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Annotated checklist of the butterflies (Lepidoptera) of Sonora, Mexico

Lista comentada de las mariposas (Lepidoptera) de Sonora, México

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ABSTRACT

A complete list of the known butterfly fauna of the Mexican state of Sonora is presented, representing 347 species in six families. The list is annotated with habitat notes and a timetable of occurrence.

Key words: HesperIIDae, Papilionidae, Pieridae, Lycaenidae, Riodinidae, Nymphalidae, Sonora, distribution, phenology.

RESUMEN

Se presenta una lista de las mariposas conocidas para el estado de Sonora que representa a 347 especies en seis familias. La lista es comentada e incluye notas sobre su habitat así como los meses de ocurrencia.

Palabras clave: HesperIIDae, Papilionidae, Pieridae, Lycaenidae, Riodinidae, Nymphalidae, Sonora, distribución, fenología.

Typically, when a biological article is written, it is to announce a discovery. The discovery here is that no publication entirely about the butterflies of Sonora has been written previously. In fairness, the butterflies of Sonora had been included on the species maps in Stanford and Opler (1993), in Llorente-Bousquets *et al.* (1997) and in Luis-Martínez *et al.* (2003) so this is not the first attempt to document the state's butterflies. But those coverages were a small fraction of larger undertakings; the current paper covers Sonora exclusively and is a sorely needed update to those works of 15 to 20 years ago.

Sonora is not unique, by any means, in this lack of coverage. Over the years, only a handful of Mexico's 31 states (plus Distrito Federal) have had exhaustive treatments of their butterfly fauna. States with comprehensive treatments include Jalisco (Vargas *et al.* 1996), Colima (Warren *et al.* 1998), Baja California [and BCS] (Brown *et al.* 1992), Chiapas (Maza and Maza 1993), Nayarit (Llorente *et al.* 2004) and Oaxaca (Luis-Martínez *et al.* 2016).

Many field entomologists have visited Sonora, especially during the past 40 years, after one lepidopterological quarry or another. The rediscovery in 1978 of *Apodemia phycioides* Barnes & Benjamin, 1924 in the neighboring state of Chihuahua (Holland and Forbes 1981), was made during this period and may have sparked renewed interest. Subsequent investigations in Sonora resulted in the discovery of several heretofore unrecognized taxa endemic to northwestern Mexico or nearly so. These include *Euchloe guaymasensis* Opler, 1987, *Euptychia rubrofasciata* L. Miller and J. Miller, 1988, *Amblyscirtes brocki* H. Freeman, 1992, *Polites norae* MacNeill, 1993, *Voltinia danforthi* (A. Warren and Opler, 1999), *Opsiphanes blythekitzmilleri* Austin and A. Warren, 2007, and *Onespa brockorum* Austin and A. Warren, 2009 (Figs. 1 and 2). Furthermore, a number of additional taxa in Sonora are in the process of being formally described.

In addition to the new species, notable range extensions have occurred in Sonora within the northward incursions of Neotropical habitat into the eastern portions of the state.

Many tropical butterfly species reach their geographical edges at the northern limits of foothills thornscrub, within 200 km of the U.S. border (Figs. 3 and 4).

Although a few of the butterfly researchers responsible for the "recent" discoveries are no longer with us, most are still alive. Some of these present researchers are Sonoran residents, some are semi-residents, but the vast majority are entomologists or serious naturalists from north of the U.S. border. The purpose of this article is to make an attempt to gather together their data and their stories because if it isn't done soon these records may well pass on when they do.

The state of Sonora (Fig. 5) is one of Mexico's largest, containing 179,355 km². This size is approximately 60% that of Arizona, at 295,234 km², to its north. In spite of this large size disparity, the number of recorded butterfly species in the two states is virtually the same, i.e., 347 species in Sonora and 347 in Arizona (Bailowitz, personal data). It is generally true that as one moves toward the equator, species richness increases (Burnie and Wilson 2005). This is supported in western Mexico by a gradual increase in diversity as one proceeds south, from Sonora's 347 species to Jalisco's 608 (Vargas *et al.* 1996) and Colima's 543 (Warren *et al.* 1998) on the central coast. The progression culminates in over 1,000 species recorded in Chiapas (Maza and Maza 1993) in Mexico's extreme south.

With regard to species array, it can be helpful to compare Sonora to probably its best known neighbor, Arizona to its north. As mentioned above, the two states have very similar butterfly species totals. However, note that the genera in Sonora that are most speciose include *Amblyscirtes* (13 species), *Eurema* (8 species), *Emesis* (8 species), *Chlosyne* (8 species) and *Apodemia* (7 species). In comparison, the most speciose genera in Arizona include not only the aforementioned *Amblyscirtes* (12 species), *Chlosyne* (10 species), and *Eurema* (8 species) but in addition Arizona has great diversity in *Erynnis* (12 species) and *Phyciodes* (9 species). *Emesis* and *Apodemia* are primarily Neotropical genera and this is readily seen in *Emesis*' Sonoran total of 8 taxa versus only 2 in Arizona

and Sonora's total for *Apodemia* at 7 taxa versus 4 for Arizona. On the other hand, the temperate genus *Erynnis* is considerably more diverse in Arizona, 12 species versus Sonora's 7. Other comparisons can be made at the family level in which Sonora is noticeably more species-rich in Hesperidae (146 versus 135 species) and Riodinidae (24 versus 11 species) while Arizona contains a greater number of taxa in Lycaenidae (62 versus 52 species, largely due to the greater number of species in the more temperate subfamily Polyommatae) and Nymphalidae (91 versus 81 species).

The elevations in Sonora extend from sea level on the coast of the Gulf of California to over 2300 meters in the Sierra Madre Occidental and the mountain ranges in the northeast. The vegetation ranges from sparse desertscrub in the Sonoran Desert and desert grassland in the northeast up to oak woodland and pine-oak forest in the Sierra Madre Occidental in the Sky Island Region (Van Devender *et al.* 2013). Sky Islands are isolated mountain ranges found between the northern Sierra Madre of Sonora and the Mogollon Rim in central Arizona that are crowned with woodlands and forests. In southern Sonora, coastal thornscrub merges into tropical deciduous forest. Diversity generally increases southward both in the desert grassland to foothills thornscrub transition, and in the upland Madrean woodlands and forests. Some of these Sky Islands in northern Sonora contain vegetative elements from the Rocky Mountains and northern butterfly species such as *Epargyreus clarus* (Cramer, 1775); *Hypaurotis crysalis* (W. H. Edwards, 1873) and *Cercyonis meadii* (W. H. Edwards, 1872) occur in such habitats. On the other hand, the mountain ranges in southern and southeastern Sonora are cloaked in thick forests of thornscrub and even tropical deciduous forest, bringing in an assortment of butterfly species reflecting tropical influences. Southern butterfly species such as *Antigonus erosus* (Hübner, 1812), *Anartia fatima* (Fabricius, 1793) and *Ipidecla miadora* Dyar, 1916 occur in these habitats. Much of Sonora is actually a convergence zone where five biotic provinces contribute species: the Rocky Mountains, Great Plains/Chihuahuan Desert, Sonoran Desert, the Sierra Madre Occidental, and the New World tropics. The New World Tropics are especially important, with tropical deciduous forest reaching 28°38'N in the Sierra San Javier and foothills thornscrub at 30°24'N near Arizpe. A few thornscrub species reach southern Arizona.

With its large size and diverse habitats, Sonora unquestionably has many new discoveries awaiting in its butterfly fauna. Among the many challenges for those interested in exploring the state is accessibility. There are vast areas of the Sierra Madre Occidental that are roadless and the western slopes consist of very steep terrain. Safety concerns and available amenities are problematic in some regions. Even the northeastern portions of the state, adjacent to Arizona, are comparatively unexplored. There are a number of species found regularly in southeastern Arizona that have yet to be found in Sonora. For example, *Adopaeoides prittwitzi* (Plotz, 1884), *Heliopetes ericetorum* (Boisduval, 1852), *Hesperia colorado* (Scudder, 1874), *Hesperia uncas* W. H. Edwards, 1863, *Notamblyscirtes simius* (W. H. Edwards, 1881), *Nymphalis californica* (Boisduval, 1852), *Phaeostrymon alcestis* (W. H. Edwards,

1871) and *Poladryas arachne* (W. H. Edwards, 1869) are all likely inhabitants of Sonora's northern frontier but to date records are lacking.

A crucial task for any biological assessment such as this, aside from verifying those species that are present, is evaluating older data in new light. A number of things can account for the inclusion of various species on regional lists when their presence is problematic, i.e., mis-identification, mis-labelling, changing systematics, inclusion of incomplete data lacking proper vetting, photographs, or specimens, etc. Here, we err on the side of caution by not including what we consider to be dubious or unsubstantiated records.

A number of species cited as having been recorded in Sonora in Stanford and Opler's ground-breaking atlas (1993) are considered questionable or lack vouchered specimens or photographs. We mention them here since we consider them to be reasonable but uncorroborated members of the fauna: *Staphylus azteca* (Scudder, 1872); *Erynnis afranius* (Lintner, 1878); *Cycloglypha thrasibulus* (Fabricius, 1793); *Hesperopsis graciela* (MacNeill, 1970); *Polites rhesus* (W. H. Edwards, 1878); *Atrytonopsis deva* (W. H. Edwards, 1877); *Agathymus evansi* (H. Freeman, 1950); *Colias philodice* Godart, 1819; *Phaeostrymon alcestis* (W. H. Edwards, 1871); *Calephelis wrighti* W. Holland, 1930; *Poladryas arachne* (W. H. Edwards, 1869); *Chlosyne acastus* (W. H. Edwards, 1874); and *Phyciodes mylitta* (W. H. Edwards, 1861). Yet another group of species in that same work is considered even more precarious. These species are more than likely included due to mis-identifications, faulty or incomplete data, taxonomic changes, lumpings or splittings, etc. but nevertheless, we mention them here: *Bolla subapicatus* (Schaus, 1902); *Pholisora mejicanus* (Reakirt, [1867]); *Amblyscirtes fluonia* Godman, 1900; *Lerodea adata* unknown taxon; *Eurema sidonia* (R. Felder, 1869); *Cyanophrys herodotus* (Fabricius, 1793); *Apodemia walkeri* Godman & Salvin, 1886; *Chlosyne chinatiensis* (Tinkham, 1944); and *Smyrna karwinskii* Geyer, [1833]. They are all considered dubious.

In a more recent publication by Llorente-Bousquets *et al.* (1997), *Papilio thoas* Linnaeus, 1771, is reported from Sonora in the month of August, no additional data. This single report of a species for which identification was, and still is, problematic gives us doubt. The specimen is in the California Academy of Science collection and has not been examined. It is here considered unsubstantiated. Also in that publication, *Ganyra josephina* (Godart, 1819) is cited from coastal Sonora in several places. This is prime habitat for *josephina*'s locally common sibling, *Ganyra howarthi* (Dixey, 1915) and misidentification is strongly suggested since all specimens examined from coastal Sonora have proved to be *G. howarthi*. These specimens are in the LA County Museum and in the American Museum of Natural History and have not been examined. In the major work by Luis-Martínez *et al.* (2003), several records of *Diaethria astala* (Guérin-Ménéville, [1844]) are cited from the central Sonoran coast near San Carlos in the months of April, May, and September. Although mislabelling is a possibility, a recent conversation between Brock and R. Wells (who visited San Carlos in March of 1952) reaffirms the existence of this species there; the specimens were deposited in the Allyn Museum of Entomology and have

not been examined. Additionally, *Papilio rutulus* (Lucas, 1852) was reported from "Norte Sonora" by Beutelspacher and Howe (1984) but no data or specimen(s) have come to light.

And finally, *Speyeria zerene* (Boisduval, 1852) was reported by Pfeiler (2015). While supported by a specimen from one of the greats of American lepidoptera, L. Paul Grey, this find is claimed to be from habitat so uncharacteristic for both the species and the genus, that confusion in some form seems most probable. We consider the species to be unlikely anywhere in Sonora at the present time.

MATERIAL AND METHODS

Private collections were utilized including those of J. Brock, R. Bailowitz, S. Upson, D. Mullins, S. Prchal, J. Palting, M. Wilson, P. Opler, A. Warren, R. Sobonya, P. and S. Russell, M. Smith, J. Mori, T. Van Devender, B. Welch, B. Walsh, K. Roeber, K. Kertell and M. Lindberg. Museum collections were also consulted including McGuire Center at University of Florida, American Museum, University of California at Davis, SASI, Smithsonian Institute, University of Arizona, Arizona State University and the Museum of Northern Arizona. Convincing photos, defined here as those showing diagnostic criteria including either or both the dorsal and/or ventral views, were also utilized under most circumstances. Photographers consulted included Doug Danforth, Ed Pfeiler, Hank and Priscilla Brodtkin, Joan Powell, and the Butterflies of America website. The current faunal list for the butterflies of Sonora includes the following families (and pertinent subfamilies and tribes) which are arranged as follows:

- Hesperiidae - 147 species
- Pyrginae - 76 species
- Heteropterinae - 9 species
- Hesperiinae - 62 species
- Papilionidae - 9 species
- Pieridae - 33 species
- Lycanidae - 52 species
- Theclinae - 41 species
- Polyommatainae - 11 species
- Riodinidae - 24 species
- Nymphalidae - 82 species

For those species with three or fewer records in Sonora, complete data is cited; for the remainder of the species, the months of their occurrences are shown in the table. To make the finding of the various taxa in this list (Table 1) simpler, within these groupings, genera are arranged alphabetically and within each genus, species are arranged alphabetically. In most cases, nomenclature in this paper follows Pelham (2008).

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Table 1. Checklist of butterflies from Sonora, Mexico.

HESPERIIDAE

Pyrginae

Achalarus albociliatus (Mabille, 1877)

Phenology: Mar, Apr, Jun, Aug, Oct, Nov.

Distribution: Records through much of eastern Sonora, from Álamos north to Tecoripa and El Novillo.

Achalarus casica (Herrich-Schäffer, 1869)

Phenology: Apr, Jun, Jul, Aug.

Distribution: Records are numerous in extreme northern Sonora and extend south to Rte 16.

Achalarus toxeus (Plötz, 1882)

Phenology: Mar, Apr, Jun, Aug, Sep, Nov.

Distribution: Nearly restricted to the coastal plain of the southern half of the state, as far north as Hermosillo.

Aguna asander (Hewitson, 1867)

Phenology: Aug, Sep.

Distribution: Scarce in the SE foothills, known from 3 records: El Taymuco, 33 km NE Álamos (J. P. Brock) 19 Sep 1993; Rte 16 at km 241 (J. P. Brock) 31 Aug 1991; Rte 16, 15 km E Río Yaqui (ADC) 6 Aug 1990.

Antigonus emorsa (R.Felder, 1869)

Phenology: May, Jun, Jul, Aug, Oct.

Distribution: Locally common, from west of Yécora south and west to near Álamos, foodplant is *Guazuma ulmifolia*.

Antigonus erosus (Hübner, [1812])

Phenology: Jun, Jul, Aug, Sep.

Distribution: Mostly from the lower Ríos Mayo and Cuchujaqui, one report from along Rte 16, foodplant is *Guazuma ulmifolia*.

Antigonus funebris (R.Felder, 1869)

Phenology: Jul, Aug, Sep, Oct.

Distribution: Uncommon but regular west of Yécora and near Álamos.

Apyrrothrix araxes (Hewitson, 1867)

Phenology: Jul, Aug, Sep.

Distribution: Regular in the oak belt of the Sky Islands and Sierra Madre, from near Yécora north into SE Arizona, USA.

Astrartes azul (Reakirt, [1867])

Phenology: Apr, Aug, Sep, Oct, Nov, Dec.

Distribution: Perhaps more than a single taxon in this intricate species complex, found mostly near Álamos but also W of Yécora.

Autochton cellus (Boisduval & Le Conte [1837])

Phenology: Jul, Aug.

Distribution: Regular in northeastern Sonora in the Sky Islands, south to the Sierra Mazatán and near Yécora.

Autochton cincta (Plötz, 1882)

Phenology: Apr, May, Jul, Aug.

Distribution: Found almost entirely in the high country west of Yécora.

Autochton pseudocellus (Coolidge & Clemence, [1910])

Phenology: Jul, Aug.

Distribution: No longer extant in Arizona, USA, but still occurring regularly in the Sierra Madre of Sonora and in some of the Sky Islands as far north as the Sierra de Los Ajos.

Bolla clytius (Godman & Salvin, 1897)

Phenology: Jan, Mar, Apr, Jul, Sep, Oct, Nov.

Distribution: Regular in the Sky Island foothills of northern Sonora, south to Tecoripa and Soyopa.

Bolla orsines (Godman & Salvin, 1896)

Phenology: Mar, Apr, Jul, Aug, Nov.

Distribution: Southern half of Sonora along Rte 16, E and W of the Río Yaqui; also the hills around Álamos.

Cabares potrillo (Lucas, 1857)

Phenology: Feb, Mar, Apr, May, Aug, Oct, Nov.

Distribution: Mostly in thornscrub, from San José de Pimas south.

Carrhenes fuscescens (Mabille, 1891)

Phenology: Aug.

Distribution: Rare, only 2 Sonoran records known: Río

Cuchujaqui, 10 km SE Álamos (J. P. Brock) 25 Aug 1999,
“Sonora” (H. and P. Brodtkin) 31 Aug 2002.

Celaenorrhinus fritzgaertneri (Bailey, 1880)

Phenology: Mar, Apr, Jul, Aug, Sep, Oct, Nov.

Distribution: Regular at Álamos, also recorded north to Tecoripa and Sahuaripa.

Celotes nessus (W. H. Edwards, 1877)

Phenology: Mar, Apr, Jun, Jul, Aug, Oct.

Distribution: Widespread, Sásabe to the Río Cuchujaqui.

Chioides albofasciatus (Hewitson, 1867)

Phenology: Feb, Mar, May, Jul, Aug, Sep, Oct, Nov.

Distribution: Throughout the state except for the northwest quadrant.

Chioides zilpa (Butler, 1872)

Phenology: Feb, Mar, Apr, May, Jun, Jul, Aug, Oct.

Distribution: From near Magdalena south to the Sinaloa border.

Chiomara georgina (Reakirt, 1868)

Phenology: Feb, Mar, Jul, Aug, Sep, Oct, Nov.

Distribution: Widespread at flowers and damp soil.

Chiomara mithrax (Möschler, 1879)

Phenology: Mar, Jul, Aug, Sep, Oct.

Distribution: Central Sonora, mostly in the southern Sky Islands.

Codatractus arizonensis (Skinner, 1905)

Phenology: Jun, Jul, Aug, Sep.

Distribution: NE Sonora, south uncommonly as far as El Taymuco.

Codatractus melon (Godman & Salvin, 1893)

Phenology: May, Jul, Aug, Nov.

Distribution: Regular in the Sierra Madre near Yécora, then south to the hills around Álamos.

Codatractus uvydixa (Dyar, 1914)

Phenology: May, Jun, Jul.

Distribution: Late spring, restricted to Álamos and vicinity, foodplant is *Brongniartia alamosana*.

Codatractus valeriana (Plötz, 1881)

Phenology: Jul.

Distribution: Scarce and partly crepuscular, 1 known Sonoran record: Arroyo Santo Domingo (R. A. Bailowitz) 24 July 1991.

Cogia caicus (Herrich-Schäffer, 1869)

Phenology: Jun, Jul, Aug, Sep.

Distribution: Favors limestone, mid-elevation hills, south in the state as far as Rte 16.

Cogia hippalus (W. H. Edwards, 1882)

Phenology: Apr, May, Jun, Jul, Aug, Oct.

Distribution: Regular in northern Sonora, south to San Carlos and San Nicholas.

Eantis tamenund (W. H. Edwards, 1871)

Phenology: Mar.

Distribution: Primarily subtropical, known from a single Sonoran record: 5 km S San Bernardo (D. Danforth) 20 Mar 1991.

Ebrietas anacreon (Staudinger, 1876)

Phenology: Sep, Oct.

Distribution: Scarce in the SE corner of the state, 3 records: Rte 16 at km 241 (J. P. Brock) 1 Sep 1991, Álamos (H. and P. Brodtkin) 23 Oct 2004, Güirocoba (R. A. Bailowitz) 28 Oct 2004.

Epargyreus clarus (Cramer, 1775)

Phenology: May, Aug, Sep.

Distribution: Known from 3 eastern Sonora records: Sierra El Tigre (T. Van Devender) 12 Aug 2015, El Fuste (S. Upson) 28 Sep 1996, Ciénega Las Guacamayas (S. Upson) 23 May 1998.

Epargyreus windi H. Freeman, 1969

Phenology: Jul, Aug.

Distribution: Uncommon and irregular from Mazocahui south to near Álamos.

Erynnis brizo (Boisduval & Le Conte, [1837])

Phenology: Mar, Apr.

Distribution: An oak associate, in the far north, mostly along Rte 2.

Erynnis funeralis (Scudder & Burgess, 1870)

Phenology: Feb, Mar, Apr, May, Jun, Jul, Aug, Oct, Nov.

Distribution: Common and widespread across the state.

Erynnis juvenalis (Fabricius, 1793)

Phenology: Jul.

Distribution: An oak associate, found once in the eastern mountains: Mesa del Campañero (J. P. Brock) 26 Jul 1997.

Erynnis meridianus E. Bell, 1927

Phenology: Apr.

Distribution: A single Sonoran record: Rte 2, near the Chihuahuan state line (R. Holland) 2 Apr 1985.

Erynnis pacuvius (Lintner, 1878)

Phenology: Mar, Apr, Jul, Aug.

Distribution: Only known from the high mesas W of Yécora and in the Sierra Huachinera.

Erynnis scudderi (Skinner, 1914)

Phenology: May, Jun, Jul.

Distribution: Uncommon oak associate, recorded only from the forested hills to the west of Yécora.

Erynnis tristis (Boisduval, 1852)

Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Sep.

Distribution: Fairly common duskywing, on oak-covered hills, south to the Sierras Mazatán and Huachinera.

Gesta invisus (Butler & H.Druce, 1872)

Phenology: Mar, Oct, Dec.

Distribution: Scarce in the far south, east of Navojoa.

Gorgythion begga (Prittowitz, 1868)

Phenology: Oct, Nov.

Distribution: Two isolated records: Oviáchic (R. A. Bailowitz) 20 Oct 2008, 2 km S Álamos (S. Prchal) 23 Nov 1990.

Heliopetes laviana (Hewitson, 1868)

Phenology: Jan, Feb, Mar, May, Jul, Aug, Oct, Nov, Dec.

Distribution: Fairly common and widespread, nearly state-wide.

Heliopetes macaira (Reakirt, [1867])

Phenology: Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Common in the far south, scarcer northward, as far as El Novillo.

Heliopyrgus domicella (Erichson, [1849])

Phenology: Jan, Mar, Jul, Aug, Oct, Nov.

Distribution: Hotter and drier portions of the state, mostly in the north, south to Nacapule Cyn and Rte 16 east of Tecoripa.

Hesperopsis alpheus (W. H. Edwards, 1876)

Phenology: Apr.

Distribution: One record: Black Draw, E of Agua Prieta (D. Danforth) 24 Apr 2017.

Hesperopsis libya (Scudder, 1878)

Phenology: Mar, Aug, Sep, Oct.

Distribution: Northwestern deserts, from Empalme N to Puerto Peñasco and Sonoyta.

Noctuana stator (Godman & Salvin, 1899)

Phenology: Apr, Jul, Aug.

Distribution: In the east-central mountains, near Yécora and Río El Riito.

Phocides urania (Westwood, 1852)

Phenology: Mar, Apr, Aug, Sep.

Distribution: Occurs northeast of Álamos and in the highlands near Yécora.

Pholisora catullus (Fabricius, 1793)

Phenology: Jun, Jul, Aug, Sep, Oct.

Distribution: Widespread, largely on the coastal plain.

Polyctor cleta Evans, 1953

Phenology: Mar, Jul, Aug, Oct, Nov.

Distribution: Flies from N of Guaymas to E of Tecoripa and then S to the near Álamos.

Polygonus leo (Gmelin, [1790])

Phenology: Jul, Aug.

Distribution: An influx species, mainly in the southern 2/3 of the state.

Polythrix mexicanus H.Freeman, 1969

Phenology: Mar, Jul, Aug, Sep, Oct, Nov.

Distribution: Periodically common in the southern half of Sonora, some reports as far north as Soyopa.

Pyrgus albescens Plötz, 1884

Phenology: Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Widespread, present across the state.

Pyrgus communis (Grote, 1872)

Phenology: Sep.

Distribution: Sibling to *P. albescens*, requires genitalic examination for ID, one confirmed record: 9.4 km NW Cananea (C. Roll) 19 Sep 2010.

Pyrgus oileus (Linnaeus, 1767)

Phenology: Jan, Mar, Apr, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Common except in the NW, favors wooded and riparian areas.

Pyrgus philetas W. H. Edwards, 1881

Phenology: Jan, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Common statewide, especially in drier terrain.

Pyrgus scriptura (Boisduval, 1852)

Phenology: Mar.

Distribution: Two records for the state as follows: 12 km S Benjamin Hill (J. P. Brock) 9 Mar 2002, Puerto Libertad (H. Rice) no date.

Staphylus ceos (W. H. Edwards, 1882)

Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Oct.

Distribution: Common the the north, regular south to San Carlos and Yécora.

Staphylus iguala (Williams & Bell, 1940)

Phenology: Mar, Jul, Aug, Sep, Dec.

Distribution: Genitalic ID often necessary, regular in southern half of the the state, north to Rte 16.

Staphylus tierra Evans, 1953

Phenology: Feb, Mar, Aug, Sep, Dec.

Distribution: Restricted range, found only near Álamos and W of Yécora.

Staphylus vincula Plötz, 1886

Phenology: Jun, Jul, Aug.

Distribution: Species ID is difficult, confined to the high country: 12 km NW Yécora (D. Mullins) 29 Jun 1990, Ciénega Los Trogones (S. Upson) 25 Aug 1997, Rte 16 at Los Pilares (A. Warren) 26 Jul 1997.

Systasea pulverulenta (R.Felder, 1869)

Phenology: Mar, Jul, Aug, Oct, Nov, Dec.

Distribution: An eastern species, range extends into the eastern half of Sonora.

Systasea zampa (W. H. Edwards, 1876)

Phenology: Feb, Mar, May, Jun, Jul, Aug, Oct, Nov.

Distribution: At Cajón Bonito and then mostly W of the Río Sonora and N of Guaymas.

Thorybes drusus (W. H. Edwards, [1884])

Phenology: Jul, Aug.

Distribution: Thorn-scrub and oak woodland, from the Sky Islands to Yécora.

Thorybes mexicana (Herrich-Schäffer, 1869)

Phenology: Apr, Jul, Aug.

Distribution: Higher altitudes, only around Tres Ríos and Yécora.

Thorybes pylades (Scudder, 1870)

Phenology: Apr, Jun, Jul, Aug.

Distribution: Common, almost entirely in the NE quadrant of the state.

Timochares ruptifasciata (Plötz, 1884)

Phenology: Mar, Apr, Jul, Aug, Sep, Oct

Distribution: Regular on the coastal plain and in the Sierran foothills, common in the south but N at least to Magdalena.

Typhedanus undulatus (Hewitson, 1867)

Phenology: Jul, Aug, Sep, Oct.

Distribution: Uncommon W of Yécora and in southeastern Sonora near Álamos.

Urbanus dorantes (Stoll, 1790)

Phenology: Mar, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: The most common longtail, only absent in the far northwest.

Urbanus procne (Plötz, 1881)

Phenology: Feb, Mar, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Variable, common on the coastal plain and inland as far as the Río Cuchujaqui.

Urbanus proteus (Linnaeus, 1758)

Phenology: Feb, Oct, Dec.

Distribution: Cyclical, most often around Álamos but also regular near San Carlos.

Urbanus viterboana (Ehrmann, 1907)

Phenology: Mar, Nov.

Distribution: Montane, very similar to *U. proteus*, confirmed in the state only twice: Barranca, Hwy 16 at km 261 (S. Upson) 24 Nov 1994, El Taymuco, 33 km NE Álamos (D. Danforth) 21 Mar 1991.

Wandia windi H. Freeman, 1969

Phenology: Aug.

Distribution: Only resident in the thorn-forest around Álamos and W of Yécora along Rte 16.

Zestusa dorus (W. H. Edwards, 1882)

Phenology: Mar, Apr, Jul.

Distribution: Oak associate, uncommon south to Yécora.

Zopyrion sandace Godman & Salvin, 1896

Phenology: Jul, Aug, Sep, Oct.

Distribution: Regular at damp soil during the monsoons, mostly near the southern tip of the state.

Heteropterinae

Dalla dividuum (Dyar, 1913)

Phenology: Jul, Aug, Sep.

Distribution: Restricted to the high country W of Yécora and the mountains NE of Álamos.

Dalla faula (Godman, 1900)

Phenology: Jul, Aug, Sep.

Distribution: Limited to the high country along Rte 16, W of Yécora.

Dardarina dardaris (Hewitson, 1877)

Phenology: Sep.

Distribution: Known from a single, southern Sonoran record: 13 km W Álamos (leg ?) 1 Sep 1976.

Piruna aea (Dyar, 1912)

Phenology: Jul, Aug.

Distribution: South from the U.S. border through the Sky Islands as far as Rte 16 E of Yécora.

Piruna brunnea (Scudder, 1872)

Phenology: Jul, Aug.

Distribution: Known from the central highlands, both E and W of Yécora.

Piruna millerorum Steinhauser, 1991

Phenology: Jul, Aug.

Distribution: Two records known for Sonora: Rte 16 at km 291 (J. P. Brock) 8 Aug 1999, Sonora/Chihuahua state line (A. Warren) 27 Jul 1997.

Piruna penaea Dyar, 1918

Phenology: Jul, Aug, Sep.

Distribution: Fairly regular in the high country along Rte 16 and W of Bavispe.

Piruna cf. roeveri (L. Miller & J. Miller, 1972)

Phenology: unknown.

Distribution: Details in pending description (A. Warren).

Piruna sina H. Freeman, 1970

Phenology: Jul, Aug, Sep.

Distribution: Regular along Rte 16, on both sides of Yécora.

Hesperinae

Aegiale hesperiaris (Walker, 1856)

Phenology: Jun, Aug.

Distribution: Very large, 2 east-central Sonora records: near Trinidad Mine (D. Mullins) 7 Aug 1986, 12 km NW Yécora (P. Jump) 28 Jun 1990.

Agathymus aryxna (Dyar, 1905)

Phenology: Sep.

Distribution: Known from just a single Sonora record:

16 km ENE Bacadéhuachi (J. Palting) 4 Sep 2011.

Agathymus fieldi H. Freeman, 1960

Phenology: Sep, Oct, Nov.

Distribution: Low foothills of the southern half of Sonora: San Javier (R. A. Bailowitz) 25 Nov 1983, Rte 16 at km 196 (J. P. Brock) 20 Sep 2005, Nacapule Canyon (R. A. Bailowitz) 29 Oct 2004.

Agathymus polingi (Skinner, 1905)

Phenology: Oct.

Distribution: Small, restricted to the NE corner of the state: Cajón Bonito (R. A. Bailowitz) 31 Oct 1981.

Amblyscirtes aenus W. H. Edwards, 1878

Phenology: Jun, Jul, Aug, Sep.

Distribution: Northeastern quadrant of Sonora, S to near Yécora.

Amblyscirtes brocki H. Freeman, 1992

Phenology: Jul, Aug.

Distribution: Sky Islands, from El Novillo S to near Huicoche.

Amblyscirtes cassus W. H. Edwards, 1883

Phenology: Jul.

Distribution: Restricted to the highlands, both E and W of Yécora.

Amblyscirtes elissa Godman, 1900

Phenology: Jul, Aug.

Distribution: Fairly common in the NE quadrant, south to near Yécora.

Amblyscirtes eos (W. H. Edwards, 1871)

Phenology: Apr, May, Jul

Distribution: Grasslands in far N Sonora, S to near Bavispe.

Amblyscirtes exoteria (Herrich-Schäffer, 1869)

Phenology: Jul, Aug.

Distribution: Large, mid-elevations S to Tres Ríos and Nácori Chico.

Amblyscirtes fimbriata (Plötz, 1882)

Phenology: Jul.

Distribution: In the high country near Yécora.

Amblyscirtes folia Godman, 1900

Phenology: Jul.

Distribution: Mid-elevations, mostly in east-central Sonora, from Santo Domingo Cyn S to the Río Maycoba.

Amblyscirtes nereus (W. H. Edwards, 1876)

Phenology: Jul.

Distribution: Known from 3 montane records: Evans Cyn, Sierra de Los Ajos (D. Danforth) ? Jul 1991, Ajo Mtns, E of Cananea (H. Brodtkin) 12 Jul 2001, Rte 16, 2 km W Chihuahua line (A. Warren) 27 Jul 1997.

Amblyscirtes nysa W. H. Edwards, 1877

Phenology: Aug.

Distribution: Known in Sonora from a single record: Santa Cruz River just below the U.S. border (J. P. Brock) 10 Aug 1980.

Amblyscirtes phylace (W. H. Edwards, 1878)

Phenology: Jun, Jul.

Distribution: Uplands just to W and N of Yécora.

Amblyscirtes texanae E. Bell, 1927

Phenology: Jun, Jul.

Distribution: One known record from the far NE corner: Cajón Bonito (J. P. Brock) 22 Jun 1998.

Amblyscirtes tolteca Scudder, 1872

Phenology: Jul, Aug, Sep.

Distribution: Most generally distributed member of the genus in Sonora, low and middle elevations.

Anatrytone mazai (H. Freeman, 1969)

Phenology: Jul, Sep.

Distribution: Two records, both from near Yécora: Rte 16, 19 km E Yécora (J. P. Brock) 28 Jul 1997, Rte 16 at km 245 (J. P. Brock) 1 Sep 1991.

Ancyloxypha arene (W. H. Edwards, 1871)

Phenology: Mar, Apr, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Widespread at wetlands, W at least to Oquitoa.

Atalopedes campestris (Boisduval, 1852)

Phenology: Mar, Apr, May, Aug.

Distribution: Variety of habitats, south to the Río Yaqui at Rte 16.

Atrytonopsis cestus (W. H. Edwards, 1884)

Phenology: Mar, Apr, Aug, Sep.

Distribution: Scarce, mid elevation canyons, S to Rte 16.

Atrytonopsis edwardsi W. Barnes & McDunnough, 1916

Phenology: Mar, Apr, Jun, Aug, Sep.

Distribution: Common northward, S to San José de Pimas.

Atrytonopsis lunus (W. H. Edwards, 1884)

Phenology: Jul, Aug, Sep.

Distribution: Sky Islands, usually amid oaks, S to just W of Yécora.

Atrytonopsis pittacus (W. H. Edwards, 1882)

Phenology: Mar, Apr, Sep.

Distribution: Northern Sonora, S to El Novillo.

Atrytonopsis python (W. H. Edwards, 1882)

Phenology: Jun.

Distribution: Montane grassland, one Sonoran record: 16 km S Huachinera (D. Danforth) 11 Jun 2005.

Calpodes ethlius (Stoll, 1782)

Phenology: Jul, Aug.

Distribution: Three widely spaced Sonoran records: Mazocahui (S. Upson) 9 Aug 1996, Álamos (J. P. Brock)

28 Aug 1994, Santa Rosa Rd (A. Warren) 25 Jul 1997.

Copaeodes aurantiaca (Hewitson, 1868)

Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Sep, Oct.

Distribution: Common statewide but small and inconspicuous.

Copaeodes minima (W. H. Edwards, 1870)

Phenology: Jan, Mar, Apr, May, Jun, Aug.

Distribution: Tiny, common, especially southward.

Euphyes canda Steinhauser & A. Warren, 2002

Phenology: Mar.

Distribution: One record from Sonora: N of Todos Santos (M. Wilson) March?

Hesperia pahaska Leussler, 1938

Phenology: Feb, Mar, Apr, Jul, Oct.

Distribution: Fairly common in the north, often on hilltops, S to Yécora.

Hylephila phyleus (Drury, 1773)

Phenology: Mar, Apr, Aug, Oct, Nov, Dec.

Distribution: Common, especially in towns, throughout the state.

Lerema accius (J.E. Smith, 1797)

Phenology: Feb, Mar, Apr, Jul, Aug, Sep, Nov, Dec.

Distribution: Fairly common in a variety of habitats across the state.

Lerema liris Evans, 1955

Phenology: Mar, Jul, Aug.

Distribution: Confusingly similar to the previous species, some IDs questionable, from Tepoca to the Río Guajaray.

Lerodea arabus (W. H. Edwards, 1882)

Phenology: Feb, Mar, Jul, Aug, Oct, Nov.

Distribution: Records scattered across the state, mostly at low elevations.

Lerodea eufala (W. H. Edwards, 1869)

Phenology: Aug, Oct, Nov, Dec.

Distribution: Non-descript, a resident nearly statewide.

Librita librita Plötz, 1886

Phenology: May.

Distribution: A single Sonoran record: 38 km SE Huachinera (J. P. Brock) 5 May 1997.

Megathymus ursus Poling, 1902

Phenology: Aug.

Distribution: Large skipper, found in montane yucca habitat, only 2 Sonoran records: 10 km WNW Cananea (J. Palting) 3 Aug 2013, Mesa del Campañero (J. P. Brock) full grown larva.

Megathymus yuccae (Boisduval & Le Conte, [1837])

Phenology: unknown.

Distribution: Only known in Sonora from larvae, several found 24 Apr 1998, 14 km SE Agua Prieta by JP

Brock.

Nastra julia (H. Freeman, 1945)

Phenology: Apr, Jun, Sep.

Distribution: Only recorded from the high country east of Yécora.

Nyctelius nyctelius (Latreille, [1824])

Phenology: Nov.

Distribution: Occasional influx species, known in Sonora from a single record: Nacapule Canyon (E. Pfeiler) 19 Nov 1979.

Oarisma edwardsii (Barnes, 1897)

Phenology: Jul.

Distribution: Two records in the uplands of east-central Sonora: Mesa Campañero (A. Warren) 24 Jul 1997, Rte 16, 2 km W Chihuahua line (A. Warren) 28 Jul 1997.

Ochlodes samenta Dyar, 1914

Phenology: Mar

Distribution: One known Sonoran record: Tepoca (S. Upson) 19 Mar 1998.

Onespa brockorum Austin & A. Warren, 2009

Phenology: Jul, Aug.

Distribution: Known only from the high uplands west of Yécora.

Panoquina errans (Skinner, 1892)

Phenology: Jan, Mar, Aug, Sep, Dec.

Distribution: Along the coast, Las Bocas to Puerto Peñasco.

Panoquina evansi (H. Freeman, 1946)

Phenology: unknown.

Distribution: A single winter record: near Álamos (R. Weich) no exact date.

Panoquina ocola (W. H. Edwards, 1863)

Phenology: Apr, Aug, Sep, Oct.

Distribution: Mostly an influx species from the south, sometimes in numbers.

Paratrytone cf. *snowi* (W. H. Edwards, 1877)

Phenology: Jul, Aug, Sep.

Distribution: Along Rte 16, both E and W of Yécora.

Perichares philetetes (Gmelin, [1790])

Phenology: Mar.

Distribution: A single record, almost surely a stray: 40 km SW Caborca (D. Danforth) 17 Mar 1992.

Poanes melane (W. H. Edwards, 1869)

Phenology: Apr, Aug, Sep.

Distribution: Montane, from near Yécora and from E of El Novillo.

Poanes taxiles (W. H. Edwards, 1881)

Phenology: Jul, Aug, Sep.

Distribution: In Sonora, mountain canyons, S to near Yécora.

Poanes zabulon (Boisduval & Le Conte, [1837])

Phenology: Sep.

Distribution: Widespread species, known in Sonora from 2 records at the same location: Barranca, Rte 16 at km 261 (R. A. Bailowitz) 15 Sep 2004, Barranca, Rte 16 at km 261 (Brock *et al.*) 15 Sep 2005.

Polites carus (W. H. Edwards, 1883)

Phenology: Mar, Apr, Jul, Aug, Sep.

Distribution: Fairly common east of Rte 15, south to Álamos.

Polites norae MacNeill, 1993

Phenology: Feb, Mar, Apr, Aug, Sep, Nov.

Distribution: Strictly coastal, from Las Bocas N to Puerto Peñasco.

Polites pupillus Plötz, 1882

Phenology: unknown.

Distribution: A single, central Sonoran record: SW of Moctezuma (D. Mullins) no date.

Polites vibex (Geyer, 1832)

Phenology: Oct.

Distribution: Only a single Sonoran record: Río Mayo, 3 km NW Navojoa (R. A. Bailowitz) 7 Oct 2016.

Quasimellana balsa (E. Bell, 1942)

Phenology: Sep.

Distribution: Known from two state records of multiple individuals: Rte 16 at km 251 (Brock and Lindberg) 1 Sep 1991, Rte 16 at km 251 (Brock and Lindberg) 2 Sep 1991.

Quasimellana eulogius (Plötz, 1882)

Phenology: Mar, Apr, Jul, Aug, Oct.

Distribution: Regular in southern half of the state, N to Rte 16.

Quasimellana siblinga (Burns, 1994)

Phenology: Aug.

Distribution: East-central Sonora only, 1 record: 18 km E El Novillo (J. P. Brock) 12 Aug 1985.

Quinta cannae (Herrich-Schäffer, 1869)

Phenology: Oct.

Distribution: Around Canna lilies in Sonora's far south: Álamos (J. P. Brock) Oct 1993, known from larvae only.

Repens florus (Godman, 1900)

Phenology: Aug, Sep.

Distribution: Uncommon at El Taymuco NE of Álamos and also from along Rte 16.

Stinga morrisoni (W. H. Edwards, 1878)

Phenology: Apr.

Distribution: Two records from the same location in the extreme NE corner of the state: Chihuahua line, E of Agua Prieta (R. Holland) 5 Apr 1991, Chihuahua line, E of Agua Prieta (R. Holland) 2 Apr 1985.

Synapte shiva (Evans, 1955)

Phenology: Mar, May, Jul, Aug, Sep, Oct, Dec.

Distribution: Regular, sometimes common, S of Rte 16, relationship between this taxon and *S. syraces* Godman, 1901 is unclear, both occur in Sonora and are considered forms here.

Thespius macareus (Herrich-Schäffer, 1869)

Phenology: Sep.

Distribution: Known from a single Sonoran record: El Taymuco, 33 km NE Álamos (J. P. Brock) 19 Sep 1993.

PAPILIONIDAE

Battus philenor (Linnaeus, 1771)

Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Sep, Nov, Dec.

Distribution: Common and widespread.

Battus polydamas (Linnaeus, 1758)

Phenology: Mar, Jun, Jul, Aug, Sep, Oct.

Distribution: Scarce, irregular distribution across the state.

Papilio garamas (Geyer, [1829])

Phenology: Apr, May, Sep, Oct.

Distribution: In the high barrancas W of Yécora and the mountains NE of Álamos.

Papilio multicaudata W.F. Kirby, 1884

Phenology: Mar, May, Jun, Jul, Aug, Sep.

Distribution: Widespread in the north, uncommon in the south.

Papilio pallas G.Gray [1853]

Phenology: Jul, Aug, Sep, Oct.

Distribution: Uncommon resident in the south, scarce north to Moctezuma.

Papilio polyxenes Fabricius, 1775

Phenology: Apr, Jul, Aug, Sep.

Distribution: Regular in the northern half of the state, S to near Yécora.

Papilio rogeri Boisduval, 1836

Phenology: Mar, Aug, Sep.

Distribution: In the far south, from La Aduana east, scarce.

Papilio rumiko (Shiraiwa & Grishin, 2014)

Phenology: Mar, May, Jul, Aug, Sep, Nov.

Distribution: Common in gardens and in the wild, nearly statewide.

Parides alopis (Godman & Salvin, 1890)

Phenology: Jun, Jul, Aug, Sep.

Distribution: Uncommon, from near El Novillo and south.

PIERIDAE

Anteos clorinde (Godart, [1824])

Phenology: Mar, Apr, May, Jul, Aug, Oct, Dec.

Distribution: Year-round in the south, during monsoons

northward.

Anteos maerula (Fabricius, 1775)

Phenology: Mar, Apr, May, Jul, Aug, Sep, Dec.

Distribution: Year-round in the south, during monsoons northward.

Anthocharis cethura C.Felder & R.Felder, 1865

Phenology: Jan, Feb, Mar.

Distribution: Mostly in the NW deserts but S to Las Avispas microwave.

Anthocharis sara Lucas, 1852

Phenology: Mar.

Distribution: One record from the northeast: Ejido Pancho Villa near Bavispe (R. Holland) 26 Mar 1998.

Ascia monuste (Linnaeus, 1764)

Phenology: Apr, May, Jun, Aug, Sep, Dec.

Distribution: Mostly coastal, also widely spaced records inland.

Catasticta nimbice (Boisduval, 1836)

Phenology: Mar, Jul, Aug, Sep.

Distribution: Mid to high elevations, NE of Álamos and W of Yécora.

Colias eurytheme Boisduval, 1852

Phenology: Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Common around agriculture, uncommon elsewhere.

Eucheria socialis Westwood, 1834

Phenology: Jul.

Distribution: Uplands, nests and larvae seen regularly, rarely adults.

Euchloe guaymasensis Opler, 1987

Phenology: Feb, Mar.

Distribution: Deserts and thornscrub, from Guaymas N to Ímuris. Some blending with *E. lotta* in the north.

Euchloe lotta Beutenmüller, 1898

Phenology: Mar.

Distribution: Hilltops and grassland in the far north, mostly along Rte 2.

Eurema boisduvaliana (C. Felder & R. Felder, 1865)

Phenology: Jan, Mar, Apr, May, Jul, Aug, Oct, Nov, Dec.

Distribution: Common and widespread, not in the northwest.

Eurema दौरa (Godart, 1819)

Phenology: Jan, May, Jul, Sep, Oct, Nov, Dec.

Distribution: Common in much of the state, especially the uplands of the southern half.

Eurema dina (Poey, 1832)

Phenology: Mar, Apr, Jul, Aug, Sep, Nov.

Distribution: Uncommon from Tecoripa S to the Sinaloa border.

Eurema lisa (Boisduval & Le Conte, [1830])

Phenology: Jan, Mar, Apr, Jul, Aug, Sep, Oct, Nov.

Distribution: Regular N to Toro Muerto Cyn and Aconchi, usually in open terrain.

Eurema mexicana (Boisduval, 1836)

Phenology: Jan, Mar, Apr, Jun, Jul, Aug, Sep, Oct, Dec.

Distribution: Common state-wide in a variety of habitats.

Eurema nicippe (Cramer, 1779)

Phenology: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Common state-wide in a variety of habitats.

Eurema nise (Cramer, 1775)

Phenology: Jan, Apr, Aug, Sep, Oct, Nov, Dec.

Distribution: Common, often in riparian areas, not in the NW.

Eurema proterpia (Fabricius, 1775)

Phenology: Jan, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Short and long day-length forms, common in the southern 2/3 of the state.

Ganyra howarthi (Dixey, 1915)

Phenology: Jan, Feb, Mar, Apr, Sep, Oct, Nov, Dec.

Distribution: Coastal plain, from Cuautémoc S to Juan de La Barrera.

Glutophrissa drusilla (Cramer, 1777)

Phenology: Aug, Sep.

Distribution: Sparsely in the south, mostly on the coastal plain.

Hesperocharis costaricensis H. Bates, 1866

Phenology: Mar, Dec.

Distribution: Uncommon, from Arroyo Santo Domingo S to La Aduana.

Kricogonia lyside (Godart, 1819)

Phenology: Feb, Mar, Jul, Aug, Oct, Nov.

Distribution: Abundant through much of the state, prone to unidirectional flights.

Nathalis iole Boisduval, 1836

Phenology: Mar, Apr, Jul, Aug, Sep, Oct.

Distribution: Common statewide, wastelands and open country.

Neophasia terlooii Behr, 1869

Phenology: Jul.

Distribution: Pine forests, one record for the state: 15 km S Huachinera (R. Holland) 4 Jul 1979.

Phoebis agarithe (Boisduval, 1836)

Phenology: Jan, Mar, Apr, May, Jun, Jul, Aug, Sep, Dec.

Distribution: Common southward, uncommon north to Toro Muerto Cyn and Magdalena.

Phoebis argante (Fabricius, 1775)

Phenology: Aug.

Distribution: One Sonora record as follows: Hwy 16, 18 km E Río Yaqui (from Llorente-Bousquets *et al.*) August ?

Phoebis neocypris (Hübner, [1823])

Phenology: Mar, Aug.

Distribution: Scarce, mostly in uplands along Rte 16.

Phoebis philea (Linnaeus, 1763)

Phenology: Jul, Aug, Sep, Nov.

Distribution: Regular in the southern half of the state, N to Rte 16, occasional northward.

Phoebis sennae (Linnaeus, 1758)

Phenology: Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Abundant, statewide, especially during the monsoons.

Pieris rapae (Linnaeus, 1758)

Phenology: Feb, Apr, May, Jul, Sep, Oct.

Distribution: Towns and canyons in the north, Magdalena to Cajón Bonito.

Pontia protodice (Boisduval & Le Conte, [1830])

Phenology: Apr, Jul, Sep, Oct, Nov, Dec.

Distribution: Common statewide, mostly in the lowlands.

Pontia sisymbrii (Boisduval, 1852)

Phenology: Apr.

Distribution: Extreme NE corner of the state.

Zerene cesonia (Stoll, 1790)

Phenology: Jan, Feb, Mar, Apr, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Common statewide.

LYCAENIDAE

Theclinae

Arawacus jada (Hewitson, 1867)

Phenology: Jan, Mar, Apr, Jul, Aug, Oct, Nov, Dec.

Distribution: Common N to the Río Sonora, then irregular N of that.

Atlides halesus (Cramer, 1777)

Phenology: Mar, Apr, Jun, Jul, Aug, Sep, Oct.

Distribution: Gaudy but uncommon, flies statewide.

Callophrys affinis (W. H. Edwards, 1862)

Phenology: Jul.

Distribution: In Sonora's NE mountains. Two records: 16 km N Mesa Tres Ríos (R. Holland) 2 Jul 1979, 18 km N Mesa Tres Ríos (R. Holland) 2 Jul 1979.

Callophrys dospassosi Clench, 1981

Phenology: Mar, Jul, Aug, Sep.

Distribution: Restricted to the mountains E and W of Yécora. *Callophrys estela* Clench, 1981

Phenology: Jul.

Distribution: A single Sonoran record from the eastern mountains: 5 km NW Huicoche (P. Jump) 13 Jul 1989.

Callophrys siva (W. H. Edwards, 1874)

Phenology: Mar, Apr, Jun, Jul, Aug, Sep.

Distribution: All records from the northern half of the state, S to Yécora.

Callophrys spinetorum (Hewitson, 1867)

Phenology: Jul.

Distribution: A single Sonoran record: 18 km N Mesa Tres Ríos (R. Holland) 2 Jul 1979.

Callophrys xami (Reakirt, [1867])

Phenology: Mar, Aug, Sep.

Distribution: Local, all records from Rte 16 northward.

Calycopis isobea (Butler & H. Druce, 1872)

Phenology: Oct.

Distribution: Uncommon from Tesia to the Río Cuchujaqui.

Chlorostrymon simaethis (Drury, 1773)

Phenology: Mar, Apr, Aug, Nov, Dec.

Distribution: Cyclical occurrence, from the far south N to Sahuaripa.

Chlorostrymon telea (Hewitson, 1868)

Phenology: Aug.

Distribution: Rare, two records for the state: E of Los Camotes (R. A. Bailowitz) 31 Aug 2006, Rte 16, 18 km E Río Yaqui (P. and S. Russell) 7 Aug 1990.

Contrafacia bassania (Hewitson, 1868)

Phenology: Apr, Aug, Sep.

Distribution: W of Yécora along Rte 16.

Cyanophrys longula (Hewitson, 1868)

Phenology: Mar, Apr, Jul, Sep.

Distribution: Fairly common along Rte 16, both E and W of Yécora.

Cyanophrys miserabilis (Clench, 1946)

Phenology: Mar, Apr, Aug, Oct.

Distribution: Fairly common W of Yécora and south through Álamos.

Dicya lucagus (Godman & Salvin, 1887)

Phenology: Mar.

Distribution: Scarce, a single SE Sonoran record: El Rojo Las Chinacas (K. Nickey) 17 Mar 1992.

Electrostrymon guzanta (Schaus, 1902)

Phenology: Jan, Apr, Jul, Aug, Sep.

Distribution: Regular in the high country W of Yécora.

Electrostrymon hugon (Godart, [1824])

Phenology: Mar, Aug, Sep, Oct.

Distribution: Regular W of Yécora and in the thornforest near Álamos

- Erora quaderna* (Hewitson, 1868)
Phenology: Mar, Apr, Jul.
Distribution: All records are from the highlands near Yécora; probably more widespread.
- Erora subfloreus* (Schaus, 1913)
Phenology: Mar, Aug, Oct.
Distribution: Found uncommonly N of Álamos and W of Yécora.
- Hypaurotis crysalus* (W. H. Edwards, 1873)
Phenology: Jul.
Distribution: Oak associate, found once in the state: Sierra de Los Ajos (H. Brodtkin) 12 Jul 2001.
- Hypostrymon critola* (Hewitson, 1874)
Phenology: Jan, Feb, Mar, Apr, Aug, Sep, Oct, Nov, Dec.
Distribution: Coastal and thornscrub populations, N to Mazocahui and Bahía Kino.
- Ipipecla miadora* Dyar, 1916
Phenology: Apr, Aug, Oct.
Distribution: Uncommon and distinctive, occurs W of Yécora and S of Álamos.
- Ministrymon azia* (Hewitson, 1873)
Phenology: Oct.
Distribution: Very similar to *M. janevicroy*, only 1 certain record: Mentidero Wash (M. Bearce) 8 Oct 2016.
- Ministrymon clytie* (W. H. Edwards, 1877)
Phenology: Apr, Aug, Sep, Oct, Nov, Dec.
Distribution: Common, north at least to the Sierra Huérfino.
- Ministrymon janevicroy* Glassberg, 2013
Phenology: Mar, Jul, Aug, Sep, Oct, Dec.
Distribution: Fairly common in southern Sonora, N to Rte 16.
- Ministrymon leda* (W. H. Edwards, 1882)
Phenology: Apr, May, Jun, Jul, Aug, Oct, Nov, Dec.
Distribution: Mostly the northern half of the state but also south of Rte 16.
- Ministrymon phrutus* (Geyer, 1832)
Phenology: Aug, Sep, Oct, Dec.
Distribution: Uncommon near Aduana and along Rte 16.
- Ocaria ocrisia* (Hewitson, 1868)
Phenology: Aug, Sep.
Distribution: Scarce, from Yécora west along Rte 16.
- Parrhasius moctezuma* (Clench, 1971)
Phenology: Mar, Apr, Jul, Aug, Sep.
Distribution: Regular in the oaks near Yécora and at El Taymuco.
- Rekoa marius* (Lucas, 1857)
Phenology: Jul, Oct, Nov.
- Distribution:** From San Carlos and Yécora S to the Río Cuchujaqui, very similar to *R. zebina*.
- Rekoa palegon* (Cramer, 1780)
Phenology: Aug.
Distribution: Tropical species, found once in Sonora: La Aduana (J. P. Brock) 21 Aug 1997.
- Rekoa zebina* (Hewitson, 1869)
Phenology: Aug.
Distribution: One report from the state, may be more common: Along Rte 16 (J. P. Brock) ? Aug 1984
- Strymon bazochii* (Godart, [1824])
Phenology: Mar, Apr, May, Aug, Sep, Oct, Nov, Dec.
Distribution: Southern Sonora, as far north as SW of Moctezuma.
- Strymon bebrycia* (Hewitson, 1868)
Phenology: Jan, Mar, Apr, May, Aug, Sep, Oct, Nov, Dec.
Distribution: Southern Sonora, regular as far north as Aconchi Hot Springs.
- Strymon cestri* (Reakirt, [1867])
Phenology: Mar, Apr, Aug, Sep.
Distribution: Regular from Rte 16 and Las Avispas Microondas south.
- Strymon istapa* (Reakirt, [1867])
Phenology: Mar, Apr, May, Jul, Aug, Oct, Nov.
Distribution: Fairly common in much of the state, W to Kino Viejo.
- Strymon melinus* Hübner, 1818
Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Sep, Oct.
Distribution: Widespread and common in a variety of habitats.
- Strymon serapio* (Godman & Salvin, 1887)
Phenology: May, Sep.
Distribution: Known in the state from two records: Tepoca Canyon (J. P. Brock) 22 Sep 2005, Rte 16 at km 253 (J. P. Brock) 1 May 1992.
- Strymon yojoa* (Reakirt, [1867])
Phenology: Apr, Aug, Oct.
Distribution: Regular along Rte 16 west of Yécora and near Álamos.
- Thereus cithonius* (Godart, [1824])
Phenology: Jan, Mar, Aug.
Distribution: Scarce and difficult to ID, twice on the coastal plain near San Carlos, also in the Sierra Conejo.
- Thereus orasus* (Godman & Salvin, 1887)
Phenology: Aug, Sep.
Distribution: Scarce along Rte 16 west of Yécora.
- Polyommatainae
Brephidium exile (Boisduval, 1852)
Phenology: Feb, Mar, Apr, Aug, Sep, Oct.

Distribution: Tiny, common throughout, probably flies yearround.

Celastrina echo (W. H. Edwards, 1864)

Phenology: Apr, Jul, Aug.

Distribution: Regular from the Arizona border S to the uplands near Yécora.

Cupido comyntas (Godart, [1824])

Phenology: Jun, Jul, Sep, Oct.

Distribution: Sporadic in the north, mostly along Rte 2.

Cupido cf. amyntula (Boisduval, 1852)

Phenology: unknown.

Distribution: Details in pending description (A. Warren).

Hemiargus ceraunus (Fabricius, 1793)

Phenology: Mar, Apr, Jun, Jul, Aug, Oct, Nov.

Distribution: Common nearly statewide in a variety of habitats.

Hemiargus isola (Reakirt, [1867])

Phenology: Mar, Apr, Jun, Jul, Aug, Oct, Dec.

Distribution: Regular, mostly in the north but S to Navojoa.

Icaricia l. texana (Goodpasture)

Phenology: Feb, Mar, Apr, Jul, Aug, Oct.

Distribution: Regular in the north, S to Rte 16.

Leptotes cassius (Cramer, 1775)

Phenology: Feb, Mar, Oct.

Distribution: Scarce, from Álamos south, mostly in the cool months.

Leptotes marina (Reakirt, 1868)

Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec.

Distribution: Common to abundant statewide.

Plebejus melissa (W. H. Edwards, 1873)

Phenology: Aug.

Distribution: A single record from the eastern mountains: Covadonga Crossing, S of the Sierra Huachinera (S. Upson) 22 Aug 1997.

Zizula cyna (W. H. Edwards, 1881)

Phenology: Dec.

Distribution: Rare in the state with only one record: 2 km N Álamos (R. A. Bailowitz) 31 Dec 1995.

RIODINIDAE

Adelotypa eudocia (Godman & Salvin, 1897)

Phenology: Aug, Sep.

Distribution: Local, from Toro Muerto Cyn S to Aduana.

Anteros carausius Westwood, 1851

Phenology: Apr, Jul, Aug, Sep, Oct.

Distribution: From S of Navojoa, NE to Río El Riito

and San Carlos.

Apodemia hepburni Godman & Salvin, 1886

Phenology: Jan, Mar, Apr, Jul, Aug, Sep, Oct.

Distribution: Common in the south, N to near Cíbuta.

Apodemia hypoglauca (Godman & Salvin, 1878)

Phenology: Mar, Apr, Jul, Aug.

Distribution: East-central Sonora, north to SW of Moctezuma.

Apodemia mejicanus (Behr, 1865)

Phenology: Feb, Mar, Apr, May, Aug, Sep, Oct, Nov.

Distribution: AZ border, S to Nacapule Cyn and Bacadéhuachi, includes *A. mormo*.

Apodemia multiplaga Schaus, 1902

Phenology: Mar.

Distribution: Local on the central coast, only known from near San Carlos.

Apodemia nais (W. H. Edwards, 1877)

Phenology: Jul, Aug.

Distribution: NE Sonora, S to Mesa Tres Ríos, Cumpas, and Yécora.

Apodemia palmerii (W. H. Edwards, 1870)

Phenology: Apr, May, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Widespread in low deserts and thornscrub.

Apodemia phyciodoides W. Barnes & Benjamin, 1924

Phenology: Mar, Apr, Jul, Aug, Sep.

Distribution: Uplands along Rte 16 near Yécora, N to Mesa Tres Ríos.

Baeotis zonata R. Felder, 1869

Phenology: Feb, Mar, Apr, Jul, Aug, Sep, Dec.

Distribution: Fairly common, from coastal at Las Bocas to Río El Riito.

Calephelis arizonensis McAlpine, 1971

Phenology: Jul, Aug, Sep, Oct.

Distribution: Northcentral Sonora, from U.S. border S to near Ures.

Calephelis nemesis (W. H. Edwards, 1871)

Phenology: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Oct, Nov.

Distribution: Common in northern half of the state, S to the Sierra Huérfano.

Calephelis perditalis W. Barnes & McDunnough, 1918

Phenology: Jun, Jul, Aug.

Distribution: Several populations in S Sonora resemble this taxon but additional work on the genus is required.

Calydna sturnula (Geyer, 1837)

Phenology: Mar, Aug, Oct.

Distribution: In SE Sonora, mostly around Álamos.

Caria ino (Godman & Salvin, 1886)

Phenology: Apr, Sep, Oct.

Distribution: Uncommon near Álamos, once at Nacapule Cyn.

Emesis ares (W. H. Edwards, 1882)

Phenology: Jul, Aug, Sep.

Distribution: Regular in oaks, S as far as the Yécora uplands.

Emesis emesia (Hewitson, 1867)

Phenology: Feb, Aug, Oct, Dec.

Distribution: Regular, Álamos north to Rte 16.

Emesis mandana (Cramer, 1780)

Phenology: Mar.

Distribution: Far southern Sonora, only a single record: La Aduana (J. P. Brock) 8 Mar 1995.

Emesis poeas Godman, 1901

Phenology: Mar, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Common, Álamos north to Tecoripa.

Emesis tegula Godman & Salvin, 1886

Phenology: Apr.

Distribution: Only two records, both from the same barranca: Rte 16 at km 261 (J. P. Brock) 28 Apr 2005, Rte 16 at km 261 (J. P. Brock) 29 Apr 1992.

Emesis tenedia C. Felder & R. Felder, 1861

Phenology: Sep.

Distribution: One record from the state: Rte 16 at Los Pilares (R. A. Bailowitz) 14 Sep 2004.

Emesis vulpina Godman & Salvin, 1886

Phenology: Sep.

Distribution: A single report from Sonora: Arroyo La Aduana (D. Mullins) 6 Sep 1987.

Emesis zela Butler, 1870

Phenology: Feb, Mar, Jul, Aug, Sep.

Distribution: Mostly northern but several reports S to near Álamos.

Lasaia maria Clench, 1972

Phenology: Mar, Apr, Jul, Aug, Sep, Oct, Dec.

Distribution: Southern Sonora, north to Sahuaripa.

Volinia danforthi (A. Warren & Opler, 1999)

Phenology: Mar.

Distribution: Recorded from 2 spots in central Sonora: at Tepoca Canyon and at Lo de Campo S of San Javier.

NYMPHALIDAE

Adelpha eulalia (E. Doubleday, [1848])

Phenology: Apr, Jun, Jul, Aug, Oct.

Distribution: Oak associate, AZ border south to Rte 16.

Adelpha fessonia (Hewitson, 1847)

Phenology: Mar, Oct.

Distribution: Two records from SE Sonora: 8 km S Álamos (J. P. Brock) 7 Mar 1995, Mentidero Wash (RABailowitz) 8 Oct 2016.

Agraulis vanillae (Linnaeus, 1758)

Phenology: Feb, Mar, May, Jul, Aug, Oct, Dec.

Distribution: Common across much of the state.

Anaea aidea (Guérin-Méneville, [1844])

Phenology: Mar, Apr, Jul, Aug, Oct, Nov, Dec.

Distribution: Common to abundant except in the far NW.

Anaea andria Scudder, 1875

Phenology: Oct.

Distribution: Known from one NE Sonoran record: S of Ejido Pancho Villa (R. Holland) 26 Mar 1998.

Anartia fatima (Fabricius, 1793)

Phenology: Aug, Sep, Oct.

Distribution: Records along the lower Río Mayo and southward.

Anartia jatrophae (Linnaeus, 1763)

Phenology: Jul, Aug, Oct.

Distribution: Mostly the coastal plain, from Moctezuma S to the Sinaloa border.

Anthanassa sitalces (Godman & Salvin, 1882)

Phenology: Apr, Jul, Aug, Sep.

Distribution: Montane, the high barrancas W of Yécora.

Anthanassa texana (W. H. Edwards, 1863)

Phenology: Jan, Mar, Apr, Jun, Jul, Aug, Oct, Dec.

Distribution: Very common nearly statewide.

Anthanassa tulcis (H. Bates, 1864)

Phenology: Jan, Feb, Mar, Aug, Sep, Oct, Dec.

Distribution: Common on the southern coastal plains, N to San Carlos.

Asterocampa celtis (Boisduval & Le Conte, [1835])

Phenology: Jun, Sep, Oct.

Distribution: Far northern Sonora, south to SE of Magdalena.

Asterocampa clyton (Boisduval & Le Conte, [1835])

Phenology: Sep, Oct, Nov.

Distribution: Northern Sonora, south to El Novillo.

Asterocampa idyja (Geyer, [1828])

Phenology: Apr, Aug, Sep, Nov.

Distribution: East-central Sonora, north to Aconchi.

Asterocampa leilia (W. H. Edwards, 1874)

Phenology: Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Very common in the lowlands, nearly statewide.

Cercyonis meadii (W. H. Edwards, 1872)

Phenology: Aug.

Distribution: One record in the highlands along the eastern border: Ciénega Los Trogonos (S. Upson) 23 Aug 1997.

Chlosyne cyneas (Godman & Salvin, 1878)

Phenology: Mar, Apr, May, Jul, Aug, Sep.

Distribution: Montane, atop the Sky Islands, S to Yécora.

Chlosyne definitiva (E. Aaron, 1885)

Phenology: Apr, Jul, Aug, Sep.

Distribution: Regular in the highlands along Rte 16, E and W of Yécora.

Chlosyne eumeda (Godman & Salvin, 1894)

Phenology: Feb, Mar, Apr, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Coastal plain and foothills, north to Rte 16.

Chlosyne fulvia (W. H. Edwards, 1879)

Phenology: Apr, Jun.

Distribution: Along the north border of the state, S to near Bavispe.

Chlosyne lacinia (Geyer, 1837)

Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec.

Distribution: Common and widespread.

Chlosyne marina (Geyer, 1837)

Phenology: Jul, Aug.

Distribution: Highlands near Yécora and NE of Álamos.

Chlosyne rosita A. Hall, 1924

Phenology: Jul, Aug, Sep, Oct.

Distribution: Mostly the southern half of the state, N to Mazocahui.

Chlosyne theona (Ménétriés, 1855)

Phenology: Mar, Apr, Jul, Aug, Sep.

Distribution: Foothills and uplands, east of Rte 15.

Cissia similis (A. Butler, 1867)

Phenology: Feb, Mar, Jul, Aug, Sep, Oct, Dec.

Distribution: Southern Sonora, N to the Río Guajaray.

Cyllopsis nayarit (R. Chermock, 1947)

Phenology: Jan, Mar, Apr, Jul, Sep.

Distribution: Southern and central Sonora, N to Moctezuma. Includes *C. windi* L. Miller, 1974.

Cyllopsis pertepida (Dyar, 1912)

Phenology: Jul, Aug, Sep.

Distribution: Uplands south to Mesa Tres Ríos and Yécora.

Cyllopsis pyracmon (Butler, [1867])

Phenology: Apr, Jul.

Distribution: Uplands of northern Sonora, S to Yécora.

Danaus eresimus (Cramer, 1777)

Phenology: Aug, Oct, Nov, Dec.

Distribution: Uncommon, mostly east of Rte 15.

Danaus gilippus (Cramer, 1775)

Phenology: Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec.

Distribution: Common and widespread.

Danaus plexippus (Linnaeus, 1758)

Phenology: Jan, Feb, Mar, Jul, Aug, Oct, Dec.

Distribution: Widespread, most common in the cooler months.

Dione moneta Hübner, [1825]

Phenology: Mar, Apr, Jul, Aug, Sep.

Distribution: Hilltops, along Rte 16 and north to Moctezuma.

Doxocopa laure (Drury, 1773)

Phenology: Feb, Mar, Apr, Aug, Sep, Oct, Nov, Dec.

Distribution: Southern Sonora, north to San Carlos and Tecoripa.

Dryas iulia (Fabricius, 1775)

Phenology: Feb, Jul, Aug, Sep, Oct.

Distribution: Uncommon in the southern lowlands, one record at Mazocahui.

Dymasia dymas (W. H. Edwards, 1877)

Phenology: Jan, Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec.

Distribution: Common nearly throughout the state.

Dynamine postverta (Cramer, 1779)

Phenology: Mar, Aug, Nov.

Distribution: Scarce along Rte 16 and near Álamos.

Eunica monima (Stoll, 1782)

Phenology: Mar, Jul, Aug, Sep, Oct, Dec.

Distribution: Uncommon, mostly in the southern half, N to Tecoripa.

Euphydryas anicia (E. Doubleday, [1847])

Phenology: Mar, Apr.

Distribution: Known from 2 NE Sonora records: Hwy 2 at the Chih/Son state line (P. Jump) 4 Mar 1982, Hwy 2 at the Chih/Son state line (P. Jump) 6 Apr 1980.

Euptoieta claudia (Cramer, 1775)

Phenology: Jan, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Widespread and fairly common.

Euptoieta hegesia (Cramer, 1779)

Phenology: Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec.

Distribution: Widespread but more common in the south.

Euptychia rubrofasciata L. Miller & J. Miller, 1988

Phenology: Jul, Aug, Sep.

Distribution: Local in E Sonora, north to near El Novillo.

Gyrocheilus patrobas (Hewitson, 1862)

Phenology: Sep.

Distribution: One record from west of Yécora: Barranca, Rte 16 at km 261 (J. P. Brock) 21 Sep 2005.

Hamadryas amphinome (Linnaeus, 1767)

Phenology: Aug, Oct, Nov.

Distribution: Scarce in southern Sonora, north to near Oviáchic.

Hamadryas atlantis (H. Bates, 1864)

Phenology: Feb, Mar, May, Jul, Aug, Sep, Oct, Nov.

Distribution: Resident in southern Sonora, N to Rte 16, strays northward.

Hamadryas februa (Hübner, [1823])

Phenology: Mar, Aug, Sep, Oct, Nov, Dec.

Distribution: Common near Álamos, N to San Carlos and Yécora.

Hamadryas glauconome (H. Bates, 1864)

Phenology: Jan, Mar, Apr, May, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Widespread in the southern half of the state.

Hamadryas guatemalena (H. Bates, 1864)

Phenology: Aug, Sep, Dec.

Distribution: Regular, mostly from the Álamos area south.

Heliconius charithonia (Linnaeus, 1767)

Phenology: Mar, Apr, Aug, Oct, Nov.

Distribution: Fairly common in the south, north to Cuautémoc, colonial.

Junonia coenia Hübner, [1822]

Phenology: Mar, Apr, Jul, Aug, Oct.

Distribution: Fairly common and widespread.

Junonia evarete (Cramer, 1779)

Phenology: Jan, Mar, Apr, Jun, Jul, Aug, Oct, Nov, Dec.

Distribution: Regular through most of the state.

Junonia genoveva (Cramer, 1780)

Phenology: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Distribution: Fairly common, almost entirely along the coast. The data above were mostly taken from Pfeiler *et al.* (2016).

Libytheana carinenta (Cramer, 1777)

Phenology: Mar, Apr, Jun, Jul, Aug, Sep, Oct, Nov

Distribution: Common to abundant, prone to huge flights.

Limenitis archippus (Cramer, 1775)

Phenology: Apr, May, Jun, Aug, Oct.

Distribution: Regular along rivers, south at least to Mazocahui.

Limenitis arthemis (Drury, 1773)

Phenology: Apr, Jun, Jul, Aug, Oct.

Distribution: Mountain canyons, south to Yécora.

Manataria hercyna (Hübner, [1821])

Phenology: Apr, Sep, Dec.

Distribution: Mostly in the uplands along Rte 16, colonial, one record from along the Río Cuchujaqui.

Marpesia petreus (Cramer, 1776)

Phenology: Mar, Aug, Sep, Oct, Dec.

Distribution: Southern Sonora, N to San Carlos and Benjamin Hill.

Megisto rubricata (W. H. Edwards, 1871)

Phenology: Apr, Jun, Jul, Aug, Sep.

Distribution: Oak grassland, south in the Sky Islands to the uplands E and W of Yécora.

Memphis pithyusa (R. Felder, 1869)

Phenology: Jan, Feb, Mar, Apr, Oct, Dec.

Distribution: From near Álamos W to Huatabampito.

Mestra amymone (Ménétriés, 1857)

Phenology: Mar, Aug, Sep, Oct, Nov.

Distribution: Southern Sonora, N to Guaymas and Toro Muerto Cyn.

Microtia elva H. Bates, 1864

Phenology: Jan, Mar, Apr, Jul, Aug, Sep, Oct.

Distribution: Uplands and foothills in the eastern half of the state.

Morpho polyphemus Westwood, 1850

Phenology: Oct.

Distribution: Probable resident in the mountains NE of Álamos: Arroyo Santa Barbara (M. Wilson) 5 Oct 2006.

Myscelia cyananthe (C. Felder & R. Felder, 1867)

Phenology: Jan, Mar, Apr, May, Jul, Aug, Oct, Nov, Dec.

Distribution: Common to abundant N to the Río Sonora, foodplant is *Adelia virgata*.

Myscelia cyaniris (Hewitson, 1868)

Phenology: Aug.

Distribution: Known from a single record as follows: Minas Nuevas (R. De La Maza *et al.*) August.

Nymphalis antiopa (Linnaeus, 1758)

Phenology: Apr, Jul, Sep.

Distribution: Resident in the far north, S to Arroyo Santo Domingo.

Opsiphanes blythekitzmilleriae Austin & A. Warren, 2007

Phenology: Apr, Aug, Sep, Oct, Nov.

Distribution: Palm canyons, Álamos N to Magdalena, comes to sap.

Paramacera allyni L. Miller, 1972

Phenology: May.

Distribution: High altitudes, one Sonoran record: 16 km S Huachinera (S. Upson) 6 May 1997.

Phyciodes graphica (R. Felder, 1869)

Phenology: Jul.

Distribution: One report, from east-central Sonora: Rte 16 at Yepáchic (J. P. Brock) 27 Jul 1997.

Phyciodes phaon (W. H. Edwards, 1864)

Phenology: Aug, Oct.

Distribution: Locally common, especially in the south, N to Cibuta.

Phyciodes picta (W. H. Edwards, 1865)

Phenology: May, Jun.

Distribution: Regular in the far north, south to near Aconchi, includes *P. pallescens* (Higgins, 1981).

Phyciodes tharos (Drury, 1773)

Phenology: Apr, Jun, Aug, Sep.

Distribution: Riparian areas in the north, from Magdalena to Cajón Bonito.

Pindis squamistriga R. Felder, 1869

Phenology: Mar, Jul, Aug, Sep, Nov.

Distribution: Montane, from Güirocoba N to Mazocahui.

Polygonia haroldi (Dewitz, 1877)

Phenology: May, Jul, Aug, Sep.

Distribution: Highlands, eastern Sonora, south to near Yécora.

Polygonia interrogationis (Fabricius, 1798)

Phenology: Apr.

Distribution: Two reports in NE Sonora: Cajón Bonito (R. A. Bailowitz) 24 Apr 2017, Black Draw at Rte 2 (R. A. Bailowitz) 24 Apr 2017.

Polygonia satyrus (W. H. Edwards, 1869)

Phenology: Aug.

Distribution: Only one record in Sonora: 48 km SW Moctezuma (D. Daniels) 2 Aug 1984.

Siproeta stelenes (Linnaeus, 1758)

Phenology: Aug, Oct, Nov, Dec.

Distribution: Mostly near Álamos but also along Rte 16.

Smyrna blomfieldia (Fabricius, 1781)

Phenology: Feb, Jul, Aug, Oct, Nov, Dec.

Distribution: In the far south, from Álamos to El Taymuco.

Taygetina weymeri (Draudt, 1912)

Phenology: Dec.

Distribution: Two records from extreme SE Sonora: upper Río Cachujaqui (R. A. Bailowitz) 21 Dec 1992, near Güirocoba (A. Moorhouse) no date.

Texola elada (Hewitson, 1868)

Phenology: Mar, Apr, Aug, Sep.

Distribution: Northern half of Sonora, south to E of Tecoripa.

Texola perse (W. H. Edwards, 1882)

Phenology: Mar, May, Jul, Aug.

Distribution: Southern Sonora, N to San Carlos and Rte 16.

Vanessa annabella (W. D. Field, 1971)

Phenology: Mar, Apr, May, Dec.

Distribution: Uncommon on the northern coastal plains.

Vanessa atalanta (Linnaeus, 1758)

Phenology: Jan, Feb, Mar, Apr, Jun, Jul, Aug, Oct, Nov.

Distribution: Regular in northern Sonora, south to Rte 16.

Vanessa cardui (Linnaeus, 1758)

Phenology: Jan, Feb, Mar, Apr, Jun, Jul, Aug, Sep, Oct, Nov.

Distribution: Common statewide, known for irruptive flights.

Vanessa virginiensis (Drury, 1773)

Phenology: Feb, Mar, Apr, Jun, Jul, Aug, Nov, Dec.

Distribution: Fairly common across the state.

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Fig. 1 THE MOST RECENTLY DESCRIBED BUTTERFLY SPECIES OF SONORA



Amblyscirtes brocki was described in 1991. It has been found commonly from the Yécora region south to Las Chinacas in oak/pine woodland. ©Kim Davis and Mike Stangeland



Polites norae lives in the tidal salt flats of coastal Sonora where it is closely associated with its food plant *Monanthochloe littoralis*. ©Doug Danforth



Voltinia danforthi has an extremely limited spring flight season and is known in Sonora from only two canyons in central Sonora. The larvae are thought to feed on members of Orchidaceae or Bromeliaceae.



Onespa brockorum was described in 2009. In Sonora it is found only in gullies and canyons west of Yécora. ©Kim Davis and Mike Stangeland

Fig.2 RECENTLY DESCRIBED AND NOTEWORTHY BUTTERFLY SPECIES OF SONORA



Euptychia rubrofasciata is found in the oak woodlands of eastern Sonora on north facing, rocky slopes near colonies of a prostrate *Selaginella* sp., its suspected larval food plant. ©Kim Davis and Mike Stangeland



Opsiphanes blythkitzmillerae has been split from the widely distributed species *O. boisduvallii*. This “owl butterfly” is a local species inhabiting palm canyons of central and southern Sonora. ©Doug Danforth



Apodemia phycioides was a lost species for more than fifty years and was rediscovered in 1978 in neighboring Chihuahua. The species name denotes how this metalmark resembles certain crescent butterflies in the genus *Phyciodes*. ©Doug Danforth



Morpho polyphemus is probably at its most northern distributional limits in the mountains east of Álamos. This flamboyant species is common in the remote canyons of those mountains which are said to be “a little piece of Sinaloa in Sonora”. ©Doug Danforth



Figure 3. Subtropical butterfly species commonly encountered in Sonora. About 100 km south of the border with Arizona, the habitats change dramatically. At that point, the landscape morphs into tropical thorn scrub in the eastern foothills and to different subdivisions of the Sonoran Desert to the west. Along with these more southern landscapes, there is also a gradual change in the butterfly fauna. Here, many subtropical taxa, as shown above, make their appearances as resident species. All photos ©Doug Danforth.

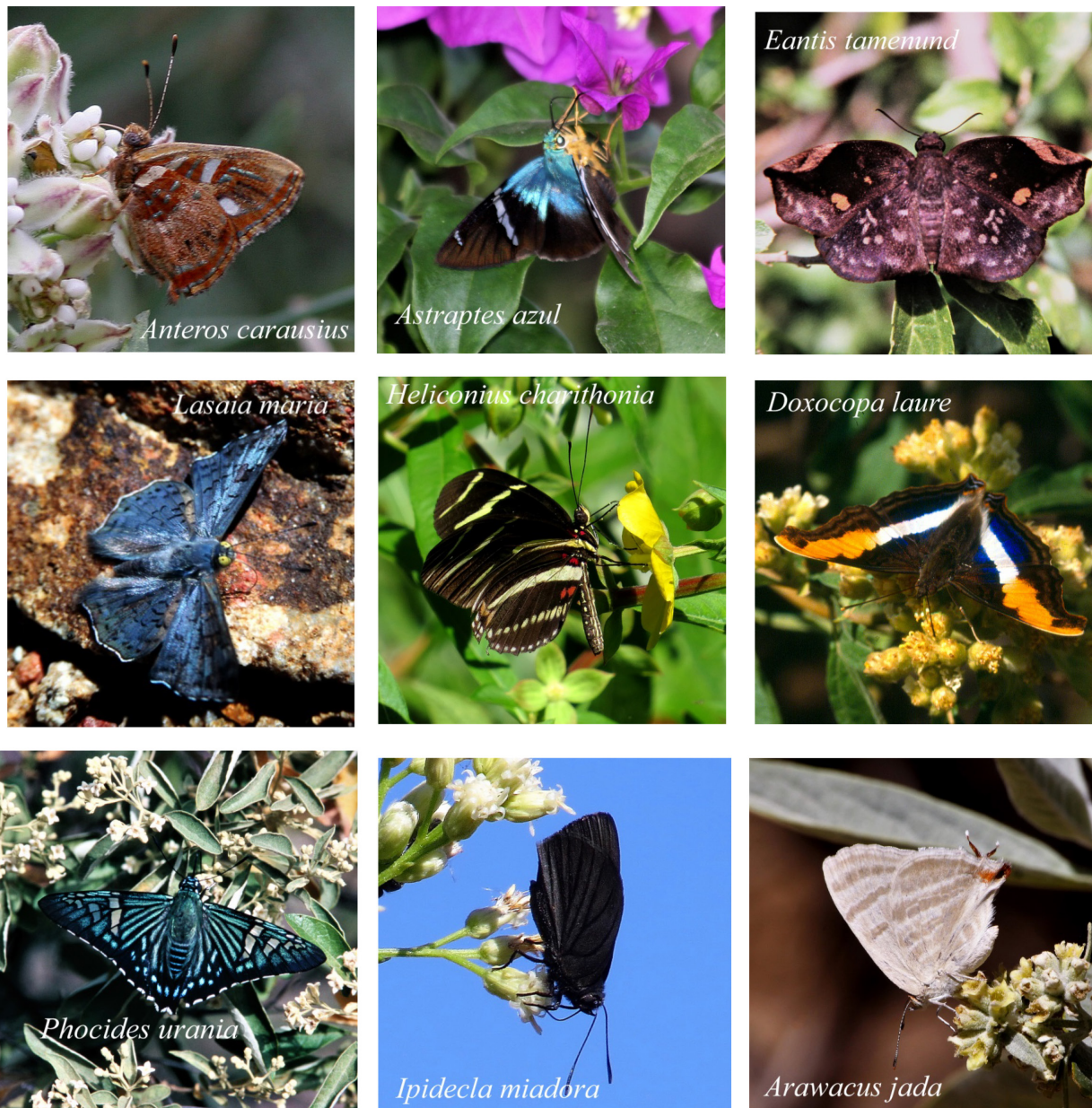


Figure 4. Tropical butterfly genera represented by but one species in Sonora. Because Sonora contains habitats with tropical affinities such as Coastal and Foothills Thoms scrub as well as Tropical Deciduous Forest it has a large number of tropical butterfly species. However some of the more speciose tropical genera are represented by only the one species shown above. All photos ©Doug Danforth.



Figure 5. Relief map of Sonora with points of reference.



Lethocerus medius (Guérin-Méneville, 1857) Belostomatidae. Collector: S.L. Minter. Date: 01 August 2010. Locality: Mexico, Sonora, Moctezuma, Rancho las Barchatas, 1.9 km (by air) ENE of Moctezuma. Photographer, Stephen L. Minter.