Lepidoptera of North America

4. Scientific Names List for Butterfly Species of North America, north of Mexico

Contributions of the
C.P. Gillette Museum of Arthropod Diversity
Colorado State University

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by

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This list generally follows the order found in the Miller and Brown (1981) *Catalogue/Checklist of the Butterflies of North America* and the supplement to that list by Ferris (1989c), both published as *Memoirs of the Lepidopterists' Society.* Generic name usage is conservative (when opinions vary on how to divide monophyletic groups) and generally follows that used in *A Field Guide to Eastern Butterflies* (Opler 1992, 1998), *A Field Guide to Western Butterflies* (Opler 1999) and the Stanford and Opler (1993) *Atlas to Western USA Butterflies* (updated as Opler et al. 2000). Some changes are made to conform with recent research results (e.g. Emmel 1998) and with Palaearctic and Neotropical publications (see References).

The list that follows includes superfamily, family, and subfamily categories (with tribes for some Lycaenidae), generally in accord with the arrangement presented by de Jong et al. (1996) and Ackery et al. (1999). The Listing order of families, subfamilies, genera, and species does not necessarily imply relationships of taxa to each other. It is the intent of the authors to use the original spelling of species names as described. We would be pleased if anyone would point out where names herein do not conform with their original orthography.

The main purpose of this list is to summarize our current knowledge of the nomenclature of North American butterflies at the species-level (and higher), and to generate interest in current nomenclatural problems. It is our hope that this list will serve as a point of reference for future studies and checklists; our goal will be met when arrangements adopted herein are proved incorrect through future research.

Synonyms, homonyms, and subspecies are not listed. A complete catalog of North American butterflies including all synonyms and subspecies is in preparation by Jonathan P. Pelham (Seattle, Washington). Citations to original descriptions have been provided for some recently described taxa (see References); these are indicated in the list by an asterisk. We have tried to be as precise as possible in our listing of taxon authors and dates of publication, and thank Gerardo Lamas (Lima, Peru) and J. Pelham for a great amount of help with these issues. All changes (from other checklists) in authorship or dates of publication made herein will be fully explained in Pelham's upcoming catalog. We note here, however, that our spelling of Leconte's name follows Rehn (1954).

This being a list of species, a few words on the species concepts held by the authors seem warranted. There are currently no fewer than 25 species concepts being used by taxonomists in various fields (Mayden 1997, Brower 1999, Sperling in press), and no fewer than five species concepts are currently applied in morphological and molecular studies of Lepidoptera taxonomy. Some of the more popular species concepts held by taxonomists today don't even recognize subspecies. While subspecies are frequently named to describe geographical variants, the criteria for recognizing such variants as "subspecies" are subjective and vary greatly from author to author (even when those authors claim to apply the same species concept).

The authors of this list apply two different species concepts when making taxonomic decisions. The senior author (PAO) holds views most consistent with Mayr's Biological Species Concept (Mayr 1957a,b). The most current version of this concept defines species as "groups of interbreeding natural populations that are reproductively isolated from other such groups" (see Wheeler & Meier 2000). Earlier versions of Mayr's concept required users to infer whether or not allopatric populations are capable of interbreeding, but later versions of the concept have abandoned this notion (since it is often impossible to make this inference anything other than a guess). The production of fertile offspring is an indication of a biological species.

The views of the junior author (ADW) are most consistent with the Phylogenetic Species Concept (Nixon & Wheeler 1990) when making taxonomic decisions. A phylogenetic species is defined as the "smallest aggregation of (sexual) populations or (asexual) lineages diagnosable by a unique combination of character states in comparable individuals (semaphoronts)." Under this concept, species are identified by unique character states, which show no intermediacy or signs of introgression with related organisms. For a debate between proponents of these and other species concepts, see Wheeler & Meier (2000).

Even with different species concepts, the authors of this list agreed on over 90% of the taxonomic decisions that have been incorporated herein, even before initial discussion. Subsequent discussion and re-evaluation of available evidence has resolved almost all the discrepancies in taxonomic opinions between the authors (only a few cases remain where the authors don't entirely agree). Therefore, the majority of the species listed herein can be considered biological and phylogenetic species, in cases where sufficient information is known (and most likely qualify as species under other species concepts). Annotations after species entries will hopefully explain differences between this listing and previous checklists, and enable users with alternate species concepts to extract necessary information from this list.

SUPERFAMILY HESPERIOIDEA, FAMILY HESPERIIDAE
[Our arrangement of this family follows Evans (1951, 1952, 1953, 1955) and Voss (1952), as modified by Ackery et al. (1999) and Warren (2000, 2002). The higher-level classification of the family is currently being studied by ADW.]

Subfamily Pyrrhopyginae
Apyrrothrix Lindsey, 1921
1. *araxes* (Hewitson, 1867)
[Burns & Janzen (2001) treat *arizonae* (Godman & Salvin, 1893) as a full species based on genitalic differences observed in eleven male specimens, compared from Arizona and the Mexico City area. However, populations from areas in between (Sinaloa and Nayarit) show intermediacy in all of the genitalic differences cited by Burns and Janzen, and several additional geographic variants are known (ADW, unpublished). See Mielke (2002) for generic change from *Pyrrhopyge* Hübner, [1819].]

Subfamily Pyrginae
Phocides Hübner, [1819]
2. *pigmalion* (Cramer, 1779)
2.1 *belus* Godman & Salvin, 1893
Observed and photographed at Bentsen-Rio Grande State Park, Hidalgo Co. Texas on April 13, 2003 by David J. Hanson. Photo identified by Andrew D. Warren (Hanson, Knudson, & Bordelon, 2003).
3. *polybius* (Fabricius, 1793)
[*Papilio palemon* Cramer, 1777, being a primary homonym of *Papilio palaemon* Pallas, 1771, is not an available name (ICZN 1999).]
Proteides Hübner, [1819]
4. *mercurius* (Fabricius, 1787)
Epargyreus Hübner, [1819]
5. *clarus* (Cramer, 1775)
6. *zestos* (Geyer, 1832)
7. *exadeus* (Cramer, 1779)
8. species
[Arizona records of "*exadeus*" almost certainly refer to *E. windi* H.A. Freeman, 1969* (a resident of central Sonora, Mexico), but specimens have not been examined; *exadeus* is unknown in western Mexico north of Nayarit (ADW, unpublished). *Epargyreus aspina* Evans, 1952* could possibly also stray into our area; dissection of all exotic *Epargyreus* specimens in our area is needed to confirm their specific identity.]
Polygonus Hübner, [1825]
9. *leo* (Gmelin, [1790])
10. *savigny* (Latreille, [1824])

[Mielke & Casagrande (2002) treat *manueli* Bell & W.P. Comstock, 1948 as a junior synonym of *savigny*; also see Mielke (in press).]

Chioides Lindsey, 1921

11. *albofasciatus* (Hewitson, 1867)

[Raised to species level by Austin and Warren (2002); previously considered to be a subspecies of *C. catillus* (Cramer, 1779).]

12. *zilpa* (Butler, 1872)

Aguna R.C. Williams, 1927

13. *asander* (Hewitson, 1867)
14. *claxon* Evans, 1952*
15. *metophis* (Latreille, [1824])

Typhedanus Butler, 1870

16. *undulatus* (Hewitson, 1867)

Polythrix E.Y. Watson, 1893

17. *octomaculata* (Sepp, [1844])
18. *mexicanus* H.A. Freeman, 1969*

Zestusa Lindsey, 1925

19. *dorus* (W.H. Edwards, 1882)

Codatractus Lindsey, 1921

20. *alcaeus* (Hewitson, 1867)
21. *arizonensis* (Skinner, 1905)
22. *valeriana* (Plötz, 1881)

[This species was placed in *Codatractus* by Burns (1996) as *mysie* (Dyar, 1904), but examination of the type of *valeriana* (Plötz) showed it to be the senior objective synonym (Mielke & Warren, 2004).]

Urbanus Hübner, [1807]

23. *proteus* (Linnaeus, 1758)
24. *belli* (Hayward, 1935)

[Specimen reported from south Texas by Warren (1997).]

25. *pronus* Evans, 1952*
26. *esmeraldus* (Butler, 1877)
27. *dorantes* (Stoll, 1790)
28. *teleus* (Hübner, 1821)
29. *tanna* Evans, 1952*
30. *simplicius* (Stoll, 1790)
31. *procne* (Plötz, 1881)
32. *doryssus* (Swainson, 1831)

Astraptes Hübner, [1819]

33. *fulgerator* (Walch, 1775)
34. *egregius* (Butler, 1870)
35. *alardus* (Stoll, 1790)
36. *alector* (C. Felder & R. Felder, 1867)

[*Astraptes gilberti* H.A. Freeman, 1969* is treated as a synonym of *A. alector hopfferi* (Plötz, 1881) by Scott (1986) and Warren (2000, 2002).]

37. *anaphus* (Cramer, 1777)

Autochton Hübner, 1823
38. *cellus* (Boisduval & Leconte, [1837])
39. *pseudocellus* (Coolidge & Clemence, [1910])
[Apparently extirpated from the U.S portion of its range (Bailowitz & Brock 1991).]
40. *cincta* (Plötz, 1882)
Achalarus Scudder, 1872
41. *lyciades* (Geyer, 1832)
42. *casica* (Herrich-Schäffer, 1869)
43. *albociliatus* (Mabille, 1877)
44. *toxeus* (Plötz, 1882)
Thessia Steinhauser, 1989*
45. *jalapus* (Plötz, 1881)
Thorybes Scudder, 1871
46. *drusius* (W.H. Edwards, [1884])
47. *pylades* (Scudder, 1870)
48. *bathyllus* (J.E. Smith, 1797)
49. *confusis* Bell, 1922
50. *diversus* Bell,1927
51. *mexicana* (Herrich-Schäffer, 1869)
Cabares Godman & Salvin, 1894
52. *potrillo* (Lucas, 1857)
Celaenorrhinus Hübner, [1819]
53. *fritzgaertneri* (Bailey, 1880)
54. *stallingsi* H.A. Freeman, 1946*
Spathilepia Butler, 1870
55. *clonius* (Cramer, 1775)
Cogia Butler, 1870
56. *hippalus* (W.H. Edwards, 1882)
57. *outis* (Skinner, 1894)
58. *caicus* (Herrich-Schäffer, 1869)
59. *calchas* (Herrich-Schäffer, 1869)
Arteurotia Butler & H. Druce, 1872
60. *tractipennis* Butler & H. Druce, 1872
Nisoniades Hübner, [1819]
61. *rubescens* (Möschler, 1877)
Pellicia Herrich-Schäffer, 1870
62. *arina* Evans, 1953*
63. *dimidiata* Herrich-Schäffer, 1870
Noctuana Bell, 1937
64. *stator* (Godman, 1899)
[Documented from Hidalgo Co., Texas, by Bob Stewart (Anonymous 2000).]
Windia H.A. Freeman, 1969*

65. *windi* H.A. Freeman, 1969*

[Specimen collected in Guadalupe Canyon, Cochise Co., Arizona, by Kilian Roever. Determined by J. Burns.]

Bolla Mabille, 1903

66. *brennus* (Godman & Salvin, 1896)

67. *clytius* (Godman & Salvin, 1897)

Staphylus Godman & Salvin, 1896

68. *ceos* (W.H. Edwards, 1882)

69. *mazans* (Reakirt, [1867])

70. *hayhurstii* (W.H. Edwards, 1870)

Gorgythion Godman & Salvin, 1896

71. *begga* (Prittwitz, 1868)

[Listed as *G. vox* Evans, 1953* by Neck (1996), although the U.S. specimens have been confirmed as *begga*. Dissection is required for certain identification. Also see Stanford (2002).]

Sostrata Godman & Salvin, 1895

72. *nordica* Evans, 1953*

[Treatment as a full species follows Warren (2000, 2002); *S. bifasciata* (Ménétriés, 1829) is a South American species. The relationship between these two taxa is currently being studied in detail by G.T. Austin and ADW.]

Carrhenes Godman & Salvin, 1895

73. *canescens* (R. Felder, 1869)

Xenophanes Godman & Salvin, 1895

74. *tryxus* (Stoll, 1780)

[The species name is often misspelled (e.g. Neck 1996).]

Antigonus Hübner, [1819]

75. *emorsa* (R. Felder, 1869)

Systasea W.H. Edwards, 1877

76. *pulverulenta* (R. Felder, 1869)

77. *zampa* (W.H. Edwards, 1876)

Achlyodes

77.1 *pallida* (R. Felder, 1869)

[Photographed in the lower Rio Grande Valley in October, 2003 and reported by Warren et al., 2003.]

Eantis Boisduval, 1836

[Our treatment of *Eantis* is based on Warren (1996); these species were previously placed in *Achlyodes* Hübner, [1819]. Also see Brown & Heineman (1972).]

78. *tamenund* (W.H. Edwards, 1871)

[*Eantis thraso* (Hübner, [1807]) is a Central and South American species (Warren 1996).]

Grais Godman & Salvin, 1894

79. *stigmaticus* (Mabille, 1883)

Timochares Godman & Salvin, 1896

80. *ruptifasciata* (Plötz, 1884)

Anastrus Hübner, [1824]

80.1 *sempiternus* (Butler & H. Druce, 1872)

[*Anastrus sempiturnus* (Butler and Druce) was first collected in Starr Co., Texas by Charles Bordelon (Knudson, 2002).

Chiomara Godman & Salvin, 1899

81. *georgina* (Reakirt, 1868)

[*Chiomara asychis* (Stoll, 1780) is a South American species that does not occur in Costa Rica (Janzen et al. 1998) or Mexico (Warren 2000, 2002); however, its relationship to *georgina* is currently being studied in detail by G. Austin and ADW.]

82. *mithrax* (Möschler, 1879)

Gesta Evans, 1953

83. *invisus* (Butler & H. Druce, 1872)

[Austin and Warren (2002) treat *G. invisus* and *G. gesta* (Herrich-Schäffer, 1863), a West Indian and South American taxon, as separate species.]

Ephyriades Hübner, [1819]

84. *brunnea* (Herrich-Schäffer, 1865)

Erynnis Schrank, 1801

85. *icelus* (Scudder & Burgess, 1870)

86. *brizo* (Boisduval & Leconte, [1837])

[Research is needed to determine if one or more subspecies should be elevated to the species-level.]

87. *juvenalis* (Fabricius, 1793)

[Research is needed to determine if *clitus* (W.H. Edwards, 1882) should be elevated to the species-level.]

88. *telemachus* Burns, 1960

89. *propertius* (Scudder & Burgess, 1870)

90. *meridianus* Bell, 1927

91. *scudderi* (Skinner, 1914)

92. *horatius* (Scudder & Burgess, 1870)

93. *tristis* (Boisduval, 1852)

94. *martialis* (Scudder, [1870])

95. *pacuvius* (Lintner, 1878)

96. *zarucco* (Lucas, 1857)

97. *funeralis* (Scudder & Burgess, 1870)

98. *baptisiae* (Forbes, 1936)

99. *lucilius* (Scudder & Burgess, 1870)

100. *afranius* (Lintner, 1878)

101. *persius* (Scudder, 1863)

[Research is needed to better define relationships among and within the above three taxa; see Burns (1964).]

Pyrgus Hübner, [1819]

102. *centaureae* (Rambur, [1842])

[Tentatively includes *wyandot* (W.H. Edwards, 1863), which was treated as a species-level taxon by Shapiro (1974) and Gochfield & Burger (1997) (based on

genitalic differences between it and *freija* (Warren, 1924) cited by Forbes (1960); but see Lindsey (1928)). Its relationship to other North American and Eurasian taxa associated with *centaureae* remains to be studied in detail. Also see Warren (1926, 1935, 1951), de Jong (1972), Devyatkin (1990) and Tuzov et al. (1997).]

103. *ruralis* (Boisduval, 1852)

104. *xanthus* W.H. Edwards, 1878

105. *scriptura* (Boisduval, 1852)

106. *communis* (Grote, 1872)

107. *albescens* Plötz, 1884

[Treatment as a full species follows Burns (2001).]

108. *philetas* W.H. Edwards, 1881

109. *oileus* (Linnaeus, 1767)

[The above four taxa were placed in *Syrichtus* Boisduval, [1834] by Durden (1982). This is incorrect because *Syrichtus* is a synonym of *Pyrgus* (see Cowan 1970). There is no published evidence indicating that these four species belong in a Palaearctic genus other than *Pyrgus* (see de Jong 1972, 1978); however, further study is needed.]

Heliopyrgus Herrera, 1957

[Treatment of *Heliopyrgus* is based on Austin & Warren (2001); also see Mielke & Casagrande (2002).]

110. *domicella* (Erichson, [1849])

Heliopetes Billberg, 1820

111. *ericetorum* (Boisduval, 1852)

112. *macaira* (Reakirt, [1867])

113. *laviana* (Hewitson, 1868)

114. *arsalte* (Linnaeus, 1758)

Celotes Godman & Salvin, 1899

115. *nessus* (W.H. Edwards, 1877)

116. *limpia* Burns, 1974*

Pholisora Scudder, 1872

117. *catullus* (Fabricius, 1793)

118. *mejicanus* (Reakirt, [1867])

Hesperopsis Dyar, 1905

119. *libya* (Scudder, 1878)

120. *alpheus* (W.H. Edwards, 1876)

121. *gracielae* (MacNeill, 1970)*

Subfamily Heteropterinae

Carterocephalus Lederer, 1852

122. *palaemon* (Pallas, 1771)

[The relationships between New and Old World taxa of *palaemon* remain to be studied in detail.]

Piruna Evans, 1955*

123. *pirus* (W.H. Edwards, 1878)

124. *haferniki* H.A. Freeman, 1970*

125. *polingii* (Barnes, 1900)
126. *aea* (Dyar, 1912)
[Previously known as *P. cingo* Evans, 1955*, which was treated as a synonym of *aea* by Warren (2000, 2002).]
127. *penaea* (Dyar, 1918)
[Previously misidentifed as *P. microsticta* (Godman, 1900) (see McGuire & Rickard 1976), a southwestern Mexican species (Freeman & Warren, in preparation).]

Subfamily Hesperiinae
[Includes genera formerly placed in the Megathyminae, following Ackery et al. (1999).]
Synapte Mabille, 1904
128. *pecta* Evans, 1955*
[Warren (2000, 2002) treated *S. pecta* and *S. malitiosa* (Herrich-Schäffer, 1865) as separate species.]

129. species
[We are uncertain if it is *Synapte syraces* (Godman, 1901), or the similar *S. shiva* Evans, 1955* (or both?) that is known from Arizona (Bailowitz & Brock 1991), since we have not examined specimens; both species occur in Sonora, Mexico. *Synapte shiva* was described as a subspecies of *syraces*, but was treated as a full species by Warren (2000, 2002).]
130. *salenus* (Mabille, 1883)
Corticea Evans, 1955*
131. *corticea* (Plötz, 1882)
Vidius Evans, 1955*
132. *perigenes* (Godman, 1900)
Monca Evans, 1955*
133. *crispinus* (Plötz, 1882)
[Mielke and Casagrande (2002) treat *tyrtaeus* (Plötz, 1882) as a junior synonym of *crispinus*. *Monca telata* (Herrich-Schäffer, 1869) is a South and Central American species (Bell 1941) which flies sympatrically with *crispinus* (= *tyrtaeus*) in Guatemala (Austin et al. 1996).]
Nastra Evans, 1955*
134. *lherminier* (Latreille, [1824])
135. *neamathla* (Skinner & R.C. Williams, 1923)
136. *julia* (H.A. Freeman, 1945)
Cymaenes Scudder, 1872
137. *tripunctus* (Herrich-Schäffer, 1865)
138. *trebius* (Mabille, 1891)
[*Cymaenes trebius* was treated as a species distinct from *C. odilia* (Burmeister, 1878) by Warren (2000, 2002); however, relationships among taxa placed with *odilia* by Evans (1955) are under study by G. Austin and ADW.]
Lerema Scudder, 1872
139. *accius* (J.E. Smith, 1797)

140. *liris* Evans, 1955*

[The relationship between *L. liris* and *L. ancillaris* (Butler, 1877) where they meet in Central America needs further study, as noted by Warren (2000).]

Vettius Godman, 1901

141. *fantasos* (Cramer, 1780)

Perichares Scudder, 1872

142. *philetes* (Gmelin, [1790])

Rhinthon Godman, 1900

143. *osca* (Plötz, 1882)

[Treatment as a distinct species from *cubana* (Herrich-Schäffer, 1865) follows McGuire & Rickard (1976), Ferris (1989c) and Warren (2000, 2002), but see Mielke & Casagrande (2002).]

Decinea Evans, 1955*

144. *percosius* (Godman, 1900)

Conga Evans, 1955*

145. *chydaea* (Butler, 1877)

Ancyloxypha C. Felder, 1862

146. *numitor* (Fabricius, 1793)

147. *arene* (W.H. Edwards, 1871)

Oarisma Scudder, 1872

148. *garita* (Reakirt, 1866)

149. *poweshiek* (Parker, 1870)

150. *edwardsii* (Barnes, 1897)

Copaeodes Speyer, 1877

151. *aurantiaca* (Hewitson, 1868)

152. *minima* (W.H. Edwards, 1870)

Adopaeoides Godman, 1900

153. *prittwitzi* (Plötz, 1884)

Thymelicus Hübner, [1819]

154. *lineola* (Ochsenheimer, 1808)

Hylephila Billberg, 1820

155. *phyleus* (Drury, 1773)

Pseudocopaeodes Skinner & R.C. Williams, 1923

156. *eunus* (W.H. Edwards, 1881)

Stinga Evans, 1955*

157. *morrisoni* (W.H. Edwards, 1878)

Hesperia Fabricius, 1793

158. *uncas* W.H. Edwards, 1863

159. *juba* (Scudder, 1874)

160. *comma* (Linnaeus, 1758)

161. *assiniboia* (Lyman, 1892)

[Species-level status follows Layberry et al. (1998), but further elaboration on the relationship between this taxon and the next is needed.]

162. *colorado* (Scudder, 1874)

[*Hesperia colorado* (Scudder, 1874) has priority over *H. harpalus* (W.H. Edwards, 1881) and *H. idaho* (W.H. Edwards, 1883). The *Hesperia comma* complex was discussed by MacNeill (1964, 1975) and by Scott (1975, 1998). Relationships of taxa placed with *assiniboia*, *comma*, and *colorado* are currently being studied by several researchers.]

163. *woodgatei* (R.C. Williams, 1914)
164. *ottoe* W.H. Edwards, 1866
165. *leonardus* Harris, 1862
166. *pahaska* (Leussler, 1938)
167. *columbia* (Scudder, 1872)
168. *metea* Scudder, 1864
169. *viridis* (W.H. Edwards, 1883)
170. *attalus* (W.H. Edwards, 1871)
171. *meskei* (W.H. Edwards, 1877)
172. *dacotae* (Skinner, 1911)
173. *lindseyi* (Holland, 1930)
174. *sassacus* Harris, 1862
175. *miriamae* MacNeill, 1959
176. *nevada* (Scudder, 1874)

Atalopedes Scudder, 1872

177. *campestris* (Boisduval, 1852)

Polites Scudder, 1872

[See Burns (1994a) for synonymy of *Yvretta* Hemming, 1935 under *Polites*.]

178. *rhesus* (W.H. Edwards, 1878)
179. *carus* (W.H. Edwards, 1883)
180. *peckius* (W. Kirby, 1837)
181. *sabuleti* (Boisduval, 1852)
182. *draco* (W.H. Edwards, 1871)
183. *mardon* (W.H. Edwards, 1881)
184. *themistocles* (Latreille, [1824])
185. *baracoa* (Lucas, 1857)
186. *origenes* (Fabricius, 1793)
187. *mystic* (W.H. Edwards, 1863)
188. *sonora* (Scudder, 1872)
189. *vibex* (Geyer, 1832)

Wallengrenia Berg, 1897

190. *otho* (J.E. Smith, 1797)

[Tentatively includes *clavus* (Erichson, [1849]) and *curassavica* (Snellen, 1887); see Burns (1994b). The complex is being studied by J.Y. Miller.]

191. *egeremet* (Scudder, 1864)

Pompeius Evans, 1955*

192. *verna* (W.H. Edwards, 1862)

Atrytone Scudder, 1872

193. *arogos* (Boisduval & Leconte, [1837])

Anatrytone Dyar, 1905

[Generic combination follows Burns (1994b).]

194. *logan* (W.H. Edwards, 1863)

195. *mazai* (H.A. Freeman, 1969)*

Problema Skinner & R.C. Williams, 1924

196. *byssus* (W.H. Edwards, 1880)

197. *bulenta* (Boisduval & Leconte, [1837])

Ochlodes Scudder, 1872

198. *sylvanoides* (Boisduval, 1852)

199. *agricola* (Boisduval, 1852)

200. *yuma* (W.H. Edwards, 1873)

[Our treatment of *Ochlodes* species follows Chiba and Tsukiyama (1996).]

Poanes Scudder, 1872

201. *hobomok* (Harris, 1862)

202. *zabulon* (Boisduval & Leconte, [1837])

203. *taxiles* (W.H. Edwards, 1881)

204. *melane* (W.H. Edwards, 1869)

205. *massasoit* (Scudder, 1864)

206. *viator* (W.H. Edwards, 1865)

207. *yehl* (Skinner, 1893)

208. *aaroni* (Skinner, 1890)

Paratrytone Godman, 1900

[See Burns (1992) for generic combination.]

209. *snowi* (W.H. Edwards, 1877)

Quasimellana Burns, 1994*

210. *eulogius* (Plötz, 1882)

Euphyes Scudder, 1872

211. *pilatka* (W.H. Edwards, 1867)

212. *conspicua* (W.H. Edwards, 1863)

213. *berryi* (Bell, 1941)

214. *dion* (W.H. Edwards, 1879)

[Includes *E. alabamae* (Lindsey, 1923) as a subspecies, and *E. macguirei* H.A. Freeman, 1975* as a synonym, following Shuey (1989); also see Shuey (1993).]

215. *bayensis* Shuey, 1989*

216. *dukesi* (Lindsey, 1923)

217. *bimacula* (Grote & Robinson, 1867)

218. *arpa* (Boisduval & Leconte, [1837])

219. *vestris* (Boisduval, 1852)

Asbolis Mabille, 1904

220. *capucinus* (Lucas, 1857)

Atrytonopsis Godman, 1900

221. *hianna* (Scudder, 1868)

222. *loammi* (Whitney, 1876)
223. *deva* (W.H. Edwards, 1877)
224. *lunus* (W.H. Edwards, 1884)
225. *vierecki* (Skinner, 1902)
226. *pittacus* (W.H. Edwards, 1882)
227. *python* (W.H. Edwards, 1882)
228. *cestus* (W.H. Edwards, 1884)
229. *edwardsi* Barnes & McDunnough, 1916

Amblyscirtes Scudder, 1872

230. *exoteria* (Herrich-Schäffer, 1869)
231. *cassus* W.H. Edwards, 1883
232. *aenus* W.H. Edwards, 1878

[Includes *erna* H.A. Freeman, 1943, following Scott (1977).]

233. *linda* H.A. Freeman, 1943
234. *oslari* (Skinner, 1899)
235. *elissa* Godman, 1900
236. *hegon* (Scudder, 1864)
237. *texanae* Bell, 1927
238. *carolina* (Skinner, 1892)
239. *reversa* W.M. Jones, 1926
240. *aesculapius* (Fabricius, 1793)
241. *nereus* (W.H. Edwards, 1876)
242. *nysa* W.H. Edwards, 1877
243. *eos* (W.H. Edwards, 1871)
244. *vialis* (W.H. Edwards, 1862)
245. *alternata* (Grote & Robinson, 1867)
246. *celia* Skinner, 1895
247. *belli* H.A. Freeman, 1941
248. *tolteca* Scudder, 1872

[Includes *prenda* Evans, 1955*, following Freeman (1993).]

249. *phylace* (W.H. Edwards, 1878)
250. *fimbriata* (Plötz, 1882)
251. *simius* W.H. Edwards, 1881

[While Burns (1990) removed this species from *Amblyscirtes* and left it "*incertae sedis*," we list *simius* here until a generic placement is proposed.]

Lerodea Scudder, 1872

252. *eufala* (W.H. Edwards, 1869)
253. *arabus* (W.H. Edwards, 1882)

[Includes *dysaules* Godman, 1900 as a synonym (Warren 2000, 2002).]

Oligoria Scudder, 1872

254. *maculata* (W.H. Edwards, 1865)

Calpodes Hübner, [1819]

255. *ethlius* (Stoll, 1782)

Panoquina Hemming, 1934*

256. *panoquin* (Scudder, 1864)
257. *panoquinoides* (Skinner, 1891)
258. *errans* (Skinner, 1892)
259. *ocola* (W.H. Edwards, 1863)
260. *lucas* (Fabricius, 1793)
[*Panoquina sylvicola* (Herrich-Schäffer, 1865) was treated as a synonym of *lucas* by Robbins et al. (1996); also see Mielke & Casagrande (2002).]
261. *hecebolus* (Scudder, 1872)
262. *evansi* (H.A. Freeman, 1946)*

Nyctelius Hayward, 1948
263. *nyctelius* (Latreille, [1824])

Thespieus Godman, 1900
264. *macareus* (Herrich-Schäffer, 1869)

Agathymus H.A. Freeman, 1959*
265. *neumoegeni* (W.H. Edwards, 1882)
[Includes *chisosensis* (H.A. Freeman, 1952), following Roever (1975).]
266. *polingi* (Skinner, 1905)
267. *evansi* (H.A. Freeman, 1950)
268. *aryxna* (Dyar, 1905)
269. *baueri* (D. Stallings & Turner, 1954)
270. *gentryi* Roever, 1998*
[Treatment of this taxon and *baueri* as subspecies of *aryxna* is unsupported by any compelling data (Cassie et al. 2001), and does not consider problems associated with the name *aryxna*; see dos Passos (1960) and Roever (1975).]
271. *mariae* (Barnes & Benjamin, 1924)
[Tentatively includes *gilberti* H.A. Freeman, 1964*, although the status of this taxon is uncertain (see Roever 1975).]
272. *estelleae* (D. Stalllings & Turner, 1958)
[Includes *valverdiensis* H.A. Freeman, 1966, following Roever (1975).]
273. *stephensi* (Skinner, 1912)
274. *alliae* (D. Stallings & Turner, 1957)

Megathymus Scudder, 1872
275. *yuccae* (Boisduval & Leconte, [1837])
[Includes *coloradensis* C.V. Riley, 1877, following Roever (1975).]
276. *streckeri* (Skinner, 1895)
277. *cofaqui* (Strecker, 1876)
278. *ursus* Poling, 1902

Stallingsia H.A. Freeman, 1959*
279. *maculosus* (H.A. Freeman, 1955)

SUPERFAMILY PAPILIONOIDEA

FAMILY PAPILIONIDAE

[We have followed the generic arrangement proposed for this family by Miller (1987). We feel further study is needed on the generic relationships of swallowtails in order to subdivide them into smaller monophyletic groups with confidence.]

Subfamily Parnassiinae

Parnassius Latreille, 1804

280. *eversmanni* [Ménétriés], [1850]
281. *clodius* Ménétriés, 1855
282. *phoebus* (Fabricius, 1793)
283. *behrii* W.H. Edwards, 1870
284. *smintheus* Doubleday, [1847]

[Split of *P. phoebus* complex is discussed by Shepard & Manley (1998), Bird et al. (1995) and Layberry et al. (1998).]

Subfamily Papilioninae

Battus Scopoli, 1777

285. *philenor* (Linnaeus, 1771)
286. *polydamas* (Linnaeus, 1758)

Parides Hübner, [1819]

287. *eurimedes* (Stoll, 1782)
288. *alopius* (Godman & Salvin, 1890)

[Single specimen collected in Cochise Co., Arizona, by Neil Dankert; see Bailowitz & Brock (1991).]

Eurytides Hübner, [1821]

289. *marcellus* (Cramer, 1777)
290. *philolaus* (Boisduval, 1836)

Papilio Linnaeus, 1758

291. *machaon* Linnaeus, 1758

[Includes *bairdii* W.H. Edwards, 1866, and *oregonius* W.H. Edwards, 1876, following Sperling (1987, 1993a) and Sperling and Harrison (1994); but see Eitschberger (1993) and Pyle (2002).]

292. *brevicauda* Saunders, 1869
293. *joanae* Heitzman, 1973*
294. *polyxenes* Fabricius, 1775
295. *zelicaon* Lucas, 1852

[*Papilio nitra* W.H. Edwards, 1883 is considered by Fisher (1977) to be an eastern subspecies of *zelicaon* containing rare dark individuals, which may represent introgression with *polyxenes*.]

296. *indra* Reakirt, 1866
297. *glaucus* Linnaeus, 1758

[*Pterourus appalachiensis* Pavulaan & D. Wright, 2002* was recently described, but

convincing evidence for its treatment as a full species is lacking. It seems to be allopatric to *glaucus* itself, and it might be a high altitude, single-brooded population of *glaucus*; or it could be related to *canadensis*. Further information is needed to determine its status.]

298. *canadensis* Rothschild & Jordan, 1906

[Specific distinctness of *P. canadensis* is detailed by Hagen et al. (1991), and further supported by Sperling (1993b).]

299. *rutulus* Lucas, 1852

300. *eurymedon* Lucas, 1852

301. *multicaudata* W.F. Kirby, 1884

302. *pilumnus* Boisduval, 1836

303. *troilus* Linnaeus, 1758

304. *palamedes* Drury, 1773

305. *garamas* (Geyer, [1829])

[*Papilio garamas abderus* Hoppfer, 1856 was reported from south Texas by Bordelon & Knudson (2000).]

306. *victorinus* Doubleday, 1844

[Treated as a subspecies of *P. menatius* Hübner [1819] by Tyler et al. (1994: but see page 26) and Lamas (in press); however, we feel that further study of the situation is needed (see DeVries 1987). First reported from the U.S. by Adams (1984).]

307. *thoas* Linnaeus, 1771

308. *cresphontes* Cramer, 1777

309. *astyalus* Godart, 1819

310. *ornythion* Boisduval, 1836

311. *aristodemus* Esper, 1794

312. *andraemon* (Hübner, [1823])

313. *androgeus* Cramer, 1775

314. *anchisiades* Esper, 1788

315. *rogeri* Boisduval, 1836

[*Papilio pharnaces* Doubleday, 1846 is treated as a subspecies of *P. rogeri* Boisduval, 1836 by Lamas (in press); the two taxa were also considered to be conspecific by Tyler et al. (1994).]

***[Miller (1987) does not recognize *Heraclides* Hübner [1819], *Priamides* Hübner [1819] or *Pterourus* Scopoli, 1777 as valid genera. Tyler et al. (1994) present a considerably different generic arrangement for our swallowtail taxa; also see Lamas (in press).]**

FAMILY PIERIDAE

Subfamily Dismorphiinae

Enantia Hübner, [1819]

316. *albania* (H.W. Bates, 1864)

[Texas specimen of this species illustrated by Kendall (1974a); see Llorente (1984) for notes on *Enantia* taxonomy.]

Subfamily Pierinae

Catasticta Butler, 1870

317. *nimbice* (Boisduval, 1836)

Neophasia Behr, 1869

318. *menapia* (C. Felder & R. Felder, 1859)

319. *terlooii* Behr, 1869

[Spelling corrected to original orthography, following Llorente et al. (1997) and Lamas (in press).]

Appias Hübner, [1819]

320. *drusilla* (Cramer, 1777)

[This species is often placed in the genus *Glutophrissa* Butler, 1887, e.g. Hemming (1967) and Lamas (1981, in press); but see Klots (1933), d'Almeida (1939a), Comstock (1943) and Brown & Heineman (1972).]

Leptophobia Butler, 1870

321. *aripa* (Boisduval, 1836)

[Collected in Santa Ana National Wildlife Refuge, Hidalgo Co., Texas, by T. Kral (20-X-1988). Specimens deposited in C.P. Gillette Museum, Colorado State University.]

Pontia Fabricius, 1807

322. *beckerii* (W.H. Edwards, 1871)

323. *protodice* (Boisduval & Leconte, [1830])

324. *occidentalis* (Reakirt, 1866)

325. *sisymbrii* (Boisduval, 1852)

Pieris Schrank, 1801

326. *rapae* (Linnaeus, 1758)

327. *oleracea* Harris, 1829

328. *marginalis* Scudder, 1861

[Relationship of *meckyae* Eitschberger, 1983* to *angelika* and *marginalis* needs clarification.]

329. *angelika* Eitschberger, 1983*

[Study of type specimens is necessary; this may be a synonym of *P. pseudobryoniae* Barnes & McDunnough, 1917, which is an elevation of *P. napi* variety *frigida* form *pseudobryoniae* Verity, [1908], *fide* J. Pelham.]

***[*Pieris napi* Linnaeus, 1758, a Palaearctic taxon, does not occur in North America as per several authors. North American species are treated as either three species by Eitschberger (1981, 1983) or four species by Geiger and Shapiro (1992). This entire complex needs much more study before relationships can be understood with confidence. Also see Bowden (1972), Shapiro (1984) and Kudrna & Geiger (1985).]**

330. *virginiensis* (W.H. Edwards, 1870)

***[See Robbins & Henson (1986) for use of *Pieris* over *Artogeia* Verity, 1947.]**

Ascia Scopoli, 1777

331. *monuste* (Linnaeus, 1764)

Ganyra Billberg, 1820

332. *josephina* (Godart, 1819)

333. *howarthi* (Dixey, 1915)

[Bailowitz (1988) describes the distribution and biology of this species in contrast with *G. josephina*; also see Beutelspacher (1986) and Llorente et al. (1997).]

Euchloe Hübner, [1819]

334. *ausonides* (Lucas, 1852)

[Includes *ogilvia* Back, [1991]*, although this was described as a full species; see Layberry et al. (1998).]

335. *naina* Kozhanchikov, 1923

[Reported for North America by Kondla and Pelham (1995). Specific identity is described by Dubatolov and Kosterin (1994).]

336. *guaymasensis* Opler, 1987*

[Specimen collected in Bisbee, Cochise Co., Arizona, by Sandy Upson. Identity verified by R. Bailowitz, PAO and ADW.]

337. *olympia* (W.H. Edwards, 1871)

338. *creusa* (Doubleday, [1847])

339. *hyantis* (W.H. Edwards, 1871)

340. *lotta* Beutenmüller, 1898

[Above two species separated on basis of research by Opler (1965, 1967a,b, 1970, 1971, 1974) as well as unpublished data and communications. Detailed investigation has been initiated by PAO.]

Anthocharis Boisduval, Rambur, [Duménil] & Graslin, [1833]

341. *cethura* C. Felder & R. Felder, 1865

[Includes *pima* W.H. Edwards, 1888. These two form a gradual cline between California, Nevada, and Arizona, as discussed by Emmel et al. (1998b: p. 132).]

342. *sara* Lucas, 1852

343. *julia* W.H. Edwards, 1872

344. *stella* W.H. Edwards, 1879

345. *thoosa* (Scudder, 1878)

[The *sara* species group is split, in part, on basis of research by Geiger and Shapiro (1986); however, the overall distributions of these taxa remain somewhat unclear and the above arrangement is tentative. The complex is currently under study by PAO.]

346. *lanceolata* Lucas, 1852

347. *midea* (Hübner, [1809])

***[*Paramidea* Kusnezov, 1929 was described as a monotypic genus for the Asian *scolymus* (Butler, 1866). It was applied to *lanceolata* and *midea* by Ferris (1989c) without justification. It has been treated by several authors as a subgenus of *Anthocharis*, and is herein excluded as relating to any North American species.]**

Subfamily Coliadinae

Colias Fabricius, 1807

348. *philodice* Godart, 1819

349. *eurytheme* Boisduval, 1852

350. *occidentalis* Scudder, 1862
351. *christina* W.H. Edwards, 1863
[This complex includes (among others) *krauthii* Klots, 1935, *kluanensis* Ferris, 1981*, *pseudochristina* Ferris, 1989*, *astraea* (W.H. Edwards, 1872), and several enigmatic eastern Oregon populations (see Ferris 1993). Layberry et al. (1998) treat *occidentalis* and *christina* (which includes all populations that are variably UV reflective and containing some orange individuals) as separate species, due to Ferris' statement that the variable Oregon populations were highly localized. However, these Oregon populations have proven to be very widespread over a large geographic area, and show a mosaic of variable segregates with different average character combinations. The complex is currently under study by Paul Hammond and David McCorkle.]
352. *alexandra* W.H. Edwards, 1863
353. *harfordii* Hy. Edwards, 1877
[Status of *C. harfordii* is detailed by Burns (1975) and Ferris (1988, 1993).]
354. *meadii* W.H. Edwards, 1871
355. *johanseni* Troubridge & Philip, 1990*
356. *hecla* Lefèbvre, 1836
357. *canadensis* Ferris, 1982
358. *tyche* Böber, 1812
[Includes *boothii* Curtis, 1835 and *thula* Hovanitz, 1955, following Lafontaine & Wood (1997) and Layberry et al. (1998).]
359. *nastes* (Boisduval, 1832)
360. *scudderii* Reakirt, 1865
361. *gigantea* Strecker, 1900
362. *pelidne* Boisduval & Leconte, [1830]
363. *interior* Scudder, 1862
364. *palaeno* (Linnaeus, 1761)
[North American populations of this species have been referred to as species *chippewa* W.H. Edwards, 1872 (see Tuzov et al. 1997, Verhulst 2000, and Guppy & Shepard 2001), restricting *palaeno* to the Palaearctic region. Opinions vary, however (see Gorbunov 2001) and until a revision of the group is presented we retain *palaeno* for our populations.]
365. *behrii* W.H. Edwards, 1866

Zerene Hübner, [1819]
366. *cesonia* (Stoll, 1790)
367. *eurydice* (Boisduval, 1855)

Anteos Hübner, [1819]
368. *maerula* (Fabricius, 1775)
369. *clorinde* (Godart, [1824])

Phoebis Hübner, [1819]
370. *sennae* (Linnaeus, 1758)
371. *argante* (Fabricius, 1775)
[Stray specimens are known from Kansas (Field 1940) and Texas (Neck 1996,

Stanford 2002).]

372. *agarithe* (Boisduval, 1836)

373. *philea* (Linnaeus, 1763)

374. *neocypris* (Hübner, [1823])

Aphrissa Butler, 1873

375. *statira* (Cramer, 1777)

376. *orbis* (Poey, 1832)

***[Recognition of *Aphrissa* follows Brown (1931), d'Almeida (1939b), Smith et al. (1994), Llorente et al. (1997), and Lamas (in press); but see Klots (1933). Also see Brown (1929) and d'Almeida (1940). No recent information to support or refute the lumping of *Aphrissa* with *Phoebis* has been presented, but further research is warranted.]**

Kricogonia Reakirt, 1863

377. *lyside* (Godart, 1819)

Eurema Hübner, [1819]

378. *daira* (Godart, 1819)

379. *boisduvaliana* (C. Felder & R. Felder, 1865)

[Treated as a subspecies of *E. arbela* Geyer, 1832, by Lamas (in press).]

380. *mexicana* (Boisduval, 1836)

381. *salome* (C. Felder & R. Felder, 1861)

382. *albula* (Cramer, 1775)

[First U.S. record reported by Chuah & Cushing (1995).]

Pyrisitia Butler, 1870

383. *messalina* (Fabricius, 1787)

384. *proterpia* (Fabricius, 1775)

385. *lisa* (Boisduval & Leconte, [1830])

386. *nise* (Cramer, 1775)

387. *dina* (Poey, 1832)

Abaeis Hübner, [1819]

388. *nicippe* (Cramer, 1779)

***[Although the above three genera are sometimes lumped under *Eurema* (e.g. Ferris 1989c), recent DNA analysis by Pollock et al. (1998) supports our arrangement.]**

Nathalis Boisduval, 1836

389. *iole* Boisduval, 1836

FAMILY LYCAENIDAE

[Our arrangement of this family follows Ackery et al. (1999), which corroborates Eliot (1990), who unites the coppers, blues and hairstreaks into a single subfamily; also see Eliot (1973).]

Subfamily Miletinae

Feniseca Grote, 1869

390. *tarquinius* (Fabricius, 1793)

Subfamily Lycaeninae

Tribe Lycaenini (Coppers)

Lycaena Fabricius, 1807

[We place all of our coppers in the genus *Lycaena* following the lead of Klots (1936); also see Pratt et al. (1993) and Lamas (in press). We feel further study is needed on the generic relationships of copper species worldwide (but see Miller & Brown 1979).]

391. *arota* (Boisduval, 1852)

392. *phlaeas* (Linnaeus, 1761)

[Relationships between eastern and western North American, Eurasian, and African populations of *phlaeas* need further study (see Larsen 1991).]

393. *cupreus* (W.H. Edwards, 1870)

[Tentatively includes *snowi* (W.H. Edwards, [1881]), although further elaboration on its status is needed.]

394. *xanthoides* (Boisduval, 1852)

395. *dione* (Scudder, 1868)

396. *editha* (Mead, 1878)

397. *gorgon* (Boisduval, 1852)

398. *hyllus* (Cramer, 1775)

[The name *hyllus* appears to be a *nomen dubium* (see ICZN, 1999), and the use of *thoe* (Guérin-Méneville, [1831]) in its place may be warranted; see Koçak (1983).]

399. *rubidus* (Behr, 1866)

400. *ferrisi* K. Johnson & Balogh, 1977*

401. *heteronea* Boisduval, 1852

402. *epixanthe* (Boisduval & Leconte, [1835])

403. *helloides* (Boisduval, 1852)

404. *dorcas* (W. Kirby, 1837)

405. *dospassosi* McDunnough, 1940

[Treated as a distinct species by Layberry et al. (1998) and Handfield (1999). Further study is needed to delineate this and related taxa (*dorcas* and *helloides*) with confidence; see Ferris (1977) and Scott (1978).]

406. *nivalis* (Boisduval, 1869)

407. *mariposa* (Reakirt, 1866)

408. *hermes* (W.H. Edwards, 1870)

Tribe Theclini (Hairstreaks)

Hypaurotis Scudder, 1876

409. *crysalus* (W.H. Edwards, 1873)

Habrodais Scudder, 1876

410. *grunus* (Boisduval, 1852)

Tribe Eumaeini (Hairstreaks)

[The order of genera within the Eumaeini follows Robbins (in press).]

Eumaeus Hübner, [1819]

411. *toxea* (Godart, [1824])

[The occurrence of this species in our area needs to be verified; see Kendall &

McGuire (1984).]

412. *atala* (Poey, 1832)

Atlides Hübner, [1819]

413. *halesus* (Cramer, 1777)

Callophrys Billberg, 1820

414. *affinis* (W.H. Edwards, 1862)

[Tentatively includes *apama* (W.H. Edwards, 1882) and *homoperplexa* Barnes & Benjamin, 1923, in accord with the treatment of Scott (1986); however, further elaboration on the relationship between *affinis* and *homoperplexa* is very badly needed.]

415. *perplexa* Barnes & Benjamin, 1923

[*Callophrys perplexa* and *C. affinis* occur together in the Pacific Northwest while maintaining separate hosts, habitats, and larval characteristics, according to Pyle (2002); also see Hinchliff (1996).]

416. *dumetorum* (Boisduval, 1852)

[Previously known as *C. viridis* W.H. Edwards, 1862, a synonym with the same type locality (Emmel et al. (1998a).]

417. *sheridanii* (W.H. Edwards, 1877)

[Includes *comstocki* Henne, 1940, and *lemberti* Tilden, 1963, partly on evidence presented by Austin (1998b). The complex is being studied by ADW, J. Pelham & R. Stanford.]

418. *hesseli* (Rawson & Ziegler, 1950)

419. *nelsoni* (Boisduval, 1869)

[Includes *C. rosneri* K. Johnson, 1976*; The status of *C. byrnei* K. Johnson, 1976* is uncertain (see Ferris 1991). Putative areas of contact between *nelsoni plicataria* K. Johnson, 1976* and *gryneus barryi* K. Johnson, 1976* need further study (see Hinchliff 1994).]

420. *thornei* (J.W. Brown, 1983)*

[Differences between this species and nearby juniper-feeding populations are detailed by Brown (1983, 1993).]

421. *muiri* (Hy. Edwards, 1881)

[Identity described by Tilden (1952), where it occurs parapatrically with *nelsoni.* Species status was further supported by Nice and Shapiro (2001).]

422. *gryneus* (Hübner, [1819])

[Includes all juniper-feeding taxa, including *barryi*, *loki* (Skinner, 1907), *siva* (W.H. Edwards, 1874), and *sweadneri* (Chermock, 1945), among others; see Ferris (1991).]

423. *spinetorum* (Hewitson, 1867)

[Includes *millerorum* Clench, 1981* as a synonym following Robbins (1990).]

424. *johnsoni* (Skinner, 1904)

425. *xami* (Reakirt, [1867])

426. *mcfarlandi* P. Ehrlich & Clench, 1960

427. *augustinus* (Westwood, 1852)

[Guppy and Shepard (2001) treat *iroides* (Boisduval, 1852) as a distinct species but provide little evidence to support the split; also see Kondla (1999).]

428. *mossii* (Hy. Edwards, 1881)
429. *fotis* (Strecker, [1878])
430. *polios* (Cook & Watson, 1907)
431. *irus* (Godart, [1824])
432. *henrici* (Grote & Robinson, 1867)
[Includes *solatus* (Cook & Watson, 1909) as a subspecies, although this is sometimes treated as a full species (e.g. Durden 1982).]
433. *niphon* Hübner, [1819]
434. *eryphon* (Boisduval, 1852)
435. *lanoraieensis* (Sheppard, 1934)
***[We have followed Clench (1961) and Robbins (in press) in our generic arrangement of *Callophrys* (s.l.), and treat *Deciduphagus* Johnson, 1992*, *Loranthomitoura* Ballmer & Pratt, 1992*, *Xamia* Clench, 1961*, *Sandia* Clench & P. Ehrlich, 1960, *Mitoura* Scudder, 1872 and *Incisalia* Scudder, 1872 as subgenera; but see Ballmer & Pratt (1992) and Johnson (1992).]**

Cyanophrys Clench, 1961*
436. *goodsoni* (Clench, 1946)
437. *herodotus* (Fabricius, 1793)
438. *miserabilis* (Clench, 1946)

Rekoa Kaye, 1904
439. *palegon* (Cramer, 1780)
440. *marius* (Lucas, 1857)

Arawacus Kaye, 1904
441. *jada* (Hewitson, 1867)

Satyrium Scudder, 1876
442. *favonius* (J.E. Smith, 1797)
443. *ilavia* (Beutenmüller, 1899)
444. *polingi* (Barnes & Benjamin, 1926)
445. *titus* (Fabricius, 1793)
446. *acadica* (W.H. Edwards, 1862)
447. *californica* (W.H. Edwards, 1862)
448. *sylvinus* (Boisduval, 1852)
[Includes *dryope* (W.H. Edwards, 1870).]
449. *caryaevorus* (McDunnough, 1942)
450. *edwardsii* (Grote and Robinson, 1867)
451. *calanus* (Hübner, [1809])
452. *kingi* (Klots & Clench, 1952)
453. *liparops* (Leconte, 1833)
454. *auretorum* (Boisduval, 1852)
455. *tetra* (W.H. Edwards, 1870)
456. *saepium* (Boisduval, 1852)
457. *behrii* (W.H. Edwards, 1870)
458. *fuliginosa* (W.H. Edwards, 1861)
[Pyle (2002) noted that there may be two or more species in the Pacific Northwest.

This possible complex is under investigation by PAO. Several apparent relatives are found in temperate Asia (Tuzov et al. 2000).]

***[Species previously placed in *Fixsenia* Tutt, 1907 and *Harkenclenus* dos Passos, 1970, are now placed in *Satyrium* by Robbins (in press).]**

Phaeostrymon Clench, 1961*

459. *alcestis* (W.H. Edwards, 1871)

Ocaria Clench, 1970

460. *ocrisia* (Hewitson, 1868)

Chlorostrymon Clench, 1961*

461. *simaethis* (Drury, 1773)

462. *maesites* (Herrich-Schäffer, 1865)

463. *telea* (Hewitson, 1868)

Allosmaitia Clench, [1964]

464. *strophius* (Godart, [1824])

[*Allosmaitia pion* (Godman & Salvin 1887) is a synonym, *fide* Robbins (in press); also see Ferris (1989c: p. 28).]

Electrostrymon Clench, 1961*

465. *sangala* (Hewitson, 1868)

[Previously known as *E. endymion cyphara* (Hewitson, 1874), a name placed in synonymy by Robbins (in press).]

466. *joya* (Dognin, 1895)

[Previously referred to as *E. canus* (Druce, 1907), a name placed in synonymy by Robbins (in press).]

467. *angelia* (Hewitson, 1874)

Calycopis Scudder, 1876

468. *cecrops* (Fabricius, 1793)

469. *isobeon* (Butler & H. Druce, 1872)

Strymon Hübner, 1818

470. *melinus* (Hübner, [1813])

471. *avalona* (W.G. Wright, 1905)

472. *rufofusca* (Hewitson, 1877)

473. *albata* (C. Felder & R. Felder, 1865)

474. *alea* (Godman & Salvin, 1887)

475. *bebrycia* (Hewitson, 1868)

476. *yojoa* (Reakirt, [1867])

477. *cestri* (Reakirt, [1867])

478. *martialis* (Herrich-Schäffer, 1865)

479. *istapa* (Reakirt, [1867])

[Formerly known as *columella* (Fabricius, 1793), which was determined to be a Caribbean species by Robbins & Nicolay (1999).]

480. *bazochii* (Godart, [1824])

481. *acis* (Drury, 1773)

482. *limenia* (Hewitson, 1868)

483. *serapio* (Godman & Salvin, 1887)

Tmolus Hübner, [1819]

484. *echion* (Linnaeus, 1767)

Ministrymon Clench, 1961*

485. *leda* (W.H. Edwards, 1882)

486. *clytie* (W.H. Edwards, 1877)

487. *azia* (Hewitson, 1873)

Strephonota K. Johnson, Austin, Le Crom & Salazar, 1997*

488. *tephraeus* (Geyer, 1837)

Oenomaus Hübner, [1819]

489. *ortygnus* (Cramer, 1779)

Parrhasius Hübner, [1819]

490. *m-album* (Boisduval & Leconte, 1833)

Hypostrymon Clench, 1961*

491. *critola* (Hewitson, 1874)

Erora Scudder, 1872

492. *laeta* (W.H. Edwards, 1862)

493. *quaderna* (Hewitson, 1868)

Tribe Polyommatini (Blues)

[Our generic arrangement of this tribe follows Bálint & Johnson (1995).]

Leptotes Scudder, 1876

494. *cassius* (Cramer, 1775)

495. *marina* (Reakirt, 1868)

Zizula Chapman, 1910

496. *cyna* (W.H. Edwards, 1881)

Brephidium Scudder, 1876

497. *exilis* (Boisduval, 1852)

498. *pseudofea* (Morrison, 1873)

[Brown & Heineman (1972), Riley (1975) and Smith et al. (1994) treat *pseudofea* as a separate species from *exilis* (based on genitalic differences between them reported by Comstock & Huntington (1943)), and treat *isophthalma* (Herrich-Schäffer, 1862) as a subspecies of *exilis*. Note that Bordelon & Knudson (2000) mention possible intermediates between *exilis* and *pseudofea* from Texas, and Pavulaan & Gatrelle (1999) suggest *exilis* and *pseudofea* may be conspecific (as treated by Scott (1986)), but provide little evidence to support their claim; further study is badly needed.]

Cupido Schrank, 1801

499. *comyntas* (Godart, [1824])

500. *amyntula* (Boisduval, 1852)

[We follow Karsholt & Razowski (1996), Hesselbarth et al. (1995: 547), and Gorbunov (2001) in treating *Everes* Hübner, [1819] as a subgenus of *Cupido*.]

Celastrina Tutt, 1906

501. *ladon* (Cramer, 1780)

502. *lucia* (W. Kirby, 1837)

[Evidence of this taxon being a full species is provided by Pavulaan (1995), Kondla (1999), Nielsen (1999), and Oehlenschlager & Huber (2002).]

503. *neglecta* (W.H. Edwards, 1862)
504. *echo* (W.H. Edwards, 1864)
[Treated as a full species by Guppy & Shepard (2001).]
***[Further elaboration on the relationships between *echo*, *nigrescens* (Fletcher, 1903), *sidara* (Clench, 1944), *cinerea* (W.H. Edwards, 1883), *gozora* (Boisduval, 1870), and Baja California populations (see Brown et al. 1992) is needed to determine their status; some or all of which may represent species-level taxa.]**
505. *nigra* (Forbes, 1960)*
[*Celastrina ebenina* Clench, 1972* is a synonym; see Scott & Wright (1993).]
506. *neglectamajor* Opler & Krizek, 1984*
507. *humulus* Scott & D. Wright, 1998*
508. *idella* Wright & Pavulaan, 1999*
***[Additional species-level entities, including at least one undescribed species, have been recognized by some (see Pratt et al. (1994), Wright (1995) and Layberry et al. (1998)), including *violacea* (W.H. Edwards, 1866).]**
***[It is uncertain which, if any, of our North American *Celastrina* taxa are conspecific with *argiolus* (Linnaeus, 1758), where they have traditionally been placed (see Eliot & Kawazoé 1983).]**

Glaucopsyche Scudder, 1872
509. *piasus* (Boisduval, 1852)
510. *lygdamus* (Doubleday, 1841)
[The extinct *G. xerces* (Boisduval, 1852) was suggested to be a subspecies of *lygdamus* by Scott (1986).]

Philotes Scudder, 1876
511. *sonorensis* (C. Felder & R. Felder, 1865)

Philotiella Mattoni, [1978]
512. *speciosa* (Hy. Edwards, 1877)
513. *leona* Hammond & McCorkle, 2000*

Euphilotes Mattoni, [1978]
[Most recent treatments of this genus are by Mattoni (1989), Pratt (1988, 1994, 1999), Pratt & Ballmer (1993), and Pratt & Emmel (1998). It is likely that additional species-level taxa will be delineated in the future.]
514. *battoides* (Behr, 1867)
[Tentatively includes, among others, *centralis* (Barnes & McDunnough, 1917).]
515. *bernardino* (Barnes & McDunnough, 1916)
516. *intermedia* (Barnes & McDunnough, 1917)
[Includes *oregonensis* (Barnes & McDunnough, 1917).]
517. *ellisi* (Shields, 1975)*
518. *baueri* (Shields, 1975)*
519. *enoptes* (Boisduval, 1852)
520. *ancilla* (Barnes & McDunnough, 1918)
521. *mojave* (Watson & W.P. Comstock, 1920)
522. *rita* (Barnes & McDunnough, 1916)
523. *pallescens* (Tilden & Downey, 1955)

524. *spaldingi* (Barnes & McDunnough, 1917)

Hemiargus Hübner, 1818

525. *ceraunus* (Fabricius, 1793)

[Note that Brown & Heineman (1972), Riley (1975), Smith et al. (1994) and Lamas (in press) treat *ceraunus* as a subspecies of *hanno* (Stoll, 1790); however, Clench (1977) and Johnson & Bálint (1995) consider the two as separate species, and Schwartz (1989) reported *hanno* and *ceraunus* as widely sympatric on Hispaniola. The situation needs further study.]

Echinargus Nabokov, 1945*

526. *isola* (Reakirt, [1867])

Cyclargus Nabokov, 1945*

527. *thomasi* (Clench, 1941)

528. *ammon* (Lucas, 1857)

[This species was first reported in our region by Beck (1985), from Big Pine Key, Monroe Co., Florida; it was subsequently photographed there by Krizek (1998).]

***[Generic treatment of *Hemiargus*, *Echinargus*, and *Cyclargus* follows Nabokov (1945), Smith et al. (1994), Bálint & Johnson (1995), Johnson & Bálint (1995), and Lamas (in press); also see Brown & Heineman (1972).]**

Plebejus Kluk, 1780

529. *idas* (Linnaeus, 1761)

530. *anna* (W.H. Edwards, 1861)

[This taxon was treated as a full species by Bálint & Johnson (1997), Guppy & Shepard (2001), and Pyle (2002); also see Nice & Shapiro (1999). More fieldwork and laboratory investigations are needed to clarify the situation in North America and Eurasia (see Tuzov et al. 2000).]

531. *melissa* (W.H. Edwards, 1873)

[See Lane & Weller (1994) for details on the taxonomic status of *P. melissa* populations, including *samuelis* (Nabokov, 1944).]

532. *saepiolus* (Boisduval, 1852)

533. *emigdionis* (F. Grinnell, 1905)

534. *icarioides* (Boisduval, 1852)

535. *shasta* (W.H. Edwards, 1862)

536. *acmon* (Westwood, [1851])

537. *lupini* (Boisduval, 1869)

[The previous two species appear to represent a species complex containing, at present, an unknown number of species. The group appears to be much more diverse than was suggested by Goodpasture (1973, 1974). Recently, Scott (1998) transferred several subspecies from *acmon* to *lupini*, but presented almost no data to support the changes. The complex is currently under study by PAO (Opler, 2003).]

538. *neurona* (Skinner, 1902)

539. *optilete* (Knoch, 1781)

540. *glandon* (de Prunner, 1798)

541. *podarce* (C. Felder & R. Felder, 1865)

542. *cassiope* (J. Emmel & T. Emmel, 1998)*

[Relationships of the above three taxa were discussed by Emmel & Emmel (1998), but are still under debate. Some authors recognize additional species, including *rusticus* (W.H. Edwards, 1865) and *franklinii* (Curtis, 1835); see Ferris (1989c).]

[Our treatment of *Plebejus* follows that presented by Gorbunov (2001). He refers to it as a "supergenus" with many subgenera, which in our area include *Lycaeides* Hübner, [1819], *Plebulina* Nabokov, [1945], *Icaricia* Nabokov, [1945], *Vacciniina* Tutt, 1909, and *Agriades* Hübner, [1819]. Bálint & Johnson (1997) present a considerably different arrangement of the group, placing our members in *Aricia* [Reichenbach], 1817, *Albulina* Tutt, 1909 and *Plebejus*. None of these authors retain the use of *Lycaeides*, *Icaricia*, *Vacciniina* or *Plebulina* as valid genera.]

FAMILY RIODINIDAE

[Our treatment of the Riodinidae as a family follows Robbins (1988a,b) and Callaghan and Lamas (in press), but should be considered a tentative arrangement only. The relationship of this group to the Lycaenidae and Danainae requires further study, as noted by Campbell et al. (2000).]

Subfamily Riodininae

Calephelis Grote & Robinson, 1869

543. *virginiensis* (Guérin-Méneville, [1832])
544. *borealis* (Grote & Robinson, 1866)
545. *muticum* McAlpine, 1937
546. *nemesis* (W.H. Edwards, 1871)
547. *perditalis* Barnes & McDunnough, 1918
548. *wrighti* Holland, 1930
549. *rawsoni* McAlpine, 1939

[Scott (1986) lumped *freemani* McAlpine, 1971* and *arizonensis* McAlpine, 1971* as subspecies of *rawsoni*, yet presented no data in support of these changes (but did describe genitalic differences between these taxa). We do not accept his combinations, and stress that further study of this genus is badly needed; Neck (1996) treats *freemani* as a full species. The status of *C. dreisbachi* McAlpine, 1971* (one specimen from Arizona in the type series) needs clarification, and is tentatively not included in our list of species.]

550. *freemani* McAlpine, 1971*
551. *arizonensis* McAlpine, 1971*

Caria Hübner, 1823

552. *ino* Godman & Salvin, 1886

Lasaia H.W. Bates, 1868

553. *sula* Staudinger, 1888
554. *maria* Clench, 1972*

[Specimen collected in Guadalupe Canyon, Cochise Co., Arizona, by Kilian Roever; determination confirmed by R. Bailowitz.]

Melanis Hübner, [1819]

555. *pixe* (Boisduval, 1836)

Emesis Fabricius, 1807

556. *zela* Butler, 1870

557. *ares* (W.H. Edwards, 1882)

[Callaghan and Lamas (in press) treat *ares* as a synonym of *zela cleis* (W.H. Edwards, 1882), but we feel that further study of the types is needed, since two species indeed appear to be involved in our region (e.g. Bailowitz & Brock 1991).]

558. *emesia* (Hewitson, 1867)

559. *tenedia* C. Felder & R. Felder, 1861

Apodemia C. Felder & R. Felder, 1865

560. *mormo* (C. Felder & R. Felder, 1859)

561. *duryi* (W.H. Edwards, 1882)

[See Toliver et al. (1994) for notes on the specific status of *duryi*.]

562. *virgulti* (Behr, 1865)

563. *mejicanus* (Behr, 1865)

[Species-level relationships of the *mormo* complex (above four taxa) remain poorly understood, and our arrangement is tentative. Our treatment is based, in part, on information in Pratt & Ballmer (1991), Cary & Holland (1992) and Toliver et al. (1994). The group has not been considered as a whole since the analysis of Opler & Powell (1962).]

564. *palmerii* (W.H. Edwards, 1870)

565. *hepburni* Godman & Salvin, 1886

566. *walkeri* Godman & Salvin, 1886

567. *multiplaga* Schaus, 1902

568. *phyciodoides* Barnes & Benjamin, 1924

[Possibly extirpated in U.S. portion of range (Bailowitz & Brock 1991); also see Holland & Forbes (1981).]

569. *nais* (W.H. Edwards, 1877)

570. *chisosensis* H.A. Freeman, 1964*

FAMILY NYMPHALIDAE

[Our subfamily and generic arrangement generally follows Harvey (1991), as modified by Ackery et al. (1999), Freitas (1999), Brower (2000), Wahlberg (2002), Freitas & Brown (in preparation) and Lamas (in press), although studies are under way to further resolve relationships. It is possible that the family, as presented here, is not a monophyletic group, since the exact placement of the Libytheinae and Danainae remains uncertain (see Campbell et al. 2000).]

Subfamily Libytheinae

Libytheana Michener, 1943

571. *carinenta* (Cramer, 1777)

[Many authors (e.g. Field 1940, Friedlander 1984, Shields 1984, 1985, Okano 1987, Ferris 1989c, Motono 1993, and Austin & Emmel 1998) treat *bachmanii* (Kirtland, 1851) and *carinenta* as separate species. However, little information on populations across North and Central America is available, and reported genitalic differences

between the two do not hold up in series (Kawahara 2001, pers. comm. 2002).]

572. *motya* (Hübner, [1823])
[Heitzman & Heitzman (1973) reported this species from Texas as rare strays or temporary colonists from Cuba; see Alayo and Hernández (1981).]

Subfamily Danainae
[In our area this subfamily includes the tribes Danaini and Ithomiini; see Ackery & Vane-Wright (1984), Ackery (1987), and Ackery et al. (1999).]
Danaus Kluk, 1780
573. *plexippus* (Linnaeus, 1758)
574. *gilippus* (Cramer, 1775)
575. *eresimus* (Cramer, 1777)
Lycorea Doubleday, [1847]
576. *halia* (Hübner, 1816)
[Central American populations are sometimes treated as species *cleobaea* (Godart, 1819), e.g. Miller & Brown (1981), Schwartz (1989), Brown (1992), and Smith et al. (1994); but see Lamas (in press).]
Dircenna Doubleday, 1847
577. *klugii* (Geyer, 1837)

Subfamily Heliconiinae
Dione Hübner, [1819]
578. *moneta* Hübner, [1825]
Agraulis Boisduval & Leconte, [1835]
579. *vanillae* (Linnaeus, 1758)
Dryas Hübner, [1807]
580. *iulia* (Fabricius, 1775)
Dryadula Michener, 1942
581. *phaetusa* (Linnaeus, 1758)
Eueides Hübner, 1816
582. *isabella* (Stoll, 1781)
Heliconius Kluk, 1780
583. *charithonia* (Linnaeus, 1767)
[Spelling corrected to original orthography (Brower 1994).]
584. *erato* (Linnaeus, 1758)
Euptoieta Doubleday, 1848
585. *claudia* (Cramer, 1775)
586. *hegesia* (Cramer, 1779)
Speyeria Scudder, 1872
587. *diana* (Cramer, 1777)
588. *cybele* (Fabricius, 1775)
[Includes *leto* (Behr, 1862), although this is treated as a full species by some (e.g. Kondla 1999).]

589. *aphrodite* (Fabricius, 1787)
590. *idalia* (Drury, 1773)
591. *nokomis* (W.H. Edwards, 1862)
592. *edwardsii* (Reakirt, 1866)
593. *coronis* (Behr, 1864)
594. *zerene* (Boisduval, 1852)
595. *carolae* (dos Passos & Grey, 1942)

[Although somewhat intermediate between *coronis* and *zerene*, this isolated, disjunct taxon was considered a full species by Emmel & Austin (1998).]

596. *callippe* (Boisduval, 1852)
597. *egleis* (Behr, 1862)
598. *adiaste* (W.H. Edwards, 1864)
599. *atlantis* (W.H. Edwards, 1862)
600. *hesperis* (W.H. Edwards, 1864)

[Pyle (2002) treats the above two taxa as a single species based on unpublished research by Paul Hammond. Until this evidence is presented, we follow the arrangement proposed by Scott et al. (1998); also see Ferris (1983).]

601. *hydaspe* (Boisduval, 1869)
602. *mormonia* (Boisduval, 1869)

Boloria Moore, [1900]

[We follow a broad usage of *Boloria*; see dos Passos & Grey (1945), dos Passos (1964), Grey (1957, 1989) and Gorbunov (2001). *Clossiana* Reuss, 1920 and *Proclossiana* Reuss, 1926 are considered to be subgenera or synonyms (but see Warren (1944), Miller & Brown (1981) and Aubert et al. (1996)).]

603. *alaskensis* (Holland, 1900)

[*Boloria napaea* (Hoffmansegg, 1804) is a separate Eurasian species with differing genitalia that reportedly occurs sympatrically with *alaskensis* at some locations. See discussions by Crosson du Cormier (1977), Dubatolov (1992), Kosterin (2000), Tuzov et al. (2000), and Gorbunov (2001).]

604. *eunomia* (Esper, 1800)
605. *selene* ([Denis & Schiffermüller], 1775)
606. *bellona* (Fabricius, 1775)
607. *frigga* (Thunberg, 1791)
608. *improba* (Butler, 1877)

[Includes *acrocnema* Gall & Sperling, 1980*.]

609. *kriemhild* (Strecker, 1879)
610. *epithore* (W.H. Edwards, 1864)
611. *polaris* (Boisduval, [1828])
612. *freija* (Thunberg, 1791)
613. *natazhati* (Gibson, 1920)

[Taxonomic status as a full species detailed by Troubridge & Wood (1995), Shepard et al. (1998), and Guppy & Shepard (2001).]

614. *alberta* (W.H. Edwards, 1890)
615. *astarte* (Doubleday, [1847])

[Tentatively includes *distincta* (Gibson, 1920), following dos Passos (1961); but see Wyatt (1958). The relationship of *astarte* to *distincta* and *tschukotkensis* (Wyatt, 1961) needs further elaboration. Guppy & Shepard (2001) very briefly summarize reasons for using *tritonia* (Böber, 1812) for our North American populations, a combination also implied by Gorbunov (2000). However, no comprehensive review of the complex has been presented, and Tuzov et al. (2000) maintain *tritonia* and *distincta* as separate species.]

616. *chariclea* (Schneider, 1794)

[Includes our former concept of *titania* (Esper, [1793]), a wholly Palaearctic taxon (see Shepard 1998); also includes *montinus* (Scudder, 1863). However, the possibility exists that more than one species is being represented in our area by this name (see Layberry et al. 1998).]

Subfamily Nymphalinae

Poladryas Bauer, 1961

617. *minuta* (W.H. Edwards, 1861)

618. *arachne* (W.H. Edwards, 1869)

[We do not feel that Scott (1974, 1986) presents sufficient data to lump the above two taxa. Several authors also maintain *arachne* and *minuta* as full species, e.g. Ferris (1989c) and Austin (1998a); however, further research in the U.S. and Mexico is needed to resolve the situation.]

Chlosyne Butler, 1870

619. *theona* (Ménétriés, 1855)

[Includes *chinatiensis* (Tinkham, 1944), according to Austin & Smith (1998).]

620. *cyneas* (Godman & Salvin, 1878)

621. *fulvia* (W.H. Edwards, 1879)

622. *leanira* (C. Felder & R. Felder, 1860)

623. *californica* (W.G. Wright, 1905)

624. *lacinia* (Geyer, 1837)

625. *definita* (E.M. Aaron, [1885])

626. *endeis* (Godman & Salvin, 1894)

627. *janais* (Drury, 1782)

628. *rosita* A. Hall, 1924

629. *melitaeoides* (C. Felder & R. Felder, 1867)

[See Kendall & McGuire (1984) for reports from Texas.]

630. *eumeda* (Godman & Salvin, 1894)

[Kons (2000) and Luis et al. (2003) consider *eumeda*, *melitaeoides* and *marina* (Geyer, 1837) to be separate species (these were lumped by Scott (1986) without justification). The report from Pima Co., Arizona, appears to be of the semi-desert species, *eumeda*; however, *C. marina* also occurs in Sonora, Mexico, in montane habitats.]

631. *gorgone* (Hübner, [1810])

632. *nycteis* (Doubleday, [1847])

[A petition to the International Commission on Zoological Nomenclature to

suppress *ismeria* (Boisduval & Leconte, [1835]), a possible senior synonym of *nycteis* (see Gatrelle 1998, 2000), is in preparation; see ICZN (1999).]

633. *harrisii* (Scudder, 1864)

634. *palla* (Boisduval, 1852)

635. *gabbii* (Behr, 1863)

636. *acastus* (W.H. Edwards, 1874)

[Includes *neumoegeni* (Skinner, 1895), among others.]

637. *whitneyi* (Behr, 1863)

[Tentatively includes *damoetas* (Skinner, 1902), following Scott (1998) and Kons (2000), but further elaboration on the relationships of taxa in this group is needed.]

638. *hoffmanni* (Behr, 1863)

***[*Charidryas* Scudder, 1872 (see Higgins 1960) and *Thessalia* Scudder, 1875 (see Wahlberg & Zimmerman 2000) are considered synonyms of *Chlosyne*.]**

Microtia H.W Bates, 1864

639. *elva* H.W. Bates, 1864

Dymasia Higgins, 1960*

640. *dymas* (W.H. Edwards, 1877)

Texola Higgins, 1959

641. *elada* (Hewitson, 1868)

Phyciodes Hübner, [1819]

642. *graphica* (R. Felder, 1869)

[*Phyciodes graphica*, described in April, 1869, supercedes *P. vesta* (W.H. Edwards, 1869), which was described in September-October, 1869; see Lamas (in press).]

643. *picta* (W.H. Edwards, 1865)

644. *orseis* W.H. Edwards, 1871

645. *pallida* (W.H. Edwards, 1864)

646. *mylitta* (W.H. Edwards, 1861)

647. *phaon* (W.H. Edwards, 1864)

648. *tharos* (Drury, 1773)

649. *cocyta* (Cramer, 1777)

[Supersedes *selenis* (W. Kirby, 1837), an apparent junior synonym; see Scott (1994).]

650. *batesii* (Reakirt, [1866])

651. *pulchella* (Boisduval, 1852)

[Lectotype designation of *pulchella* by Emmel et al. (1998a) displaces *pratensis* (Behr, 1863). See Miller & Brown (1981) for synonymy of *campestris* (Behr, 1863).]

***[Our treatment of *Phyciodes* follows Wahlberg et al. (2003).]**

Anthanassa Scudder, 1875

[Recognition of this genus follows Wahlberg & Zimmerman (2000).]

652. *frisia* (Poey, 1832)

653. *tulcis* (H.W. Bates, 1864)

654. *texana* (W.H. Edwards, 1863)

[*Anthanassa seminole* (Skinner, 1911) was suggested to be a species distinct from *texana* by Watts & Habeck (1991), and treated as such by Neck (1996); further

study is needed to determine its status.]

655. *ptolyca* (H.W. Bates, 1864)

656. *argentea* (Godman & Salvin, 1882)

[First U.S. record reported by Chuah & Cushing (1995); also see Bordelon & Knudson (2000). *Anthanassa ardys* (Hewitson, 1864) may have also strayed into Texas (see Excluded Species).]

Tegosa Higgins, 1981*

657. *anieta* (Hewitson, 1864)

Euphydryas Scudder, 1872

658. *gillettii* (Barnes, 1897)

659. *phaeton* (Drury, 1773)

660. *editha* (Boisduval, 1852)

661. *chalcedona* (Doubleday, [1847])

662. *anicia* (Doubleday, [1847])

[We tentatively consider *anicia* to be a separate species from *chalcedona* following Ferris (1989b), Guppy & Shepard (2001) and Pyle (2002), however further elaboration on the relationship between the two taxa is needed. While the taxa clearly behave as two species in the Pacific Northwest, their relationship appears to be less well defined in other areas, e.g. Brussard et al. (1989), Austin & Murphy (1998). We tentatively consider *colon* (W.H. Edwards, 1881) to be conspecific with *chalcedona*, but again, much additional research is needed. A recent study by Zimmerman et al. (2000) did not resolve relationships among these taxa.]

***[Following Wahlberg & Zimmerman (2000) and Zimmerman et al. (2000), *Occidryas* Higgins, 1978* and *Hypodryas* Higgins, 1978* are considered synonyms of *Euphydryas*.]**

Hypolimnas Hübner, [1819]

663. *misippus* (Linnaeus, 1764)

Junonia Hübner, [1819]

[Our use of *Junonia* instead of *Precis* Hübner, [1819] follows de Lesse (1952), Turner & Parnell (1985), and Lamas (in press); but see Hemming (1934) and Comstock (1944).]

664. *coenia* Hübner, [1822]

665. *evarete* (Cramer, 1779)

[Includes *nigrosuffusa* Barnes & McDunnough, 1916 (*contra* Turner & Parnell 1985), following Lamas (in press).]

666. *genoveva* (Stoll, 1780)

***[The relationships between these *Junonia* taxa need further elaboration; see Hafernik (1982), Turner & Parnell (1985), and Lamas (in press).]**

Anartia Hübner, [1819]

667. *jatrophae* (Linnaeus, 1763)

668. *fatima* (Fabricius, 1793)

[Sometimes treated as a subspecies of *amathea* (Linnaeus, 1758), e.g. Lamas (in press); but see Silberglied et al. (1979), Dasmahapatra et al. (2002), and Blum et al. (2003).]

669. *chrysopelea* (Hübner, [1831])

[Reported as a subspecies of *lytrea* (Godart, 1819) by Anderson (1974), Bennett & Knudson (1976), Scott (1986), and Lamas (in press); but see Silberglied et al. (1979), Alayo & Hernández (1981), and Blum et al. (2003).]

Siproeta Hübner, [1823]

670. *stelenes* (Linnaeus, 1758)

671. *epaphus* (Latreille, [1813])

Polygonia Hübner, [1819]

672. *interrogationis* (Fabricius, 1798)

673. *comma* (Harris, 1842)

674. *satyrus* (W.H. Edwards, 1869)

675. *faunus* (W.H. Edwards, 1862)

676. *gracilis* (Grote & Robinson, 1867)

[Includes *zephyrus* (W.H. Edwards, 1870); see Scott (1984) and Layberry et al. (1998).]

677. *progne* (Cramer, 1775)

678. *oreas* (W.H. Edwards, 1869)

[This species was treated as distinct from *progne* (*contra* Scott 1984) by Bird et al. (1995), Layberry et al. (1998), and Guppy & Shepard (2001).]

Aglais Dalman, 1816

679. *milberti* (Godart, 1819)

680. *urticae* (Linnaeus, 1758)

[Several individuals of this common Palaearctic butterfly have been captured or photographed (e.g. Glassberg 1992, Zirlin & Ingraham 1997, Zirlin 2002), and this species is likely either an occasional accidental introduction or, less likely, a periodic vagrant.]

Nymphalis Kluk, 1780

681. *vaualbum* (Denis and Schiffermüller)

[Guppy & Shepard (2001: pp. 256-257) indicate that *vaualbum* may be a *nomen nudum* (see ICZN 1999), and use *l-album* (Esper, 1781) in its place. This treatment is repeated by Wahlberg & Nylin (2003). A petition to the ICZN is being prepared to resolve the issue, and until the commission rules, we maintain the name in widest use, *vaualbum*, as recommended by the ICZN (1999). See Sattler & Tremewan (1984) for further discussion.]

[The inclusion of *l-album* (formerly as *vau-album*) in *Roddia* Korshunov, 1995 by Guppy and Shepard (2001) and others is reversed by Wahlberg & Nylin (2003).]

682. *antiopa* (Linnaeus, 1758)

683. *californica* (Boisduval, 1852)

[Miller & Miller (1990) treat *californica* as a subspecies of the Eurasian *xanthomelas* Esper [1781], but see Nylin et al. (2001).]

***[Our arrangement of *Nymphalis* and *Aglais* follows Nylin et al. (2001) as modified by Wahlberg and Nylin (2003).]**

Vanessa Fabricius, 1807

684. *atalanta* (Linnaeus, 1758)

685. *cardui* (Linnaeus, 1758)

686. *annabella* (Field, 1971)*

687. *virginiensis* (Drury, 1773)

[Some authors place the above three species in *Cynthia* Fabricius, 1807, following Field (1971), but several natural hybrids between *atalanta* and *annabella* are known (Comstock 1927, Dimock 1973, Tilden & Smith 1986).]

Hypanartia Hübner, [1821]

688. *lethe* (Fabricius, 1793)

Historis Hübner, [1819]

689. *odius* (Fabricius, 1775)

690. *acheronta* (Fabricius, 1775)

Smyrna Hübner, [1823]

691. *blomfildia* (Fabricius, 1781)

Subfamily Limenitidinae

[Our treatment of the Limenitidinae and Biblidinae follows Freitas (1999), Wahlberg (2002) and Freitas & Brown (in preparation), although Lamas (in press) places this subfamily within the Biblidinae, and *Marpesia* may belong elsewhere; further study is needed.]

Limenitis Fabricius, 1807

[*Basilarchia* Scudder, 1872 is considered a synonym; see Chermock (1950), Niculescu (1986), Tuzov et al. (2000), and Gorbunov (2001).]

692. *arthemis* (Drury, 1773)

693. *archippus* (Cramer, 1775)

694. *lorquini* (Boisduval, 1852)

695. *weidemeyerii* W.H. Edwards, 1861

[Suggested to be conspecific with *lorquini* by Porter (1990), but see Boyd et al. (1999).]

Adelpha Hübner, [1819]

696. *bredowii* Geyer, 1837

697. *fessonia* (Hewitson, 1847)

698. *basiloides* (H.W. Bates, 1865)

[Opler (1992) and Neck (1996) reported this species from Texas.]

Marpesia Hübner, 1818

699. *chiron* (Fabricius, 1775)

700. *petreus* (Cramer, 1776)

701. *eleuchea* Hübner, 1818

702. *zerynthia* Hübner, [1823]

[This species is occasionally listed as *M. coresia* (Godart, [1824]), a junior synonym of *zerynthia* (see Neild 1996).]

Subfamily Biblidinae

Biblis Fabricius, 1807

703. *hyperia* (Cramer, 1779)

Mestra Hübner, [1825]

704. *amymone* (Ménétriés, 1857)

[This is sometimes treated as a subspecies of the Jamaican *M. dorcas* (Fabricius, 1775), e.g. Lamas (in press).]

Eunica Hübner, [1819]

705. *monima* (Stoll, 1782)

706. *tatila* (Herrich-Schäffer, [1855])

Myscelia Doubleday, [1845]

707. *ethusa* (Doyère, [1840])

708. *cyananthe* C. Felder & R. Felder, 1867

Dynamine Hübner, [1819]

709. *dyonis* Geyer, 1837

[Sometimes considered to be a subspecies of the Caribbean *D. egaea* (Fabricius, 1775), e.g. de la Maza & Turrent (1985) and Smith et al. (1994), but *serina* (Fabricius, 1775) has precedence over *egaea* (see Lamas in press).]

Diaethria Billberg, 1820

710. species

[The west Texas *Diaethria* record (see Kendall & McGuire 1984, Neck 1996) is apparently of *D. anna* (Guérin-Méneville, [1844]) or *D. astala* (Guérin-Méneville, [1844]), since these are the only *Diaethria* species resident in northeastern Mexico (de la Maza & Turrent 1985); however, the west Texas specimen has not been positively determined and is reportedly no longer extant. There are also unverified records for both *anna* and *astala* from south Texas (Stanford 2002). See Excluded Species.]

Epiphile Doubleday, [1845]

711. *adrasta* Hewitson, 1861

Hamadryas Hübner, [1806]

712. *februa* (Hübner, [1823])

713. *amphichloe* (Boisduval, 1870)

714. *glauconome* (H.W. Bates, 1864)

715. *atlantis* (H.W. Bates, 1864)

716. *feronia* (Linnaeus, 1758)

717. *guatemalena* (H.W. Bates, 1864)

718. *iphthime* (H.W. Bates, 1864)

719. *amphinome* (Linnaeus, 1767)

Subfamily Charaxinae

Anaea Hübner, [1819]

720. *troglodyta* (Fabricius, 1775)

[Includes *floridalis* F. Johnson & W.P. Comstock, 1941, in accordance with Lamas (in press), but see discussion by Smith et al. (1994: p. 65).]

721. *aidea* (Guérin-Méneville, [1844])

[Often considered a species-level taxon (e.g. DeVries 1987), but sometimes treated as a subspecies of *troglodyta* (e.g. Lamas in press).]

722. *andria* Scudder, 1875

Memphis Hübner, [1819]

723. *glycerium* (Doubleday, [1849])

[Some authors (e.g. Lamas in press) place *glycerium* in the genus *Fountainea* Rydon, 1971*, but the monophyly of *Fountainea* has not been demonstrated and is questionable.]

724. *pithyusa* (R. Felder, 1869)

725. *echemus* (Doubleday, [1849])

Subfamily Apaturinae

Asterocampa Röber, 1915

726. *celtis* (Boisduval & Leconte, [1835])

727. *leilia* (W.H. Edwards, 1874)

728. *clyton* (Boisduval & Leconte, [1835])

729. *idyja* (Geyer, [1828])

[It is possible that *Asterocampa argus* (H.W. Bates, 1864), currently treated as the continental subspecies of *idyja*, may comprise a separate species (see Smith et al. 1994).]

***[Our treatment of *Asterocampa* species follows Friedlander (1987), although further study of the genus is needed.]**

Doxocopa Hübner, [1819]

730. *laure* (Drury, 1773)

731. *pavon* (Latreille, [1809])

Subfamily Morphinae

Morpho Fabricius, 1807

732. *polyphemus* Westwood, [1850]

Subfamily Satyrinae

[Our arrangement of this subfamily generally follows the classification presented by Miller (1968), as modified by Harvey (1991).]

Enodia Hübner, [1819]

733. *portlandia* (Fabricius, 1781)

734. *anthedon* A.H. Clark, 1936

735. *creola* (Skinner, 1897)

Satyrodes Scudder, 1875

736. *eurydice* (Linnaeus, 1763)

737. *appalachia* (R.L. Chermock, 1947)

Cyllopsis R. Felder, 1869

738. *pyracmon* (Butler, 1867)

[*Cyllopsis henshawi* (W.H. Edwards, 1876) is treated as a seasonal form of

***pyracmon*, as suggested by Bailowitz & Brock (1991) and Brock (1998); but see Miller (1974).]**

739. *pertepida* (Dyar, 1912)

740. *gemma* (Hübner, 1808)

Hermeuptychia Forster, 1964*

741. *sosybius* (Fabricius, 1793)

[The status of *sosybius* versus *hermes* (Fabricius, 1775) is uncertain and requires detailed study; see Forster (1964), Miller & Brown (1981: p. 241, note 624), and Smith et al. (1994). The use of *hermes* prevails in the Neotropical literature, e.g. Lamas (in press), for what may be (at least in part) the same species that occurs in our region.]

Neonympha Hübner, [1818]

742. *areolatus* (J.E. Smith, 1797)

743. *helicta* (Hübner, 1808)

[Species status recently proposed by Gatrelle (1999); however, further research on this group is needed to clarify overall distributions and confirm the status of *helicta*.]

744. *mitchellii* French, 1889

Megisto Hübner, [1819]

745. *cymela* (Cramer, 1777)

[Includes *viola* (Maynard, 1891), following Catling & Calhoun (1997); however, it is still possible that more than one species is included under the name *cymela*, and further study is needed.]

746. *rubricata* (W.H. Edwards, 1871)

Paramacera Butler, 1868

747. *xicaque* (Reakirt, [1867])

[Tentatively includes *allyni* L. Miller, 1972*, following Scott (1986), but see Miller (1972). Further study is needed.]

Coenonympha Hübner, [1819]

748. *haydenii* (W.H. Edwards, 1872)

749. *tullia* (Müller, 1764)

[Treated as a species complex by Ferris (1989c); also see Davenport (1941) and Brown (1955, 1961). Included here are several taxa sometimes considered full species (e.g. dos Passos 1958); these include (among others) *ampelos* W.H. Edwards, 1871, *california* Westwood, 1851, *inornata* W.H. Edwards, 1861, *kodiak* W.H. Edwards, 1869, *ochracea* W.H. Edwards, 1861, and *nipisiquit* McDunnough, 1939. Layberry et al. (1998) treated *nipisiquit* as a full species based on (then) unpublished evidence by R. Webster; Webster (1999) subsequently treated *nipisiquit* as a subspecies of *tullia* but stressed that additional research was needed to determine its status. Handfield (1999) gave *nipisiquit* species-level status. Although gene flow between purported species was demonstrated by Porter & Geiger (1988) (also see Porter & Mattoon 1989), it is unclear which, if any, of our taxa are conspecific with the Eurasian *C. tullia*; see Kondla (1999) and Guppy & Shepard (2001). It is likely that more than one species-level taxon is included in this complex. Further research

is badly needed since there is currently no satisfactory taxonomic arrangement for this group.]

Cercyonis Scudder, 1875

750. *pegala* (Fabricius, 1775)

751. *sthenele* (Boisduval, 1852)

752. *meadii* (W.H. Edwards, 1872)

753. *oetus* (Boisduval, 1869)

Erebia Dalman, 1816

754. *vidleri* Elwes, 1898

755. *rossii* (Curtis, 1835)

756. *disa* (Thunberg, 1791)

757. *mancinus* Doubleday, [1849]

[See Layberry et al. (1998) for separation of *mancinus* from *disa*.]

758. *magdalena* Strecker, 1880

759. *mackinleyensis* Gunder, 1932

[See Hilchie (1990) and Layberry et al. (1998) for separation of *mackinleyensis* from *magdalena*; however, Gorbunov (2001) treats the two as conspecific.]

760. *fasciata* Butler, 1868

761. *discoidalis* (W. Kirby, 1837)

762. *pawloskii* Ménétriés, 1859

[North American populations of this species have been referred to as *Erebia theano* (Tauscher, 1809), but Guppy & Shepard (2001) note that *Erebia theano* is restricted to eastern Siberia and Mongolia. See Tuzov et al. (1997). Gorbunov (2001, plate 41) illustrates the genitalia of both species.]

763. *youngi* Holland, 1900

764. *occulta* Roos & Kimmich, 1983*

[Our use of *occulta* over *anyuica* Kurentzov, 1966 follows Roos & Arnscheid (1984), Tuzov et al. (1997) and Belik & Zamolodchikov (2002); but see Dubatolov (1992) and Layberry et al. (1998).]

765. *lafontainei* Troubridge & Philip, 1983*

766. *callias* W.H. Edwards, 1871

767. *epipsodea* Butler, 1868

Gyrocheilus Butler, 1867

768. *patrobas* (Hewitson, 1862)

Neominois Scudder, 1875

769. *ridingsii* (W.H. Edwards, 1865)

[Scott (1998) described "*Hipparchia* (*Neominois*) *ridingsii wyomingo*" as a "new subspecies (or species?)", and suggested it is genetically isolated from *ridingsii*; Opler (1999) subsequently treated this as a full species. Additional field observations have shed some light on the situation but many questions remain and the status of *wyomingo* remains uncertain. The situation is currently under study by Matthew Garhart.]

Oeneis Hübner, [1819]

770. *philipi* Troubridge, 1988*

[The name *rosovi* Kurentzov, 1970 (a potential senior synonym of *philipi*) cannot be used in any meaningful way until a lectotype is designated, since two syntypes exist (but see Layberry et al. 1998). *Oeneis rosovi* was treated as a subspecies of *O. norna* (Thunberg, 1791) by Lukhtanov (1989), and as a synonym of that species by Gorbunov (2001). See also Lukhtanov & Eitschberger (2000).]

771. *polixenes* (Fabricius, 1775)

772. *jutta* (Hübner, [1806])

773. *melissa* (Fabricius, 1775)

774. *alpina* Kurentzov, 1970

[Includes *excubitor* Troubridge, Philip, Scott & Shepard, 1982* as a synonym, following Layberry et al. (1998).]

775. *bore* (Esper, 1798)

[Tentatively includes *taygete* Geyer, [1830], following Layberry et al. (1998), but further study is needed to clarify the relationship of these taxa; Tuzov et al. (1997) consider the taxa separate species.]

776. *chryxus* (Doubleday, [1849])

[Includes *ivallda* (Mead, 1878), following Porter & Shapiro (1991).]

777. *alberta* Elwes, 1893

778. *nevadensis* (C. Felder & R. Felder, 1867)

779. *macounii* (W.H. Edwards, 1885)

780. *uhleri* (Reakirt, 1866)

[Hassler & Feil (2002) recently reported the occurrence of *Oeneis nanna* (Ménétriés, 1859) in North America, with the description of a new subspecies (*kluanensis*). The authors did not examine sufficient material of *uhleri,* and the proper taxonomic placement of this taxon is currently being studied.]

Hawaiian Butterflies

Although not part of the North American continent, Hawaii is one of the 50 United States. For sake of completeness we present a list of the butterflies recorded from the Hawaiian Islands, based on Riotte & Uchida (1979). Additional information is provided by Zimmerman (1958).

Family Hesperiidae
- *Erionota torus* Evans, 1941
  [Originally misdetermined as *E. thrax* (Linnaeus, 1767) by Riotte & Uchida (1979).]
- *Hylephila phyleus* (Drury, 1773)

Family Papilionidae
- *Papilio xuthus* Linnaeus, 1767

Family Pieridae
- *Pieris rapae* (Linnaeus, 1758)

Family Lycaenidae
- *Tmolus echion* (Linnaeus, 1767)
- *Strymon bazochii* (Godart, [1824])
- *Lampides boeticus* (Linnaeus, 1767)
- *Brephidium exilis* (Boisduval, 1852)
- **Udara blackburni* (Tuely, 1878)
  [See Eliot & Kawazoé (1983) for generic combination.]

Family Nymphalidae
- *Agraulis vanillae* (Linnaeus, 1758)
- *Vanessa virginiensis* (Drury, 1773)
- *Vanessa cardui* (Linnaeus, 1758)
- *Vanessa atalanta* (Linnaeus, 1758)
- **Vanessa tameamea* Eschscholtz, 1821
- *Danaus plexippus* (Linnaeus, 1758)

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*Endemic to Hawaiian Islands. All others are introduced exotics.

Excluded Species

The species listed below have been excluded from the North American fauna due to erroneous or inadequate documentation, or recent change in status.\1 This is not an exhaustive list, but treats most discrepancies in the post-1980 literature that are not discussed in the text. See Calhoun (1997) for a complete list of erroneous Florida records.

Hesperiidae

Phocides urania (Westwood, [1852])

[Dubious Texas records reported by Aaron (1890); Arizona records are unsubstantiated (see Bailowitz & Brock 1991).]

Polythrix asine (Hewitson, 1867)

[Erroneously reported from the U.S. based on an unjustifiable assumption of conspecificity with *mexicanus* by Scott (1986); see Freeman (1969) and Austin & Warren (2002).]

Polythrix procerus (Plötz, 1880)

[Misidentified but later corrected to *P. octomaculata* by Freeman (1967); *procerus* is now placed in *Cephise* Evans, 1952* (see Austin & Mielke 2000).]

Codatractus melon (Godman & Salvin, 1893) [Unsubstantiated records; see Bailowitz & Brock (1991: p. 25).]

Urbanus evona Evans, 1952

[Unsubstantiated sight record (Glassberg 2004). Genitalic examination is necessary for definite identification (Evans 1952, Warren, personal communication).]

Urbanus pronta Evans, 1952*

[Record refers to *U. pronus*; see Kendall & McGuire (1984).]

Urbanus albimargo (Mabille, 1876)

[Unsubstantiated records from Texas apparently refer to *doryssus*; see Ferris (1989c: p. 6).]

Astraptes galesus (Mabille, 1888)

[Unsubstantiated records; see Bailowitz & Brock (1991: pp. 30-31). The species is unknown from Mexico (Warren 2000, 2002).]

Thorybes valeriana (Plotz, 1881)

[Our records refer to *Codatractus mysie* (see Burns 1996); however the identity of *valeriana* remains a mystery.]

Dyscophellus euribates (Stoll, 1782)

[The report of this species from Texas by Aaron (1890), as *Eudamus hesus* (Westwood, [1852]), is unsubstantiated (see Lindsey et al. 1931); *euribates* remains unknown from Mexico (Warren 2000, 2002).]

Cogia cajeta (Herrich-Schäffer, 1869)

[One unsubstantiated record from Texas (Stanford 2002).]

Pellicia costimacula Herrich-Schäffer, 1870

[This South American species was shown to be separate from *arina* by Steinhauser (1989).]

Pellicia angra Evans, 1953*

[All reports from our area (e.g. Tilden 1974) apparently refer to *Pellicia arina.*]

Staphylus azteca (Scudder, 1872)

[Single individual reported from Texas by Freeman (1977) later identified as *Staphylus ceos* by ADW, not *mazans* as reported by Cassie et al. (2001).]

Pyrgus adepta Plötz, 1884

[Two highly unlikely and unverified records exist from Texas (Stanford 2002).]

Heliopyrgus sublinea (Schaus, 1902)

[Unsubstantiated record for this species from Texas reported by Stanford (2002); see Austin & Warren (2001) for generic combination.]

Piruna cyclosticta (Dyar, 1920)

[The recent report of *Piruna pirus* from Jeff Davis Co., Texas (Bordelon 2000), may represent this species, as listed (with a "?") by Stanford (2002). We have not yet examined these specimens.]

Callimormus saturnus (Herrich-Schäffer, 1869)

[A single male of this species labeled from Texas (Evans 1955) is most likely mislabeled, although the species is common in tropical northern Mexico.]

Repens florus (Godman, 1900)

[A single unverified record exists from south Texas (Stanford 2002),although this species is resident in Sonora and Tamaulipas, Mexico; see Vargas et al. (1996), Warren et al. (1998) and Warren (2000, 2002) for generic combination.]

Remella remus (Fabricius, 1798)

[A single unsubstantiated record exists from Texas (Stanford 2002).]

Decinea huasteca (H.A. Freeman, 1969)*

[Although cited by Ferris (1989c), no U.S. voucher is known.]

Polites subreticulata (Plötz, 1883)

[Reports by Freeman (1951) of this species apparently refer to *P. carus*; see Burns (1994a).]

Anatrytone potosiensis (H.A. Freeman, 1969)*

[Although cited by Ferris (1989c), no U.S. specimens are known; see Burns (1994b) for generic combination.]

Choranthus radians (Lucas, 1857)

[Unsubstantiated records from Florida; see Smith et al. (1994) and Calhoun (1997).]

Choranthus haitensis Skinner, 1920

[Unsubstantiated records from Florida; see Smith et al. (1994).]

Choranthus vitellius (Fabricius, 1793)

[Single female of this species reportedly from Florida (Evans 1955) is most likely mislabeled; see Smith et al. (1994).]

Quasimellana mexicana (Bell, 1942)

[Cited by Miller & Brown (1981) and Ferris (1989c), but apparently no known U.S. specimen; see Bailowitz & Brock (1991) and Burns (1994b).]

Atrytonopsis ovinia (Hewitson, 1866)

[Burns (1983) treats *A. ovinia* and *A. edwardsi* as separate species.]

Amblyscirtes fluonia Godman, 1900

[Reports of this species from Texas (Stanford 2002) are unsubstantiated.]

Panoquina fusina (Hewitson, 1868)

[Erroneously reported from North America based on an assumption of conspecificity with *evansi* by Evans (1955) and Scott (1986).]

Agathymus remingtoni (D. Stallings & Turner, 1958)

[Confusion with *estelleae* based on Scott (1986) has led to erroneous reports of this species in the U.S.]

Stallingsia smithi (H. Druce, 1896)

[This was erroneously reported from the U.S. based on an assumption of conspecificity with *maculosus* by Scott (1986).]

Papilionidae

Battus devilliers (Godart, [1824])

[Unsubstantiated records from Florida; see Smith et al. (1994).]

Eurytides celadon (Lucas, 1852)

[Considered hypothetical for Florida; see dos Passos (1961) and Smith et al. (1994).]

Papilio kahli F. Chermock & R. Chermock, 1937

[Excluded as hybrid on basis of Layberry et al.(1998); also see Klassen et al. (1989).]

Papilio alexiares (Hoppfer, 1865)

[A possible record from south Texas was reported by Stanford (2002); although this taxon is considered conspecific with *glaucus* by Tyler et al. (1994) and Llorente et al. (1997). Also see Scriber et al. (1989).]

Pieridae

Enantia mazai Llorente, 1984

[Report of this species by Stanford (2002) from Texas apparently refers to *E. albania*; see Kendall (1974a), Llorente (1984) and Llorente et al. (1997).]

Pontia callidice (Hübner, [1800])

[Reports of *callidice* from our area refer to *P. occidentalis*; the two were considered conspecific by Higgins & Riley (1970) and Scott (1986). Also see Shapiro (1976).]

Pontia chloridice (Hübner, [1813])

[Erroneously reported from our area by Scott (1986), based on an unsupported assumption of conspecificity with *beckerii*.]

Pieris napi (Linnaeus, 1758)

[A Palaearctic species; see text.]

Pieris brassicae (Linnaeus, 1758)

[Accidental introductions, but no known persistent North American colonies (see Mello 1999 [these are sight records], Cassie et al. 2001, and Zirlin 2002).]

Anthocharis dammersi J.A. Comstock, 1929

[Considered to be a hybrid on basis of Emmel & Emmel (1973: p. 24) and Shields & Mori (1979).]

Phoebis intermedia (Butler, 1872)

[Reports of this taxon (e.g. Scott 1986) and of *P. rurina* (C. Felder & R. Felder, 1861)

from our area refer to *P. neocypris*; *intermedia* is a synonym of *neocypris virgo* (Butler, 1870) (see Lamas in press).]

Pyrisitia chamberlaini (Butler, 1898)

[Unsubstantiated report from Florida; see Scott (1986) and Smith et al. (1994).]

Lycaenidae

Eumaeus minyas (Hübner, [1809])

[Misidentification of *E. toxeus*; see Kendall & McGuire (1984).]

Pseudolycaena marsyas (Linnaeus, 1758)

[Dubiously reported from our region by Pyle (1981); *Pseudolycaena damo* (H. Druce, 1875) is the continental species which remains a hypothetical stray for Texas.]

Cyanophrys amyntor (Cramer, 1775)

[Specimen from Brewster County, Texas, reported as this species, was misidentified. Its true identity as *C. herodotus* confirmed by Johnson & Le Crom (1997: p. 26).]

Cyanophrys longula (Hewitson, 1868)

[Reported from southeastern Arizona by unsubstantiated sight records (Bailowitz & Brock 1991: p. 182), and one unverified record exists for Texas (Stanford 2002); no specimen or photographic voucher has been located.]

Rekoa zebina (Hewitson, 1869)

[Excluded from the North American fauna by Robbins (1991); records refer to misdetermined *R. marius*.]

Riodinidae

Euselasia abreas (W.H. Edwards, 1881)

[Described from Arizona, but likely based on mislabeled material (Powell 1975); it is unknown from Mexico (de la Maza et al. 1989) or Costa Rica (DeVries 1997), and its identity was unknown to D'Abrera (1994). However, this taxon may be a senior synonym of *E. sergia* (Godman & Salvin, 1885); see Lamas (in press).]

Calephelis nilus (C. Felder & R. Felder, 1861)

[Erroneously reported from our area by Scott (1986); records refer to *perditalis* (see McAlpine 1971).]

Calephelis sinaloensis McAlpine, 1971*

[Reported occurrence in Texas by Durden (1982) requires confirmation.]

Caria domitianus (Fabricius, 1793)

[Casually reported from Texas by DeVries (1997), but no details on this record have been presented.]

Nymphalidae

Greta polissena (Hewitson, 1863)

[Highly questionable records from Texas summarized by Kendall & McGuire (1984: pp. 41-41); the species is unknown from Mexico (de la Maza et al. 1989).]

Philaethria diatonica (Fruhstorfer, 1912)

[Sight record only, from Texas (as *dido*); see Bordelon (1991). *Philaethria diatonica* is considered to be a separate species from *dido* (Linnaeus, 1763) by Lamas (in press).]

Boloria titania (Esper, [1793])

[According to Shepard (1998), this is a strictly Palaearctic species.]

Chlosyne ehrenbergii (Geyer, [1833])

[Highly questionable record from Texas summarized by Kendall & McGuire (1984: p. 26).]

Chlosyne marina (Geyer, 1837)

[This was erroneously reported from the U.S. based on an assumption of conspecificity with *melitaeoides* and *eumeda* by Scott (1986). See text.]

Chlosyne erodyle (H.W. Bates, 1864)

[Casually reported from Texas by Higgins (1960), but no authentic voucher specimen is known; see Neck (1996).]

Anthanassa ardys (Hewitson, 1864)

[While the single record of this species from Texas may be valid (see Stanford & Opler 1993), details have not been presented in the literature and we have not examined the specimen.]

Anthanassa drusilla (C. Felder & R. Felder, 1861)

[A single unsubstantiated record for this species exists from south Texas (Stanford 2002).]

Inachis io (Linnaeus, 1758)

[Three or four almost certainly human-related, accidental introductions are known; see Hinchliff (1994: p. 176), Anonymous (1995), and Zirlin (2002).]

Vanessa carye (Hübner, [1812])

[This South American species is occasionally reported from our area instead of *annabella* (e.g. Scott 1986); but see Field (1971) and Shapiro & Geiger (1989).]

Smyrna karwinskii Geyer, [1833]

[All records from North America apparently represent misidentifications of *S. blomfildia* (Kendall & McGuire 1984: p. 36-37).]

Mestra cana (Erichson, [1849])

[Reported as *cana floridana* Strecker, 1900, but it is likely that the types were mislabeled specimens; see Kimball (1965) and Masters (1970). Lamas (in press) treats *cana* and *floridana* as synonyms of *dorcas hersilia* (Fabricius, 1776).]

Dynamine tithia (Hübner, 1823)

[Texas specimen correctly identified and illustrated by Kendall & McGuire (1984: pp. 31-32); however it is a very unlikely long-distance stray and it may have been accidentally transported. The species is unknown from Mexico (de la Maza & Turrent 1985, de la Maza et al. 1989). Specimen is in Illinois Natural History Survey.]

Dynamine postverta (Cramer, 1779)

[Dubiously reported from Texas by Pyle (1986) as *D. mylitta* (Cramer, 1779) and by Stanford (2002); no vouchers are known.]

Diaethria asteria (Godman & Salvin, 1894)

[Summary of history surrounding the single specimen reported from Texas provided by Kendall & McGuire (1984: p. 33). This record was seriously doubted by de la Maza & Turrent (1985: p. 32), and shown to be virtually impossible by Luis et al. (1996).]

Diaethria clymena (Cramer, 1775)

[Some records of *D. clymena* from our area, e.g. Klots (1951), apparently refer to this taxon; however, *clymena* is unknown from Mexico or the Caribbean (Kendall & McGuire 1984, de la Maza & Turrent 1985, Smith et al. 1994), and its occurrence in our area is assumed to be accidental.]

Hamadryas fornax (Hübner, [1823])

[Records of this species from the U.S. are based on misdetermined specimens (Jenkins 1983); but see Stanford (2002).]

Morpho peleides Kollar, 1850

[Texas sighting reported by Stallings & Turner (1946), Freeman (1960), and Neck (1996: p. 162.); see Penz & DeVries (2002) for systematics of the genus *Morpho.*]

Opsiphanes boisduvallii Doubleday, [1849]

[Circumstances surrounding a specimen of uncertain origin are discussed by Cassie et al. (2001).]

Erebia dabanensis Ershov, 1871

[Erroneously reported from North America based on an unsupported assumption of conspecificity with *youngi* by Scott (1986); see Troubridge & Philip (1983), Tuzov et al. (1997) and Belik & Zamolodchikov (2002).]

Erebia kozhantshikovi Sheljuzhko, 1925

[Erroneously reported from North America based on an unsupported assumption of conspecificity with *lafontainei* by Scott (1986); see Troubridge & Philip (1983) and Tuzov et al. (1997).]

Erebia inuitica Wyatt, 1966*[Known from only a single specimen whose authenticity is dubious; see Warren (1968) and Ferris (1989c: p. 59).]

Erebia theano (Tauscher, 1909)

[Although North American populations of this species have been referred to as *Erebia theano* (Tauscher, 1809) through several centuries, recently Guppy & Shepard (2001) demonstrated that *Erebia theano* is restricted to eastern Siberia and Mongolia. See Tuzov et al. (1997) for illustration of adult Eurasian *theano* and *pawloskii* Ménétriés, 1859, the latter which represents our North American butterfly. Gorbunov (2001, plate 41) illustrates the genitalia of both species. All North American infraspecific names now fall under *pawloskii.*]

\1 Adequate documentation should consist of a specimen or photograph (when genitalic dissection is not necessary), identified by a specialist in the appropriate taxonomic group. Details should be reported in the literature (website or e-mail postings are not adequate), along with complete data, when possible. Preferably, it should be deposited in a major entomological institution [National Museum of Natural History, Washington, D.C.; American Museum of Natural History, New York; Natural History Museum of Los Angeles County; California Academy of Sciences, San Francisco; Allyn Museum of Entomology, Sarasota; Carnegie Museum of Natural History, Pittsburgh; Canadian National Collection, Ottawa, Ontario] or university. To our knowledge no major collections have established photographic documentation files, but they should. Sight records do not constitute adequate documentation for national records.

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