Comstock, 1948; reinstated status
Treated as a subspecies of *Ephyriades brunnea* (Herrich-Schäffer, 1865) by Evans (1953: 205) who noted wing

pattern differences in F.16.3(d). COI barcodes of *brunnea* and *dominicensis* differ by 6.6% (43 bp, Fig. S1). Holotype in AMNH inspected by NVG.

Abbreviations:

AMNH: American Museum of Natural History, New York, New York, United States
BMNH: The Natural History Museum [formerly British Museum (Natural History)], London, United Kingdom
MNHP: Muséum National d'Histoire Naturelle, Paris, France
ZMHB: Museum für Naturkunde der Humboldt, Berlin, Germany

References:

Evans WH. 1952. A catalogue of the American Hesperiidae indicating the classification and nomenclature adopted in the British Museum (Natural History). Part II (Groups B, C, D) Pyrginae. Section I. London, British Museum (Natural History). v + 178 pp., pls. 10-25;

Evans WH. 1953. A catalogue of the American Hesperiidae indicating the classification and nomenclature adopted in the British Museum (Natural History). Part III (Groups E, F, G) Pyrginae. Section 2. London, British Museum (Natural History). v + 246 pp., pls. 26-53;

Hebert PDN, Penton EH, Burns JM, Janzen DH, Hallwachs W. 2004. Ten species in one: DNA barcoding reveals cryptic species in the neotropical skipper butterfly *Astraptes fulgerator*. Proc. Natl. Acad. Sci. U S A. **101**(41):14812-14817;

Mielke OHH, Casagrande MM. 1998. Papilionoidea e Hesperioidea (Lepidoptera) do Parque Estadual do Morro do Diabo, Teodoro Sampaio, São Paulo, Brasil. Revista brasileira de Zoologia **14**(4): 967-1001.

T10. Taxonomic discussion

This publication suggests a large number of changes to the current taxonomy of Hesperiidae. This discussion explains the rationale behind these changes. As a general rule, we aim for all **taxonomic groups** to be **monophyletic**. Most taxonomic changes we propose rectify monophyly following our phylogenetic analysis of nuclear genomes augmented with the analysis of mitogenomes and COI barcodes (Fig. 1 in the main text and Fig. S1 below, pp. 91-92). Phylogenetic grouping is supported by the nodes with high bootstrap (97% and above, mostly 100%) in the tree based on genomic coding regions constructed with RAxML (see Methods section M5 pp. 66-68 below for details). The same grouping is present in trees constructed from other regions (introns, mitogenomes) and using other methods. Thus, the major phylogenetic groups are robust to the genomic regions and software used for phylogeny construction, and are likely to be correct. Therefore, the proposed monophyly of Hesperiidae groups shown in our trees may stand the test of time.

A more contentious issue is the **taxonomic rank** given to a monophyletic group. Because the number of levels in the tree that define monophyletic groups is much larger than the number of taxonomic ranks, the challenge is to select the ones that deserve the rank and assign appropriate ranks to them. Three major considerations are used.

1) Monophyletic groups with taxonomic ranks should be **prominent** in the tree, i.e., a group with a rank should be most confidently supported, and the branch leading to the group should be relatively long compared to other branches near it in the tree. Long branch means that the ancestor of the group existed for a long time in the past, i.e., that the group is indeed major and prominent.
2) Desire to have **stable taxonomy** calls for the minimal number of changes. Thus the ranks and taxonomic groups should be in reasonable agreement with the ranks and groups used historically in literature.
3) It seems best that the ranks are **consistent** with how the ranks are defined in other groups of organisms, at least in closer phylogenetic relatives. For Skippers (Hesperiidae) that would be other butterflies and possibly moths. Thus, groups that are considered subfamilies in Hesperiidae should have diverged about the same time in the past as the groups considered subfamilies in a different family of butterflies, e.g. Nymphalidae.

We attempted to use these four criteria: **monophyly**, **prominence**, **stability** and **consistency**, to define taxonomic groups and their ranks. We use four family-group (family, subfamily, tribe and subtribe) and two genus-group (genus and subgenus) ranks. Although subfamily rank is common in butterfly taxonomy, subtribe and subgenus are used less frequently and are sometimes synonymized with tribe and genus, respectively. Due to a large number of prominent levels in the phylogenetic tree, we use subtribe and subgenus where appropriate to name most prominent intermediate groups. Below, we reason about each taxonomic level and explain our decisions. We mention alternative interpretations keeping in mind that assignment of ranks to levels is somewhat arbitrary.

Subfamilies. We consider skippers to a be a family-level taxon Hesperiidae and aim at delineating subfamilies. The logic behind our 9 subfamilies is explained in the main text (section "Genomic tree of skippers"). We propose two more subfamilies (Tagiadinae and Pyrrhopyginae) compared to previous treatment. Tagiadinae and Pyrrhopyginae indeed form a monophyletic group with Pyrginae, where they were included previously. They are separated now due to the criteria of prominence (Pyrginae after the inclusion of these two groups is a less prominent taxon, supported only by a short branch), stability (Pyrrhopyginae have been considered a subfamily for a long time before DNA-based phylogenies due to their morphological divergence) and consistency (if Trapezitinae is considered a subfamily, then Tagiadinae and Pyrrhopyginae should too, because they originated prior to Trapezitinae). Alternative consistent treatments may be: 1) Coeliadinae, Euschemoninae, Pyrginae (including Eudaminae, Tagiadinae, Pyrrhopyginae) and Hesperiinae (including Heteropterinae and Trapezitinae); or 2) Coeliadinae, Euschemoninae, Eudaminae, Pyrginae (including Tagiadinae and Pyrrhopyginae) and Hesperiinae (including Heteropterinae and Trapezitinae). Tagiadinae diverged from other Pyrginae (Pyrrhopyginae + Pyrginae sensu stricto) at about the same time (if not earlier) as Heteropterinae from the rest of Hesperiinae (Trapezitinae + Hesperiinae sensu stricto), thus subfamily arrangements other than the three discussed above are more arbitrary given current data.

Tribes. One of the major goals of this work is to delineate tribes in Eudaminae, and the logic behind current and possible alternative tribal arrangements of Eudaminae is described in the main text. Here, we give justifications for the tribes in other subfamilies. Tribes in other "Flats" (see p. 6 above) are kept largely unchanged, except the two tribes that are described in this work: Netrocorynini and Jerini (Table 1 in the main text). Netrocorynini diverged from Tagiadini, in which it was placed previously, around 35 Mya, around the same time as Carcharodini and Pyrgini diverged from their ancestor. Therefore the age of this taxon corresponds to tribal level. *Jera* Lindsey, 1925, the sole member of Jerini, is not as distinct from other Pyrrhopyginae and instead of tribal, it could be given a subtribal status. However, placement of *Jera* in Pyrrhopyginae is new and unexpected due to morphological differences. It is sister to all other Pyrrhopyginae and is prominently separated from them in the tree. Given that other groups of Pyrrhopyginae were given tribal status before and they are not nearly as distinct as *Jera*, we treat Jerini as a tribe.

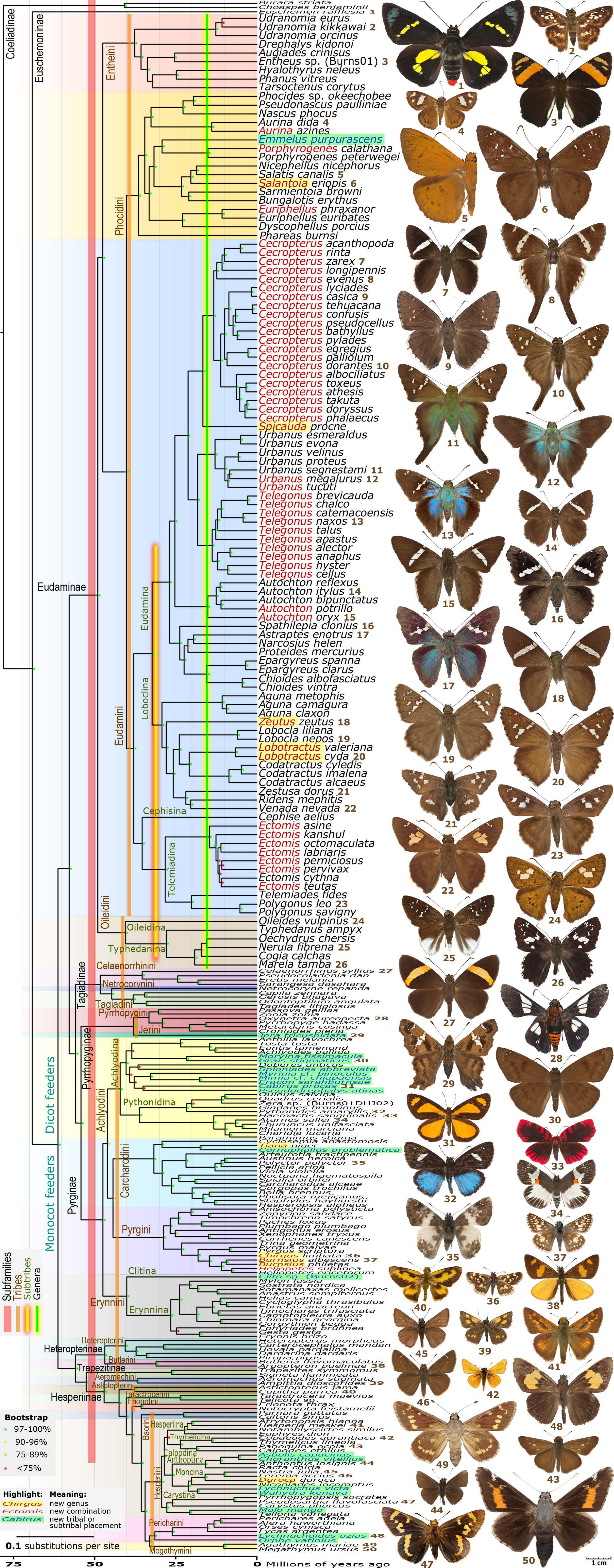
Tribal arrangement in "Grass skippers" (mostly monocot feeders as caterpillars, see p. 7 above) has been challenging and many genera, especially from the Old World, were previously placed Incertae sedis in Hesperiinae. We partly attempted to rectify this situation (p. 7 above). Largely Chilean sister genera *Butleria* W. F. Kirby, 1871 and *Argopteron* E. Watson, 1893 diverged from the rest of Heteropterinae around 45 Mya. This timing corresponds to a tribe, and a new tribe Butleriini is described in this work (Table 1 in the main text). However, many groups in Hesperiinae with formerly tribal rank diverged around 25 Mya and are not that prominent in the tree (e.g. former Moncini and Anthoptini). We consider them as subtribes in a prominent tribe Hesperiini. Interestingly, all New World representatives of Hesperiinae formed a monophyletic group in the genomic tree (Fig. 1 in the main text) and Old World groups were diverging prior to the split of the New World Hesperiinae. Many of these divergences appeared in the tree more recent than the tribes in the "Flats" and it may be a reflection of recent rapid radiation in monocot-feeding skippers. However, taxon sampling in Grass skippers in this study is rather incomplete, so the timing is not expected to accurate. For these reasons, we define major groupings in Hesperiinae as tribes, and place most Old World Incertae sedis in two tribes: Astictopterini Swinhoe, 1912 (mostly African) and Erionotini Distant, 1886 (mostly Asian). This arrangement makes geographical sense and agrees best with the data, but will be refined in future studies. New World Incertae sedis "Ruby-eye skippers" are placed in a new tribe Pericharini, which is sister to Megathymini Comstock & Comstock, 1895.

Subtribes. Major monophyletic groups below tribe and above genus were defined here as subtribes. In Eudaminae, subtribes corresponded to about 30 Mya. Two subtribes (both new, Cephisina and Oileidina) were monotypic, revealing uniqueness of *Cephise* Evans, 1952 and *Oileides* Hübner, [1825]. Another monotypic subtribe described here, Clitina (in Erynnini), stresses uniqueness of *Clito* Evans, 1953. *Clito* was difficult to place phylogenetically prior to this genomic study. We keep subtribal status of the taxa in Pyrrhopyginae that were originally proposed as tribes but given subtribal status when the Pyrrhopyginae were treated as a tribe. Divergence between the Pyrrhopyginae groups and their prominence are insufficient to warrant tribal status. As stated above, New World groups of Hesperiinae previously treated as tribes are close to each other, diverged recently (~25 Mya), and together form a prominent group (tribe Hesperiini). These groups were given subtribal status here.

Genera. In Eudaminae, we defined genera by a single cut through the tree at about 15 Mya. This cut was chosen to find a compromise between the following considerations: 1) have reasonable agreement with the current classification; 2) keep monotypic genera only for those taxa that are truly distinct and do not have close relatives; 3) minimize the need for naming new genera. For instance, if the cut is placed further back in time, some pairs of distinct and traditional genera such as *Epargyreus* Hübner, [1819] and *Chioides* Lindsey, 1921 or *Oechydrus* E. Watson, 1893 and *Nerula* Mabille, 1888 would need to be merged into one (in each pair, Fig. 1 in the main text and below), which is not desirable. If the cut is placed closer to present time, some morphologically compact genera such as *Udranomia* A. Butler, 1870 and *Urbanus* Hübner, [1807] (consists only of green tailed species in this work, see the list on pp. 17-18 above) may need to be split into genera, some monotypic genera with close affinities to other genera would not be merged, and additional new genera would need to be named, many of which would be either monotypic or consist of a small number of very close relatives. Furthermore, genera defined by our cut at about 15 Mya indeed mostly correspond to prominent phylogenetic groups that stand out from the rest. Nevertheless, dating of the tree is not perfect and the nodes may shift around when additional taxa are added and better dating methods are developed. These shifts may result in additional changes. For instance, the cut at 15 Mya keeps monotypic *Nicephellus* Austin, 2008 as a valid genus. However, it is closely related to *Salatis* Evans, 1952, as evidenced by wing shape and genitalic similarity in addition to similarity in DNA. Further studies are needed to clarify the status of *Nicephellus*.

Only several changes were made to genera outside Eudaminae. We synonymize three monotypic genera closely related to other genera (see T8 above, p. 48). Five new genera are described (Table 2 in the main text). Two of them (*Chirgus* and *Burnsius*) solve a long-standing problem about paraphyly of *Pyrgus* Hübner, [1819] with respect to *Heliopetes* Billberg, 1820 and *Heliopyrgus* Herrera, 1957 (also see pp. 46-47 above). A new genus *Tiana* includes two Carcharodini species that were formerly placed in *Tosta* (now in Achlyodini) and would be left without a genus in Carcharodini. A new genus *Duroca* is described for *Lerema duroca* (Plötz, 1882), which is not monophyletic with *Lerema*, not closely related to any other skipper and possesses distinct genitalic valva shaped like a hook. Finally, a new genus *Tekliades* is proposed for *Coeliades ramanatek* (Boisduval, 1833), which stands far out from its relatives in phylogenetic trees and makes *Coeliades* polyphyletic (Fig. S1, pp. 91-92 below). While some of these new genera are either monotypic or include small number of species, these genera are necessary to resolve problems with non-monophyletic taxa noticed in this study.

Subgenera. In some Eudaminae genera, we see prominent phylogenetic clusters of species that are meaningful to treat as subgenera. Most of these clusters are characterized by morphological synapomorphies. For instance, *Codatractus* Lindsey, 1921 species fall into two phylogenetic groups, with and without hindwing tails. The group without the tails contains the type species of the genus, and the group with the tails is named here as a new subgenus *Caudotractus* (see Table 2 in the main text). *Ectomis* Mabille, 1878 (as treated here, see pp. 24-25 above) includes a group of species that contains *E. asine*. This group is sister to the rest of *Ectomis* and is more prominently separated from them than the subgroups within the rest of *Ectomis* from each other. This group is named here as a new subgenus *Asina*. Names already existed for some other subgenera, for instance those in a large genus *Cecropterus* Herrich-Schäffer, 1869. In addition to the nominotypical, there are two others: *Thorybes* Scudder, 1872 and *Murgaria* E. Watson, 1893. The name *Thorybes* has been mostly used as a valid genus, but it is not prominently distinct from other members of *Cecropterus*, neither genetically nor morphologically. However, under alternative treatments, at least some of the subgenera we propose here can be considered as genera, because the rank remains a subjective prerogative of researcher. Future studies and consensus opinion that emerges among Lepidopterists will decide on the ranks of monophyletic groups we outlined in this work. Note that we have not revised the names for subgenera in other subfamilies of Hesperiidae.



Burara striata
Choaspes benjaminii
Euschemon rafflesia 1
Udranomia eurus
Udranomia kikkawai 2
Udranomia orcinus
Drephalys kidonoi
Augiades crinisus
Entheus sp. (Burns01) 3
Hyalothyrus neleus
Phanus vitreus
Tarsoctenus corytus
Phocides sp. okeechobee
Pseudonascus paulliniae
Nascus phocus
Aurina dida 4
Aurina azines
Emmelus purpurascens
Porphyrogenes calathana
Porphyrogenes peterwegei
Nicephellus nicephorus
Salatis canalis 5
Salantoia eriopis 6
Sarmientoia browni
Bungalotis erythus
Euriphellus phraxanor
Euriphellus euribates
Dyscophellus porcius
Phareas burnsi
Cecropterus acanthopoda
Cecropterus rinta
Cecropterus zarex 7
Cecropterus longipennis
Cecropterus evenus 8
Cecropterus lyciades
Cecropterus casica 9
Cecropterus tehuacana
Cecropterus confusis
Cecropterus pseudocellus
Cecropterus bathyllus
Cecropterus pylades
Cecropterus egregius
Cecropterus palliolum
Cecropterus dorantes 10
Cecropterus albociliatus
Cecropterus toxeus
Cecropterus athesis
Cecropterus takuta
Cecropterus doryssus
Cecropterus phalaecus
Spicauda procne
Urbanus esmeraldus
Urbanus evona
Urbanus velinus
Urbanus proteus
Urbanus segnestami 11
Urbanus megalurus 12
Urbanus tucuti
Telegonus brevicauda
Telegonus chalco
Telegonus catemacoensis
Telegonus naxos 13
Telegonus talus
Telegonus apastus
Telegonus alector
Telegonus anaphus
Telegonus hyster
Telegonus cellus
Autochton reflexus
Autochton itylus 14
Autochton bipunctatus
Autochton potrillo
Autochton oryx 15
Spathilepia clonius 16
Astraptes enotrus 17
Narcosius helen
Proteides mercurius
Epargyreus spanna
Epargyreus clarus
Chioides albofasciatus
Chioides vintra
Aguna metophis
Aguna camagura
Aguna claxon
Zeutus zeutus 18
Lobocla liliana
Lobocla nepos 19
Lobotractus valeriana
Lobotractus cyda 20
Codatractus cyledis
Codatractus imalena
Codatractus alcaeus
Zestusa dorus 21
Ridens mephitis
Venada nevada 22
Cephise aelius
Ectomis asine
Ectomis kanshul
Ectomis octomaculata
Ectomis labriaris
Ectomis perniciosus
Ectomis pervivax
Ectomis cythna
Ectomis teutas
Telemiades fides
Polygonus leo 23
Polygonus savigny
Oileides vulpinus 24
Typhedanus ampyx
Oechydrus chersis
Nerula fibrena 25
Cogia calchas
Marela tamba 26
Celaenorrhinus syllius 27
Jera tricuspidata 29
Tiana niger
Chirgus limbata 36
Burnsius
Agathymus mariae 49
Megathymus ursus 50
Coeliadinae
Euschemoninae
Entheini
Phocidini
Eudaminae
Eudamini
Eudamina
Loboclina
Cephisina
Telemiadina
Oileidini
Oileidina
Typhedanina
Celaenorrhinini
Netrocorynini
Tagiadinae
Tagiadini
Pyrrhopygini
Jerini
Pyrrhopyginae
Achlyodini
Achlyodina
Pythonidina
Carcharodini
Pyrgini
Pyrginae
Clitina
Erynnini
Erynnina
Heteropterini
Heteropterinae
Butlerini
Trapezitinae
Aeromachini
Astictopterini
Hesperiinae
Taractrocerini
Baorini
Hesperiina
Thymelicina
Calpodina
Anthoptina
Moncina
Hesperiini
Carystina
Pericharini
Megathymini
Dicot feeders
Monocot feeders
Subfamilies
Tribes
Subtribes
Genera
Bootstrap
97-100%
90-96%
75-89%
<75%
Highlight: Meaning:
Chirgus new genus
Ectomis new combination
Cabirus new tribal or subtribal placement
0.1 substitutions per site
75
50
25
0 Millions of years ago
1 cm

Expanded legend to Figure 1 from the main text (and shown above, modified)

Time-calibrated genomic tree of Hesperiidae. The tree was constructed from nuclear gene coding regions of specimens from 250 representative species and was dated using the procedure described in Methods below (pp. 67-68). Data for 250 specimens used in the tree are given in Table S1 (below, pp. 72-74). Time scale is shown at the bottom and thin gray vertical lines cross the tree every 10 million years. Thicker colored vertical lines delineate major taxonomic groups: red - subfamilies, defined by the time interval between about 50 and 52 Mya; orange (broken in several places) - tribes; yellow with red shading (only for Eudaminae) - subtribes, and green with yellow shading (only for Eudaminae) - genera. Bootstrap values are shown by the nodes as colored dots: green ≥97%, lime ≥90 and <97%, orange ≥75 and <90, and red <75%. New genera described in this work are shown in red font and highlighted yellow. Genera involved in new genus-species combinations are in red font. Taxa placed in a different tribe or subtribe in this work compared to the previous taxonomic list are in blue font and are highlighted green. Segments of the tree corresponding to different tribes are highlighted in different colors. Names of subfamilies (black), tribes (brown) and subtribes (green) are shown by the branches of the tree. The major split into dicot and monocot feeders (as caterpillars) is shown (there are several feeding exceptions due to convergence, e.g. some *Spicauda* species are monocot feeders). Representative Hesperiidae species are illustrated to the right of the tree to show diversity in the family and are associated with names in the tree by numbers in brown font. Some sequenced specimens were not identified to species for various reasons and are denoted by "sp." (species) followed by a temporarty code (e.g. Burns01, placed in parenthesis) by which this species is currently referred to in literature and databases. Species placement of *Phocides* sp. *ockeechobe* is currently unclear (a subspecies of *P. pigmalion* (Cramer, 1779), of other taxa, or a species of its own). Species close to, but possibly distinct from a certain species are marked by "cf." (Latin: confer) between genus and species name.

Methods

M1. Sample collection and genomic DNA extraction

We preserved different parts of the butterfly specimen for DNA extraction depending on the source and the condition of the sample. For freshly collected specimens, we removed the head of the specimen and preserve in alcohol for DNA extraction. If the head provided insufficient materials, we dissected the chest muscle. For old and dry samples from insect collections, we used either legs or a whole abdomen (dropped into lysis buffer for overnight incubation at 56 °C, and then transferred into 10% KOH for genitalia dissection) to extract genomic DNA with Macherey-Nagel (MN) NucleoSpin® tissue kit following the manufacturer's protocol. Genomic DNA was eluted in a total volume of 30-50 µl QIAGEN AE buffer, and the concentration of DNA was measured by Promega QuantiFluor® dsDNA System. The concentration of genomic DNA ranges from 0.01 to 2.5 ng/µl for legs, and from 0.005 to 30 ng/µl for abdomens, depending on specimen age and storage conditions.

M2. Sequencing library preparation protocol

M2.1. Paired-end library preparation protocol

NEBNext® Ultra™ II DNA Library Prep Kit for Illumina® was used for paired-end library preparation. Starting Material is 5 - 250 ng of fragmented DNA.

A. DNA Fragmentation

Depending on the genomic DNA quality (as determined by gel electrophoresis), some of the genomic DNAs were fragmented using a Covaris focused ultrasonicator S2 or S220 to 400 bp according to manufacturer's instructions, and then purified with 1.8X AMPure XP beads. DNA samples from some old dry samples are already degraded with smears ranging from <50 bp to 500 bp did not go through fragmentation.

B. End Preparation

1. Mix the following components in a sterile nuclease-free tube.

End Prep Enzyme Mix	1.5 µl
End Repair Reaction Buffer (10X)	3.5 µl
Fragmented DNA	25 µl

2. Place in a thermocycler, with the heated lid on, and run the following program:
   20°C for 30 min
   65°C for 30 min
   Hold at 4°C

C. Adaptor Ligation

If DNA input is < 10 ng, dilute the NEBNext Adaptor for Illumina (provided at 15 µM) 10-fold in 10 mM Tris-HCl or 10 mM Tris-HCl with 10 mM NaCl to a final concentration of 1.5 µM, use immediately.

1. Add the following components directly to the End Prep reaction mixture and mix well.

NEBNext Adaptor for Illumina	2.5 µl
Blunt/TA Ligase Master Mix	15 µl
Ligation enhancer	0.5 µl

2. Incubate at 20°C for 15 minutes in a thermal cycler.

D. USER excision

1. Add 2.5 µl USER™ enzyme to the ligation mixture from previous step.
2. Mix well and incubate at 37°C for 20 minutes.

E. Cleanup of Adaptor-ligated DNA

1. Move AMPure XP Beads to room temperature for 20 min. Vortex beads to resuspend.
2. Add 1.2X resuspended AMPure XP Beads to the ligation reaction. Mix well.
   For samples less than 10 ng or smaller than 100 bp, we used 1.6X Ampure XP beads we prepared in-house with higher (30%) concentration of PEG.
3. Incubate for 10 minutes at room temperature.
4. Quickly spin the tube and place it on an appropriate magnetic stand to separate beads from supernatant. After the solution is clear (about 5 minutes), carefully remove and discard the supernatant.
5. Add 200 µl of 80% freshly prepared ethanol to the tube, resuspend well. Incubate at room temperature for 30 seconds, and move plate to magnetic rack wait till clear, then carefully remove and discard the supernatant.
6. Repeat Step 5 once.
7. Air dry the beads.
8. Remove the tube/plate from the magnet. Elute the beads twice with 17 µl TE buffer.
9. Mix well by pipetting up and down. Incubate for 5 minutes at 37°C.
10. Quickly spin the tube and place it on the magnetic stand.
11. After the solution is clear (about 5 minutes), transfer 15 µl of the elution to a new PCR well plate.
12. Elute a 2nd time with 10 µl, to a final volume of 25 µl.
13. Measure concentration using Promega QuantiFluor® dsDNA System with 1 µl.

F. PCR Enrichment of Adaptor Ligated DNA

1. Mix the following components in a sterile nuclease-free tube:

Adaptor Ligated DNA Fragments & H_2O (with up to 24 ng DNA)	23 µl
Index Primer	1 µl
NEBNext Q5 Hot Start HiFi PCR Master Mix	25 µl
Universal PCR Primer	1 µl

2. PCR with the following conditions. We use 6 cycles if 24 ng template DNA is used, and we increase it with less amount of DNA.

CYCLE STEP	*TEMP*	*TIME*	*CYCLES*
Initial Denaturation	98°C	30 seconds	1
Denaturation	98°C	10 seconds	6–15*
Annealing/Extension	65°C	90 seconds	
Final Extension	65°C	5 minutes	1
Hold	4°C	∞	

G. Cleanup and size selection of PCR Amplification

1. Add water to adjust the final volume of each reaction product to 100 µl.
2. Vortex AMPure XP Beads to resuspend.
3. Add 0.625X of resuspended AMPure XP Beads to the PCR reactions. Mix well by pipetting up and down at least 10 times.
4. Incubate for 10 minutes at room temperature.
5. Quickly spin the tube and place on an appropriate magnetic stand to separate the beads from the supernatant. After the solution is clear (about 5 minutes), carefully transfer the supernatant containing your DNA to a new well plate. Discard the beads that contain the unwanted large fragments.
6. Add 0.375X resuspended AMPure XP Beads for the 2nd time to the supernatant, mix well and incubate for 10 minutes at room temperature.
7. Quickly spin the tube and place it on an appropriate magnetic stand to separate the beads from the supernatant. After the solution is clear (about 5 minutes), carefully remove and discard the supernatant that contains unwanted DNA (to the plate with first time beads). Be careful not to disturb the beads that contain the desired DNA targets (Caution: do not discard beads).
8. Add 200 µl of 80% freshly prepared ethanol to the tube while in the magnetic stand. Incubate at room temperature for 30 seconds, and then carefully remove and discard the supernatant.
9. Repeat Step 8 once.
10. Air dry the beads for 5 minutes. Caution: Do not overdry the beads. This may result in lower recovery of DNA target.
11. Elute the the beads with 20 µl of 10 mM Tris-HCI or 0.1 X TE. Mix well on a vortex mixer or by pipetting up and down. Incubate for 5 minutes at 37°C.
12. Quickly spin the tube and place it on a magnetic stand. After the solution is clear (about 5 minutes), transfer 18 µl to a new well plate.
13. Elute a 2nd time with 19 µl, to a final volume of 37 µl.
14. Measure libraries concentration with 2 µl.

F. Check library size on 2% E-gel with a 100bp ladder

M2.2. Preparation for sequencing on the Illumina Hiseq X ten platform

The concentration of each library was quantified using Promega Quantus™ fluorometer with Promega QuantiFluor® dsDNA system, and the library size was estimated using gel electrophoresis. These two measurements were used to estimate the molar concentration of each library. The relative volume of each library was determined by the needed fraction and the molar concentration of the library. We typically target 10X coverage for each Eudamine skipper sample, which is 5 Gbp data. We used Hiseq X ten sequencing service from Genewiz, which typically produce 130 Gbp data per lane, and therefore, we can pool 26 libraries of Eudamine skippers in one lane.

M3. Nuclear and mitochondrial protein-coding gene assembly

M3.1. Processing of sequencing reads

NGS reads were processed sequentially by AdapterRemoval software (version 1.5.4) (1) to remove reads contaminated by adapters and oligos used in the sequencing reactions, and to trim low-quality (quality score < 20) portions at both ends. Below is the command and parameters used for paired-end libraries:

> AdapterRemoval --file1 [R1.fq] --file2 [R2.fq] --basename [sampleID] --trimns --trimqualities --minquality 20 --pcr1 [Adaptor1] --pcr2 [Adaptor2] # [R1.fq] and [R2.fq] are the paired-end FASTQ format sequencing reads, [sampleID] is the sample identification number, [Adaptor1] and [Adaptor2] are the adapter sequences used for the sample.

M3.2. Preparation for protein-coding gene assembly

We had attempted to perform a BWA-GATK-based mapping assembling strategy as described in (2). However, due to the long evolutionary distance between our target species and available reference genomes, such BWA-GATK-based approach results in poor-quality genome assemblies, most of which cover only 10% ~ 20% of the reference genome (data not shown). Since the protein-coding regions still tend to be more conserved and can be aligned better with the help of protein sequences, we limited ourselves to exons and assembled coding sequences in the genomes.

The increased sensitivity of the protein-based approach permitted a high-quality alignment among our samples from diverse groups. However, this approach might have problems when reads from different paralogs are mapped to a single protein. To avoid mapping of paralogous reads, we applied cutoffs of sequence identity of the mapped reads for each exon. The two available genomes, *Lerema accius* (3) and *Cecropterus lyciades* [formerly in *Achalarus*] (4) were used to estimate these cutoffs. We performed reciprocal BLAST searches between the exons of these two reference genomes to identify the orthologous exons as follows:

1. Run TBLASTN (5) to perform a search using the amino acid) sequences of exons in one species against the nucleotide sequences of exons in another species. We disabled the low complexity sequence filter in TBLASTN by ‘-seg no’.

2. In the TBLASTN result, we calculated the sequence identity and E-value to the query exon for each hit and identified the lowest E-value hits for every query. If the statistics of other hits are comparable (difference in sequence identity < 5% and difference in log(e-value) < 5), we would also include them into the best hit set of the query.

3. To remove False Positives among the best hits for each query exon, we applied several filters: (a) the hits have to show e-value < 0.001 or sequence identity to the query > 90%; (b) discard hits with identity to query less than 50%; (c) discard ambiguous hits, which are detected as the best hit to multiple query exons, or multiple locations of the same query exon.

4. We repeated the same procedure using the exons of another species as the query and consider two exons from the two genomes to be candidate orthologs if they are among the best hits of each other.

5. As some short exons might fail the filtering steps, we utilized the synteny of exons to rescue some orthologous exons. Briefly, if one protein has more than half of its exons mapped to the exons of a

protein in another genome, we would omit the filters in 3. when examining if the remaining unmapped exons are orthologous to each other.

In total, we have 92237 exons in *Cecropterus* and 102628 exons in *Lerema*. By our reciprocal BLAST procedure, we detected 60179 orthologous exons (1653 exons were rescued by exon synteny). These orthologous exons are the set of exons included in the alignment for phylogenic study; the sequence identity (minus 5% to allow fluctuation in sequence similarity) between *Cecropterus* and *Lerema* reference genomes would be used as the cutoff to filter out paralogs and contaminations in mapping.

M3.3. Protein-coding sequence assembly for phylogenetic study from sequencing reads

To avoid potential bias from the reference genome in the phylogenetic signal, we used exons from *Lerema*, which could be considered as an outgroup to Eudaminae samples, as the reference protein set for TBLASTN mapping. Below is the detailed procedure:

1. Transfer the FASTQ format into FASTA format and format it as BLAST database.
2. Perform TBLASTN search using *Lerema* exons as queries. In the search, we turned off the low complexity filter by '-dust no' and allowed more hits by '-max_target_seqs 50000000'.
3. Apply filters based on BLAST output statistics by requiring: (a) hit coverage >= 60%, (b) identity to the query >= 50%, and >= highest identity among reads from all samples – 20 %. (c) E-value < 0.001 or identity to the query >= 90%.
4. Utilize the alignment between two reference genomes in the section M3.2 to filter out reads with sequence identity less than that between *Cecropterus* and *Lerema* by more than 5% in the same region. If the corresponding region is not present in the *Cecropterus*-*Lerema* alignment, the full *Cecropterus*-*Lerema* alignment will be used to estimate the identity cutoff.
5. Filter out the ambiguous hits that are mapped to multiple query exons, or multiple locations of the same query exon.
6. Assemble the aligned reads for each specimen with the following procedure:
    a. Compute the dominant nucleotide at each position. If the frequency of the dominant nucleotide is less than 80%, we are not confident about whether the observed polymorphism is due to population diversity or data quality issues, and we mark them as potential bad positions.
    b. Check the enrichment of such potential bad positions using a 50bp sliding window. If there are more than 9 potential bad positions in a window, filter out this window.
    c. Compute the average read coverage of the exon and filter out exons whose sequencing depth is less than 1.5, to ensure that most of the exons should be supported by at least two sequencing reads.
7. Finally, we used the exon set defined in section M3.2 and concatenate the assembled exons into a single FASTA sequence for phylogenetic studies

M3.4. Coding sequence assembly for speciation hotspot studies

Methods described in section M3.3 are aimed to remove all possible noise and bias to study phylogeny. Therefore, we applied extensive filtering to exclude any possible contamination, which resulted in fewer but higher-quality positions. However, when we study the function of genomes, especially the correlation between phenotypes and genotypes, we want to obtain the most complete protein sets. For this purpose, we introduced the following modifications to the protocol described in M3.2 and M3.3:

1. We searched the exons of *Cecropterus lyciades* against the complete genome, instead of exons, of *Lerema* to obtain the Cecropterus-Lerema alignment. This modification reduces the influence from the inconsistency in the two sets of gene annotations.
2. We used *Cecropterus lyciades* as the reference genome to perform TBLASTN.

Using such approach, we obtained 83265 orthologous exons (38% more than the procedure in M3.2) from 17410 genes, which consist of 19,191,516 nucleotide positions.

M3.5. Assembling mitochondrial protein-coding genes

We took the 13 mitochondrial proteins from *Lerema* mitogenome and assembled these sequences for all samples. The assembly strategy for mitochondrial genes is almost identical to that for nuclear genes, with a few exceptions:

1. In TBLASTN search, we specified '-db_gencode 5' to switch to the invertebrate mitochondrial codon table.
2. We increased the read coverage cutoff from 1.5 to 3, as mitochondrial genomes generally have much higher coverage than the nucleus genome.

Finally, we obtained the concatenated mitogenome consisting of 11196 aligned positions for our samples (average read depth per gene is 634.36)

M3.6. Special procedure to handle extremely poor samples

Some mitogenome sequences include heterogeneous positions with multiple possible nucleotides. Although there is a chance that these represent intrinsic mitogenome heterogeneity, it is more likely, especially for old samples, that these samples are contaminated by other species. We fix such mitochondrial genomes by reference-guided *de novo* assembly. Briefly, from the alignment of the query protein and the reads of one sample, we linked all the reads with at least 10 bp identical overlapping regions together to form the local pitches. All the pitches then were linked together in all possible combinations to generate a pool of possible sequences. Then we mapped the reads to the sequence pool and picked the sequence of highest read depth as the final mitogenome assembly. Note that such method would only be applicable for the cases where the contamination is minor.

For the highly contaminated samples, we need to first identify the source of contamination and then filter the reads that are more similar to the sequence of the contaminating species. One such highly contaminated case is a sample of *Orphe vatinius* (sample ID NVG-2761). The mitogenome tree and nuclear tree showed different placement in the tree (data not shown). To investigate this problem, we used BWA (6) to map all reads to all available mitogenomes/genomes in our dataset and detected contamination in mitogenome reads from *Parnara naso* (sample ID NVG-7819 and NVG-7781). To fix this contamination, we discarded the reads that are 100 % identical to the *Parnara* mitogenome, or contain no more than 2 different base pairs from *Parnara,* and show higher similarity (by more than 2 bp) to *Parnara* than to *Pseudorphe pyrex* (sample ID NVG-15022B04, close relative of *Orphe vatinius*). This filtering step removed 38% of the reads mapped to the mitogenome and the subsequent assembled mitogenome showed a consistent phylogeny as the nuclear genome.

M4. High quality COI barcode assembly strategy

The COI barcode lies within the mitochondrial gene encoding cytochrome c oxidase I and is the most widely used markers for biological species identification (7). To ensure the quality of the assembled barcodes, we performed both reference-based and *de novo* assembling methods to obtain COI barcode sequences.

M4.1. Preparing database of barcodes

We downloaded all the COI barcodes in BOLDsystems (8) and reduced redundancy to keep only one most complete barcode per species. For those species whose longest barcode is still less than 90% complete, we performed the following procedure to increase the completeness.

1. Sorted the barcodes of the same species by the completeness and take the most complete sequence as a start.
2. Use the subsequent sequence in the sorted list to fill up the missing positions.
3. Iteratively repeated step 2 until the end of the list or till completion of the entire barcode.

To avoid problem of mapping sequencing reads to both ends of the barcode sequences, we extended the ends of the barcodes by 20bp on each end. The sequence added before 5'-end is 'ACTAATCATAAAGATATTGG' and that after 3'-end is 'TGATTTTTTGGTCATCCAGA'. We add the same sequences to all specimens because these regions are well-conserved among different species and are used as primers to amplify the barcode region.

M4.2. Selecting barcode baits

To construct COI barcodes, we first needed to extract sequencing reads coming from the COI barcode regions. We picked a "primary bait" sequence as the known COI barcode of the same or closely-related species. In cases where butterfly experts failed to identify the species of the sample or the "bait" identified very few sequencing reads (possibly due to mis-identification), we mapped the sequencing reads to the entire barcode dataset using BWA and assigned the sample to the species that attracted most of the sequencing reads. In several cases, the barcode that attracted the most sequencing reads is not from the correct species, as contaminating species could have higher abundance than the real reads from a specimen. Therefore, all the species identified by such method were examined carefully by butterfly experts.

Using the expected barcode of a species as the bait would create a strong bias towards the assumed sequence. Therefore, we selected multiple "secondary baits" for each sample so that the search can become more sensitive and that we have a way to check the consistency of the extracted reads by different baits. We select additional baits using the following protocol:

1. Run BLAST against the barcode database using the bait barcode.
2. Round the identity value into integer and ordered the identified barcodes primarily by the rounded sequence identity and secondarily by the BLAST e-value.
3. Took barcodes from the sorted list until the sequence identity drops to 90% or five barcodes are selected, whichever occurs first.

We used the BWA to map sequencing reads of each specimen to the primary and secondary barcode baits. For some cases where all available baits were too remote from the species of interest, we would perform a protein-based search by TBLASTN. We used the COI region from *Lerema accius* as the protein baits for all samples of our study.

M4.3. Checking consistency and removing contamination

We performed a consistency check for the reads extracted with different baiting barcodes to filter out those that map ambiguously to different regions in different bait barcodes. Note that some reads might not map to all the barcodes and some reads might contain both consistent and ambiguous mapping regions. In such cases, we obtained the consistent portion of the reads (not requiring mapping to all baits) and masked the ambiguous regions.

To filter the potential contamination, we used BWA to map all the unambiguously-mapped reads obtained in the prior step to our barcode database. We compared the identity between the read and the bait barcodes to that between the read and other barcodes from the database; we defined contaminating reads as the those that have higher identity to other species than to the expected species and higher identity to other barcodes than the average identity of all the barcode baits.

M4.4. Reference-based assembly

After removing contamination, the resulting reads were assembled in two approaches. In the first "consensus" approach, we computed the frequency of nucleotides in every position. The nucleotide with a frequency larger than 80% was assigned to the position (otherwise 'N' is assigned in the position). To check the quality of BWA mapping, we filtered reads with less than 50% or less than 40bp mapped by BWA to the primary bait and repeated the procedure. Note that such filtering could potentially remove many short reads for those ancient samples; therefore, we kept both of the barcodes and manually inspected the sequences if differences were observed. In the second "threading" approach, we sort the reads by the starting sites of the alignment between the read and the bait barcode. After taking the first read in the sorted list, we went through the list to create a set consistent reads by requiring each newly added read to be identical to the consensus sequence of all the previously identified consistent reads in the overlapping region of at least 6bp.

The filtering step in M4.3 could be too stringent for a remote bait barcode. In cases where stringent filtering resulted in incomplete barcode sequences, we performed a rescue step to recover some good reads. We used the barcode generated by the above first approaches and rescued those reads with more than 20bp overlapping with the assembled barcode and no more than 1bp mismatch to the barcode. This process was performed iteratively to update the assembled barcode.

M4.5. *De novo* assembly

We performed de novo assembly for those reads retrieved using DNA baits, as well as protein-baited reads, if necessary. We used platanus (9) assembler (version 1.2.4) with the following commands:

> platanus assemble -o [sampleID] -f [fastaInput] # [sampleID] is the identification number of the sample; [fastaInput] is the fetched reads in FASTA format

> platanus scaffold -o [sampleID] -c [sampleID]_contig.fa -b [sampleID]_contigBubble.fa -IP1 [R1.fq], [R2.fq] # [R1.fq] and [R2.fq] are the paired-end reads in FASTQ format.

We compared barcodes constructed by (a) *de novo* approach on DNA-baited reads, (b) *de novo* approach on protein-baited reads, if applicable, (c) reference-based consensus methods, and (d) reference-based threading methods to check for consistency. Any inconsistent nucleotides would be carefully inspected by human experts.

M4.6. Barcode validation

In addition to the internal consistency between different methodologies, we compared the barcodes against existing PCR barcodes of the same sample, if any, and all the barcodes in our database described in M4.1. We would perform a manual check in the following scenarios:

1. The PCR barcode cannot be aligned to the assembled barcode by BLASTN (default parameters).
2. There was any difference between the PCR barcode and the assembled barcodes of the exact sample.
3. The assembled barcode shows higher similarity to a barcode of a different species than that of the expected species.

Furthermore, we would order all the assembled barcodes by phylogeny and curated the singular nucleotides or amino acids that don't show up in the barcodes of their closely related species, by either PCR the barcode segment or manually studying the polymorphism in the sequencing reads.

M5. Phylogenetic analysis

M5.1. Construction of nuclear and mitochondrial genome alignments

Construction of nuclear alignment was trivial, as all reads were mapped to the same reference genome: we simply concatenated the alignments for each exon. However, construction of mitochondrial genome was not trivial, as we needed to incorporate mitogenomes from multiple sources including:

1. Full mitogenome downloaded from NCBI (Table S3)
2. The COI gene region from the dataset in reference (10)

We used the 13 *Lerema* mitochondrial proteins, which were used to assemble our own mitochondrial coding sequences, to search against the mitogenomes in category 1 by TBLASTN. The resulting alignment was used as an intermediate to add these external mitogenomes to our alignment. Similarly, we aligned the COI genes in category 2 to the COI protein from *Lerema*, which was used as an intermediate to add them to our alignment.

The barcode sequences prepared with protocol described in M4 were aligned by MAFFT (11) using the following command:

> mafft --localpair --maxiterate 100000 --thread 30 --reorder [input.fa] > [output_alignment.fa]

We detected the location of the barcodes in the mitogenome alignment and replaced that region with this barcode alignment. Due to the dedicated work in M4 to remove all possible contamination, the barcode alignment is expected to have higher quality than the initial barcode region in the mitochondrial alignment.

M5.2. Construction of phylogenetic trees

The mitochondrial (+barcodes) gene alignments (292 mitogenomes and 249 barcode regions) were processed using RAxML (12) (model: GTRGAMMA) to build a maximum-likelihood tree. The concatenated nuclear gene alignments (10,230,578 positions after filtering positions with over 50% gaps) were also processed using the same method and model.

To evaluate the confidence of the nuclear tree, we split the concatenated alignment of nuclear coding sequences into 100 partitions with about 0.1 million positions in each partition. RAxML (model: GTRGAMMA) was applied to each partition. However, the lack of positions in each partition lead to low support values for the internal branches near the leaves. To address this problem, we processed the dataset to generate larger partition containing 10% of the genome in two ways:

1. Using a sliding window of 1,023,058 positions (10% of the genome) to partition the genome with the step of 204612 positions (2% of the genome). This resulted in 50 partitions.
2. Randomly sampling (with replacement) 1,023,058 positions from the concatenated alignments of the nucleus genome. This resulted in another 50 partitions.

We applied RAxML on these 100 partitions and produced a consensus tree using SumTrees (https://pythonhosted.org/DendroPy/programs/sumtrees.html). The command for SumTree is:

> sumtrees.py -s consensus -f0.1 -p -d0 [input.tre] --output-tree-filepath=[output.tre] -r -F newick --suppress-annotations # [input.tre] is the file combining all the bootstrap trees.

To generate bootstrap replicates for mitogenome tree, we partitioned the alignment into two sub-alignments: the alignment of just COI barcode regions and one excluding the COI barcode regions. We performed standard bootstrapping (with replacement) independently on these two partitions and concatenated the sampled alignments to yield a bootstrap replicate. We ran RAxML on 100 such replicates and used the following SumTree command to assign confidence to nodes in the tree:

> sumtrees.py -f0.1 -p -d0 [input.tre] --target=[RAxML_all.tre] --output-tree-filepath=[output.tre] -r -F newick --suppress-annotations # [input.tre] is the trees built by RAxML for the 100 boostrap replicates, [RAxML_all.tre] is the tree built by RAxML for the full mitogenome sequence.

In addition to the maximal likelihood approach, we also performed coalescent-based estimation using ASTRAL (13) (version 5.5.9) on individual gene trees. We obtained 10811 gene alignments with more than 50 samples included and less than 50% gap fraction. We run RAxML on individual gene alignments and summarized the RAxML trees using the following command:

> java -jar astral.5.5.9.jar -i [in.tree] -o [out.tre] # [in.tree] is the file of all gene trees (one tree per line) and [out.tre] is the output ASTRAL tree.

We computed the time-calibrated (i.e., dated) tree based on the summarized bootstrap tree generated by RAxML. Briefly, we assumed a constant evolutionary rate for every branch and rescaled the branches in the RAxML tree to obtain constant length from the leaf to the root. Detailed procedure is described below:

1. We took the largest branch length from the root to the leaves as the target branch length. Every branch was rescaled to the target branch length (TBL).

2. From the root, we iteratively repeated the following steps to rescale each internal branch to the expected length:
    a. at an internal node, subtract the branch length from this node to the root from the TBL to obtain the targeted remaining branch length (TRBL)
    b. identify the best path to a leaf from current node as the path with the largest number of internal nodes and computed the branch length of this best path, namely, current remaining branch length (CRBL)
    c. compute the scaling factor as the ratio of TRBL vs CRBL
    d. multiply the scaling factor with the branch length for each branch in the best path, and update the branch length
    e. go to the children nodes and repeat step (a) until reaching the tips of the tree.

Time axis was added to the tree based on fossil calibration carried out in recent studies (14)(15).

M5.3. Detection of diagnostic nucleotide characters

To support the phylogenetic groups, we detected the distinguishing nucleotide characters that were mutated and maintained in the groups. We would like to find the characters that are (a) conserved within the group, (b) conserved in the rest species outside the group, and (c) different between the group and the rest sequences. Some of our samples are of poor quality and contained lots of gaps in the final alignment. To avoid possible mis-identification due to the missing characters, we constrained our positions to filter out positions dominated by gaps. In addition, we also had more stringent gap thresholds for the sister groups to the group of interests, to ensure that the characters we found indeed can differentiate the group of interest and its sister group. Below is the detailed procedure.

1. Define the group of interest (group I), its sister group (group S), and remaining group (group R, excluding the outgroups used for rooting the tree).
2. Define poor samples (7.5% of total samples) with more than 80% gaps in the alignment. Poor samples will not be considered in counting gaps for sequences outside the group of interest.
3. Define good positions as those that are not gaps in 80% of the samples (excluding poor samples).
4. Among good positions, extract the positions that are 100% conserved and have no gaps within group I, and definite these positions as P1 set.
5. Among the P1 set, remove those positions where the conserved characters for group of interest also appeared in the rest samples (group S and group R), resulting in P2 set.
6. Among the P2 set, only take the positions where the character in the rest (group S and group R) was conserved in more than 80% of the samples, and different from the character in the group I, resulting in P3 set.
7. Among the P3 set, filter out the positions where any species in the sister groups has a gap.

Sometimes these thresholds for gap fractions are too stringent, and minor adjustment was applied. For example, for Eudaminae group with 110 samples, we lowered the gap threshold for group I from 100% to 90% to allow missing data in a few samples. For Pericharini that contain many poor-quality samples, we lowered the gap fraction threshold in the rest to enable more positions. After extracting the candidate characters, human sequence experts manually verified those characters and picked the best characters with a preference for fewer gaps in the column and higher concentration of such positions in the same gene (to allow easy targeted amplification).

We also detected combined characters in COI barcodes to support phylogenetic groups. A human expert investigated the COI barcodes of all samples included in this project and proposed patterns for every phylogenetic group of interests. The proposed patterns were checked through all the barcodes we have (94,794 in total) to ensure the distinguishing power. This is an iterative process where a human expert would modify the distinguishing characters according to the barcodes detected in the automatic check.

M6. Identification of genes and SNPs that correlate with morphological differences between mimicry complexes

M6.1. Detection of genomic islands for speciation

Our analysis revealed that *Telegonus brevicauda* and *T. chalco* are sister species, despite the drastic difference in their morphology. Therefore, it is interesting to identify the "genomic islands for speciation" that potentially also drove the phenotypic divergence (16). Using eight *T. chalco* (sample IDs: 5724, 14111A07, 17097G01, 17097G02, 17097G03, 17097G04, 17097G05, and 17097G06) and six *T. brevicauda* (sample IDs: 17096A09, 17096A10, 17096A11, 17096A12, 17096B01, and 17096B02) specimens, we identified such genomic islands for speciation using two criteria that are similar in spirit to "Fst outlier tests" (17).

First, we estimated the fixation indices on sequences of whole proteins using the following formula: $Fst = ((\pi\_between - \pi\_within)) / \pi\_between$, where π_between is the average divergence in protein sequences for specimens of different species, and π_within is the average divergence in protein sequences for specimens of the same species. We required the genomic islands (proteins in our case) for speciation to have Fst above 0.8. Meanwhile, we excluded the highly variable proteins (such "variability" may be caused by contamination in the DNA library for old specimens) with high intra-species polymorphism by requiring π_within to be below 1%.

In the second procedure, we first detected amino acid positions with high Fst (namely, high Fst positions) by requiring the position the high-frequency (in above 75% of all samples) amino acids at that position to be different in the two species. We further identified proteins that are statistically enriched ($P < 0.05$) in such high Fst positions using a binomial test (p = fraction of divergent positions in the alignment, m = the number of divergent positions in a protein, n = the total number of aligned positions in a protein).

In this procedure, we identified a total of 243 proteins (Table S4) that satisfy both criteria. We analyzed their functions using GO terms, and identified significantly enriched GO terms (Table S5) using a binomial test with the following parameters:

1. Number of success (M) = number of GO terms associated with speciation hotspots
2. Number of trials (N) = total number of speciation hotspots
3. Hypothesized probability of success (p) = the fraction of proteins that are associated with this GO term in the entire set.

M6.2. Detection of fixed mutations in mimicry complexes

Telegonus chalco is drastically different in morphology from its sister species, *T. brevicauda,* which is instead in the same mimicry complex as *Urbanus tucuti*. We hypothesized that some genomic features distinguishing *T. chalco* from *T. brevicauda* and *U. tucuti* may be related to the unique phenotypic feature of *T. chalco* characterized by extensive white areas on the hindwing, such as white tail, margins and fringes. We therefore identified the high-frequency derived alleles in *T. chalco*, using *T. brevicauda* and *U. tucuti* as control. We used a similar pipeline as that described in M5.3, and detected positions from sequence alignments of all the protein that satisfy the following criteria: (a) all *T. brevicauda* and *U. tucuti* specimens have the same amino acid, (b) all *T. chalco* samples have the same amino acid, and different from *T. brevicauda* and *U. tucuti*. We called these positions "diagnostic positions" of *T. chalco.*

These "diagnostic positions" of *T. chalco* may appear purely by chance due to the small sample size. To increase the likelihood of selecting positions that are relevant to the morphological traits of *T. chalco*, we used other species (test group) that share some common phenotypic features with *T. chalco* to filter these positions. We used the following species, *Cecropterus tehuacana* (sample ID: NVG-15609H02), *C. lyciades* (sample ID: NVG-3311), *C. doryssus* (sample ID: NVG-3610), *C. albociliatus* (sample ID: NVG-5749), and *C. casica* (sample ID: NVG-8269) in our test group: they all have extensive white scaling on hindwings, similar to *T. chalco*. From the "diagnostic positions", we further selected those, in which the test group lacks amino acids present in *T. brevicauda-U. tucuti*, but instead has the same amino acid as *T. chalco* in at least 50% of the test group samples. We hypothesized that amino acids in these positions may be related to the white-scale phenotype observed in *T. chalco*, and analyzed distribution of these positions in proteins. Proteins with multiple (>= 3) such positions are show in Table S6.

M7. References

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Table S1. Data for 250 sequenced Hesperiidae specimens

#	DNA Voucher	Taxon name	Typ	Sex	Locality	Elevation	GPS	Collectors	Date	Collection	Genitalia No.	Collection No.
1	NVG-5270	***Burara striata***		F	China: Sichuan Prov., Pingwu Co., The Old Creek Nature reserve			Rongjiang Wang	11-Aug-2015			
2	NVG-5271	***Choaspes benjaminii***			China: Sichuan Prov., Pingwu Co., The Old Creek Nature reserve			Rongjiang Wang	12-Aug-2015			
3	NVG-15103B05	***Euschemon rafflesia rafflesia***			Australia: Queensland, Southbrook			maybe C. B. Davidson	probably around 1946	USNM		
4	NVG-5690	***Udranomia eurus***		F	Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Camino Rio Francia	410 m	10.90425, -85.28651	Jose Perez	eclosed on 11-Jul-2003	USNM	NVG160214-51	03-SRNP-11250
5	NVG-5364	***Udranomia kikkawai***		F	Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Sendero Nacho	710 m	10.98445, -85.42481	Calixto Moraga	eclosed on 28-Apr-2014	USNM		14-SRNP-30490
6	NVG-5689	***Udranomia orcinus***			Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Rio Blanco Abajo	500 m	10.90037, -85.37254	Carolina Cano	eclosed on 31-May-2014	USNM	NVG160214-50	14-SRNP-2445
7	NVG-5731	***Drephalys kidonoi***			Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Cerro Gongora Pelado	740 m	10.76307, -85.41332	Mariano Pereira	eclosed on 27-Apr-2013	USNM	NVG160214-92	13-SRNP-55259
8	NVG-5733	***Augiades crinisus***		M	Guyana: Trop F Res, Middle Demerara R.	200-400'	5.15533, -58.69967	Steve Fratello	31-Jan-12-Feb-2001	USNM	NVG160214-94	USNMENT 00179099
9	NVG-5730	***Entheus*** **sp.** (Burns01)		F	Costa Rica: Guanacaste Prov., ACG, Sector Cacao, Sendero Derrumbe	1220 m	10.92918, -85.46426	Winnie Hallwachs	eclosed on 28-Jul-2008	USNM	NVG160214-91	08-SRNP-35619
10	NVG-5732	***Hyalothyrus neleus pemphigargyra***			Costa Rica: Guanacaste Prov., ACG, Sector El Hacha, Estacion Los Almendros	290 m	11.03226, -85.52776	Lucia Ríos	eclosed on 06-Sep-2013	USNM	NVG160214-93	13-SRNP-21784
11	NVG-5728	***Phanus vitreus***			Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Finca San Gabriel	645 m	10.87766, -85.39343	Elda Araya	eclosed on 22-Oct-2008	USNM	NVG160214-89	08-SRNP-5260
12	NVG-5729	***Tarsoctenus corytus corba***		M	Brazil: Rondonia, 8 km N Cacaulandia	190 m	-10.50000, -62.86666	David H. Ahrenholz	5-Nov-1989	USNM	NVG160214-90	
13	NVG-5316	***Phocides*** **sp.** ***okeechobee***		M	USA: FL, Monroe Co., Key West			Nick V. Grishin	19-Dec-2015			
14	NVG-5736	***Pseudonascus paulliniae***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Palomo	96 m	10.96187, -85.28045	Keiner Aragón	eclosed on 31-Oct-2013	USNM	NVG160214-97	13-SRNP-79622
15	NVG-5738	***Nascus phocus*** (Burns02)		M	Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Punta Plancha	420 m	10.74160, -85.42734	Jose Cortez	eclosed on 15-Oct-2007	USNM	NVG160214-99	07-SRNP-60000
16	NVG-14101A03	***Aurina dida***		M	French Guiana: St. Laurent					AMNH		
17	NVG-14063C10	***Aurina azines***		M	Guyana: Cuyuni R., Kamaria Falls	100'	6.40000, -58.90000	Steve Fratello et al.	30-Nov-5-Dec-2000	USNM		USNMENT 00284339
18	NVG-14103F08	***Emmelus purpurascens***		M	Peru: San Martin, Huallaga, Saposoa	500 m		Stan S. Nicolay	May-1954	USNM	X-6557 J. M. Burns 2007	
19	NVG-5747	***Porphyrogenes calathana***			Costa Rica: Guanacaste Prov., ACG, Sector El Hacha, Estacion Los Almendros	290 m	11.03226, -85.52776	Lucia Ríos	eclosed on 27-May-2011	USNM	NVG160217-08	11-SRNP-20853
20	NVG-5719	***Porphyrogenes peterwegei***			Costa Rica: Alajuela Prov., ACG, Brasilia, Moga	320 m	11.01227, -85.34929	Duvalier Briceño	eclosed on 23-Jul-2013	USNM	NVG160214-80	13-SRNP-65288
21	NVG-5740	***Nicephellus nicephorus***		M	Costa Rica: Guanacaste Prov., ACG, Sector Del Oro, Camino Mangos	480 m	11.00766, -85.47926	Manuel Pereira	eclosed on 05-Oct-2002	USNM	NVG160217-01	02-SRNP-27687
22	NVG-5737	***Salatis canalis***			Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Bullas	440 m	10.98670, -85.38503	Ricardo Calero	eclosed on 15-Apr-2013	USNM	NVG160214-98	13-SRNP-70310
23	NVG-14063C05	***Salantoia eriopis***		M	Brazil: Para, ca 60 km S. Altamira, Rio Xingu Camp		-3.65000, -52.36666	P. Spangler & O. Flint	2-8-Oct-1986	USNM	X-4312 J. M. Burns 1998	
24	NVG-14063C03	***Sarmientoia browni***		M	Brazil: Mato Grosso, Diamantino, Alto Rio Arinos	350-400 m	-14.21666, -56.20000	E. Furtado	7-Aug-1991	USNM		
25	NVG-5741	***Bungalotis erythus***		M	Costa Rica: Alajuela Prov., ACG, Brasilia, Moga	320 m	11.01227, -85.34929	Duvalier Briceño	eclosed on 02-May-2008	USNM	NVG160217-02	08-SRNP-65224
26	NVG-5718	***Euriphellus phraxanor***		M	Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Sendero Perdido	620 m	10.8794, -85.38607	Osvaldo Espinoza	eclosed on 23-Sep-2014	USNM	NVG160214-79	14-SRNP-3477
27	NVG-14063E01	***Euriphellus euribates***		M	Peru: Madre de Dios, Amazonia Lodge, Atalaya	491 m		Stephen Kinyon	24-Oct-2013	USNM		
28	NVG-5735	***Dyscophellus porcius***		M	Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Finca Esmeralda	123 m	10.93548, -85.25314	keyner Aragon	eclosed on 30-Aug-2013	USNM	NVG160214-96	13-SRNP-76944
29	NVG-15102D06	***Phareas burnsi***	PT		Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Pasmompa	440 m	11.01926, -85.40997	Petrona Rios	eclosed on 20-Mar-2005	USNM	NVG120513-05	05-SRNP-30577
30	NVG-15101A07	***Cecropterus acanthopoda***		F	Brazil: Rio Grande do Sul, Pelotas			C. M. deBiezanko	Jan-1949	USNM	X-856 J. M. Burns 1978	
31	NVG-15026C12	***Cecropterus rinta***		M	Argentina: Salta, La Caldera to Jujuy border, Rt. 9, La Corniza, Km. 20, La Cargadera	1450 m		R. Eisele	7-Dec-1985	MGCL		
32	NVG-5077	***Cecropterus zarex***			Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Estacion Quica	470 m	10.99697, -85.39666	Oscar Siezar	eclosed on 03-Aug-2008	USNM	NVG151102-32	08-SRNP-70876
33	NVG-5695	***Cecropterus longipennis***		M	French Guiana: Saul	200-450 m	3.61667, -53.71667	Don J. Harvey	21-Nov-1993	USNM	NVG160214-56	
34	NVG-5072	***Cecropterus evenus***			Brazil: Minas Gerais, Serra do Cipo	1250 m	-19.26666, -42.58333	Robert K. Robbins & Becker	19-Apr-1991	USNM	NVG151102-27	
35	NVG-3311	***Cecropterus lyciades***		M	USA: TX, Sabine Co., Sabine National Forest, Fox Hunters' Hill		31.18539, -93.72992	Qian Cong & Nick V. Grishin	12-Apr-2015			
36	NVG-8269	***Cecropterus casica***		M	USA: AZ, Pinal Co., Coronado N.F., Catalina Mts., S of Oracle, Peppersauce Canyon		32.53728, -110.7197	Qian Cong, Jing Zhang & Nick V. Grishin	26-Mar-2017			
37	11-BOA-15609H02	***Cecropterus tehuacana***		M	Mexico: Coahuila, Cuesta La Muralla			J. A. Powell & J. A. Chemsak	12-Sep-1976	USNM	X-849 J. M. Burns 1978	
38	NVG-4185	***Cecropterus confusis***		M	USA: TX, Wise Co., LBJ National Grassland		33.36617, -97.58212	Nick V. Grishin	19-Jul-2015			
39	NVG-14061G02	***Cecropterus pseudocellus***		M	Mexico: Durango, El Madrono	2400 m		Arthur M. Shapiro	1-Jul-1988	USNM		
40	NVG-4539	***Cecropterus bathyllus***		F	USA: OK, Atoka Co., McGee Creek Natural Scenic Recreation Area		34.41040, -95.91059	Nick V. Grishin	22-Aug-2015			
41	NVG-3313	***Cecropterus pylades pylades***		M	USA: TX, Sabine Co., Sabine National Forest, Fox Hunters' Hill		31.18539, -93.72992	Qian Cong & Nick V. Grishin	12-Apr-2015			
42	NVG-5075	***Cecropterus egregius egregius***		M	Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Sendero Rincon	430 m	10.8962, -85.27769	Jose Perez	eclosed on 26-Mar-2013	USNM	NVG151102-30	13-SRNP-40562
43	NVG-14104A05	***Cecropterus palliolum***		F	Costa Rica: Limon, Guapiles		10.21667, -83.78333	Gordon B. Small	8-Jul-1980	USNM		
44	NVG-5237	***Cecropterus dorantes dorantes***		F	USA: TX, Starr Co., Rio Grande City, Fort Ringgold		26.37038, -98.80675	Nick V. Grishin	26-Nov-2015			
45	NVG-5749	***Cecropterus albociliatus***			Costa Rica: Guanacaste Prov., ACG, Sector Horizontes, Vado Esperanza	85 m	10.78938, -85.55098	Guillermo Pereira	eclosed on 08-Jun-2007	USNM	NVG160217-10	07-SRNP-12984
46	NVG-3830	***Cecropterus toxeus***		F	USA: TX, Starr Co., Roma, Citizens State Bank		26.41479, -99.02241	Qian Cong & Nick V. Grishin	28-Jun-2015			
47	11-BOA-13386B08	***Cecropterus athesis***		M	Panama: Canal Zone, Gamboa		9.11647, -79.68254	Gordon B. Small	23-Oct-1978	USNM	NVG131102-74	
48	NVG-15093A09	***Cecropterus takuta***		M	Brazil: Rondonia, 5 km S Cacaulandia, 67 km S Ariquernes, linea C-10			O. Gomes	18-Jul-1993	MGCL		
49	NVG-3610	***Cecropterus doryssus***		M	USA: TX, Starr Co., Roma International Bridge		26.40516, -99.01921	Qian Cong & Nick V. Grishin	14-Jun-2015			
50	NVG-14103G09	***Cecropterus phalaecus***		F	Mexico: San Luis Potosi, Xilitla			William H. Howe	24-Jul-1981	USNM		
51	NVG-3754	***Spicauda procne***		F	USA: TX, Hidalgo Co., Old Rio Rico Rd. 1.5 air mi SE of Relampago		26.06665, -97.88366	Qian Cong & Nick V. Grishin	27-Jun-2015			
52	NVG-5691	***Urbanus esmeraldus***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Palomo	96 m	10.96187, -85.28045	Keiner Aragón	eclosed on 31-Aug-2013	USNM	NVG160214-52	13-SRNP-68996
53	NVG-15103F04	***Urbanus evona***		F	Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Camino Brisas	380 m	10.73962, -85.41589	Jose Cortez	eclosed on 01-Aug-2007	USNM		07-SRNP-57988
54	NVG-5697	***Urbanus velinus***		M	Guyana: Region 9, Kanuka Mts., Nappi Mt.		3.32500, -59.55833	Steve Fratello, R. Hanner, S. Hendricks, S. Williams	21-Feb-10-Mar-1999	USNM	NVG160214-58	USNM ENT 232385
55	NVG-4894	***Urbanus proteus proteus***			USA: FL, Miami-Dade Co., Homestead, S of Keys Gate Golf Club		25.44190, -80.43996	Nick V. Grishin	4-Oct-2015			
56	NVG-15103E08	***Urbanus segnestami***	PT		Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Sendero Juntas	400 m	10.90661, -85.28784	Anabelle Cordoba	eclosed on 14-Apr-2011	USNM		11-SRNP-41167
57	NVG-14082H06	***Urbanus megalurus***		M	Mexico: Chiapas, Rio Sta. Domingo			T. Escalante	Sep-1948	AMNH		
58	NVG-2932	***Urbanus tucuti***		M	Mexico: Veracruz, La Victoria	450 m				Ernst Brockmann		
59	NVG-17096A09	***Telegonus brevicauda***			Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Sendero Carmona	670 m	10.87621, -85.38632	Elda Araya	eclosed on 11-Apr-2007	USNM		07-SRNP-1174
60	NVG-5724	***Telegonus chalco***		M	Peru: Loreto, Maquia	180 m	-7.33333, -74.96666	David H. Ahrenholz	19-Nov-2002	USNM	NVG160214-85	
61	NVG-15104C04	***Telegonus catemacoensis***	HT	M	Mexico: Veracruz, Catemaco			T. Escalante	Sep-1964	AMNH		
62	NVG-5696	***Telegonus naxos***		M	Brazil: Rio de Janeiro, Teresopolis P. N. Serra dos Orgaos	1100 m	-22.45000, -43.0000	Duarte	6-Nov-1995	USNM	NVG160214-57	
63	NVG-5074	***Telegonus talus***			Costa Rica: Guanacaste Prov., ACG, Sector Del Oro, Puente Mena	280 m	11.04562, -85.45742	Roster Moraga	eclosed on 28-May-2014	USNM	NVG151102-29	14-SRNP-20343
64	NVG-5078	***Telegonus apastus***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Palomo	96 m	10.96187, -85.28045	Keiner Aragon	eclosed on 09-Jan-2013	USNM	NVG151102-33	12-SRNP-68868
65	NVG-5076	***Telegonus alector hopfferi***			Costa Rica: Alajuela Prov., ACG, Brasilia, Gallinazo	360 m	11.01825, -85.37199	Duvalier Briceño	eclosed on 20-Apr-2014	USNM	NVG151102-31	14-SRNP-65139
66	NVG-5716	***Telegonus anaphus annetta***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Guanacaste	660 m	10.77824, -85.39458	Keiner Aragon	eclosed on 03-Feb-2010	USNM	NVG160214-77	10-SRNP-67040
67	NVG-5676	***Telegonus hyster***		F	Mexico: Guerrero, 13 km NW Iguala	1220 m		Jerry A. Powell & J. A. Chemsak	12-Sep-1982	USNM	NVG160214-37	
68	NVG-5698	***Telegonus cellus***		M	USA: AZ, Cochise Co., Huachuca Mts., Miller Canyon	5800-6200'		A. S. & N. D. Menke	11-Jul-2000	USNM	NVG160214-59	
69	NVG-15111F10	***Autochton reflexus***		F	Brazil: Santa Catarina, Joinville				18-Aug-1940	AMNH		
70	NVG-5694	***Autochton itylus***		M	Peru: Cuzco, Quitacalzone, Cosnipata Road			Stephen Kinyon	12-May-2012	USNM	NVG160214-55	
71	NVG-5748	***Autochton bipunctatus***		M	Peru: Madre de Dios Region, Amazonia Lodge			Stephen Kinyon	16-May-2012	USNM	NVG160217-09	
72	NVG-5715	***Autochton potrillo potrillo***			Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Camino Pozo Tres	733 m	10.77079, -85.37422	Mariano Pereira	eclosed on 29-Aug-2009	USNM	NVG160214-76	09-SRNP-57000
73	NVG-5693	***Autochton oryx***		M	Ecuador: Sucumbios, Cerro Lumbaqui Norte	800-950 m	0.02222, -77.32277	Jason P. W. Hall & M. Alma Solis	18-22-Aug-2002	USNM	NVG160214-54	
74	NVG-3835	***Spathilepia clonius***		M	USA: TX, Starr Co., Roma International Bridge		26.40521, -99.01941	Qian Cong & Nick V. Grishin	28-Jun-2015			
75	NVG-5079	***Astraptes enotrus***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Quebrada Bambu	109 m	10.9301, -85.25205	Cirilo Umaña	eclosed on 01-Apr-2013	USNM	NVG151102-34	13-SRNP-75513
76	NVG-15081D11	***Narcosius helen***			Mexico: Veracruz 700-1000m, El Bastonal, Mpio. Catemaco				5-Aug-2015	Ernst Brockmann		
77	NVG-5723	***Proteides mercurius***			Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Medrano	380 m	11.01602, -85.38053	Ricardo Calero	eclosed on 19-May-2012	USNM	NVG160214-84	12-SRNP-70701
78	NVG-15111B09	***Epargyreus spanna***		M	Dominican Republic: Pedernales Prov., Las Abejas, ca 12 km NW Aceitillar				3-Jul-1985	AMNH		
79	NVG-4192	***Epargyreus clarus clarus***		F	USA: TX, Dallas Co., Dallas, White Rock Lake Park, Lake shore		32.84512, -96.71805	Nick V. Grishin	21-Jul-2015			
80	NVG-4502	***Chioides albofasciatus***		M	USA: TX, Cameron Co., E of Brownsville, Boca Chica			Nick V. Grishin	16-Aug-2015			
81	NVG-5053	***Chioides vintra***		M	St. Vincent: Lowmans, 1 mi N Kingstown			E. L. Todd	11-Nov-1975	USNM	NVG151102-08	
82	NVG-5045	***Aguna metophis***		F	Brazil: Rio de Janeiro, Guapimirim	50 m	-22.53333, -42.98333	Robert K. Robbins & Marcelo Duarte	17-Dec-1996	USNM	NVG151101-96	
83	NVG-5041	***Aguna camagura***		M	Brazil: Mato Grosso, Colegio Buriti, Chap. Guimares	700 m		Stan S. Nicolay	23-27-May-1969	USNM	NVG151101-92	
84	NVG-5524	***Aguna claxon***		M	Mexico: San Luis Potosi, El Salto Falls, Sierra Madre O.			Roy O. Kendall & C. A. Kendall	23-Dec-1972	TAMU	NVG160110-61	

85	NVG-5720	***Zeutus zeutus***			Costa Rica: Guanacaste Prov., ACG, Sector Del Oro, Quebrada Trigal	290 m	11.02681, -85.49547	Lucia Ríos	eclosed on 21-Jul-2007	USNM	NVG160214-81	07-SRNP-21845
86	NVG-3288	***Lobocla liliana liliana***			China: Yunnan, Mengla Co.				Jun-2009			
87	NVG-3325	***Lobocla nepos***		M	Tibet: Chamdo Prov., Paksho	3000 m		Robert Westphal	11-Jun-1996			
88	NVG-15105B05	***Lobotractus valeriana***		M	USA: AZ, Santa Cruz Co., Harshaw Cr. Rd., 6.5 mi from Patagonia			John Lane	8-Aug-2005	CAS		
89	NVG-14107B01	***Lobotractus cyda***		M	Mexico: Chiapas, 60 km SW Comitan, Las Delicias	700 m		Peter Hubbell	Jun-1969	AMNH		
90	NVG-15099C02	***Codatractus cyledis***		M	Mexico: Oaxaca, El Vado - San Sebastian	6500'		John Kemner	27-Jun-1992	CMNH		
91	NVG-5678	***Codatractus imalena***			Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Jardin Estrada	722 m	10.86546, -85.39694	Elda Araya	eclosed on 28-May-2012	USNM	NVG160214-39	12-SRNP-1823
92	NVG-17098D11	***Codatractus alcaeus***		M	Costa Rica: Guanacaste Prov., ACG, Sector Santa Rosa, Area Administrativa	295 m	10.83764, -85.61871	Daniel H. Janzen	collected on 1-Jun-2011	USNM		11-SRNP-12727
93	NVG-5680	***Zestusa dorus***		M	USA: AZ, Coconino Co., Oak Creek Canyon	5000'		Ron H. Leuschner	3-May-1984	USNM	NVG160214-41	
94	NVG-5682	***Ridens mephitis***			Costa Rica: Guanacaste Prov., ACG, Sector El Hacha, Estacion Los Almendros	290 m	11.03226, -85.52776	Lucia Ríos	eclosed on 19-Apr-2014	USNM	NVG160214-43	14-SRNP-20297
95	NVG-5681	***Venada nevada***			Costa Rica: Guanacaste Prov., ACG, Sector Cacao, Sendero Derrumbe	1220 m	10.92918, -85.46426	Manuel Pereira	eclosed on 27-Aug-2013	USNM	NVG160214-42	13-SRNP-35317
96	NVG-5684	***Cephise aelius***			Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Bullas	440 m	10.9867, -85.38503	Ricardo Calero	eclosed on 18-Jun-2014	USNM	NVG160214-45	14-SRNP-70854
97	NVG-5734	***Ectomis asine***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Estacion Botarrama	160 m	10.95991, -85.28298	Keiner Aragón	eclosed on 23-Nov-2013	USNM	NVG160214-95	13-SRNP-79769
98	NVG-5683	***Ectomis kanshul***		M	Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Palomo	96 m	10.96187, -85.28045	Duvalier Briceño	eclosed on 14-Jun-2014	USNM	NVG160214-44	14-SRNP-46003
99	NVG-5692	***Ectomis octomaculata***			Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Punta Plancha	420 m	10.74160, -85.42734	Jose Cortez	eclosed on 24-Sep-2013	USNM	NVG160214-53	13-SRNP-56170
100	NVG-15025E05	***Ectomis labriaris***		M	Brazil: Rondonia, 62 km S Ariquemes, linha C-20, 7 km E B65, Fazenda Rancho Grande			George T. Austin	20-Nov-1991	MGCL		
101	NVG-5722	***Ectomis perniciosus***		M	Peru: Atalaya, Amazonia Lodge	491 m		Stephen Kinyon	25-Oct-2013	USNM	NVG160214-83	
102	NVG-5746	***Ectomis pervivax***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Palomo	96 m	10.96187, -85.28045	Keiner Aragon	eclosed on 08-Nov-2010	USNM	NVG160217-07	10-SRNP-67881
103	NVG-5685	***Ectomis cythna***		M	Guyana: Trop F Res, Middle Demerara R.	200-400'	5.15534, -58.69967	Steve Fratello et al.	31-Jan-12-Feb-2001	USNM	NVG160214-46	
104	NVG-15025D10	***Ectomis teutas***		M	Brazil: Rondonia, 62 km S Ariquemes, linha C-20, 7 km E B65, Fazenda Rancho Grande			George T. Austin	23-Oct-1997	MGCL		
105	NVG-5726	***Telemiades fides***			Costa Rica: Guanacaste Prov., ACG, Sector El Hacha, Quebrada Leona	255 m	11.03028, -85.54781	Elieth Cantillano	eclosed on 14-Jun-2011	USNM	NVG160214-87	11-SRNP-20768
106	NVG-5338	***Polygonus leo***		M	USA: FL, Monroe Co., Key West			Nick V. Grishin	19-Dec-2015			
107	NVG-5033	***Polygonus savigny***		M	Brazil: Santa Catarina, Rio Natal nr. R. Vermelho	1400 '	-26.33000, -49.29000	Ron Leuschner	7-9-Mar-1999	USNM	NVG151101-84	
108	NVG-5727	***Oileides vulpinus***		M	Brazil: Espírito Santo, 25 km, N Linhares, BR101 - km 158			Stan S. Nicolay	6-May-1969	USNM	NVG160214-88	
109	NVG-5699	***Typhedanus ampyx***		M	Mexico: Oaxaca, Zipolite, El Arroyo	sea level		John Kemner	11-Sep-1992	USNM	NVG160214-60	
110	NVG-5686	***Oechydrus chersis rufus***		M	Brazil: Rio de Janeiro, Teresopolis P. N. Serra dos Orgaos	1100 m	-22.45000, -43.00000	Martins	28-Feb-1996	USNM	NVG160214-47	
111	NVG-14063B05	***Nerula fibrena***		F	Venezuela: Amazonas, Cerro de la Neblina Basecamp	140 m	0.83333, -66.16666	P. J. & P. M. Spangler, R.A. Faitoute & W. E. Steiner	28-Jan-1985	USNM		
112	NVG-3354	***Cogia calchas***		M	USA: TX, Hidalgo Co., Old Rio Rico Rd. 1.5 air mi SE of Relampago		26.07093, -97.89131	Qian Cong & Nick V. Grishin	23-May-2015			
113	NVG-5688	***Marela tamba***		M	Ecuador: Pastaza, 8 km S Shell		-1.56666, -78.03333	Stan S. Nicolay	20-Oct-1991	USNM	NVG160214-49	
114	NVG-7993	***Celaenorrhinus syllius***			Ecuador: Sucumbios, Cerro Lumbaqui Norte	950 m	0.02833, -77.32033	Jason P. W. Hall & M. Alma Solis	1-3-Jan-2002	USNM	NVG170207-78	USNMENT 01321833
115	NVG-7331	***Pseudocoladenia dan fabia***		M	Myanmar: Chin State, Alaungdaw Khattapa Nat. Park			Stephen Kinyon	31-Jan-15-Feb-2001	USNM	NVG161105-04	
116	NVG-17069B02	***Eretis melania***			Tanzania: Tanganyika, Usambara, Amani Nature Reserve			G. Pringle	Aug-1963	USNM		USNMENT 01321969
117	NVG-7345	***Sarangesa dasahara***		M	Myanmar: Mandalay Div., Alaungdaw Khattapa Nat. Park	974'	22.32167, 94.48667	Stephen Kinyon	21-Sep-2001	USNM	NVG161105-18	
118	NVG-16106A03	***Netrocoryne repanda***		M	Australia: Queensland, Killarney			E. B. Skreen	28-Jan-1963	LACM		
119	NVG-7864	***Capila zennara***		M	Myanmar: Rakhine Div., Gwa Twsp Ye Phya, Chaung			Ko Lin	2-9-May-2003	USNM	NVG170206-49	USNMENT 01321704
120	NVG-7336	***Gerosis bhagava***		M	Myanmar: Rakhine Div., GwaTwsp Kan Tha Yar			Stephen Kinyon	2-9-May-2003	USNM	NVG161105-09	
121	NVG-7341	***Odontoptilum angulata***		M	Myanmar: S. Shan State, Kalaw Reservoir			Stephen Kinyon	9-Jun-2002	USNM	NVG161105-14	
122	NVG-7333	***Tagiades litigiosus***		M	Myanmar: S. Shan State, Kalaw Reservoir	4400'	20.60335, 96.52999	Stephen Kinyon	30-Sep-2001	USNM	NVG161105-06	
123	NVG-17094H03	***Passova gellias***		F	Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Sendero Carmona	670 m	10.87621, -85.38632	Carolina Cano	eclosed on 16-Nov-2013	USNM		13-SRNP-6248
124	NVG-17094E03	***Zonia zonia panamensis***	PT	M	Panama: Canal Zone, Madden Forest Preserve			Gordon B. Small	24-Jul-1969	USNM		USNMENT 00894778
125	NVG-14113A02	***Oxynetra aureopecta***	HT	M	Mexico: Hidalgo, Puerto del Caballo	1020 m		William H. Howe	8-Sep-1987	LACM		
126	NVG-17094C09	***Pyrrhopyge hadassa***		M	Peru: Cuzco, Cosnipata Valley, Quebrada Santa Isabel	1194 m		Stephen Kinyon	19-Oct-2013	USNM		USNMENT 00894886
127	NVG-17094D10	***Metardaris cosinga cedra***		M	Peru: Cuzco, Paucartambo/Acianaco Rd., Quebrada, Chusa, km 88	3150 m		Stephen Kinyon	3-Nov-2016	USNM		USNMENT 00894773
128	NVG-17094F01	***Croniades pieria auraria***			Peru: Cuzco, Cosnipata Valley, Quebrada Santa Isabel	1194 m		Stephen Kinyon	24-Oct-2016	USNM		USNMENT 00894758
129	NVG-14107C02	***Jera tricuspidata***		M	Ecuador: Tungurahua, Rio Topo	1500 m		Stan S. Nicolay	9-Nov-1984	USNM	X-5454 J. M. Burns 2003	
130	NVG-7891	***Aethilla lavochrea***			Costa Rica: Guanacaste Prov., ACG, Sector El Hacha, Estacion Los Almendros	290 m	11.03226, -85.52776	Lucia Ríos	eclosed on 14-Oct-2013	USNM	NVG170206-76	13-SRNP-22231
131	NVG-16108E06	***Tosta tosta***		M	Peru: Amazonas, W Abra Wawajin	750 m	-5.30000, -78.40000	Robert K. Robbins & Gerardo Lamas	24-Sep-1999	USNM	X-6721 J.M.Burns 2009	
132	NVG-3758	***Eantis tamenund***		F	USA: TX, Hidalgo Co., Old Rio Rico Rd. 1.5 air mi SE of Relampago		26.06665, -97.88366	Qian Cong & Nick V. Grishin	27-Jun-2015			
133	NVG-1931	***Achlyodes pallida***		M	Mexico: Tamaulipas, Villa Gomez Farias	500 m		Roy O. Kendall & C. A. Kendall	27-Jan-1974	TAMU	NVG140104-70	
134	NVG-7878	***Morvina fissimacula***			Costa Rica: Guanacaste Prov., ACG, Sector Del Oro, Monte Cristo	525 m	11.01373, -85.42531	Elieth Cantillano	eclosed on 19-Jul-2010	USNM	NVG170206-63	10-SRNP-21347
135	NVG-7880	***Grais stigmaticus***			Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Amonias	390 m	11.04249, -85.40339	Manuel Rios	eclosed on 16-Mar-2014	USNM	NVG170206-65	14-SRNP-30242
136	NVG-7893	***Doberes anticus***			Costa Rica: Guanacaste Prov., ACG, Sector Cacao, Sendero Circular	1185 m	10.92714, -85.46683	Harry Ramirez	eclosed on 07-Feb-2004	USNM	NVG170206-78	03-SRNP-23600
137	NVG-7900	***Spioniades abbreviata***			Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Estacion Quica	470 m	10.99697, -85.39666	Ricardo Calero	eclosed on 29-Sep-2009	USNM	NVG170206-85	09-SRNP-72126
138	NVG-14112H01	***Myrinia*** cf. ***binoculus***		M	Ecuador: Napo, Yasuni National Park			Charles Bordelon & Edward Knudson	20-Sep-4-Oct-2003	MGCL		
139	NVG-14107D03	***Mimia*** cf. ***chiapaensis***		M	Ecuador: Pichincha Prov., Maquipucuna, nr. Nanegalito	1600 m		R. A. Raguso	25-Aug-1989	USNM	X-6055 J. M. Burns 2004	
140	NVG-7897	***Eracon sarahburnsae***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Palomo	96 m	10.96187, -85.28045	Minor Carmona	eclosed on 25-Oct-2010	USNM	NVG170206-82	10-SRNP-67957
141	NVG-5721	***Cabirus procas***		M	Ecuador: Sucumbios, ridge N of Puerto Libre, km 35 Lumbaqui-La Bonita rd.	750 m	0.21667, -77.48333	Jason P. W. Hall & I. Aldas	13-15-Mar-2004	USNM	NVG160214-82	
142	NVG-17095D03	***Pseudodrephalys atinas***	HT	F	Peru: Pebas			Hahnel, coll. Staudinger	prior to 1888	ZMHB	X-4409 J. M. Burns 1998	
143	NVG-7894	***Ouleus salvina***			Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Vado Miramonte	305 m	10.77175, -85.43400	Guillermo Pereira	eclosed on 15-Dec-2011	USNM	NVG170206-79	11-SRNP-57460
144	NVG-7902	***Quadrus cerialis***		M	Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Sendero Huerta	527 m	10.9305, -85.37223	Elda Araya	eclosed on 10-Apr-2008	USNM	NVG170206-87	08-SRNP-1186
145	NVG-7895	***Zera* sp.** (Burns01DHJ02)			Costa Rica: Guanacaste Prov., ACG, Quebrada Grande, Casa Consuelo Dunia			Dunia Garcia	eclosed on 22-Aug-2013	USNM	NVG170206-80	13-SRNP-35491
146	NVG-7901	***Gindanes brontinus***			Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Vado Zanja Tapada	550 m	10.76480, -85.38445	Jose Cortez	eclosed on 26-Oct-2008	USNM	NVG170206-86	08-SRNP-57426
147	NVG-7896	***Pythonides amaryllis***			Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Puente Palma	460 m	10.9163, -85.37869	Anabelle Cordoba	eclosed on 11-Oct-2006	USNM	NVG170206-81	06-SRNP-7674
148	NVG-7979	***Haemactis sanguinalis***		M	Ecuador: Napo Prov., Jatun Sacha Biological Station	450 m	-1.06666, -77.60000	David H. Ahrenholz	30-Sep-1991	USNM	NVG170207-64	USNMENT 01321819
149	NVG-7903	***Atarnes sallei***			Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Vado Licania	470 m	10.77222, -85.41225	Dieksderik Campos	eclosed on 05-Sep-2007	USNM	NVG170206-88	07-SRNP-59529
150	NVG-7977	***Eburuncus unifasciata***			Panama: Darien Prov., Cana	500 m		Gordon B. Small	2-Jan-1984	USNM	NVG170207-62	USNMENT 01321817
151	NVG-7904	***Milanion marciana***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Sendero Juntas	400 m	10.90661, -85.28784	Jose Perez	eclosed on 06-Jun-2005	USNM	NVG170206-89	05-SRNP-41228
152	NVG-7981	***Charidia lucaria***		F	Peru: Cuzco, Cosnipata Road, Paradise Lodge	1450 m		Stephen Kinyon	12-Oct-2008	USNM	NVG170207-66	USNMENT 01321821
153	NVG-7980	***Paramimus stigma***			Brazil: Rondonia, vic. Caucalandia	160-350 m	-10.53333, -62.80000	John MacDonald	8-Oct-1991	USNM	NVG170207-65	USNMENT 01321820
154	NVG-7879	***Cyclosemia anastomosis***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Rio Francia Arriba	400 m	10.89666, -85.29003	Jorge Hernandez	eclosed on 16-Jul-2012	USNM	NVG170206-64	12-SRNP-42810
155	NVG-7888	***Tiana niger***			Costa Rica: Guanacaste Prov., ACG, Sector Cacao, Sendero Derrumbe	1220 m	10.92918, -85.46426	Manuel Pereira	eclosed on 12-Aug-2011	USNM	NVG170206-73	11-SRNP-35371
156	NVG-14102A01	***Cornuphallus problematica***	HT	M	Argentina				prior to 1940	AMNH	G966	
157	NVG-5485	***Arteurotia tractipennis tractipennis***		M	USA: TX, Hidalgo Co., Mission, 10th street at irrigation ditch			Nadine M. McGuire	2-Sep-1972	TAMU	NVG160110-26	
158	NVG-14101B01	***Austinus heroica***		M	Colombia: Cauca, R. San Joaquin	1500 m		K. von Sneidern	Jun-1946	AMNH		
159	NVG-7875	***Polyctor polyctor***			Costa Rica: Guanacaste Prov., ACG, Sector San Cristobal, Tajo Angeles	540 m	10.86472, -85.41531	Elda Araya	eclosed on 12-Dec-2012	USNM	NVG170206-60	12-SRNP-4870
160	NVG-7877	***Pellicia arina***			Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Palomo	96 m	10.96187, -85.28045	Keiner Aragón	eclosed on 18-Mar-2013	USNM	NVG170206-62	13-SRNP-67590
161	NVG-7973	***Viola violella***		M	Brazil: Mato Grosso, Diamantino, Alto Rio Arinos	350-400 m	-14.21664, -56.20000	E. Furtado	26-Jun-1991	USNM	NVG170207-58	USNMENT 01321813
162	NVG-7974	***Noctuana haematospila***		M	Peru: Cuzco, Cosnipata Road, Mirador	1700 m		Stephen Kinyon	2-Feb-2011	USNM	NVG170207-59	USNMENT 01321814
163	NVG-7770	***Spialia orbifer***		F	Greece: Epirus				16-Jun-1992	USNM	NVG170205-55	USNMENT 01321610
164	NVG-7763	***Carcharodus alceae***		M	Greece: Olympia			Ron Leuschner	20-Oct-1990	USNM	NVG170205-48	USNMENT 01321603
165	NVG-7975	***Gorgopas trochilus***			Peru: Cuzco, Cosnipata Road, Pilcopata	564 m		Stephen Kinyon	15-Oct-2008	USNM	NVG170207-60	USNMENT 01321815
166	NVG-7246	***Bolla brennus***		M	Panama: Darien Prov., Cana	750 m		Gordon B. Small	21-Jul-1981	USNM	NVG161005-73	
167	NVG-7976	***Pholisora mejicanus***			USA: NM, Colfax Co., Cimarron	6430'		John M. & Sarah N. Burns	7-Aug-1989	USNM	NVG170207-61	USNMENT 01321816
168	NVG-7039	***Staphylus hayhurstii***		F	USA: TX, Delta Co., 5 air mi WNW of Commerce, CR1531 @ Middle Sulphur River		33.28242, -95.82520	Qian Cong, Jing Zhang & Nick V. Grishin	24-Sep-2016			
169	NVG-5594	***Hesperopsis alpheus texana***		F	USA: TX, Cameron Co., E of Brownsville, Boca Chica			Nick V. Grishin	eclosed on 8-Feb-2016			
170	NVG-7909	***Anisochoria polysticta***		M	Costa Rica: Guanacaste Prov., ACG, Sector Santa Rosa, Cafetal	280 m	10.85827, -85.61089	Ruth Franco	eclosed on 09-Dec-2004	USNM	NVG170206-94	04-SRNP-15751
171	NVG-6998	***Zopyrion sandace***		M	Mexico: Oaxaca, 2.2 mi NW Matatlan			Schaffner, Bogar & Friedlander	13-Jul-1981	TAMU	NVG180107-01	

172	NVG-7908	***Timochreon satyrus***		Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Punta Plancha	420 m	10.74160, -85.42734	Jose Alberto Sanchez	eclosed on 13-Sep-2007	USNM	NVG170206-93	07-SRNP-58884
173	NVG-7899	***Paches loxus***	M	Costa Rica: Guanacaste Prov., ACG, Sector Del Oro, Quebrada Raiz	280 m	11.02865, -85.48669	Freddy Quesada	eclosed on 05-Dec-2003	USNM	NVG170206-84	03-SRNP-30995
174	NVG-7982	***Plumbago plumbago***		Brazil: Rondonia, 8 km N Cacaulandia		-10.50000, -62.86666	David H. Ahrenholz	6-Nov-1989	USNM	NVG170207-67	USNMENT 01321822
175	NVG-7907	***Antigonus erosus***		Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Estacion La Perla	325 m	10.76737, -85.43313	Jose Cortez	eclosed on 18-Oct-2013	USNM	NVG170206-92	13-SRNP-56479
176	NVG-7906	***Xenophanes tryxus***	M	Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Estacion San Gerardo	575 m	10.88009, -85.38887	J. D. Turner & N. Turner	26-Mar-2010	USNM	NVG170206-91	10-SRNP-103428
177	NVG-7905	***Carrhenes canescens***		Costa Rica: Alajuela Prov., ACG, Sector San Cristobal, Finca San Gabriel	645 m	10.87766, -85.39343	Carolina Cano	eclosed on 10-Apr-2014	USNM	NVG170206-90	14-SRNP-1649
178	NVG-7983	***Trina geometrina***		French Guiana: Saul	200-450 m	3.61666, -53.71666	Don J. Harvey	19-Nov-1993	USNM	NVG170207-68	USNMENT 01321823
179	NVG-7771	***Pyrgus malvae***	M	Greece: Macedonia, Mt. Vourinos	4000'			14-15-Jun-1992	USNM	NVG170205-56	USNMENT 01321611
180	PAO-187	***Pyrgus scriptura***		USA: UT, Garfield Co., Grand Staircase - Escalante National Monument, Spencer Flat Rd.			Paul A. Opler and Evi Buckner-Opler	5-Aug-2016			
181	NVG-14102F02	***Chirgus limbata***		Chile: Antofagasta, Lever			L. E. Pena	20-Dec-1952	FMNH		
182	NVG-7554	***Burnsius albescens***	F	USA: TX, Bexar Co., San Antonio, 5598 Mt McKinley Dr. Ebony Hill Research Station			Roy O. Kendall & C. A. Kendall	5-Oct-1981	TAMU	NVG170107-10	
183	NVG-3375	***Burnsius philetas***	M	USA: TX, Starr Co., 0.5 mi W Roma Creek, along FM650		26.42298, -99.03123	Qian Cong & Nick V. Grishin	23-May-2015			
184	NVG-14114E04	***Heliopetes sublinea***	M	USA: TX, Hidalgo Co., Alamo			Charles Bordelon	1-Nov-2014	MGCL		
185	11-BOA-13385C12	***Heliopetes ericetorum***	M	USA: AZ, Gila Co., Washington Park, Colonel Devin Trail		34.43746, -111.25656	Qian Cong & Nick V. Grishin	24-Apr-2012			
186	NVG-7898	***Clito* sp.** (Burns02)		Costa Rica: Guanacaste Prov., ACG, Sector El Hacha, Vuelta Peligrosa	280 m	11.03534, -85.53645	Roster Moraga	eclosed on 22-Aug-2013	USNM	NVG170206-83	13-SRNP-21146
187	NVG-7881	***Mylon lassia***		Costa Rica: Guanacaste Prov., ACG, Sector Cacao, Estacion Cacao	1150 m	10.92691, -85.46822	Manuel Pereira	eclosed on 29-Aug-2009	USNM	NVG170206-66	09-SRNP-36601
188	NVG-7247	***Sostrata nordica***	M	Mexico: Veracruz, Santa Rosa			Collection Wm. Schaus	Aug-1906	USNM	NVG161005-74	
189	NVG-5090	***Potamanaxas melicertes***		Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Estacion Pitilla	675 m	10.98931, -85.42581	Freddy Quesada	eclosed on 08-Nov-2013	USNM	NVG151101-98	13-SRNP-31335
190	NVG-7884	***Anastrus sempiternus***		Costa Rica: Guanacaste Prov., ACG, Sector Santa Elena, Quebrada Clusia	310 m	10.85877, -85.66120	Johan Vargas	eclosed on 16-Mar-2007	USNM	NVG170206-69	07-SRNP-12147
191	NVG-7886	***Helias cama***		Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Camino Albergue Oscar	560 m	10.87741, -85.32363	Osvaldo Espinoza	eclosed on 18-Jun-2008	USNM	NVG170206-71	08-SRNP-2560
192	NVG-7889	***Cycloglypha thrasibulus***		Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Camino Pozo Tres	733 m	10.77079, -85.37422	Jose Cortez	eclosed on 15-Dec-2012	USNM	NVG170206-74	12-SRNP-56415
193	NVG-7885	***Ebrietas anacreon***		Costa Rica: Guanacaste Prov., ACG, Sector Del Oro, Quebrada Suamposa	290 m	11.02364, -85.49139	Elieth Cantillano	eclosed on 22-Nov-2006	USNM	NVG170206-70	06-SRNP-23020
194	NVG-7883	***Timochares trifasciata***		Costa Rica: Guanacaste Prov., ACG, Sector Santa Elena, Vado Descanso	70 m	10.86336, -85.72535	Guillermo Pereira	eclosed on 24-Mar-2005	USNM	NVG170206-68	05-SRNP-12097
195	NVG-7887	***Camptopleura auxo***		Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Camino Rio Francia	410 m	10.90425, -85.28651	Jose Perez	eclosed on 27-Aug-2012	USNM	NVG170206-72	12-SRNP-43606
196	NVG-5100	***Chiomara georgina***	F	USA: TX, Starr Co., Rio Grande City, Fort Ringgold		26.37038, -98.80675	Nick V. Grishin	14-Nov-2015			
197	NVG-4978	***Gorgythion begga***	M	French Guiana: Montravel		4.91667, -52.26666	Don J. Harvey	4-Dec-1993	USNM	NVG151101-29	
198	NVG-17093D12	***Ephyriades brunnea brunnea***	M	Cuba: Guantanamo Bay		19.91170, -75.10760	S. W. Droege	4-9-May-2010	USNM		USNMENT 00894731
199	NVG-7570	***Gesta gesta***	M	Dominican Republic: 14 km NW of Jarabacoa			Everard M. Kinch	23-Jun-1981	TAMU	NVG170107-26	
200	NVG-6120	***Erynnis brizo brizo***	F	USA: WV, Pendleton Co., FS112, 0.8 air mi W of Simoda		38.73398, -79.48996	Qian Cong & Nick V. Grishin	8-May-2016			
201	NVG-17069E08	***Heteropterus morpheus***	F	France: Foret de Fontainebleau, 77, Bois de la Hardie				2-Jul-1966	USNM		USNMENT 00894386
202	PAO-69	***Carterocephalus mandan***		USA: CA, Sierra Co., Tahoe National Forest, Mohawk-Chapman Rd.			Paul A. Opler and Evi Buckner-Opler	19-Jun-2016			
203	NVG-7767	***Hovala pardalina***	F	Madagascar: Fianarantsoa Prov., 7 km SW Ranomafana	1150 m		C. Kremen, R. Van Epps	13-Sep-1988	USNM	NVG170205-52	USNMENT 01321607
204	NVG-7349	***Dardarina dardaris***		Costa Rica: Guanacaste Prov., ACG, Sector Santa Elena, Casa Potrero Grande	17 m	10.84918, -85.77315	Freddy Quesada	eclosed on 02-Aug-2004	USNM	NVG161105-22	04-SRNP-13073
205	NVG-6454	***Piruna pirus***	M	USA: CO, Grand Co., 4 air mi SSE Hot Sulphur Springs, CR50, 4 air mi SE USH40	2563 m	40.02139, -106.07003	Nick V. Grishin	6-Jul-2016			
206	NVG-16108G04	***Butleria flavomaculatus valdivianus***		Chile: Valdivia Prov., Rincon de Piedra, 30 km SE Valdivia			Don & Mignon Davis & B. Akerbergs	24-25-Feb-1979	USNM		USNMENT 00894446
207	NVG-17069C03	***Argopteron puelmae***	M	Chile: Nuble, Las Trancas, 73 km E Chillan	1100 m		C. M. & O. S. Flint, Jr.	6-7-Feb-1987	USNM		USNMENT 01321981
208	NVG-16106A10	***Trapezites symmomus***	M	Australia: Sydney			E. B. Skreen	17-May-1963	LACM		
209	NVG-7760	***Signeta flammeata***	M	Australia: New South Wales, Brown Mountain			Fred Sattler	16-Feb-1985	USNM	NVG170205-45	USNMENT 01321600
210	NVG-7915	***Aeromachus stigmata shanda***	M	Myanmar: S. Shan State, Kalaw Reservoir			Stephen Kinyon	6-Jun-2002	USNM	NVG170206-100	USNMENT 01321755
211	NVG-7291	***Ampittia dioscorides camertes***	M	Myanmar: S. Shan State, Paya Gyi Gon, Tagyi Yedwet			Stephen Kinyon	5-Jun-2002	USNM	NVG161007-18	
212	NVG-7394	***Astictopterus jama jama***	M	Myanmar: Mandalay Div., Alaungdaw Khattapa Nat. Park	1600'	22.32333, 94.48000	Stephen Kinyon	19-Sep-2001	USNM	NVG161105-67	
213	NVG-7381	***Cupitha purrea***	M	Myanmar: Chin State, Alaungdaw Khattapa Nat. Park			Stephen Kinyon	31-Jan-15-Feb-2001	USNM	NVG161105-54	
214	NVG-7375	***Taractrocera maevius sagara***	M	Myanmar: Rakhine Div., GwaTwsp Kan Tha Yar			Stephen Kinyon	2-9-May-2003	USNM	NVG161105-48	
215	NVG-7783	***Telicota* sp.**	M	Philippines: Palawan				1986	USNM	NVG170205-68	USNMENT 01321623
216	NVG-7910	***Erionota thrax***		USA: HI, Molokai, Kamakou Preserve			Dan Robinoff	2-Nov-2005	USNM	NVG170206-95	USNMENT 01321750
217	NVG-7340	***Notocrypta feistamelii***	M	Myanmar: S. Shan State, Kalaw Reservoir			Stephen Kinyon	6-Jul-2002	USNM	NVG161105-13	
218	NVG-7290	***Parnara guttatus***	M	Myanmar: S. Shan State, Kalaw City			Stephen Kinyon	29-May-2002	USNM	NVG161007-17	
219	NVG-7389	***Caltoris sirius fusca***	M	Myanmar: S. Shan State, Kalaw Reservoir	4400'	20.60335, 96.52999	Stephen Kinyon	28-Sep-2001	USNM	NVG161105-62	
220	NVG-16107D09	***Atrytonopsis hianna hianna***	F	USA: WI, Burnett Co., Crex Meadows WMA		45.90525, -92.56994	William R. Dempwolf	10-Jun-2016	Bill Dempwolf		
221	NVG-4767	***Hesperia meskei straton***	M	USA: FL, Levy Co., W of Williston Highlands, along FM337		29.35675, -82.60340	Nick V. Grishin	27-Sep-2015			
222	NVG-3203	***Notamblyscirtes simius***	M	USA: TX, Brewster Co., USH90, ca 10 mi W of Alpine			William W. McGuire	29-Aug-1977	TAMU	NVG15011-19	
223	NVG-4534	***Euphyes dion***	F	USA: TX, Lamar Co., Pat Mayse WMA, FM1499 @ Craddock Creek		33.79423, -95.67425	Nick V. Grishin	20-Aug-2015			
224	NVG-8381	***Copaeodes aurantiaca***	M	USA: TX, Blanco Co., Middle Creek Rd. nr. USH290, O. B. Jackson Ranch		30.20033, -98.31613	Nick V. Grishin	31-Mar-2017			
225	NVG-9438	***Thymelicus lineola lineola***	M	USA: WY, Park Co., Yellowstone National Park, nr. Mt. Washburn		44.82619, -110.4475	Qian Cong, Jing Zhang & Nick V. Grishin	24-Jul-2017			
226	NVG-5158	***Panoquina ocola ocola***	F	USA: TX, Hidalgo Co., LaGrulla		26.25794, -98.64946	Nick V. Grishin	15-Nov-2015			
227	NVG-4591	***Calpodes ethlius***	F	USA: TX, Cameron Co., La Feria, along FM506		26.17756, -97.82410	Qian Cong & Nick V. Grishin	9-Sep-2015			
228	NVG-4881	***Asbolis capucinus***		USA: FL, Monroe Co., Key West			Nick V. Grishin	3-Oct-2015			
229	NVG-8051	***Choranthus vitellius***	M	USVI: St. Croix, St. George Botanical Gardens		17.71666, -64.83333	W. E. Steiner & J. M. Swearingen	9-Feb-1996	USNM	NVG170208-36	USNMENT 01321891
230	NVG-8014	***Anthoptus insignis***	M	Guyana: Acarai Mts., Sipu R.	900'	1.41833, -58.95333	Steve Fratello et al.	24-Oct-12-Nov-2000	USNM	NVG170207-99	USNMENT 00275220
231	NVG-8059	***Racta chiria***	M	Peru: Madre de Dios, Amazonia Lodge	491 m		Stephen Kinyon	8-Nov-2012	USNM	NVG170208-44	USNMENT 01321899
232	NVG-5496	***Nastra julia***	M	USA: TX, Bastrop Co., Lost Pines boyscout camp			William R. Dempwolf	28-Mar-2009	Bill Dempwolf		WRD3918
233	NVG-1769	***Lerema accius***	M	USA: TX, Dallas Co., Dallas, White Rock Lake, Olive Shapiro Park		32.8621, -96.7305	Qian Cong & Nick V. Grishin	10-Nov-2013	USNM		
234	NVG-17098F01	***Duroca duroca duroca***	M	Brazil: Rio de Janeiro, Teresopolis, P. N. Serrra dos Orgaos	1100 m	-22.45000, -43.00000	Duarte & Souza	22-Jan-1996	USNM		USNMENT 00913432
235	NVG-7946	***Niconiades incomptus***		Costa Rica: Guanacaste Prov., ACG, Sector El Hacha, Estacion Los Almendros	290 m	11.03226, -85.52776	Roster Moraga	eclosed on 14-Dec-2013	USNM	NVG170207-31	13-SRNP-22769
236	NVG-8007	***Lychnuchus victa***		Ecuador: Napo, Km. 49 Tena-Loreto Rd.	1300 m	-0.71233, -77.74066	Jason P. W. Hall & I. Aldas	18-Mar-2004	USNM	NVG170207-92	USNMENT 01321847
237	NVG-17107B06	***Wahydra kenava***	M	Venezuela: Aragua, 10 km W of Tovar	6500'		John B. Heppner	25-Jan-1978	USNM		
238	NVG-7984	***Pyrrhopygopsis socrates***		Brazil: Mato Grosso, Diamantino, Alto Rio Arinos	350-400 m	-14.21666, -56.20000	E. Furtado	20-Jan-1991	USNM	NVG170207-69	USNMENT 01321824
239	NVG-7985	***Pseudosarbia flavofasciata***		Brazil: Goiás, Santa Rita do Araguaia, 163 Km W. Jatai	850 m		Stan S. Nicolay	29-May-1969	USNM	NVG170207-70	USNMENT 01321825
240	NVG-7925	***Carystus phorcus***		Costa Rica: Guanacaste Prov., ACG, Sector Mundo Nuevo, Vado Miramonte	305 m	10.77175, -85.43400	Jose Alberto Sanchez	eclosed on 24-Jun-2007	USNM	NVG170207-10	07-SRNP-57133
241	NVG-7958	***Molo mango***		Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Estacion Caribe	415 m	10.90187, -85.27495	Jose Perez	eclosed on 11-Dec-2013	USNM	NVG170207-43	13-SRNP-44273
242	NVG-8008	***Tellona variegata***	M	Brazil: Rondonia, 62 km S Ariquemes, Fazenda Rancho Grande	165 m	-10.53333, -62.80000	Brian Harris	14-25-Nov-1993	USNM	NVG170207-93	USNMENT 01321848
243	NVG-7955	***Perichares adela***		Costa Rica: Alajuela Prov., ACG, Brasilia, Moga	320 m	11.01227, -85.34929	Duvalier Briceño	eclosed on 04-Feb-2013	USNM	NVG170207-40	13-SRNP-65013
244	NVG-7986	***Alera haworthiana***	M	Brazil: Rondonia, 62 km S Ariquemes, Fazenda Rancho Grande	165 m	-10.53333, -62.80000	Brian Harris	29-Sep-10-Oct-1992	USNM	NVG170207-71	USNMENT 01321826
245	NVG-7956	***Orses cynisca***		Costa Rica: Alajuela Prov., ACG, Sector Rincon Rain Forest, Rio Francia Arriba	400 m	10.89666, -85.29003	Minor Carmona	eclosed on 12-Mar-2008	USNM	NVG170207-41	08-SRNP-40358
246	NVG-7987	***Lycas argentea***	M	Argentina: Misiones, Garuape		-26.80000, -54.97000	Brian Harris	18-Dec-1998	USNM	NVG170207-72	USNMENT 01321827
247	NVG-8009	***Lychnuchoides ozias***	M	Brazil: Rio de Janeiro, P. N. de Itatiaia	800 m	-22.45000, -44.61666	Alves & Duarte	1-Sep-1995	USNM	NVG170207-94	USNMENT 01321849
248	NVG-2761	***Orphe vatinius***	F	Colombia: Putumayo, Mocoa, rain forest in Andean foothills			James A. Scott	2-4-Aug-1976	James Scott	NVG140731-03	
249	NVG-1647	***Agathymus mariae mariae***	F	USA: NM, Eddy Co., Lincoln National Forest, S FM409, 2 air mi NE Sitting Bull Falls		32.26436, -104.6703	Nick V. Grishin	eclosed on 22-Sep-2013			
250	NVG-1504	***Megathymus ursus violae***	M	USA: TX, Pecos Co., Glass Mtns.			Nick V. Grishin	eclosed on 7-Jun-2013			
251	NVG-1670	***Pterourus glaucus glaucus***	M	USA: TX, Denton Co., Lake Ray Roberts State Park, Greenbelt Corridor along the Trinity River		33.2536, -97.0434	Nick V. Grishin	4-Aug-2013	USNM		

Table S2. Data for Hesperiidae specimens with COI barcodes

#	DNA Voucher	Taxon name	Typ	Sex	Locality	Elevation	GPS	Collectors	Date	Collection	Genitalia No.	Collection No.
1	NVG-7868	***Allora doleschallii***			Solomon Islands: Guadalcanal, Honiara			R. H. Carcasson	26-31-Mar-1972	USNM	NVG170206-53	USNMENT 01321708
2	NVG-7751	***Badamia exclamationis***		M	Myanmar: Rakhine Div., GwaTwsp Ye Phya, Chaung			Aung Gyi	2-9-May-2003	USNM	NVG170205-36	USNMENT 01321591
3	NVG-7867	***Burara oedipodea oedipodea***		M	Philippines: Palawan				1986	USNM	NVG170206-52	USNMENT 01321707
4	NVG-7866	***Burara gomata lalita***		M	Myanmar: Mandalay Div., Alaungdaw Khattapa NP	1600'	22.32333, 94.48000	Stephen S. Kinyon	22-Sep-2001	USNM	NVG170206-51	USNMENT 01321706
5	NVG-7865	***Bibasis mahintha***		F	Myanmar: S. Shan State, Kalaw, Microwave Tower	5100'	20.61500, 96.57667	Stephen S. Kinyon	29-Sep-2001	USNM	NVG170206-50	USNMENT 01321705
6	NVG-7871	***Tekliades ramanatek ramanatek***		M	Madagascar: Fianarantsoa Prov., 7 km W Ranomafana	900 m		W. E. Steiner	20-31-Jan-1990	USNM	NVG170206-56	USNMENT 01321711
7	NVG-7873	***Pyrrhochalcia iphis***			Nigeria: Abakaliki Prov., Obubra			T. H. E. Jackson	Nov-1960	USNM	NVG170206-58	USNMENT 01321713
8	NVG-7872	***Coeliades forestan forestan***		F	Zaire: Kasai-Oriental, Mwene Ditu			Leo F. Mastromatteo	Mar-1982	USNM	NVG170206-57	USNMENT 01321712
9	NVG-7870	***Coeliades libeon***		M	Cameroon: Mt. Kala			Stephen S. Kinyon	10-Mar-1987	USNM	NVG170206-55	USNMENT 01321710
10	NVG-14102C09	***Hyalothyrus infernalis***		M	Guyana: Iwokrama Mts., Iwokrama Rainforest Reserve, Site 2	250-500'	4.33033, -58.79850	S. Fratello	5-8-Nov-2003	FMNH		
11	NVG-14102A06	***Hyalothyrus leucomelas***		M	Brazil: Rondonia, Fazenda Rancho Grande nr. Ariquemes			D. H. & A. C. Kistner	8-Oct-1993	FMNH		
12	11-BOA-15607E06	***Hyalothyrus nitocris***			Guyana: Region 9, Kanuka Mts., Nappi Mt.	1000-1500	3.32500, -59.55833	S. Fratello, R. Hanner, S. Hendricks, R. Williams	21-Feb-10-Mar-1999	USNM		
13	NVG-14061G12	***Entheus eumelus***		M	French Guiana: MgChevaux			J.-Y. Gallard	31-Aug-1989	USNM		Hermier no 2069
14	11-BOA-15608E11	***Entheus eunyas***		F	Brazil: Rondonia, 62 km S Ariquemes, Fazenda Rancho Grande		-10.53000, -62.80000	Brian Harris	19-29-Sep-1996	USNM		
15	NVG-2333	***Entheus telemus***		M	Brazil: Rondonia, Ariquemes, 5 km N 6 km E Cacaulandia, 1 km W Rancho Grande			Chris J. Durden	12-Dec-1990	TMMC	NVG140403-61	
16	NVG-2618	***Entheus priassus priassus***		M	French Guiana: Montagnes de la Trinité, Crique Aya		4.60000, -53.41667	J.-P. Champenois & B. Vincent	12-Jan-2007	Bernard Hermier		Hermier no 23649
17	JPB-11-BOA-13383D10	***Entheus aureanota***		M	Brazil: Rondonia, 62 km S Ariquemes, linea C-20, 7km E B-65, Fazenda Rancho Grande			Jim P. Brock	7-Nov-1991	Jim Brock		
18	11-BOA-15607D11	***Entheus matho dius***		F	Guyana: Trop. F. Res., Middle Demerara R.	200-400'	5.15533, -58.69967	S. Fratello et al.	31-Jan-12-Feb-2001	USNM		
19	NVG-14061H01	***Entheus lemna***		M	Brazil: Santa Catarina, Joinville	0-200 m	-26.31667, -48.88333	J. Miers	6-Jan-1990	USNM		
20	NVG-2581	***Entheus bombus***		F	French Guiana: Camp Patawa		4.54167, -52.15000	O. Morvan	30-Sep-2010	Bernard Hermier		Hermier no 24684
21	NVG-2580	***Entheus gentius***		M	French Guiana		4.54167, -52.15833	J.-A. Cerda	10-Sep-2002	Bernard Hermier		Hermier no 22762
22	NVG-14101B12	***Entheus huertasae***	HT	M	Colombia: Santander Dpt., 18 air km SW Barrancabermeja, El Centro	100-150 m	6.93333, -73.75000	F. Johnson		AMNH		
23	JPB-11-BOA-13383D09	***Entheus aureolus***		M	Brazil: Rondonia, 62 km S Ariquemes, linea C-20, 7km E B-65, Fazenda Rancho Grande			Jim P. Brock	26-Oct-1993	Jim Brock		
24	NVG-14063E03	***Dyscophellus erythras***		F	Ecuador: Napo, Hill NW of Misahaulli, Jungle Lodge Hotel	610 m	-1.02567, -77.65700	David H. Ahrenholz	23-Oct-2000	USNM	X-5315 J. M. Burns 2002	
25	NVG-14063C04	***Sarmientoia almeidai***		M	Brazil: Mato Grosso, Diamantino, Alto Rio Arinos	350-400 m	-14.21667, -56.20000	E. Furtado	23-Jul-1991	USNM	X-4311 J. M. Burns 1998	
26	NVG-14063C02	***Sarmientoia similis***		M	Brazil: Mato Grosso, Diamantino, Alto Rio Arinos	350-400 m	-14.21667, -56.20000	E. Furtado	30-Nov-1990	USNM		
27	NVG-14063A04	***Porphyrogenes omphale***		M	Peru: Loreto, Yanamono, Explorama Lodge		-3.44353, -72.84973	R. K. Robbins	24-Sep-1995	USNM		
28	NVG-1778	***Porphyrogenes speciosus***		M	Panama: Darien, vic. Of Cerro Pirre, Rancho Frio campsite		8.01981, -77.73250	John R. MacDonald	22-Jul-2013	John MacDonald	RAA 0834	
29	NVG-14062H09	***Porphyrogenes sula***		M	Panama: Panama, 5 mi N El Llano	330 m	9.28333, -79.00000	G. B. Small	10-May-1978	USNM		
30	NVG-2593	***Porphyrogenes spandix***		M	French Guiana: Route forestière de Bélizon, Montagne Tortue			M. Thouvenot	5-Apr-2003	Bernard Hermier		Hermier no 22337
31	NVG-14063A03	***Porphyrogenes zohra***		M	Panama: Panama, 5 mi N El Llano	330 m	9.28333, -79.00000	G. B. Small	4-Jun-1978	USNM		
32	NVG-222	***Cecropterus cincta***		F	USA: TX, Brewster Co., Big Bend National Park, Green Gulch		29.27699, -103.28359	Nick V. Grishin	21-Sep-2004			
33	NVG-14062E08	***Cecropterus vectilucis***		M	Panama: Chiriqui, Volcan Baru			G. B. Small	1-Feb-1976	USNM		
34	NVG-14114B01	***Cecropterus mexicana mexicana***		M	Mexico: Oaxaca, N Slope Sierra Madre Sur, San Jose Pacifico			William H. Howe	2-9-Apr-1986	LACM		
35	NVG-14065A10	***Cecropterus drusius***		M	USA: AZ, Pima Co., Santa Rita Mts., Box Canyon			Thomas W. Kral	26-Jul-1991	James Scott		
36	NVG-14102B09	***Cecropterus virescens***		M	Guyana: Iwokrama Mts., Iwokrama Rainforest Reserve, Site 2	250-500'	4.33033, -58.79850	S. Fratello	5-8-Nov-2003	FMNH		
37	NVG-14102B10	***Cecropterus reductus***		M	Guyana: Iwokrama Mts., Iwokrama Rainforest Reserve, Site 3	500-2400'	4.33033, -58.79850	S. Fratello	9-17-Nov-2003	FMNH		
38	NVG-15029E04	***Cecropterus trebia***	HT	F	Venezuela: Puerto Cabello				prior to 1879	ZMHB		
39	NVG-15104G07	***Spicauda cindra***		F	Brazil: Roraima, Mt. Roraima, Arabopó	4200'			26-Dec-1927	AMNH	SRS-764	Acc. 29780, Tate No. 40
40	NVG-15104G08	***Spicauda zagorus***		M	Brazil: Rio Grande do Sul, Pelotas			C. Biezanko	5-Jan-1961	AMNH		
41	NVG-14082H10	***Autochton sulfureolus***		M	Brazil: Rio de Janeiro, Itatiaia Mts				Feb-1913	AMNH	G798	
42	NVG-14062G02	***Autochton neis***			Peru: Cuzco, Quitacalzone, Cosnipata Road	1050m		Kinyon	12-Feb-2011	USNM		
43	NVG-14062F02	***Autochton integrifascia***		F	Brazil: Minas Gerais, Km 290 Rio-Belo, Barbacena			S. S. Nicolay	11-May-1969	USNM		
44	NVG-15095A07	***Narcosius mura***	HT	M	Brazil: Amazonas, Rio Madeira, Manicore			Bruno Poll	Oct-1923	CMNH	Genitalia Slide No. 312	
45	NVG-14103H07	***Astraptes mabillei***		M	Peru: Cuzco, San Pedro Lodge, Cosnipata Road	1450 m		Kinyon	10-Feb-2011	USNM		
46	NVG-14102C08	***Epargyreus socus sinus***		M	Guyana: Iwokrama Mts., Iwokrama Rainforest Reserve, Site 4	2400-3000	4.33033, -58.79850	S. Fratello	10-15-Nov-2003	FMNH		
47	NVG-14111G05	***Urbanus prodicus***		F	Mexico: Nuevo Leon, Hwy 60, ca 40 km WSW Linares			Roy O. Kendall & C. A. Kendall	3-Mar-1974	TAMU		
48	NVG-14102B07	***Urbanus parvus***		M	Guyana: Iwokrama Mts., Iwokrama Rainforest Reserve, Site 3	500-2400'	4.33033, -58.79850	S. Fratello	9-17-Nov-2003	FMNH		
49	NVG-14102B08	***Telegonus fulgerator***		M	Guyana: Iwokrama Mts., Iwokrama Rainforest Reserve, Site 3	500-2400'	4.33033, -58.79850	S. Fratello	9-17-Nov-2003	FMNH		
50	NVG-14061E08	***Telegonus siermadror***	PT	M	Mexico: Nuevo Leon , 4 mi W Iturbide	5500'		J. Powell	13-Sep-1976	USNM	1403 J. M. Burns 1977	
51	NVG-14103H11	***Telegonus elorus***		M	Brazil: Rio de Janeiro, P. N. do Itatiaia	700 m		Robbins & Caldas	29-May-1994	USNM		
52	NVG-14082D02	***Telegonus weymeri***		F	Mexico: Veracruz, Presidio			T. Escalante	Jun-1942	AMNH		
53	NVG-14104B03	***Telegonus galesus***		F	Peru: Cuzco Dept., Santuario Historico Machu Picchu, Aguas Calientes	2050 m	-13.15000, -72.51667	David H. Ahrenholz	25-Oct-2001	USNM		
54	NVG-14103B12	***Telegonus cassius***		F	Costa Rica: Puntarenes Prov., Monteverde	1380 m		Koptur	13-Jul-1979	USNM	X-1347 J. M. Burns 1981	
55	NVG-14082H08	***Telegonus jaira***		F	Jamaica: Trelawny, Crown's Land			B. Heineman	16-Jan-1959	AMNH		
56	NVG-3226	***Codatractus bryaxis***		M	Mexico: Veracruz, 3.4 mi S Coscomatepec			T. P. Friedlander & J. C. Schaffner	16-Apr-1979	TAMU	NVG15011-42	
57	NVG-14113D06	***Codatractus aminias***			Argentina: Misiones, Dorado		-27.42000, -54.45000		1-Dec-1998	LACM		
58	NVG-14107B06	***Lobotractus uvydixa***		M	Mexico: Puebla, Jaulillas			J. R. Powers	18-May-1979	USNM	X-1935 J. M. Burns 1983	
59	NVG-14101H08	***Zestusa levona***	PT	M	El Salvador: Cerro Miramundo, Had. Montecristo	2300 m		S. R. Steinhauser	18-Mar-1971	AMNH		
60	NVG-15029H06	***Zestusa staudingeri***	ST	M	Guatemala				prior to 1888	ZMHB		
61	NVG-14104A01	***Ridens telegonoides***		M	Ecuador: Esmeraldas, Rio Chuchuvi, km. 12.5, Lita-San Lorenzo Rd.	800-900 m	0.88350, -78.51500	I. & R. Aldas	27-Jul-2002	USNM		
62	NVG-15025A03	***Ectomis minvanes***		M	Brazil: Rondonia, linea C-10 (at Rio Pardo), off B-65, 5 km S Cacaulandia			O. Gomes	10-Sep-1994	MGCL		
63	NVG-14101H02	***Ectomis orpheus***		M	Venezuela: Caripito				16-Mar-1942	AMNH		
64	NVG-15024H11	***Ectomis metallescens***		M	Brazil: Rondonia, 62 km S Ariquemes, linha C-20, 7km E B-65, Fazenda Rancho Grande			George T. Austin	25-Oct-1996	MGCL		
65	NVG-14063C11	***Oileides fenestratus***		M	French Guiana: Coralie PK2			L. Senecaus & A Docquin	16-Apr-1993	USNM	6-USNM Dolibaina	Hermier no 4771
66	NVG-14101G07	***Oileides amazonensis amazonensis***	HT	M	Colombia: Amazonas, Leticia			L. Richter	14-Mar-1946	AMNH	G1893	
67	NVG-15092H12	***Oileides guyanensis***		M	Brazil: Rondonia, 62 km S Ariquemes, linha C-10, 5 km S of Cacaulandia			O. Gomes	13-Jan-1994	MGCL	GTA-7451	
68	NVG-15032C06	***Typhedanus umber***	ST?	M	Venezuela?			Karsten	prior to 1869	ZMHB		5085
69	NVG-14101A06	***Typhedanus aventinus***		M	Mexico: Oaxaca, Candelaria Loxicha			E. C. Welling	13-Aug-1971	AMNH		
70	11-BOA-13382E04	***Typhedanus buena***	PT	M	Mexico: Oaxaca, El Vado-San Sebastian		16.61250, -96.90056	John Kemner	30-Jul-1992	USNM		
71	11-BOA-13386C03	***Cogia troilus***		M	Brazil: Minas Gerais, Nova Lima	900 m	-19.98333, -43.86667	Robert K. Robbins & V. Becker	21-Apr-1991	USNM	NVG131102-81	
72	11-BOA-13386B11	***Cogia adbul***		M	Brazil: Mato Grosso, Diamantino, Alto Rio Arinos	350-400 m	-14.21667, -56.20000	E. Furtado	21-Feb-1991	USNM	NVG131102-77	
73	11-BOA-13386B09	***Cogia hassan hassan***		F	Brazil: Para, Santarem			S. S. Nicolay	28-Jul-1978	USNM	NVG131102-75	
74	11-BOA-13382E07	***Cogia grandis***		F	Brazil: Distrito Federal, Planaltina		-15.58333, -47.66667	Robert K. Robbins & V. Becker	30-Apr-1991	USNM		
75	11-BOA-15609G12	***Cogia stylites***		F	Brazil: Rio de Janeiro, Teresopolis		-22.45000, -42.98333	R. K. Robbins & A. Caldas	17-Dec-1996	USNM		
76	11-BOA-15609G09	***Cogia goya***		M	Brazil: Rondonia, vic. Caucalandia		-10.53333, -63.80000	J. Kemner	16-Oct-1991	USNM		
77	11-BOA-15609G10	***Cogia optica***		M	Guyana: Kanuka Mts., Nappi Creek	500'-1000'	3.34500, -59.57000	S. Fratello, R. Hanner, S. Hendricks, R. Williams	21-Feb-10-Mar-1999	USNM		USNM ENT 00232390
78	NVG-14101A05	***Oechydrus chersis chersis***		M	Brazil: Rio Grande do Sul, Pelota			C. Biezanko	28-Nov-1959	AMNH		
79	NVG-14103B04	***Iliana romulus***		M	Peru: Cuzco, Cosnipata Road, Quitacalzone			Stephen S. Kinyon	20-May-2012	USNM		
80	NVG-15033D08	***Xispia quadrata***	HT	M	Brazil: Amazonas, Massauary			Paul Hahnel, coll. Otto Staudinger	prior to 1889	ZMHB		
81	11-BOA-13383A10	***Myrinia laddeyi***		M	Guyana: Potaro River nr. Tukeit	250-1000'		Steve Fratello	18-23-Mar-1999	USNM		USNMENT 00232398
82	11-BOA-13383A09	***Myrinia santa monka***		M	Guyana: Acarai Mts./ridge, Sipu R.	2500-3000	1.37000, -58.96500	S. Fratello et al.	31-Oct-10-Nov-2000	USNM		USNMENT 00179664
83	NVG-15021B01	***Morvina caecus***	PT	F	Brazil: Rondonia, 62 km S Ariquemes, linha C-20, 7km E B-65, Fazenda Rancho Grande	180 m		George T. Austin	19-Mar-1989	MGCL	SRS-3807	
84	11-BOA-13385F07	***Morvina falisca falisca***		M	French Guiana: camp St. Elie, pK 15.5 on D21	0-100 m	5.26667, -53.03333	Don J. Harvey	4-Nov-1988	USNM	NVG131102-26	

85	NVG-17095E01	***Ephyriades zephodes***		M	Dominican Republic: Samana Prov., Las Terrenas			Stan S. Nicolay	27-Jun-1981	USNM		USNMENT 00894799
86	NVG-17095D09	***Ephyriades arcas arcas***		M	Anguilla: Brimegin		18.24722, -63.05000	W. E. Steiner & J. M. Swearingen	24-Mar-1992	USNM		USNMENT 00894795
87	NVG-17095E06	***Ephyriades brunnea floridensis***		M	USA: FL, Monroe Co., Stock Island			Scott W. Gross	18-Mar-1987	USNM		USNMENT 00894804
88	NVG-17095E09	***Ephyriades dominicensis***		F	Dominica				25-Apr-1965	USNM		USNMENT 00894807
89	11-BOA-13382A01	***Clito mnemon***		M	Panama: Veraguas Prov., Isla de Coiba			Gordon B. Small	25-Feb-1981	USNM		
90	NVG-8304	***Celotes nessus***		M	USA: AZ, Pinal Co., Coronado N.F., Catalina Mts., S of Oracle, Peppersauce Canyon		32.53728, -110.7197	Qian Cong, Jing Zhang & Nick V. Grishin	26-Mar-2017			
91	NVG-17069B07	***Pyrgus centaureae freija***		M	USA: AK, Dalton Hwy, mi 274, W Galbraith Lake	2900'		Jack L. Harry	5-Jul-1991	USNM		USNMENT 01321974
92	NVG-14102E11	***Chirgus nigella***		M	Peru: Arequipa, San Ignacio de Caylloma	14500 ft		K. P. Schmidt	3-Sep-1939	FMNH		
93	NVG-14102F04	***Chirgus fides***		M	Chile: Atacama, Bajos, Choros			L. E. Pena	31-Oct-1961	FMNH		
94	NVG-17069B06	***Chirgus bocchoris cuzcona***		M	Peru: Puno Region, Melgar Prov., Ayaviri	13100'		James H. Baker	14-Feb-1970	USNM		USNMENT 01321973
95	NVG-17069B10	***Chirgus bocchoris trisignatus***		F	Chile: Coquimbo Prov., 5 km E Choros Bajos, Rio Los Choros	50 m		Don & Mignon Davis	12-Nov-1981	USNM		USNMENT 01321979
96	NVG-7549	***Burnsius communis***		M	USA: TX, Bandera Co., SH16 nr. Bandera			Roy O. Kendall & C. A. Kendall	28-May-1966	TAMU	NVG170107-05	
97	NVG-16108H04	***Burnsius adepta***		M	Mexico: Veracruz, Huatusco	4500'	19.17000, -96.97000	Sam Droege	8-12-Jan-2007	USNM		USNMENT 00894458
98	NVG-16108H07	***Burnsius orcynoides***		M	Ecuador: Pichincha, 4 km E Tandapi	2050 m	-0.44333, -78.77833	I. Aldas	23-Sep-2002	USNM		USNMENT 00894461
99	NVG-16108H05	***Burnsius chloe***		M	Peru: Lima, La Molina	250 m		Gerardo Lamas	8-Mar-1975	USNM		USNMENT 00894459
100	NVG-16108G11	***Burnsius titicaca***		M	Peru: 20 mi W of Cuzco, Limatambo	8500'		Fred D. Ayres	31-Jun-1952	USNM		USNMENT 00894453
101	NVG-16108H06	***Burnsius notatus notatus***		M	Chile: Mauie Prov., Rio Teno, ca. 40 km E Curico	800 m		D. R. Davis	25-27-Nov-1981	USNM		USNMENT 00894460
102	NVG-14102F09	***Burnsius notatus valdiviana***		M	Chile: Contulmo, Palo Botado			L. E. Pena		FMNH		
103	NVG-5229	***Heliopetes domicella domicella***		M	USA: TX, Starr Co., Rio Grande City, Fort Ringgold		26.37038, -98.80675	Qian Cong & Nick V. Grishin	26-Nov-2015			
104	11-BOA-13385G01	***Heliopetes domicella willi***		M	Brazil: Mato Grosso, Diamantino, Alto Rio Arinos	350-400 m	-14.21667, -56.20000	E. Furtado	6-May-1990	USNM	NVG131102-32	
105	11-BOA-13385F12	***Heliopetes domicella margarita***		M	Venezuela: Margarita Island, San Francisco			J. F. G. Clarke & N. L. McIntyre	24-Feb-1989	USNM	NVG131102-31	
106	NVG-3338	***Heliopetes laviana laviana***		F	USA: TX, Cameron Co., River Dr., 1.4 mi S of Santa Maria		26.05681, -97.84284	Qian Cong & Nick V. Grishin	23-May-2015			
107	NVG-5250	***Heliopetes macaira macaira***		F	USA: TX, Cameron Co., E of Brownsville, Palmetto Hill Rd		25.94406, -97.29788	Qian Cong & Nick V. Grishin	27-Nov-2015			
108	NVG-7557	***Heliopetes arsalte***		M	USA: TX, Cameron Co., Boca Chica			William W. McGuire	20-Oct-1973	TAMU	NVG170107-13	
109	NVG-17092D07	***Atalopedes lina***		M	Colombia: Boyaca	3200 m		Jean François Le Crom	25-Mar-1991	USNM	X-4299 J. M. Burns 1998	OM 35.636
110	NVG-3718	***Atalopedes campestris huron***		F	USA: TX, Dallas Co., Dallas, Harry S. Moss Park		32.89005, -96.74713	Qian Cong & Nick V. Grishin	23-Jun-2015			
111	NVG-8015	***Ludens levina***		M	Brazil: Rio de Janeiro, Teresopolis, P. N. Serra dos Orgaos	1100 m	-22.45000, -43.00000	A. Caldas & students	16-Feb-1995	USNM	NVG170207-100	USNMENT 01321855
112	NVG-7940	***Ludens ludens***		M	Costa Rica: Guanacaste Prov., ACG, Sector Pitilla, Ingas	580 m	11.00311, -85.42041	Freddy Quesada	eclosed on 9-Jan-2012	USNM	NVG170207-25	11-SRNP-33493

Table S3. Mitochondrial genomes downloaded from NCBI

NCBI accession number	Species
NC_027263.1	*Hasora anura*
NC_027170.1	*Hasora vitta*
KY630505	*Megathymus beulahae beulahae*
KY630503	*Megathymus cofaqui cofaqui*
KY630501	*Megathymus streckeri streckeri*
KY630500	*Megathymus yuccae yuccae*
MF684858	*Agathymus micheneri*

Table S4. Proteins that are of low intra-species but high inter-species divergence between *Telegonus brevicauda* and *Telegonus chalco*

Protein ID	Function annotation	GO terms	Flybase
1113.2	Unknown	None	n/a
784.5	Unknown	GO:0006888, GO:0016192, GO:0016081, GO:0000149, GO:0000046, GO:0070050, GO:0097352, GO:0097111, GO:0007269, GO:0005886, GO:0005484, GO:0031201, GO:0000421	CG7452-PB
2235.12	Myosin light chain alkali	GO:0000146, GO:0006936, GO:0007498, GO:0005859, GO:0016459, GO:0005509	CG5596-PB
8205.2	Unknown	None	n/a
8205.4	Protein maelstrom homolog	GO:0005737, GO:0051321, GO:0005634, GO:0030154, GO:0031047, GO:0003677, GO:0007275	n/a
605.5	Protein angel	GO:0005575, GO:0003674, GO:0008150, GO:0007275	CG12273-PA
605.4	Unknown	None	n/a
48208.1	Fatty acid synthase (Fragment)	GO:0006633, GO:0016787, GO:0005835, GO:0016788, GO:0004312, GO:0003824, GO:0008270, GO:0008152, GO:0016874, GO:0055114, GO:0016491	CG17374-PC
53687.1	Unknown	None	n/a
705.5	Oxidative stress-responsive serine-rich protein 1	GO:0070301	CG5056-PA
3772.2	Lipase 1	GO:0004806, GO:0006629, GO:0007586, GO:0016788, GO:0016042, GO:0005576	CG6113-PC
921.7	Unknown	None	n/a
59.45	Arrestin domain-containing protein 2	GO:0031410, GO:0007165, GO:0005886	CG1105-PA
637.49	Unknown	None	n/a
6749.3	Cytochrome b-c1 complex subunit 8	GO:0021539, GO:0005743, GO:0005811, GO:0008121, GO:0006122, GO:0005739, GO:0021860, GO:0021766, GO:0005750, GO:0021854, GO:0030901, GO:0021548, GO:0070469, GO:0048039, GO:0021680, GO:0021794	CG7580-PA
6749.2	39S ribosomal protein L22, mitochondrial	GO:0003735, GO:0005739, GO:0005840, GO:0005762, GO:0006412	CG4742-PA
12086.1	Unknown	None	n/a
139183.28	Unknown	None	n/a
3152.7	Pseudouridine-5'-phosphate glycosidase	GO:0016773, GO:0016798, GO:0005575, GO:0004730, GO:0008150, GO:0046113, GO:0046872	CG2794-PA
2281.12	UDP-glucuronosyltransferase 2B14	GO:0015020, GO:0005789, GO:0016021, GO:0008152, GO:0050488	CG8652-PA
9912.3	Tyrosine-protein kinase transforming protein Fes	GO:0004715, GO:0006468, GO:0005515, GO:0008595, GO:0007465, GO:0005886, GO:0008288, GO:0018108,	CG18085-PA

		GO:0005524, GO:0045467, GO:0045466, GO:0004714, GO:0045464, GO:0046534, GO:0004713, GO:0005887, GO:0042067, GO:0008293, GO:0007169, GO:0045678	
2286.9	Translin-associated factor X-interacting protein 1	GO:0008898, GO:0016205, GO:0030154, GO:0007283, GO:0048471, GO:0007275	CG10621-PA
1148.8	Unknown	None	n/a
305.6	Unknown	None	n/a
4796.6	Unknown	None	n/a
2561.3	B9 domain-containing protein 2	GO:0005737, GO:0036064, GO:0036038, GO:0042384, GO:0005813, GO:0005634, GO:0043015	CG42730-PA
363.28	Protein Jumonji	GO:0001889, GO:0035097, GO:0003677, GO:0048863, GO:0005719, GO:0000122, GO:0005634, GO:0048538, GO:0048536, GO:0000977, GO:0042127, GO:0008285, GO:0045892, GO:0031061, GO:0051574, GO:0035098, GO:0001227, GO:0005700, GO:0061085, GO:0006351, GO:0003682, GO:0016568	CG3654-PD
64457.1	RPA-interacting protein	GO:0006310, GO:0005737, GO:0016605, GO:0006281, GO:0005634, GO:0005730, GO:0006606, GO:0009411, GO:0006261, GO:0032403, GO:0046872	n/a
39880.1	Putative 1-phosphatidylinositol-3-phosphate 5-kinase FAB1C	GO:0044267, GO:0016308, GO:0016310, GO:0008333, GO:0000046, GO:0090332, GO:0008270, GO:0012506, GO:0046854, GO:0035556, GO:0005768, GO:0000285, GO:0005524	CG6355-PB
1964.4	Unknown	None	n/a
9599.1	Gametocyte-specific factor 1	GO:0046872	CG34283-PA
22241.3	Unknown	None	n/a
259.11	15-hydroxyprostaglandin dehydrogenase [NAD(+)]	GO:0005737, GO:0007567, GO:0045786, GO:0003824, GO:0051287, GO:0097070, GO:0004022, GO:0016404, GO:0006693, GO:0048812, GO:0007179, GO:0070403, GO:0007565, GO:0004957, GO:0030728, GO:0070493, GO:0055114	CG4842-PA
2561.33	Broad-complex core protein isoform 6	GO:0010629, GO:0003676, GO:0003677, GO:0008219, GO:0042332, GO:0005634, GO:0007552, GO:0048808, GO:0046872, GO:0048477, GO:0071390, GO:0035075, GO:0035072, GO:0035070, GO:0006914, GO:0048747, GO:0007458, GO:0040034, GO:0003700, GO:0001752, GO:0009608, GO:0007562, GO:0048813, GO:0045944, GO:0000977	CG12236-PA
3884.2	Elongation of very long chain fatty acids protein 6	GO:0005783, GO:0016021, GO:0030497, GO:0005789, GO:0009922, GO:0007283, GO:0030176, GO:0016740, GO:0042759, GO:0019367	CG3971-PA
4906.1	Venom serine protease 34	GO:0004252, GO:0005576, GO:0006508	CG30371-PA
3306.18	Cytochrome P450 4C1	GO:0042445, GO:0004497, GO:0016020, GO:0043231, GO:0020037, GO:0016705, GO:0046701, GO:0005789, GO:0070330, GO:0005506, GO:0055114, GO:0009055	CG14032-PA
813.5	DNA transposase THAP9	GO:0006310, GO:0043565, GO:0006313, GO:0004803, GO:0015074, GO:0016740, GO:0003676, GO:0046872	n/a
7793.1	Unknown	None	n/a
3463.5	Ankyrin repeat and MYND domain-containing protein 1	GO:0046872	n/a
4948.6	Protein timeless	GO:0071482, GO:0007617, GO:0008062, GO:0046957, GO:0060086, GO:0005737, GO:0050764, GO:0000122, GO:0005634, GO:0048512, GO:0042749, GO:0048471, GO:0050766, GO:0007623, GO:0007622, GO:0007620, GO:0008134, GO:0006606, GO:0045187, GO:0045475, GO:0009649, GO:0009648, GO:0042306, GO:0030431, GO:0043234, GO:0005515, GO:0046982, GO:2000678	CG3234-PB

263.5	Unknown	None	n/a
729.9	ATP synthase subunit b, mitochondrial	GO:0015986, GO:0006909, GO:0046933, GO:0005811, GO:0005739, GO:0015992, GO:0008553, GO:0015078, GO:0000276	CG8189-PA
2235.7	Transmembrane emp24 domain-containing protein 3	GO:0006892, GO:0033116, GO:0000003, GO:0005793, GO:0048193, GO:0005215, GO:0016021, GO:0006810, GO:0032580, GO:0005789, GO:0061357, GO:0015031, GO:0048042, GO:0005794, GO:0030126, GO:0030133, GO:0030135, GO:0022008, GO:0005783	CG1967-PA
4189.3	Protein SYS1 homolog	GO:0015031, GO:0016021, GO:0000139	CG11753-PA
655.42	Protein msta, isoform A	GO:0008168, GO:0010629, GO:0042826, GO:0005515	CG18033-PA
52.1	Unknown	GO:0016772	CG31975-PB
7449.4	Putative transporter svop-1	GO:0015075, GO:0016021, GO:0055085, GO:0008513	CG15221-PB
2074.33	Unknown	None	n/a
2727.6	Synaptosomal-associated protein 25	GO:0006887, GO:0006906, GO:0045202, GO:0005484, GO:0007274, GO:0031201, GO:0030054, GO:0048489, GO:0005737, GO:0000149, GO:0016020, GO:0005886, GO:0016081, GO:0016082, GO:0048172, GO:0007269, GO:0007268, GO:0006893, GO:0043195, GO:0016192, GO:0031629, GO:0005515, GO:0019905	CG40452-PA
4637.1	Leucine-rich repeat-containing protein 71	None	n/a
2074.37	Unknown	None	n/a
1803.13	Unknown	GO:0005737, GO:0008017, GO:0007476, GO:0016321, GO:0051015, GO:0003779, GO:0008157, GO:0030517, GO:0007411	CG1822-PF
4509.8	Unknown	None	n/a
29308.1	Serine/threonine-protein kinase BRSK2	GO:0006887, GO:0060590, GO:0000086, GO:0036503, GO:0018105, GO:0030010, GO:0007067, GO:0051301, GO:0005783, GO:0005737, GO:0043462, GO:0006487, GO:0031532, GO:0005813, GO:0000287, GO:1904152, GO:0004674, GO:0048471, GO:0005524, GO:0006468, GO:0030182, GO:0051117, GO:0007528, GO:0007409, GO:0061178, GO:0070059, GO:0050321	CG6114-PA
496.4	Peroxidase	GO:0042600, GO:0046872, GO:0006909, GO:0020037, GO:0004601, GO:0045471, GO:0005576, GO:0042744, GO:0007306, GO:0022008, GO:0005506, GO:0006979, GO:0055114	CG3477-PA
3093.2	Thymidylate kinase	GO:0045445, GO:0044281, GO:0004798, GO:0009041, GO:0007049, GO:0005737, GO:0006227, GO:0046939, GO:0015949, GO:0046686, GO:0005758, GO:0005524, GO:0008283, GO:0005759, GO:0043627, GO:0006233, GO:0046940, GO:0055086, GO:0006235, GO:0071363, GO:0005829, GO:0050145	CG5757-PA
135779.1	Calcyclin-binding protein	GO:0007507, GO:0070062, GO:0005641, GO:0005654, GO:0030877, GO:0005875	CG3226-PA
637.37	UPF0691 protein C9orf116	GO:0005575, GO:0032313, GO:0003674, GO:0008150, GO:0005097	CG12816-PA
2111.15	Unknown	None	n/a
1216.6	Protein argonaute-2	GO:0033227, GO:0030423, GO:0030422, GO:0030154, GO:0035087, GO:0048102, GO:0031054, GO:0070868, GO:0005737, GO:0007367, GO:0005634, GO:0004521, GO:0007349, GO:0070551, GO:0030529, GO:0035068, GO:1900153, GO:0016246, GO:0046872, GO:0070578, GO:0000932, GO:0000340, GO:0005845, GO:0035071, GO:0031047, GO:0060213, GO:0045071, GO:0035279, GO:0035278, GO:0090502, GO:0005844, GO:0035198, GO:0051607, GO:0007279, GO:0035195, GO:0035197,	CG7439-PC

		GO:0035190, GO:0006355, GO:0006351, GO:0005515, GO:0045947, GO:0016442, GO:0006413, GO:0003743	
139062.1	Plasminogen activator inhibitor 1	GO:0005615, GO:0009611, GO:0030162, GO:0004867, GO:0010951, GO:0045861, GO:0035009	CG7219-PA
209.1	Exocyst complex component 4	GO:0050803, GO:0006904, GO:0007286, GO:0007009, GO:0003674, GO:0007298, GO:0005737, GO:0016028, GO:0000145, GO:0016020, GO:0000916, GO:0043147, GO:0009925, GO:0016324, GO:0000910, GO:0016081, GO:0016080, GO:0007269, GO:0005886, GO:0016192, GO:0007111, GO:0007110, GO:0090522, GO:0046907, GO:0015031	CG2095-PA
1.14	Unknown	None	CG11380-PA
4791.4	Unknown	GO:0005634, GO:0003677	n/a
1497.3	Ubiquinone biosynthesis O-methyltransferase, mitochondrial	GO:0008689, GO:0042060, GO:0004395, GO:0031314, GO:0006071, GO:0008425, GO:0006744, GO:0006743	CG9249-PA
40100.1	Muscle calcium channel subunit alpha-1	GO:0042045, GO:0006936, GO:0016324, GO:0070588, GO:0006816, GO:0016323, GO:0009790, GO:0005891, GO:0005245, GO:0046872	CG4894-PC
1516.11	Acyl-CoA Delta(11) desaturase	GO:0006633, GO:0006629, GO:0017105, GO:0016717, GO:0005789, GO:0046872, GO:0016021, GO:0055114	CG9747-PA
1821.15	Unknown	GO:0005737, GO:0046872, GO:0046688, GO:0003700, GO:0005634, GO:0006875, GO:0006950, GO:0045944, GO:0006351, GO:0010038, GO:0000976, GO:0055069	CG3743-PC
1079.11	NIF3-like protein 1	GO:0005575, GO:0003674, GO:0008150, GO:0005739, GO:0005737	CG4278-PA
2485.11	Unknown	None	n/a
139183.8	DnaJ homolog subfamily C member 10	GO:0015035, GO:0005788, GO:0016671, GO:0030433, GO:0045454, GO:0034975	CG40178-PB
412.16	Ecdysteroid UDP-glucosyltransferase	GO:0016758, GO:0015020, GO:0008152	CG6475-PD
2476.4	Protein Vhl	GO:0007424, GO:0007427, GO:0030154, GO:0007010, GO:0030891, GO:0006611, GO:0060438, GO:0005634, GO:0007026, GO:1900037, GO:0035149, GO:0016567, GO:0090307, GO:0016334, GO:0005515, GO:0061630, GO:0001525, GO:0004842, GO:0051297	CG13221-PA
6555.5	Zinc finger protein 568	GO:0003700, GO:0005634, GO:0006355, GO:0006351, GO:0003676, GO:0003677, GO:0046872	CG12299-PA
1179.8	Unknown	None	n/a
1152.2	Myrosinase 1	GO:0019137, GO:0046872, GO:0005975, GO:0004553	CG9701-PA
3461.19	Unknown	None	n/a
1269.4	Unknown	GO:0005615	CG11852-PA
5455.5	Fungal protease inhibitor-1	GO:0004867	n/a
28571.1	Unknown	None	n/a
4495.10	Zinc finger protein 862	GO:0006355, GO:0005634, GO:0046872, GO:0006351, GO:0003676	n/a
2925.18	DNA polymerase alpha subunit B	GO:0005737, GO:0005654, GO:0000278, GO:0000722, GO:0000060, GO:0006271, GO:0006270, GO:0000082, GO:0032201, GO:0003887, GO:0006260, GO:0006261, GO:0003677, GO:0046982, GO:0005658, GO:0000723	CG5923-PC
918.72	Unknown	None	n/a
918.73	Unknown	None	n/a
2064.13	Unknown	None	n/a
9752.3	Cytochrome P450 6B6	GO:0016705, GO:0043231, GO:0020037, GO:0002118, GO:0016020, GO:0005789, GO:0070330, GO:0050829, GO:0005506, GO:0055114, GO:0009055	CG10245-PB
3246.4	Esterase FE4	GO:0005575, GO:0008150, GO:0052689, GO:0008152	CG10175-PD
1068.4	Protein tramtrack, beta isoform	GO:0035147, GO:0048750, GO:0045467, GO:0035001, GO:0031208, GO:0003677, GO:0043388, GO:0007298,	CG43365-PF

		GO:0001078, GO:0002121, GO:0031987, GO:0040003, GO:0000122, GO:0005634, GO:0001709, GO:0007476, GO:0030707, GO:0001964, GO:0060446, GO:0042682, GO:0016476, GO:0046872, GO:0000980, GO:0048666, GO:0035151, GO:0017053, GO:0042803, GO:0042675, GO:0008360, GO:0045892, GO:0048053, GO:0007426, GO:0007422, GO:0048854, GO:0005700, GO:0048813, GO:0045944, GO:0006351, GO:0005515, GO:0000978, GO:0003682, GO:0046843	
1497.37	Unknown	None	n/a
21.2	Alpha-tocopherol transfer protein-like	GO:0016020, GO:0005215, GO:0008431, GO:0006810, GO:0005622	CG2663-PA
2399.26	Uncharacterized protein B0303.7	GO:0005575, GO:0008150, GO:0003674, GO:0005515	CG7129-PA
811.3	Viral cathepsin	GO:0008234	n/a
13513.1	Oxygen-dependent choline dehydrogenase	GO:0050660, GO:0008802, GO:0008812, GO:0006066, GO:0019285, GO:0045455, GO:0055114, GO:0016491	CG9521-PA
35367.1	4-hydroxybenzoate polyprenyltransferase, mitochondrial	GO:0004659, GO:0006383, GO:0016021, GO:0008412, GO:0002083, GO:0008299, GO:0005739, GO:0050832, GO:0005743, GO:0050830, GO:0048009, GO:0047293, GO:0005666, GO:0050829, GO:0008340, GO:0006744, GO:0006743	CG9613-PA
113.7	Unknown	None	n/a
87225.1	Unknown	None	n/a
15668.1	CLIP-associating protein	GO:0030426, GO:0007411, GO:0007067, GO:0030723, GO:0051225, GO:0005876, GO:0005737, GO:0040001, GO:0045172, GO:0005813, GO:0005634, GO:0000922, GO:0005815, GO:0005875, GO:0048477, GO:0043148, GO:0005525, GO:0016325, GO:0008017, GO:0032154, GO:0007051, GO:0007052, GO:0007282, GO:0046602, GO:0046580, GO:0000775, GO:0000776, GO:0035099, GO:0019827, GO:0000070, GO:0005827, GO:0051315, GO:0045169, GO:0000022, GO:0005819	CG32435-PB
34647.11	Ankyrin repeat domain-containing protein 39	None	CG44001-PA
5755.1	Nuclear factor NF-kappa-B p100 subunit	GO:0019732, GO:0034138, GO:0019730, GO:0034134, GO:0038061, GO:0042308, GO:0006967, GO:0031594, GO:0038123, GO:0001077, GO:0038124, GO:0008063, GO:0006909, GO:0032496, GO:0002224, GO:0005737, GO:0002223, GO:0000122, GO:0005634, GO:0003713, GO:0005654, GO:0048511, GO:0034142, GO:0006366, GO:0035666, GO:0033257, GO:0048477, GO:0045087, GO:0002467, GO:0002268, GO:0034097, GO:0002755, GO:0008134, GO:0006952, GO:0048536, GO:0032481, GO:0034166, GO:0006954, GO:0006955, GO:0042994, GO:0051092, GO:0006974, GO:0002756, GO:0007568, GO:0007399, GO:0009950, GO:0003700, GO:0009620, GO:0005829, GO:0007249, GO:0034146, GO:0006355, GO:0030198, GO:0045944, GO:0005515, GO:0034162, GO:0030097, GO:0000978, GO:0003682, GO:0046843	CG5848-PA
37761.1	Phosphatidylethanolamine-binding protein homolog F40A3.3	GO:0005575, GO:0008150, GO:0003674, GO:0008289, GO:0005739	CG6180-PA
11503.3	Androgen-dependent TFPI-regulating protein	GO:0016021, GO:0005886	n/a
3076.10	Unknown	None	n/a
1678.4	G-protein coupled receptor Mth2	GO:0004930, GO:0016021, GO:0006950, GO:0005886, GO:0008340, GO:0007186	CG17061-PB
1678.6	Multidrug resistance protein homolog 49	GO:0015893, GO:0042626, GO:0031427, GO:0042623, GO:0016021, GO:0006810, GO:0006855, GO:0015238,	CG8523-PA

		GO:0008559, GO:0008354, GO:0005887, GO:0005886, GO:0001666, GO:0055085, GO:0005524	
3094.3	Pickpocket protein 28	GO:0009415, GO:0005272, GO:0042756, GO:0015280, GO:0016021, GO:0016020, GO:0006814, GO:0035002, GO:0035725, GO:0071462, GO:0005886	CG8546-PC
43838.1	Titin	GO:0035206, GO:0007498, GO:0030017, GO:0005875, GO:0051301, GO:0007062, GO:0007517, GO:0007519, GO:0031674, GO:0003779, GO:0030018, GO:0016203, GO:0008307, GO:0045214, GO:0000794, GO:0007520, GO:0007522, GO:0005863, GO:0007525, GO:0040011, GO:0004687, GO:0007076	CG1915-PP
534.13	Pleckstrin homology domain-containing family G member 5	GO:0005089, GO:0005737, GO:0030139, GO:0007480, GO:0030027, GO:0005575, GO:0035025, GO:0008360, GO:0005911, GO:0035023, GO:0007155, GO:0048471, GO:0035767	CG42674-PC
1.7	Unknown	None	n/a
4730.2	Unknown	None	n/a
2848.14	Unknown	None	n/a
13465.1	Insulin-like receptor	GO:0006468, GO:0043560, GO:0043559, GO:0016021, GO:0016020, GO:0008286, GO:0005010, GO:0051290, GO:0046777, GO:0004714, GO:0005009, GO:0007169, GO:0046872, GO:0043548, GO:0005524	CG10702-PB
91807.1	Rho guanine nucleotide exchange factor 12	GO:0005089, GO:0016331, GO:0016020, GO:0035277, GO:0030589, GO:0097190, GO:0007349, GO:0035025, GO:0007411, GO:0001664, GO:0007277, GO:0005737, GO:0045177, GO:0070062, GO:0019992, GO:0007369, GO:0045179, GO:0045178, GO:0043065, GO:0016324, GO:0016476, GO:0007186, GO:0051056, GO:0038032, GO:0016328, GO:0007370, GO:0030478, GO:0005096, GO:0008360, GO:0090254, GO:0048011, GO:0007264, GO:0005826, GO:0007015, GO:0007375, GO:0050770, GO:0007377, GO:0005829, GO:0031532, GO:0070252, GO:0007374	CG9635-PA
1763.4	Unknown	None	n/a
4612.4	4-nitrophenylphosphatase	GO:0046196, GO:0004035, GO:0006470, GO:0005829, GO:0000287, GO:0006796, GO:0016791, GO:0005634	CG15739-PA
13047.2	Laminin subunit alpha-1	GO:0061304, GO:0005201, GO:0045198, GO:0045995, GO:0007476, GO:0030155, GO:0031012, GO:0007155, GO:0060041, GO:0007166, GO:0031175, GO:0005615, GO:0043208, GO:0008406, GO:0060441, GO:0060445, GO:0006468, GO:0030334, GO:0009888, GO:0005911, GO:0043256, GO:0005606, GO:0005605, GO:0005604, GO:0007502, GO:0002011, GO:0005608, GO:0005576, GO:0005102, GO:0005578	CG42677-PB
700.7	Circadian clock-controlled protein	GO:0007623, GO:0005615, GO:0032504	CG10407-PA
637.51	Protein THEM6	GO:0005575, GO:0008150, GO:0005576, GO:0003674	CG4666-PA
9.9	Unknown	None	n/a
2392.6	Gelsolin	GO:0006909, GO:0045010, GO:0005829, GO:0051016, GO:0051014, GO:0003779, GO:0005576, GO:0005884, GO:0030041, GO:0005509	CG1106-PB
17001.3	Unknown	None	n/a
10588.4	Vinculin	GO:0005737, GO:0007160, GO:0007016, GO:0006909, GO:0015629, GO:0051015, GO:0005198, GO:0003779, GO:0048812, GO:0005886, GO:0007155, GO:0005925	CG3299-PA
5826.4	Mitoferrin	GO:0016021, GO:0005740, GO:0005739, GO:0055072, GO:0005743, GO:0022857, GO:0048250, GO:0048515, GO:0005381, GO:0034755, GO:0055085	CG4963-PA

5826.5	Protein toll	GO:0009897, GO:0019732, GO:0019730, GO:0006963, GO:0019955, GO:0006967, GO:0007165, GO:0008063, GO:0006955, GO:0007416, GO:0005737, GO:0070976, GO:0016021, GO:0009617, GO:0000281, GO:0002229, GO:0006952, GO:0042802, GO:0016201, GO:0009880, GO:0045087, GO:0035172, GO:0050832, GO:0050830, GO:0005887, GO:0005886, GO:0007155, GO:0007352, GO:0043234, GO:0007507, GO:0009950, GO:0009620, GO:0004888, GO:0045944, GO:0005515, GO:0030097, GO:0045610, GO:0005769, GO:0035007	CG5490-PC
1252.11	Unknown	GO:0006633, GO:0005835, GO:0016788, GO:0004312, GO:0008270, GO:0055114, GO:0016491	CG17374-PC
1252.10	Fatty acid synthase	GO:0006633, GO:0047451, GO:0006631, GO:0004320, GO:0015939, GO:0031325, GO:0008144, GO:0035338, GO:0008270, GO:0001649, GO:0016491, GO:0005737, GO:0070062, GO:0016295, GO:0005835, GO:0016020, GO:0071353, GO:0005739, GO:0006112, GO:0030879, GO:0005794, GO:0006767, GO:0006766, GO:0044822, GO:0004315, GO:0016788, GO:0047117, GO:0042587, GO:0005886, GO:0044255, GO:0055114, GO:0006084, GO:0042470, GO:0005829, GO:0004312, GO:0004313, GO:0016296, GO:0019432, GO:0004316, GO:0004317, GO:0004314, GO:0070402, GO:0004319, GO:0044281	CG17374-PC
1252.12	Fatty acid synthase	GO:0006633, GO:0047451, GO:0004320, GO:0008144, GO:0008270, GO:0001649, GO:0016491, GO:0005737, GO:0070062, GO:0016295, GO:0005835, GO:0016020, GO:0071353, GO:0005739, GO:0030879, GO:0005794, GO:0044822, GO:0004315, GO:0016788, GO:0047117, GO:0042587, GO:0005886, GO:0055114, GO:0006084, GO:0042470, GO:0004312, GO:0004313, GO:0016296, GO:0004316, GO:0004317, GO:0004314, GO:0070402, GO:0004319	CG17374-PC
10722.1	Serine/threonine-protein phosphatase 6 regulatory subunit 2	GO:0005737, GO:0019903, GO:0043231, GO:0043666	CG10289-PD
4000.5	RNA exonuclease 4	GO:0004527, GO:0044822, GO:0005634, GO:0003676, GO:0005730	CG6833-PA
2788.6	Peptidyl-prolyl cis-trans isomerase-like 6	GO:0000413, GO:0006457, GO:0071011, GO:0005634, GO:0000398, GO:0003755, GO:0071013	CG1866-PA
15803.1	Unknown	None	CG31248-PA
12243.7	Unknown	GO:0005515	n/a
581.7	Folylpolyglutamate synthase, mitochondrial	GO:0005737, GO:0046901, GO:0006767, GO:0009396, GO:0007420, GO:0006139, GO:0005829, GO:0031100, GO:0004326, GO:0005739, GO:0005743, GO:0006766, GO:0001889, GO:0044281, GO:0005759, GO:0046655, GO:0006730, GO:0005524	CG2543-PA
15291.2	Zinc finger protein 341	GO:0005634, GO:0006355, GO:0008270, GO:0003676, GO:0003677, GO:0046872, GO:0006351	CG8301-PA
1186.11	Niemann-Pick C1 protein	GO:0046718, GO:0005635, GO:0005783, GO:0071383, GO:0007591, GO:0030301, GO:0007291, GO:0004872, GO:0007041, GO:0070062, GO:0006486, GO:0032374, GO:0016021, GO:0016020, GO:0031579, GO:0005576, GO:0046686, GO:0048471, GO:0031902, GO:0005794, GO:0016125, GO:0060548, GO:0006914, GO:0007628, GO:0005887, GO:0045456, GO:0042632, GO:0008206, GO:0008158, GO:0015248, GO:0008203, GO:0006897, GO:0015485, GO:0090150, GO:0071404, GO:0045121, GO:0042493, GO:0016242, GO:0005764, GO:0005765, GO:0004888, GO:0033344, GO:2000189, GO:0007165	CG5722-PA

12614.8	DNA replication complex GINS protein SLD5	GO:0005737, GO:0000727, GO:0000278, GO:0032508, GO:0006270, GO:0000811, GO:0031298, GO:0046331, GO:0022008, GO:0043138, GO:1900087	CG14549-PA
3004.1	Unknown	None	n/a
918.56	Period circadian protein	GO:0004871, GO:0007619, GO:0007616, GO:0007617, GO:0042745, GO:0009416, GO:0007165, GO:0008062, GO:0060086, GO:0005737, GO:0000122, GO:0005634, GO:0003714, GO:0003712, GO:0048511, GO:0048512, GO:0048148, GO:0042803, GO:0007624, GO:0007623, GO:0007622, GO:0007620, GO:0008134, GO:0042752, GO:0045187, GO:0045892, GO:0045475, GO:0009649, GO:0009266, GO:0008340, GO:0006979, GO:0001306, GO:0045433, GO:0006355, GO:0005515, GO:0043153, GO:0046982, GO:2000678	CG2647-PA
1344.4	Unknown	None	n/a
5911.10	Facilitated trehalose transporter Tret1	GO:0022891, GO:0005355, GO:0015574, GO:0005353, GO:0015771, GO:0016021, GO:0016020, GO:0005886, GO:0055085	CG8234-PA
1821.7	Unknown	None	n/a
1065.6	26S proteasome non-ATPase regulatory subunit 9	GO:0005737, GO:0005838, GO:0005634, GO:0006974, GO:0006508, GO:0070682, GO:0008540	CG9588-PA
1821.3	Unknown	None	n/a
1587.5	OCIA domain-containing protein 1	GO:0005794, GO:0035167, GO:0046425, GO:0031410, GO:0055037, GO:0035162, GO:0005764, GO:0003674, GO:0048542, GO:0005769, GO:0016021	CG13533-PB
41355.9	Protein EFR3 homolog cmp44E	GO:0016079, GO:0016021, GO:0005886, GO:0000281, GO:0005623, GO:0007602, GO:0045202, GO:0007268, GO:0030100, GO:0048488	CG8739-PC
2173.23	Zinc carboxypeptidase A 1	GO:0006508, GO:0022008, GO:0005615, GO:0004181, GO:0008270	CG17633-PA
85.8	Nose resistant to fluoxetine protein 6	GO:0007275, GO:0016021, GO:0006869, GO:0016747, GO:0008289	CG42329-PA
1886.29	Putative cysteine proteinase CG12163	GO:0005764, GO:0003674, GO:0098595, GO:0005615, GO:0035071, GO:0051603, GO:0035220, GO:0045169, GO:0005575, GO:0048102, GO:0004197, GO:0008150, GO:0004869, GO:0006508, GO:0022416	CG12163-PA
11680.2	Protein EFR3 homolog cmp44E	GO:0016079, GO:0016021, GO:0005886, GO:0000281, GO:0005623, GO:0007602, GO:0045202, GO:0007268, GO:0030100, GO:0048488	CG8739-PC
15258.1	Unknown	None	n/a
1569.6	Unknown	GO:0046658, GO:0035152, GO:0019991, GO:0005576	CG14430-PA
41355.4	Unknown	None	n/a
738.15	Unknown	None	n/a
5880.7	Unknown	None	n/a
1926.5	Ejaculatory bulb-specific protein 3	GO:0007362, GO:0006468, GO:0007552, GO:0019992, GO:0009615, GO:0009617, GO:0045297, GO:0004674, GO:0005576, GO:0004672	CG9358-PA
7741.5	Protein UXT homolog	GO:0006457, GO:0001106, GO:0016272, GO:0051082	CG15266-PA
2215.1	Unknown	None	CG15080-PA
139068.3	Homeobox protein Hox-A5	GO:0035289, GO:0001077, GO:0003677, GO:0035282, GO:0007275, GO:0008354, GO:0007417, GO:0043565, GO:0007366, GO:0000122, GO:0005634, GO:0000980, GO:0007350, GO:0035290, GO:0007506, GO:0003700, GO:0003705, GO:0006355, GO:0006357, GO:0045944, GO:0006351, GO:0001708	CG2047-PA
5520.1	Glutaryl-CoA dehydrogenase, mitochondrial	GO:0050660, GO:0004361, GO:0006554, GO:0046949, GO:0000062, GO:0006568, GO:0005743, GO:0034641,	CG9547-PA

		GO:0005739, GO:0005875, GO:0046948, GO:0008152, GO:0005759, GO:0019395, GO:0016627, GO:0055114, GO:0044281	
283.36	Unknown	None	n/a
50480.1	Acyl-CoA Delta(11) desaturase	GO:0006633, GO:0060179, GO:0009744, GO:0016021, GO:0070328, GO:0005783, GO:0017105, GO:0019216, GO:0046872, GO:0031410, GO:0016717, GO:0005811, GO:0006631, GO:0042593, GO:0042811, GO:0048047, GO:0004768, GO:0010506, GO:0006723, GO:0055114CG5887-PA	n/a
14826.3	Probable G-protein coupled receptor 152	GO:0004930, GO:0004181, GO:0008270, GO:0005887, GO:0006508, GO:0007186	CG3108-PA
17782.9	Homologous-pairing protein 2 homolog	GO:0006310, GO:0035259, GO:0051321, GO:0030331, GO:0050692, GO:0005634, GO:0050681, GO:0030374, GO:0046966, GO:0045944, GO:0003677, GO:0046983, GO:0042803	n/a
790.24	Unknown	None	n/a
2281.2	Ecdysteroid UDP-glucosyltransferase	GO:0016758, GO:0015020, GO:0008152	CG6653-PA
4105.8	Unknown	None	n/a
30044.1	Tetratricopeptide repeat protein 36 homolog	GO:0005575, GO:0003674, GO:0008150, GO:0005515	CG14105-PA
5012.2	Unknown	None	n/a
3123.3	Unknown	None	CG13868-PA
604.6	Unknown	None	n/a
341.2	tRNA-splicing endonuclease subunit Sen54	GO:0090502, GO:0090501, GO:0005730, GO:0004017, GO:0000214, GO:0006388, GO:0000379, GO:0006397	CG5626-PA
2132.14	Unknown	None	n/a
1817.26	Protein PIH1D3	GO:0005737, GO:0030317, GO:0051087, GO:0070286	CG5048-PA
106.16	Serine protease HTRA2, mitochondrial	GO:0004252, GO:0035234, GO:0016021, GO:0006915, GO:0005739, GO:0031966, GO:0007283, GO:0005515, GO:0016006, GO:0005758, GO:0008233, GO:0042981, GO:0006508, GO:0007005	CG8464-PA
139069.8	UPF0160 protein MYG1, mitochondrial	GO:0005654, GO:0070062, GO:0005634, GO:0005739, GO:0005575, GO:0035641, GO:0008150, GO:0003674	CG11980-PB
9148.3	Centrosomal protein of 97 kDa	GO:0005737, GO:0043234, GO:0000242, GO:0030030, GO:0005813, GO:0005815, GO:0007099, GO:0005515, GO:0008599	CG3980-PB
8873.3	Nuclear nucleic acid-binding protein C1D	GO:0005737, GO:0000178, GO:0005730, GO:0003723, GO:0003677, GO:0010468, GO:0006364	CG8928-PA
5880.4	Unknown	GO:0005488	n/a
396.5	Unknown	None	n/a
10845.1	Unknown	None	n/a
7622.7	Chitotriosidase-1	GO:0005975, GO:0005615, GO:0008843, GO:0009617, GO:0000272, GO:0005764, GO:0005576, GO:0008061, GO:0006955, GO:0004568, GO:0006032	CG3044-PA
396.1	Unknown	GO:0006468, GO:0005524, GO:0004672	CG34356-PF
1730.2	Glucose dehydrogenase [FAD, quinone]	GO:0050660, GO:0016614, GO:0008812, GO:0006066, GO:0046331, GO:0046693, GO:0008364, GO:0005576, GO:0006006, GO:0045455, GO:0055114, GO:0016491	CG9518-PA
2848.6	Unknown	GO:0003677	CG3838-PA
2247.5	Dihydroxyacetone phosphate acyltransferase	GO:0004366, GO:0005778, GO:0006650, GO:0005777, GO:0016287, GO:0005739, GO:0016746, GO:0008152, GO:0008611	CG4625-PC
4482.3	Acyl-CoA-binding protein	GO:0005794, GO:0050809, GO:0097038, GO:0036151, GO:0070062, GO:0006641, GO:0060291, GO:0042049, GO:0001942, GO:0006810, GO:0008289, GO:0000062, GO:0007611, GO:0005739, GO:0042742, GO:0004857,	CG8629-PA

		GO:0021670, GO:0036042, GO:0001662	
2913.19	Glutathione S-transferase theta-1	GO:0005737, GO:0004364, GO:0006749	CG1702-PB
310.8	Lamin-B receptor	GO:0005635, GO:0016628, GO:0005637, GO:0016021, GO:0016020, GO:0004872, GO:0003677, GO:0005521	CG17952-PC
937.1	Alpha-ketoglutarate-dependent dioxygenase alkB homolog 7, mitochondrial	GO:0006631, GO:0051213, GO:0006974, GO:1902445, GO:0010883, GO:0005759, GO:0046872	CG14130-PA
3050.8	Unknown	None	n/a
8472.16	Lipid droplet-associated hydrolase	GO:0016787, GO:0030730, GO:0005783, GO:0016021, GO:0005811, GO:0034389, GO:0012505	CG9186-PB
1322.3	Zinc finger and BTB domain-containing protein 14	GO:0005737, GO:0043565, GO:0000122, GO:0003700, GO:0005634, GO:0005654, GO:0048813, GO:0045892, GO:0000977, GO:0003676, GO:0046872, GO:0044212, GO:0006351	CG2116-PA
185.8	39S ribosomal protein L14, mitochondrial	GO:0003735, GO:0005739, GO:0005840, GO:0005762, GO:0006412	CG14048-PA
1223.43	Matrix metalloproteinase-2	GO:0007424, GO:0035202, GO:0007426, GO:0004222, GO:0048477, GO:0005886, GO:0034769, GO:0007561, GO:0042060, GO:0031012, GO:0002218, GO:0046331, GO:0030425, GO:0071711, GO:0006508, GO:0040037, GO:0046529, GO:0008270	CG1794-PB
3306.12	Mitochondrial cardiolipin hydrolase	GO:0030719, GO:0007126, GO:0034587, GO:0035755, GO:0043046, GO:0016021, GO:0007286, GO:0016042, GO:0008053, GO:0005741, GO:0004519, GO:0046872, GO:0042803	n/a
7124.7	Unknown	GO:0016021, GO:0050909	n/a
2028.21	Unknown	GO:0006139, GO:0004017, GO:0005524	CG9541-PD
2132.12	Unknown	None	n/a
168.39	Unknown	GO:0016203, GO:0007015, GO:0017166, GO:0005925, GO:0007605, GO:0050954, GO:0007155, GO:0016477	CG18408-PX
91159.1	Putative inorganic phosphate cotransporter	GO:0048190, GO:0015293, GO:0016021, GO:0006814, GO:0005316, GO:0015114, GO:0005886, GO:0001666, GO:0055085	CG15095-PB
640.3	Unknown	None	n/a
750.15	N-glycosylase/DNA lyase	GO:0009314, GO:0033158, GO:0009416, GO:0016607, GO:0032355, GO:0005634, GO:0033683, GO:0005739, GO:0005654, GO:0043066, GO:0016363, GO:0006284, GO:0006285, GO:0006281, GO:0006289, GO:0003906, GO:0045471, GO:0034039, GO:0002526, GO:0071276, GO:0006979, GO:0043234, GO:0006974, GO:0045007, GO:0007568, GO:0051593, GO:0004519, GO:0042493, GO:0045008, GO:0008534, GO:0006355, GO:1901291, GO:0003684	CG1795-PA
142.48	Unknown	GO:0005575, GO:0046331, GO:0003674	CG43740-PC
11455.1	Unknown	GO:0015629, GO:0007498, GO:0060361, GO:0008335, GO:0007303, GO:0030018, GO:0005737, GO:0040023, GO:0005635, GO:0007519, GO:0003779, GO:0006366, GO:0048471, GO:0016477, GO:0031965, GO:0008305, GO:0005884, GO:0007523, GO:0051640, GO:0040011, GO:0007015, GO:0007010, GO:0008092, GO:0003725	CG42768-PL
3306.16	28S ribosomal protein S28, mitochondrial	GO:0070126, GO:0006996, GO:0070124, GO:0070125, GO:0044822, GO:0005739, GO:0006412, GO:0003735, GO:0005743, GO:0005763, GO:0032543	CG5497-PA
4324.1	ABC transporter G family member 23	GO:0043190, GO:0042626, GO:0005215, GO:0016021, GO:0006810, GO:0016887, GO:0022008, GO:0005524	CG11147-PA
1055.7	Putative polypeptide N-acetylgalactosaminyltransferase 9	GO:0005794, GO:0031985, GO:0006493, GO:0032504, GO:0016021, GO:0004653, GO:0030246, GO:0000139,	CG30463-PA

		GO:0046872, GO:0005829	
437.2	Indole-3-acetaldehyde oxidase	GO:0004031, GO:0050660, GO:0016614, GO:0008762, GO:0043546, GO:0005829, GO:0051537, GO:0009851, GO:0009688, GO:0004855, GO:0004854, GO:0005506, GO:0009055, GO:0050302, GO:0055114, GO:0016491	CG6045-PA
437.3	Xanthine dehydrogenase	GO:0050660, GO:0016614, GO:0008762, GO:0051537, GO:0004854, GO:0005506, GO:0055114, GO:0009055	CG6045-PA
729.3	Unknown	None	n/a
1103.30	Unknown	None	n/a
12023.1	Unknown	None	n/a
105422.1	Unknown	None	n/a
5025.4	tRNA pseudouridine synthase A, mitochondrial	GO:0005730, GO:0004730, GO:0031119, GO:0044822, GO:0009982, GO:0030374, GO:0000790, GO:0005739, GO:0045944, GO:0003723, GO:0005667, GO:0009451, GO:0001522	CG4159-PB
356.50	Zinc finger protein 714	GO:0005634, GO:0006355, GO:0006351, GO:0003676, GO:0003677, GO:0046872	CG3407-PA
2408.4	Probable uridine nucleosidase 2	GO:0005737, GO:0045437	CG11158-PA
637.31	Unknown	None	n/a
21398.1	Bone morphogenetic protein receptor type-1B	GO:0048100, GO:0042078, GO:0008101, GO:0006468, GO:0048636, GO:0030509, GO:0045887, GO:0001763, GO:0007304, GO:0005025, GO:0001745, GO:0007274, GO:0050431, GO:0005771, GO:0007476, GO:0030707, GO:0004675, GO:0004672, GO:0002063, GO:0007181, GO:0005524, GO:0045705, GO:0060350, GO:0035215, GO:1902731, GO:0007424, GO:0007488, GO:0061036, GO:0045595, GO:0046872, GO:0090254, GO:0005886, GO:0030166, GO:0044214, GO:0007179, GO:0007507, GO:0016477, GO:0009953, GO:0046845, GO:0022407, GO:0045927, GO:0007448, GO:0010629, GO:0007391, GO:0006357, GO:0005515, GO:0004702, GO:0061327, GO:0045570, GO:0005769, GO:0030718	CG14026-PC
356.3	Zinc finger and SCAN domain-containing protein 22	GO:0003700, GO:0005634, GO:0006351, GO:0003676, GO:0003677, GO:0046872	CG15269-PA
577.22	Unknown	None	n/a
2037.2	Protein ABHD18	GO:0005576	CG32112-PB
631.14	Transcription factor A, mitochondrial	GO:0001077, GO:0042645, GO:0007005, GO:0005813, GO:0005634, GO:0005739, GO:0006264, GO:0010467, GO:0006261, GO:0006366, GO:0005759, GO:0070363, GO:0005694, GO:0033108, GO:0044822, GO:0008301, GO:0045893, GO:0006979, GO:0006996, GO:0006338, GO:0003700, GO:0005829, GO:0006355, GO:0006356, GO:0045944, GO:0006390, GO:0006391, GO:0000978, GO:0003682	CG4217-PB
2836.4	Zinc finger CCHC domain-containing protein 9	GO:0044822, GO:0010923, GO:0008270, GO:0003676	n/a
1497.2	Ubiquinone biosynthesis O-methyltransferase, mitochondrial	GO:0008689, GO:0042060, GO:0004395, GO:0031314, GO:0006071, GO:0008425, GO:0006744, GO:0006743	CG9249-PA
978.1	LysM and putative peptidoglycan-binding domain-containing protein 3	GO:0016021	CG17985-PA
1074.19	EKC/KEOPS complex subunit LAGE3	GO:0005634, GO:0008033	CG42498-PA
1048.2	Unknown	GO:0005125, GO:0006954, GO:0005576	n/a
3628.9	Unknown	None	CG4042-PA
336.6	Unknown	GO:0022008	CG31344-PA
282.3	Unknown	None	n/a
2399.51	Unknown	None	n/a

3659.1	Unknown	None	n/a
2570.1	Unknown	None	n/a
4258.3	Larval/pupal rigid cuticle protein 66	GO:0005214, GO:0040003, GO:0031012, GO:0042302, GO:0008010	CG34461-PA
1384.9	GTPase Era, mitochondrial	GO:0043024, GO:0019843, GO:0000028, GO:0005743, GO:0005759, GO:0005875, GO:0005525	CG7488-PA
5219.11	Facilitated trehalose transporter Tret1	GO:0005355, GO:0015574, GO:0015771, GO:0016021, GO:0005886, GO:0055085	CG4797-PB
20369.1	Ribonuclease H2 subunit C	GO:0005634, GO:0032299, GO:0005575, GO:0008150, GO:0006401, GO:0003674	CG30105-PA
9212.1	Unknown	None	n/a
4796.2	Fatty acid synthase	GO:0006633, GO:0047451, GO:0016295, GO:0005835, GO:0004320, GO:0016296, GO:0016788, GO:0004317, GO:0004312, GO:0004313, GO:0047117, GO:0004316, GO:0008270, GO:0004314, GO:0004315, GO:0004319, GO:0055114, GO:0016491	CG17374-PC
837.8	Talin-1	GO:0005200, GO:0006909, GO:0015629, GO:0060439, GO:0007596, GO:0035160, GO:0006928, GO:0007044, GO:0007043, GO:0007411, GO:0007298, GO:0005925, GO:0005737, GO:0044267, GO:0001726, GO:0070062, GO:0007430, GO:0002576, GO:0007475, GO:0003779, GO:0030168, GO:0016203, GO:0005178, GO:0016032, GO:0006936, GO:0009986, GO:0005158, GO:0036498, GO:0008360, GO:0045892, GO:0030274, GO:0005886, GO:0007155, GO:0032587, GO:0007526, GO:0007016, GO:0005911, GO:0005815, GO:0030968, GO:0005829, GO:0030866, GO:0005576, GO:0017166, GO:0005515, GO:0070527	CG6831-PB
644.5	Proteasome subunit beta type-2	GO:0005737, GO:0051603, GO:0004175, GO:0005839, GO:0032504, GO:0043161, GO:0010243, GO:0009987, GO:0010499, GO:0004298, GO:0006974, GO:0016020, GO:0005654, GO:0014070, GO:0070062	CG17331-PB
22557.1	Serine/threonine-protein phosphatase BSU1	GO:0005737, GO:0016787, GO:0009742, GO:0000278, GO:0016311, GO:0006470, GO:0005634, GO:0000082, GO:0004722, GO:0046872, GO:0032880	CG12217-PD
8113.1	Lebocin-4	GO:0045087, GO:0005576, GO:0042742	n/a

Table S5. Enriched GO terms associated with proteins in Table S4

GO term	P-value	Q-value	Definition	Related proteins
GO:0005835	1.92E-06	0.002176833	fatty acid synthase complex	1252.11, 48208.1, 1252.12, 4796.2, 1252.10
GO:0004312	7.00E-06	0.003965224	fatty acid synthase activity	1252.11, 48208.1, 1252.12, 4796.2, 1252.10
GO:0006743	3.42E-05	0.012902047	ubiquinone metabolic process	1497.2, 1497.3, 35367.1
GO:0006633	0.000114024	0.032297378	fatty acid biosynthetic process	1516.11, 1252.11, 48208.1, 50480.1, 1252.12, 4796.2, 1252.10
GO:0016788	0.000187465	0.042479623	hydrolase activity, acting on ester bonds	1252.11, 48208.1, 1252.12, 4796.2, 1252.10, 3772.2
GO:0004395	0.000441406	0.083352155	hexaprenyldihydroxybenzoate methyltransferase activity	1497.2, 1497.3
GO:0060086	0.000441406	0.071444704	circadian temperature homeostasis	4948.6, 918.56
GO:0008689	0.000441406	0.062514116	3-demethylubiquinone-9 3-O-methyltransferase activity	1497.2, 1497.3
GO:0008425	0.000983394	0.123798419	2-polyprenyl-6-methoxy-1, 4-benzoquinone methyltransferase	1497.2, 1497.3

			activity	
GO:2000678	0.000983394	0.111418577	negative regulation of transcription regulatory region DNA binding	4948.6, 918.56
GO:0047451	0.001061976	0.109383485	3-hydroxyoctanoyl-[acyl-carrier-protein] dehydratase activity	1252.10, 1252.12, 4796.2
GO:0047117	0.001061976	0.100268195	enoyl-[acyl-carrier-protein] reductase (NADPH, A-specific) activity	1252.10, 1252.12, 4796.2
GO:0016296	0.001311891	0.114336387	palmitoyl-[acyl-carrier-protein] hydrolase activity	1252.10, 1252.12, 4796.2
GO:0004317	0.001311891	0.106169502	3-hydroxypalmitoyl-[acyl-carrier-protein] dehydratase activity	1252.10, 1252.12, 4796.2
GO:0016295	0.001311891	0.099091536	myristoyl-[acyl-carrier-protein] hydrolase activity	1252.10, 1252.12, 4796.2
GO:0004320	0.001311891	0.092898315	oleoyl-[acyl-carrier-protein] hydrolase activity	1252.10, 1252.12, 4796.2
GO:0004313	0.001311891	0.087433708	[acyl-carrier-protein] S-acetyltransferase activity	1252.10, 1252.12, 4796.2
GO:0004319	0.001311891	0.08257628	enoyl-[acyl-carrier-protein] reductase (NADPH, B-specific) activity	1252.10, 1252.12, 4796.2
GO:0004314	0.001595954	0.095169233	[acyl-carrier-protein] S-malonyltransferase activity	1252.10, 1252.12, 4796.2
GO:0004315	0.001595954	0.090410772	3-oxoacyl-[acyl-carrier-protein] synthase activity	1252.10, 1252.12, 4796.2
GO:0006744	0.001595954	0.086105497	ubiquinone biosynthetic process	1497.2, 1497.3, 35367.1
GO:0004316	0.002668593	0.137432528	3-oxoacyl-[acyl-carrier-protein] reductase (NADPH) activity	1252.10, 1252.12, 4796.2
GO:0004730	0.002678271	0.131933949	pseudouridylate synthase activity	5025.4, 3152.7
GO:0055114	0.003912765	0.184715097	oxidation-reduction process	437.3, 1252.12, 1516.11, 9752.3, 1252.11, 48208.1, 50480.1, 259.11, 1252.10, 437.2, 5520.1, 4796.2, 3306.18, 496.4, 13513.1, 1730.2
GO:0031314	0.005147073	0.233265328	extrinsic component of mitochondrial inner membrane	1497.2, 1497.3
GO:0004854	0.005147073	0.224293585	xanthine dehydrogenase activity	437.2, 437.3
GO:0048536	0.005147073	0.215986415	spleen development	363.28, 5755.1
GO:0048512	0.006656972	0.269369628	circadian behavior	4948.6, 918.56
GO:0042587	0.006656972	0.26008102	glycogen granule	1252.10, 1252.12
GO:0030879	0.008342947	0.315085311	mammary gland development	1252.10, 1252.12
GO:0007620	0.010199464	0.372773959	copulation	4948.6, 918.56
GO:0006071	0.010199464	0.361124773	glycerol metabolic process	1497.2, 1497.3
GO:0090254	0.010199464	0.350181598	cell elongation involved in imaginal disc-derived wing morphogenesis	21398.1, 91807.1
GO:0017166	0.010199464	0.339882139	vinculin binding	168.39, 837.8
GO:0004017	0.010199464	0.330171221	adenylate kinase activity	341.2, 2028.21
GO:0016081	0.011830946	0.372346175	synaptic vesicle docking	209.1, 2727.6, 784.5
GO:0005739	0.011931422	0.365359501	mitochondrion	4482.3, 6749.3, 6749.2, 35367.1, 5826.4, 3306.16, 5520.1, 1252.10, 1252.12, 631.14, 106.16, 5025.4, 581.7, 185.8, 1079.11, 750.15, 37761.1, 729.9, 139069.8, 2247.5
GO:0071353	0.012221113	0.364382132	cellular response to interleukin-4	1252.10, 1252.12
GO:0006767	0.012221113	0.355039	water-soluble vitamin metabolic process	1252.10, 581.7
GO:0006084	0.012221113	0.346163025	acetyl-CoA metabolic process	1252.10, 1252.12
GO:0000062	0.014402607	0.398003742	fatty-acyl-CoA binding	5520.1, 4482.3
GO:0016491	0.014806594	0.399425511	oxidoreductase activity	1252.11, 48208.1, 1252.12, 437.2, 4796.2, 1252.10, 13513.1, 1730.2

Table S6. Genes and mutations that may be related to the phenotype of "extensive white scaling on hindwings"

gene name	function	fixed mutation	number of non-gap samples in the validation set
437.3	Xanthine dehydrogenase	Q602H	5
437.3	Xanthine dehydrogenase	I619V	4
437.3	Xanthine dehydrogenase	S632C	4
437.3	Xanthine dehydrogenase	P699A	4
437.3	Xanthine dehydrogenase	V736L	4
545.6	Midasin	V4038I	4
545.6	Midasin	T1911I	3
545.6	Midasin	T1912I	3
545.6	Midasin	S2757A	2
105.2	Zinc finger Ran-binding domain-containing protein 2	I736V	5
105.2	Zinc finger Ran-binding domain-containing protein 2	R929K	5
105.2	Zinc finger Ran-binding domain-containing protein 2	T776A	5
1537.8	Alpha-xylosidase	N755S	5
1537.8	Alpha-xylosidase	D779N	5
1537.8	Alpha-xylosidase	D918E	5
2719.2	WD repeat-containing protein 60	G787S	3
2719.2	WD repeat-containing protein 60	R670K	4
2719.2	WD repeat-containing protein 60	K444R	1

Table S7. Abbreviations of collections we used specimens from

Abbreviation	Collection
AMNH	American Museum of Natural History, New York, NY, USA
Bernard Hermier	Private collection of Bernard Hermier, Cayenne, French Guiana, France
Bill Dempwolf	Private collection of William R. Dempwolf, Austin, TX, USA
CAS	California Academy of Sciences, San Francisco, CA, USA
CMNH	Carnegie Museum of Natural History, Pittsburgh, PA, USA
Ernst Brockmann	Private collection of Ernst Brockmann, Lich, Germany
FMNH	The Field Museum of Natural History, Chicago, IL, USA
James Scott	Private collection of James A. Scott, Lakewood, CO, USA
Jim Brock	Private collection of Jim P. Brock, Tucson, AZ, USA
John MacDonald	Private collection of John R. MacDonald, Starkville, MS, USA
LACM	Los Angeles County Museum of Natural History, Los Angeles, CA
MGCL	McGuire Center for Lepidoptera and Biodiversity, Gainesville, FL, USA
TAMU	Texas A&M University Insect Collection, College Station, TX, USA
TMMC	University of Texas Biodiversity Center, Austin, TX, USA
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC, USA
ZMHB	Museum für Naturkunde, Berlin, Germany

Figure S1. Phylogenetic tree of Hesperiidae based on coding regions from mitogenome. All coding regions are used for 250 specimens with genomic data we obtained (10633+/-674 positions, see Table S1 for specimen data). For the remaining 290 specimens, COI barcode region is used (654 positions). The tree is constructed by RAxML (see Methods in SI Appendix for details). Bootstrap support values are shown by each node. Branches leading to species from the same tribe are colored in the same color. Taxon name|DNA sample identifier|general locality are given for each specimen. Those colored red are species placed in a new genus described in this work, blue are taxa placed in a different genus than previously (new genus-species combinations), green are taxa formerly treated as subspecies, which are elevated to species in this work. Cyan is both blue and green; yellow is both red and green. Sample identifiers without dashes and spaces are GenBank accessions, those with spaces or prefix CSU-CPG- are BOLD database sample IDs, those with dashes (prefix: NVG-, PAO-, 11-BOA-, and JPB-11-BOA-) are obtained in this work and specimen data for them are given in Table S2.

SI: Diagnostic nucleotide characters mapped to the reference genome of *Cecropterus lyciades*

>aly671.27:935C(not_T)

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CGGCTGGCGGACACGCCGGGCCCCGCGTGCCCGCAGGTGCCGCCCGCCGCCTCGCCGCCTGACGACGCGCTGCTCCT
GCACCCGCGCGCTCGCATCCGACAGCTCGAACGCCTGTTGCCAATGCTCACAAACCAGAGCGAAGACTGTCTCTACG
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GAGTGGAGCTCGGGCAACGCGTACGATGGCACCACGCTCGCTGCGCATGGGAACATCATCGTAGTCACTATCAACTT
TAGATTAGGTGTTCTCGGTTTTTTAAAGACTGGTGCTAAGGGTTCAGCGCAGGGTAACTTCGGGCTTATGGATTTGG
TGGCGGGTTTGCACTGGTTGCGAGAGAATCTTCCGGCCTTTGGGGGCAATCCTGAGAAAGTCACGCTCATGGGTCAC
GGGACGGGAGCAGCCCTGGCCAACTTCCTTGCAGTGTCTCCTGTTGCAAGAGAACTACTGAGGCGCGTCATCTTGTT
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CGGATCGGAACGCCGCGATTCCTGCCTGGATTTGCACCCTTCGTTGATGGCACCGTCATAGTCACTCCGTCTTCGGC
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CTCTCGAGGTCCTAAGTGACGGGCGGACAGCAGCTCCACTTATACGACTCGGCTACCTGCACGCTCTGCGCGGCGGA
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CCACACCCGCTCCTCCAGGGATCATGAAGAAAAGAGTGCAAATACAAGAAATATCTGTATGA

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CCAATTTGTAAGAATTAACTTCCATTTCTGTAACATCAACAATAGCTGCCTGCACATCCATGTTTGTTATTCTAGGA
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TCCTGTAGGTAGGTCCGATCGAATCTCTCTGCATCCAGTGCAGCTTGTAAGCGCCGGACCTCGCTGTGGAAGGAGCG
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GCTCTAACTGCTTTACCAGTTTACTGGTGTCGTTACCTCCCATGACGTCCCCCTGAGACTCTTTGTCCTGACCTCCA
TATTGTGATATTTGTGATTTGAGCTCCACTATCTCCAACTTGTACTGTTCCTTATCTTTTAAAGAGTTGTGTTGCAA

CGAATGAATACTCGCATCTGGATCATCACACTCCAGCAAGCTAGAATTGATCCCATTGAGGTGGTTGTGTTGTCGTA
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