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Taxonomic notes on some Neotropical skippers (Lepidoptera: Hesperiidae): Pyrrhopyginae and Pyrginae

George T. Austin
Nevada State Museum and Historical Society, 700 Twin Lakes Drive, Las Vegas, Nevada 89107

Andrew D. Warren[1]
Department of Entomology, Oregon State University, Corvallis, Oregon 97331
[1]Research Associate, Museo de Zoologia, Facultad de Ciencias, Universidad Nacional Autónoma de México, Apdo. Postal 70-399, México, D.F. 04510, México

ABSTRACT

The statuses of some Neotropical Pyrrhopyginae and Pyrginae (Lepidoptera: Hesperiidae) are examined in relation to their taxonomy in Evans (1951-1953). In addition, some taxa for which there has been a status change since Evans (1951-1953) without documentation are discussed and evaluated. One new taxon is named and described: *Anastrus virens albopannus* Austin, ssp. n. Reinstated statuses are proposed (rs) or formally confirmed (crs) for: *Pyrrhopyge pseudophidias* Bell, 1931 (rs), *Chioides albofasciatus* (Hewitson, 1867) (rs), *Chrysoplectrum epicincea* (Butler & H. Druce, 1872) (crs), *Zestusa elwesi* (Godman & Salvin, 1893) (rs), *Codatractus imalena* (Butler, 1872) (rs), *Cogia outis* (Skinner, 1894) (rs), *Noctuana lactifera* (Butler & Druce, 1872) (rs), *Cyclosemia subcaerulea* Schaus, 1913 (rs), *Cyclosemia elelea* (Hewitson, 1878) (rs), *Bolla pullata* (Mabille, 1878) (rs), *Diaeus variegata* (Plötz, 1884) (rs), *Pythonides proxenus* (Godman & Salvin, 1895) (crs), *Pythonides pteras* (Godman & Salvin, 1895) (rs), *Paches gladiatus* (Butler, 1870) (rs), *Carrhenes meridensis* Godman & Salvin, 1895 (rs), *Anastrus luctuosus* (Godman & Salvin, 1894) (rs), *Anastrus neaeris* (Möschler, 1879) (rs), *Helias godmani* (Mabille & Boullet, 1917) (rs), *Theagenes aegides* (Herrich-Schäffer, 1869) (crs), and *Gesta invisus* (Butler & Druce, 1872) (crs). New statuses are proposed (ns) or formally confirmed (cns) for: *Chioides vintra* Evans, 1952 (ns), *Chioides churchi* Bell & Comstock, 1948 (ns), *Diaeus varna* Evans, 1953 (ns), *Diaeus ambata* Evans, 1953 (ns), *Anisochoria bacchus* Evans, 1953 (ns), *Timochares runia* Evans, 1953 (ns), *Helias cama* Evans, 1953 (ns), and *Heliopetes libra* Evans, 1944 (ns). New combinations are proposed for: *Noctuana lactifera bipuncta* (Plötz, 1884), *Anastrus luctuosus* (Godman & Salvin, 1894), and *Anastrus neaeris narva* Evans, 1953. Taxonomic statuses are confirmed for: *Chalypyge chalybea chloris* Evans, 1951, *Hyalothyrus neleus pemphigargyra* (Mabille, 1888), *Chioides catillus albius* Evans, 1952, *Chioides catillus jethira* (Butler, 1870), *Polythrix mexicanus* Freeman, 1969, *Achalarus tehuacana* (Draudt, 1922), *Cogia cajeta eluina* Godman & Salvin, 1894, *Staphylus cartagoa* (Williams & Bell, 1940), *Paches loxus gloriosus* Röber, 1870, *Paches loxus loxana* Evans, 1953, *Anisochoria pedaliodina polysticta* Mabille, 1877, *Anisochoria pedaliodina extincta* Hayward, 1933, *Anastrus tolimus robigus* (Plötz, 1884), and *Anastrus neaeris narva* Evans, 1953. New synonymies are proposed (nsy) or formally confirmed (cnsy) for: *Chioides zilpa namba* Evans, 1952 of *Chioides zilpa* (Butler, 1872) (cnsy), *Achlyodes selva* Evans, 1953 of *Achlyodes pallida* (R. Felder, 1869) (nsy), and *Timochares trifasciata* f. *obscurior* Draudt, 1922 of *Timochares ruptifasciata* (Plötz, 1884) (nsy). The synonymy of *Eudamus alciphron* Godman & Salvin, 1893 with *Polythrix octomaculata* (Sepp, [1844]) is confirmed. The statuses of the taxa of *Cogia hippalus* (Edwards, 1882) and *Pythonides jovianus* (Stoll, 1782) are not resolved. The genitalia for most of these taxa are illustrated; female genitalia are additionally illustrated for *Achalarus casica* (Herrich-Schäffer, 1869), *Achalarus tehuacana* (Draudt, 1922), *Eracon bitemata* (Mabille, 1889), and for males and females of *Paches exosa* (Butler, 1877), *Paches polla* (Mabille, 1888), and *Paches trifasciatus* Lindsey, 1925.

RESUMEN

Se examina el status taxonómico de algunos taxones de Pyrrhopyginae and Pyrginae (Lepidoptera: Hesperiidae) en relación a la taxonomía de Evans (1951-1953). También, se discute y evalúa la situación taxonómica de algunos taxones que han mostrado cambios nomenclaturales sin comentario alguno desde Evans (1951-1953). Se ilustran los genitales de la mayoría de estos taxones y otros afines. Se describe un taxon nuevo: *Anastrus virens albopannus* Austin, ssp. n.

In a previous paper on Evans' (1951-1955) taxonomy of New World skippers (Hesperiidae), Austin and Warren (2001) commented on some species of *Pyrgus*, *Heliopyrgus*, and *Heliopetes* (Pyrginae). As noted therein, Evans' taxonomy was conservative and many of his subspecies and synonyms are species-level taxa (see most recently Burns and Janzen 2001). The following deals with additional hesperiid taxa in the subfamilies Pyrrhopyginae and Pyrginae, especially as they pertain to Mexico and Central America. Criteria for species-level status generally consider differences in wing pattern and/or genital morphology after accounting for individual variation. We acknowledge potential geographical variation in these characters and a study of this may well alter some conclusions presented herein once material from a broader geographical landscape is readily available. In many instances, potential or actual sympatry reinforces the observed morphological differentiation (*e.g.*, Steinhauser 1989). Subspecies-level taxonomy is retained where there is clear intergradation of pattern (and sometimes morphology) without broad sympatry; this rarely involves genital differentiation. As in our aforementioned paper, the status of a taxon is considered to be previously changed if at least some statement was presented to that effect. Those for which there has been no documentation for their status change subsequent to Evans (1951-1953) are here discussed and justified. Reinstated status refers to returning a taxon to the taxonomic level at which it was described, new status refers to a change in the taxonomic level from that at which a taxon was described, and new combination refers to a placement of a taxon into a binomial or trinomial where it has not been previously associated. We agree that the term "reinstated" is preferable to "revised" (*e.g.*, Burns and Janzen 2001). Under these definitions, a species that becomes monotypic because of a status change for all of its subspecies is not considered as having a change in status. Complete synonymies are not presented; these are available in such works as Evans (1951-1953), Miller and Brown (1981), Bridges (1988, 1993), and Warren (2000). In addition, one new taxon is named and described.

PYRRHOPYGINAE

Pyrrhopyge thericles (Mabille, 1891)
Pyrrhopyge pseudophidias Bell, 1931, **reinstated status**
(Figs. 1-2)

Eight subspecies of *P. thericles* were recognized by Evans (1951, 1953), these with a variety of genital configurations, but mostly with the processes from the tegumen extending conspicuously caudad of the uncus and curved inward. As with *P. phidias* (L., 1758), they include a variety of wing phenotypes, many of which are potentially sympatric (*e.g.*, de Jong 1983, Burns and Janzen 2001). Valvae of *Pyrrhopyge thericles* have long processes and a broad harpe excavated on the ventral side of the caudal end (illustrations in Evans 1941, 1951; Fig. 1 herein). It occurs in the lower Amazon drainage (Evans 1951), southwestward to as far as Rondônia, Brazil (this study). The genitalia of at least *Pyrrhopyge rileyi* Bell, 1931 (illustrated by Bell 1931) and *P. rileyi orientis* Bell, 1947 (described as "the same as *Pyrrhopyge rileyi rileyi*", Bell 1947) are similar although their distributions (as given by Evans 1951) indicate potential sympatries. *Pyrrhopyge thericles poncia* Evans, 1951 (genitalia illustrated by Bell 1931 as *Pyrrhopyge pseudophidias* variation) and *Pyrrhopyge thericles grinda* Evans, 1953 have short processes and no prominent excavation of the harpe. These are not only potentially sympatric

with the three taxa mentioned above, but with each other (Evans 1951). Finally, *P. pseudophidias* has long processes and no caudal excavation of the harpe (Fig. 1). It is potentially broadly sympatric with several of the foregoing taxa occurring from Panama and Maranhão through the upper Amazon drainage to Peru (Evans 1951). The genitalia of the remaining two taxa, *Pyrrhopyge thericles fola* Evans, 1951 (Colombia) and *Pyrrhopyge thericles ronda* Evans, 1953 (Trinidad), have not been illustrated or critically examined.

Out of all this, we have examined *P. thericles* and *P. pseudophidias*. Their male genitalia, as noted above, are confirmed as different (Figs. 1-2) and the latter is here reinstated to a species-level taxon.

Chalypyge chalybea chalybea (Scudder, 1872)
Chalypyge chalybea chloris (Evans, 1951), **confirmed status**
(Figs. 3-4, 85-86)

Evans (1951) described *Pyrrhopyge chalybea chloris* as a subspecies-level taxon although recent authors have treated *C. chloris* as a species separate from *C. chalybea* without comment (*e.g.*, Bridges 1988, 1993; Llorente *et al.* 1990, Vargas *et al.* 1996, Warren *et al.* 1998, Warren 2000). The genitalia of the two are virtually identical (Figs. 3-4, 85-86) and we thus retain their conspecificity. As currently understood, *Chalypyge c. chalybea* occurs from the Gualalajara area (Jalisco) eastward to Queretaro, apparently in high and dry habitats, whereas *C. c. chloris* occurs further west from Sinaloa southward in more humid areas (but up to 1600m near Uruapan, Michoacán). Most specimens of *C. c. chalybea* were collected before 1960 and recent material suggests than some of the putative color differences between *C. c. chalybea* and *C. c. chloris* are due to fading of older specimens. The variation observed in *Chalypyge chalybea* render the taxon difficult to diagnose or distinguish from *C. c. chloris* and further study may indicate that they are synonymous. The generic name was recently proposed by Mielke (2002).

PYRGINAE

Hyalothyrus neleus neleus (Linnaeus, 1758)
Hyalothyrus neleus pemphigargyra (Mabille, 1888), **confirmed status**
(Figs. 5-6, 87-88)

Lignyostola pemphigargyra, occurring from Mexico through northern South America, has been treated as a subspecies of *H. neleus* by all recent authors (*e.g.*, Evans 1952; Bridges 1988, 1993). The genitalia of both sexes of these taxa are virtually identical, although there is considerable individual variation (as shown in Figs. 5-6). The slightly different wing characters between the two taxa lead us to retain the subspecific-level status of *H. n. pemphigargyra* for now (see also Mielke 1989).

Chioides catillus catillus (Cramer, 1779)
Chioides catillus albius Evans, 1952, **confirmed status**
Chioides catillus jethira (Butler, 1870), **confirmed status**
Chioides albofasciatus (Hewitson, 1867), **reinstated status**
Chioides churchi Bell & Comstock, 1948, **new status**
Chioides vintra Evans, 1952, **new status**
(Figs. 9-13, 93-97)

Several taxa have been generally included as subspecies of *C. catillus*. Among these, and showing overlap in their distributions, are *Eudamus albofasciatus* and *C. c. albius*. Both occur in Central America from Honduras southward (Evans 1952, Monroe and Miller 1967), although we do not yet know of a location where they co-occur. Monroe and Miller (1967) questioned the conspecificity of these two subspecies and Durden (1982) and Llorente *et al.* (1990) went as far as treating *E. albofasciatus* as a species-level taxon without comment. The genitalia of the taxa of *C.*

catillus are very similar (Figs. 9-13, 93-97) and we have not been able to find characters to invariably separate *C. c. catillus*, *E. albofasciatus*, and *C. c. albius*. The apparent differences in the caudal end of the harpe shown by Evans (1952) are not seen in series. The variability can be seen in other genital illustrations for the various taxa assigned to this species (Godman and Salvin 1879-1901; Williams 1926; Lindsey *et al.* 1931; Hayward 1933a, 1948). The wings of *C. c. albius* and *E. albofasciatus*, however, differ considerably. The hindwing termen is nearly straight on *E. albofasciatus*, but obviously convex on *C. c. albius* (and on *C. c. catillus* and *C. c. jethira*). The ventral hindwing medial band of *E. albofasciatus* is of nearly equal width throughout (broadening slightly posteriorly), well-defined, and does not curve, but is directed towards the anal margin of the tail, very different from this band on *C. c. albius*, *C. c. catillus*, and *C. c. jethira*. On these, the band is irregular, broadens conspicuously and splits posteriorly, is more diffuse, and curves towards the anal margin well anterior to the origin of the tail. Additionally, the macule in forewing cell CuA_2-2A is nearly in line with that in CuA_1-CuA_2 (offset distad on *C. c. albius* and *C. c. catillus*) and the ventral hindwing pattern is usually indiscernible proximad to the medial band on *E. albofasciatus*. For these reasons and possible sympatry, *Eudamus albofasciatus* is here formally reinstated to species-level status. MacNeill (1962) noted slight differences between *C. albofasciatus* from Baja California and mainland, Mexico. Individuals from Baja California tend to be slightly smaller and the forewings are more produced apically. The other differences noted by MacNeill (1962) do not exhibit consistency; we agree with MacNeill (1962) and Miller (1970) that this is not a subspecifically distinguishable population.

Material of the superficially different *Goniurus jethira* and *C. c. churchi* was also examined. Genitalia of the former (Fig. 9) could not be distinguished from those of *C. catillus*, *C. c. albius*, or *C. albofasciatus*. Except for the much broader macules on the forewing, the markings of *C. c. jethira* and its wing shape are virtually identical with those of *C. c. catillus*. Since there is apparently no sympatry with *C. c. catillus*, *C. c. jethira* is retained as a subspecies of *C. catillus*. One specimen of *C. c. albius* examined from Panama has enlarged forewing hyaline macules, somewhat intermediate towards *C. c. jethira*. Although interesting, it may only be coincidence that *Spathilepia clonius* (Cramer, 1775) also has a phenotype in this same area (western Ecuador) that has greatly enlarged forewing macules. On the other hand, male and female genitalia of *C. c. churchi* from Jamaica are readily distinguishable from those of *C. c. catillus* (broader arms of the uncus, more massive valva, straighter harpe broader at its caudal end, more rounded sterigma; Figs. 13, 97) and this taxon is here raised to species-level.

Among other taxa included as subspecies of *C. catillus* by Evans (1952), *C. c. vintra* was considered as a species by Riley (1975), Smith *et al.* (1994), and Schwartz *et al.* (1999), and suggested to be so by Scott (1986b). This is formally raised to a species-level taxon here. We have not examined material of either *Goniurus cinereus* Mabille & Vuillot, 1891 or *Eudamus concinnus* Mabille, 1877, but Mielke and Casagrande (2002) consider these also to be species-level taxa.

Chioides zilpa (Butler, 1872)
Chioides zilpa namba Evans, 1952, **confirmed new synonymy**
(Figs. 98)

Evans (1952) described *Chioides zilpa namba*, separating it from *C. zilpa* based on a paler color (these are obviously faded) and larger size. There are no differences in the wings or genitalia between recent material from northwestern Mexico and that from eastern Mexico and Central America (as noted also by Miller 1970), the putative subspecific differences representing seasonal and individual variation. *Chioides zilpa namba* is thus considered as a synonym of *C. zilpa* confirming Warren (2000). Female genitalia of *C. zilpa* are illustrated herein for the first time (Fig. 98).

Polythrix octomaculata (Sepp, [1844])
Eudamus alciphron Godman & Salvin, 1893, **confirmed synonymy**

Polythrix octomaculata appears to be monotypic, although Evans (1952) recognized three subspecies. Freeman (1979) showed that *Eudamus alciphron* was the female of *P. octomaculata* and synonymized that name. We agree with this action. It is significant to note that a recently described similar species, *Polythrix maizae* Hellebuyck, 1998, shows similar sexual dimorphism (Hellebuyck 1998). We agree with the action of Mielke and Casagrande (2002) in synonymizing *Goniurus decussata* Ménétriés, 1855 with *P. octomaculata*.

Polythrix asine (Hewitson, 1867)
Polythrix mexicanus Freeman, 1969, **confirmed status**
(Figs. 14-15, 89-90)

Freeman (1969, see also Freeman 1979) correctly recognized a species of *Polythrix* superficially closely resembling *P. asine*. Scott (1986a, followed by Bailowitz and Brock 1991), without comment, synonymized *P. mexicanus* with *P. asine* while Opler (1992, 1999) and Glassberg (2001) retained them as separate species. We reaffirm that *P. mexicanus* is a recognizable species with several minor differences in pattern and wing shape as described by Freeman (1969, 1979), but having genitalia that are abundantly different from those of *P. asine* (Figs. 14-15, 89-90).

Chrysoplectrum perniciosus (Herrich-Schäffer, 1869)
Chrysoplectrum epicincea (Butler & H. Druce, 1872), **confirmed reinstated status**
(Figs. 7-8)

Evans (1952) included *Carystus epicincea* (Mexico through Costa Rica) as a subspecies of *C. perniciosus* (Panama, much of South America) despite differences in markings and genitalia; this taxonomy has generally been retained (Steinhauser 1975; Bridges 1988, 1993; de la Maza *et al.* 1991; de la Maza and de la Maza 1993; Austin *et al.* 1998). Llorente *et al.* (1990) treated *C. epicincea* as a species without comment. Godman and Salvin (1879-1901) illustrated male genitalia of *C. epicincea* and Evans (1952) crudely illustrated the valvae of both taxa. Male genitalia of both taxa are illustrated herein (Figs. 7-8). These show that they have very different valvae (along with differences in the uncus, saccus, and aedeagus) and confirm the informally reinstated species-level status of *C. epicincea* by Warren (2000).

Zestusa staudingeri (Mabille, 1888)
Zestusa elwesi (Godman & Salvin, 1893), **reinstated status**
(Figs. 16-17, 101)

Evans (1952) included *Plestia elwesi* as a subspecies of *Z. staudingeri* where it has usually been subsequently retained. Besides the differences in wing pattern between the two taxa as noted by Evans (1952), genital differences were noted by Steinhauser (1972), although he apparently did not examine material of *P. elwesi*. The differences between male genitalia of the two taxa are more extensive than previously indicated and include the breadth of the uncus and tegumen, various aspects of the valva, and the aedeagus (Figs. 16-17). Evans (1952) distinguished the two taxa by their maculation (*Z. staudingeri* with fewer forewing macules) and ventral color (*Z. staudingeri* with a darker venter). Steinhauser (1972) noted that some *Z. staudingeri* had a full complement of macules although those in cells M_1-M_2 and M_2-M_3 were represented by but a trace. In addition, both wings of *P. elwesi* are more angular than those of *Z. staudingeri*. The forewing discal cell macule is aligned with the costal macules on *P. elwesi* whereas it is an offset diagonal slash on *Z. staudingeri*. The macule posterior to vein CuA_1 on *P. elwesi* is less

offset basad from the macule anterior to this vein than on *Z. staudingeri*. The dorsal hindwing is distinctly overscaled basad by long pale gray scales on *P. elwesi*; these scales are generally darker on *Z. staudingeri*. The ventral hindwing of *P. elwesi* is actually whiter than the yellowish aspect of *Z. staudingeri*. For these reasons, *Plestia elwesi* is here formally reinstated to species-level status as treated by Llorente *et al.* (1990) and indicated by Warren (2000). Female genitalia of *Z. elwesi* are herein illustrated for future comparative purposes (Fig. 101).

Codatractus bryaxis (Hewitson, 1867)
Codatractus imalena (Butler, 1872), **reinstated status**

Evans (1952) considered *Telegonus imalena* (southern Central America to northern South America) as a subspecies of *C. bryaxis* (Mexico and northern Central America). Subsequently, *C. imalena* has been considered a species by Burns (1996) and *C. bryaxis* has been treated as monotypic by Llorente *et al.* (1990), Vargas *et al.* (1996), Warren *et al.* (1998), and Warren (2000). The considerable differences in color and pattern (*e.g.*, Evans 1952) and illustrated differences in the male genitalia (Godman and Salvin 1879-1901, Burns 1996) indicate they are different species and the species-level status of *Telegonus imalena* is here formally reinstated.

Achalarus casica (Herrich-Schäffer, 1869)
Achalarus tehuacana (Draudt, 1922), **confirmed status**
(Figs. 99-100)

Steinhauser (1974) showed that *A. casica* and *A. tehuacana* were in fact separate species based on potential sympatry and differences in male genitalia. Females of the two species have now been examined and their genitalia also differ (Figs. 99-100). The lamella postvaginalis of *A. tehuacana* is narrower than that of *A. casica*, the lamella antevaginalis is lobate, and the anterior portion of the ductus bursae is bulbous.

Cogia cajeta (Herrich-Schäffer, 1869)
Cogia cajeta eluina Godman & Salvin, 1894, **confirmed status**
(Figs. 18-19, 125)

Llorente *et al.* (1990) and Vargas *et al.* (1996) treated *Cogia eluina* as a species-level taxon. The genitalia of that taxon and *Cogia cajeta* are very similar (Figs. 18-19) and the taxonomy of Evans (1953) is here retained confirming Warren's (2000) treatment. *Cogia c. cajeta* is known in Mexico from southern Veracruz, eastern Oaxaca, Tabasco, and northeastern Chiapas and *C. c. eluina* ranges from western Mexico (Jalisco) and the Yucatan Peninsula southward to Costa Rica. Specimens intermediate towards *C. c. eluina* in wing markings and genitalia are known from Michoacán, Chiapas, and Oaxaca.

Cogia outis (Skinner, 1894), **reinstated status**
Cogia hippalus hippalus (W. H. Edwards, 1882)
Cogis hippalus hiska Evans, 1953
(Figs. 20-22, 106-108)

Despite the widespread recognition that *C. outis* is different from *C. hippalus* in both wing and genital (Figs. 22, 106) phenotypes and that they were potentially sympatric (*e.g.*, Lindsey *et al.* 1931; they are now known to fly together in Texas, *e.g.*, Scott 1986a), Evans (1953, also dos Passos 1964) included the former as a subspecies of the latter. Although numerous recent authors have treated *C. outis* as a species separate from *C. hippalus*, it appears that no one formally has reinstated its status. This is done here.

Evans (1953) described *C. hippalus hiska* as a Central American subspecies (TL: Costa Rica), considering it as extending northward into eastern Mexico with *C. h. hippalus* (TL: Arizona) itself occurring in the southwestern United States southward into western Mexico. *Cogia hippalus hiska* was separated by its darker coloration and smaller hyaline macules. At the extremes, the two taxa are abundantly different. *Cogia hippalus hippalus* from Arizona are medium brown, have large hyaline macules, and broadly rounded wings whereas *C. hippalus hiska* from Costa Rica are dark brown, have thin hyaline macules, and the wings are shorter and more triangular, most notably the hindwing. Their genitalia also differ (Figs. 20-21, 107-108). Male *C. hiska* have a broader and shorter tegumen (dorsal view) than do *C. hippalus*, the valva is less quadrate, has the dentate caudal edge of the ampulla straighter and more horizontal (somewhat curved and more vertical on *C. hippalus*), and the dorsal lobe on the caudal end of the harpe is usually narrower. The female genitalia of *C. hiska* have a rounded sterigma compared to an obviously quadrate sterigma of *C. hippalus*. Typical *C. hippalus hippalus* was seen from Arizona, southward to at least Oaxaca; a male from Chiapas (from near Simojovel) also appears to be of this taxon. Typical *C. hippalus hiska* was seen only from Costa Rica in this study, Evans (1953) reported it for Guatemala, and Steinhauser (1975) saw it from El Salvador. Problems arise, however, in eastern Mexico (San Luis Potosi, Hidalgo, northeastern Oaxaca [Valle Nacional], Chiapas [Ocosingo]). Here, there is a phenotype retaining macules nearly as broad as on *C. hippalus hippalus*, but has a darker ventral hindwing, and more produced wings (the hindwing less triangular than on *C. hippalus hiska*, but less rounded than on *C. hippalus hippalus*). The genitalia (especially the valvae) of these more closely resemble those of Costa Rican *C. hippalus hiska* than those of *C. hippalus hippalus*.

The status of *C. hippalus hiska* remains unresolved. Although Warren (2000) synonymized the taxon with *C. hippalus hippalus* without comment, it is at least a recognizable subspecies and may well deserve species-level recognition. More material from Central America needs to be examined, the relationship between true *C. hippalus hiska* and the phenotype in eastern Mexico requires elaboration, and the interactions in potential areas of sympatry in Oaxaca and Chiapas need investigation. Further, the statuses of two additional taxa, *Cogia hippalus hester* Evans, 1953 and *Cogia hippalus peninsularis* Miller & MacNeill, 1969, require elaboration.

Eracon biternata (Mabille, 1889)
(Fig. 121)

Austin (1997) illustrated male genitalia of *E. biternata*, but a female was not available at that time. One has now been examined and its genitalia are illustrated here (Fig. 121).

Noctuana noctua (C. & R. Felder, 1867)
Noctuana lactifera lactifera (Butler & H. Druce, 1872), **reinstated status**
Noctuana lactifera bipuncta (Plötz, 1884), **new combination**
(Figs. 23-25, 102-103)

Warren (2000) reinstated the status of *N. noctua bipuncta* to species-level and indicated the same for *N. n. lactifera* (see also Llorente *et al.* 1990). Wings and genitalia (Figs. 24-25, 102-103) of both sexes of these are very similar and individual differences overlap completely among examples of the two subspecies (samples from Mexico and Costa Rica); Evans (1953) noted that they differed only by the absence of a costal fold on *N. n. lactifera*. One specimen of *N. n. lactifera* examined from Costa Rica, however, has a vestige of a costal fold. *Noctuana noctua* is potentially sympatric with *N. n. lactifera* in Panama and Colombia (Evans 1953) and different in both color pattern on the wings

and male genital morphology (Fig. 23). *Noctuana lactifera* is thus reinstated to species-level status with *N. l. bipuncta* retained as a subspecies. There is a need, however, to examine material from northern Central America to determine the significance of the vestigial costal fold seen on the Costa Rican specimen. The presence or absence of a costal fold is nearly always a species-level differentiation among pyrgines.

Cyclosemia herennius (Stoll, 1782)
Cyclosemia subcaerulea Schaus, 1913, **reinstated status**
Cyclosemia elelea (Hewitson, 1878), **reinstated status**
(Figs. 26-28, 126-127)

Schaus (1913) described *C. subcaerulea* as a species that was later sunk to subspecific status under *C. herennius* by Evans (1953) despite differences in color, pattern, and genitalia (especially in the uncus and valvae, see Figs. 27, 126). This combination has been retained as such subsequently (*e.g.*, Bridges 1988, 1993). Because of their differences (they also have a different wing shape), *Cyclosemia subcaerulea* is here reinstated to species-level status.

Evans (1953) and Bridges (1988, 1993) placed *Leucochitonea elelea* as a subspecies of *C. herennius*, again despite differences in their wings and genitalia, including the tegumen, uncus, gnathos, juxta and valvae (Fig. 28) and the lamella antevaginalis and lamella postvaginalis (Fig. 127). This taxon is also reinstated to species-level status to account for these differences. The material examined extends the known distribution of the species to Ecuador.

Another related species was recently described from Costa Rica (Austin and DeVries 2001).

Bolla phylo (Mabille, 1878)
Bolla pullata (Mabille, 1878), **reinstated status**
(Figs. 33-34, 110-111)

Evans (1953) included *Hesperia pullata* as a subspecies of *B. phylo* despite differences in the presence of a costal fold on males and in the pattern and genitalia of both sexes (male genitalia for *B. phylo* illustrated by Hayward 1939 as *Pholisora browni* Hayward, 1939; by Williams and Bell 1940 as *Pholisora naranjapata* Williams and Bell, 1940; and by Evans 1953; for *B. pullata* by Godman and Salvin 1879-1901 as *Staphylus imbras* Godman & Salvin, 1896; by Lindsey *et al.* 1931 as *Pholisora imbras*; and by Evans 1953). The combination of *B. phylo pullata* has been retained by most authors (Monroe and Miller 1967; de la Maza *et al.* 1991; de la Maza and de la Maza 1993; Austin *et al.* 1996, 1998). Bridges (1988, 1993) included this as a subspecies of *B. phylo* and then as a separate species based on the description of *Bolla* by Mabille (1903). Llorente *et al.* (1990) listed *B. pullata* as a species without comment as did Warren (2000). The male and female genitalia of both species illustrated here (Figs. 33-34, 110-111) show abundant differences in the valvae, tegumen, and uncus in males and the width of the lamella postvaginalis in females; *B. pullata* is therefore reinstated to species-level status.

Staphylus cartagoa (Williams & Bell, 1940), **confirmed status**
(Fig. 38)

Evans (1953) questioningly placed *Pholisora cartagoa* as a synonym of *Staphylus huigra* (Williams and Bell, 1940) and it was retained as such by Bridges (1988). Steinhauser (1989) placed this species in *Staphylus* and raised it to a species-level taxon, an action followed by Bridges (1993). Pattern differences exist and the genitalia are vastly different from *S. huigra* as indicated in the original descriptions of the two in the same

paper (Williams and Bell 1940, see also figure in Steinhauser 1974 as *Bolla salva* Steinhauser, 1974). The male genitalia of *S. cartagoa* are illustrated again herein (Fig. 38). Species-level status is reaffirmed for *P. cartagoa*.

Diaeus lacaena (Hewitson, 1869)
Diaeus varna Evans, 1953, **new status**
Diaeus ambata Evans, 1953, **new status**
Diaeus variegata (Plötz, 1884), **reinstated status**
(Figs. 29-32, 109)

Four different looking taxa were included as subspecies of *D. lacaena* by Evans (1953); subsequently these have been retained as conspecific (*e.g.*, Bridges 1988, 1993). Wings and male genitalia of all differ in their detail (Figs. 29-32). *Diaeus lacaena* is small, white and brown with sharply defined hyaline macules (not as white as *D. varna* or as smudged as *D. ambata*), the uncus is very narrow, the saccus is relatively short and broad, the process of the ampulla is sickle-shaped and strongly curved inwardly, the harpe is relatively broad, and there are two long spike-like cornuti. *Diaeus varna* is broadly white, the process from the ampulla is broadly rounded, the harpe is broad, and there are two cornuti (*D. ambata* and *D. variegata* have three). *Diaeus variegata* has genitalia most similar to those of *D. lacaena* (narrow tegumen-uncas in dorsal view, relatively narrow harpe), yet these two taxa are potentially sympatric in parts of South America and differ in their wing markings. *Diaeus ambata* is notably larger than are the other species, very dusky in appearance, and has the most distinctive genitalia with the harpe broadly overlapping the process from the ampulla. Thus the taxa included as subspecies of *D. lacaena* are raised to species-level statuses; a reinstated status for *E. variegata* and new statuses for *D. ambata* and *D. varna* (not "revised" status for the latter as indicated by Warren 2000).

Pythonides jovianus (Stoll, 1782)
(Figs. 35-37)

Evans (1953) included four subspecies in his concept of *Pythonides jovianus* (Stoll, 1782). Two of these, *P. j. jovianus* (Guatemala to Peru, distributions from Evans 1953) and *Pythonides jovianus amaryllis* Staudinger, 1876 (Mexico to Peru), have a solid blue area on the hindwing, but differ in the white band on the forewing, this being compact on the latter and disjointed on the former. The remaining two, *Pythonides jovianus fabricii* Kirby, 1871 (northern South America to southern Brazil and Bolivia), and *Pythonides jovianus crameri* (Mabille & Boullet, 1917) (Colombia and northern Amazon River basin of Brazil), are largely more southern in their distributions and have white streaks within the hindwing blue patch; they differ as do the preceding two taxa with *P. j. fabricii* having a compact forewing band and *P. j. crameri* having this band disjointed. There is considerable potential (and actual) sympatry between these phenotypes with all four being reported for Colombia (Evans 1953); *P. j. fabricii* occurs with *P. j. crameri* in Rondônia, Brazil.

Several potential scenarios are presented by this situation: four species; two species separated by the configuration of the white band on the forewing and showing parallel variation in the presence of white streaks on the hindwing; two species, one with white streaks on the hindwing and the other without and polymorphism for the state of the white band; or one species showing geographical variation in respect to the white streaks and polymorphism in the band on the forewing. More study is obviously required. Besides these "key" characters, there is considerable variation in the presence of submarginal blue on the dorsal forewing and the amount of black on the veins of the

hindwing. In addition, no definitive characteristics were encountered in the genitalia (Figs. 35-37) that would serve to separate these phenotypes.

Most authors have retained *P. p. amaryllis* as a subspecies of *P. jovianus* (de la Maza and de la Maza 1985; de la Maza 1987; Bridges 1988, 1993; Llorente *et al.* 1990; de la Maza *et al.* 1991; de la Maza and de la Maza 1993; Austin *et al.* 1998), but Steinhauser (1975) and Warren (2000) considered this as a full species. For the moment, it is concluded that *P. jovianus* is a single locally and geographically variable species.

Pythonides herennius (Geyer, [1838])
Pythonides proxenus (Godman & Salvin, 1895), **confirmed reinstated status**
(Figs. 39, 42)

Ate proxenus was included by Evans (1953) as a subspecies of *P. herennius* despite differences in wing markings and genitalia (especially the valvae and uncus, Figs. 39, 42) and considerable potential sympatry in northern South America. Subsequently, *P. proxenus* has been treated as both a subspecies of *P. herennius* (de la Maza and de la Maza 1985, 1993; de la Maza 1987; Bridges 1988, 1993; de la Maza *et al.* 1991; Austin *et al.* 1998) and as a separate species (Steinhauser 1975; Llorente *et al.* 1990; Murray 2000; Warren 2000). The status of this taxon is here formally reinstated to that of a full species, confirming the previous suggestions, to account for its apparently unique characters.

Pythonides limaea (Hewitson, 1868)
Pythonides pteras (Godman & Salvin, 1895), **reinstated status**
(Figs. 40, 43)

Ate pteras (Mexico to northern South America) has been considered to be a subspecies of *P. limaea* (much of South America) by all recent authors (Evans 1953; Bridges 1988, 1993; Llorente *et al.* 1990; Austin *et al.* 1998; Warren 2000). Evans (1953) indicated differences in color and pattern (as also poorly shown in Seitz 1907-1924) and the genitalia differ. Evans' (1953) depiction of the genitalia of *P. limaea* shows a prominent style from the ampulla and a narrow harpe (Fig. 40 herein); *P. pteras* has no style and a broad harpe (Fig. 43). *Leucochitonea pteras* is thus reinstated to the status of a full species.

Paches loxus loxus (Westwood, [1852])
Paches loxus gloriosus Röber, 1925, **confirmed status**
Paches loxus loxana Evans, 1953, **confirmed status**
Paches gladiatus (Butler, 1870), **reinstated status**
(Figs. 41, 44-46, 112-115)

Mielke (1989) found that *Pythonides zonula* Mabille, 1889 was a junior synonym of *P. l. loxus* and that *P. l. gloriosus* was the correct name for the Mexican and Central American populations. The genital characters of these and *P. l. loxana* indicate that they are conspecific (Godman and Salvin 1879-1901, Evans 1953, Figs. 44-46, 112-114 herein), the subspecies separated by superficial characters as noted by Evans (1953).

Evans (1953) treated *Pithonides gladiatus* as a subspecies of *Paches loxus*. He noted the superficial differences from other subspecies of *P. loxus* and illustrated differences in the male genitalia; these extend to the genitalia of both sexes (Figs. 41, 115), including the length of the tegumen and saccus, the shape of the sacculus, the conformation of the aedeagus, and the shape of the sterigma. There is the potential for sympatry in Napo Province, Ecuador (*P. gladiatus* known from Río Napo at Yasuni Research Station,

vicinity of junction of Río Tiputini and Río Rumiyaco and *P. loxus loxus* from Río Napo at Lagoa Taracoa). Accordingly, the status of *P. gladiatus* is reinstated to species-level.

Paches exosa (Butler, 1877)
Paches polla (Mabille, 1888)
Paches trifasciatus Lindsey, 1925
(Figs. 47-49, 118-120)

It was noted during the examination of the genitalia of *P. loxus* and *P. gladiatus* that the genitalia of all species of *Paches* are very similar, especially those of the male. Since those of all except *Paches era* (Dyar, 1927) were available and had not been particularly well-illustrated (Lindsey 1925, Evans 1953), they are illustrated herein (Figs. 47-49, 118-120).

Carrhenes callipetes Godman & Salvin, 1895
Carrhenes meridensis Godman & Salvin, 1895, **reinstated status**
(Figs. 65-66, 123-124)

Carrhenes meridensis (southern Central America and northern South America) was described as a species, yet was included as a subspecies of *C. callipetes* (Mexico and northern Central America) by Evans (1953) and subsequent authors. Besides the well-described difference in the ventral hindwing color (Godman and Salvin 1879-1901, Evans 1953), *C. meridensis* tends to have smaller and often fewer hyaline macules on the forewing than *C. callipetes* and more prominent dark markings on both surfaces. The one female of *C. callipetes* examined has hyaline macules in cells M_3 and CuA_1 on the hindwing, these are absent on *C. meridensis*. Male and female genitalia of the two also differ, including the tegumen, saccus, valvae, and sterigma (Figs. 65-66, 123-124). Because of these differences, *C. meridensis* is here reinstated to species-level status.

Anisochoria pedaliodina pedaliodina (Butler, 1870)
Anisochoria pedaliodina polysticta Mabille, 1877, **confirmed status**
Anisochoria pedaliodina extincta Hayward, 1933, **confirmed status**
Anisochoria bacchus Evans, 1953, **new status**
(Figs. 50-55, 104)

Evans (1953) included four subspecies in his concept of *A. pedaliodina*, a widespread Neotropical species. This taxonomy has been largely retained (Steinhauser 1975; Bridges 1988, 1993; de la Maza *et al.* 1991; de la Maza and de la Maza 1993; Austin *et al.* 1998). Llorente *et al.* (1990) listed *A. p. bacchus* as a species and Warren (2000) considered both *A. p. polysticta* and *A. p. bacchus* to be species-level taxa. Murray (2000) treated *A. pedaliodina* as a species-level taxon. All four are of the same general color and pattern, differing largely in the size and number of macules on the forewing and in the intensity of white overscaling towards the tornus of the ventral hindwing. Three of these, *A. p. pedaliodina*, *A. p. polysticta*, and *A. p. extincta*, have very similar genitalia (Figs. 50-52) with local individual variation (Figs. 51-52; see also Austin 2000 with *A. p. extincta* misdetermined as *A. p. pedaliodina*) largely overriding the differences detailed by Evans (1953) and these are here considered as conspecific. One taxon, however, *A. bacchus* (Mexico and northern Central America), is different having a short, blunt, and dorso-caudally directed style from the ampulla and short, nearly quadrate, and somewhat asymmetric harpes (Fig. 53). We follow Warren (2000) in considering *A. bacchus* as a species-level taxon, this being a new status.

Achlyodes pallida (R. Felder, 1869)
Achlyodes selva Evans, 1953, **new synonymy**
(Figs. 61-62, 133)

Evans (1953) described *A. selva* (T.L. Chiapa, [Veracruz] Mexico), differentiating it from the largely sympatric *A. pallida* (T.L. "Mexico") in the alignment of macules on the forewing and in the orientation of the [illegible] from the ampulla of the male valva. They have been treated as separate species throughout the literature (*e.g.*, Kendall and McGuire 1975; Steinhauser 1975; Bridges 1988, 1993; de la Maza and White 1990; Llorente *et al.* 1990; de la Maza *et al.* 1991; de la Maza and de la Maza 1993; Vargas *et al.* 1996; Warren *et al.* 1998; Warren 2000), although Austin *et al.* (1996) suggested that they were probably synonyms. We have examined extensive material from Mexico, Costa Rica, and Ecuador and a few specimens from Peru. At the extremes of the variation among this material are two superficially separable phenotypes. One is shining golden-brown on the dorsum, is yellowish tan on the outer one-half of the ventral forewing, and has a large patch of this same color at the ventral hindwing apex. The other phenotype is browner (less golden and shining), has the outer half of the ventral forewing a duller tan (rather than yellowish tan), and a smaller patch of this color on the ventral hindwing. The offset submarginal line cited by Evans (1953) as a key character for *A. pallida* is seen on both phenotypes. On the ventral forewing, there is variation at the proximal edge of the pale apical area, this either ending abruptly in the medial area or extending a short distance basad after being interrupted by a dark medial line. The genital variation illustrated by Godman and Salvin (1879-1901, harpe missing), Hayward (1938), Evans (1953) and herein (Figs. 61-62) (length and orientation of the style, details of the harpe, breadth of the valva) appears to be continuous. Only one specimen (from Peru, Fig. 61) had a short style supposedly key to separating *A. pallida* from *A. selva*. Based on this, we conclude that *A. selva* is a synonym of *A. pallida*.

Timochares ruptifasciata (Plötz, 1884)
Timochares trifasciata f. ***obscurior*** Draudt, 1922, **new synonymy**
Timochares runia Evans, 1953, **new status**
Timochares trifasciata (Hewitson, 1868)
(Figs. 67-70, 122, 132)

Mielke (1993, see also Mielke and Schroeder 1994) examined the types of *Timochares trifasciata* f. *obscurior*, designated a lectotype from Honduras, and illustrated its genitalia in detail. These genitalia are not of *T. trifasciata*, but are typical of *T. ruptifasciata*, although the individual figured in Seitz (1907-1924) represents *T. trifasciata*. Since, however, the genitalia of the lectotype are like those of *T. ruptifasciata* (Fig. 67), the taxon is synonymized with that species with the caveat that this may have to be revisited with a reexamination of the specimens involved.

Evans (1953) described *T. runia* from Jamaica as a subspecies of *Timochares ruptifasciata*. *Timochares runia* has fewer bands of dark macules than does *T. ruptifasciata* (six bands on *T. ruptifasciata* and three on *T. runia*), a deeper red-brown dorsal hindwing with more irregular macular bands (especially the postmedial), and the ventral ground color is red-tan (yellow-tan on *T. ruptifasciata*). Sufficient differences from *T. ruptifasciata* exist in its wing markings and male genitalia (especially in the configuration of the right valva, Figs. 67-68) to consider this as a species-level taxon.

Male genitalia of *T. trifasciata* (Fig. 69) do not vary greatly. One male from Nayarit, however, has valvae differing from the average (Fig. 70) seen among nearly fifty specimens from western Mexico (Chiapas, Colima, Jalisco, Michoacán, Nayarit, Sinaloa).

Anastrus tolimus tolimus (Plötz, 1884)
Anastrus tolimus robigus (Plötz, 1884), **confirmed status**
Anastrus luctuosus (Godman & Salvin, 1894), **new combination, reinstated status**
(Figs. 71-78, 128-130)

Although *Antigonus robigus* has recently been treated as a species separate from *A. tolimus* (*e.g.*, Llorente *et al.* 1990, Vargas *et al.* 1996, Warren *et al.* 1998, Warren 2000), Austin (1998) suggested that this may be premature and required more study. A major problem in the elaboration of the taxonomic status of *A. t. robigus* was its seemingly anomalous disjunct distribution including Mexico and then a large part of South America (Godman and Salvin 1879-1901, Evans 1953) and potential sympatry with *A. t. tolimus* (Austin 1998). Reevaluation of material identified as *A. t. robigus* from western Mexico indicated that this butterfly is not *A. t. robigus*, but another taxon. It differs from *A. t. robigus* by having shorter wings, having a contrasting iridescent brown anal fold on the ventral hindwing, and being duller without the yellow-brown aspect seen on both putative subspecies of *A. tolimus*. Male genitalia of this phenotype have a generally shorter valva than does *A. tolimus* and female genitalia have a broader sterigma (Figs. 71-74, 128-130). This is the species described by Godman and Salvin (1894) from Mexico as *Echelatus luctuosus* (type locality: Acapulco, Guerrero). Because of these wing and genital differences, we remove *E. luctuosus* from its synonymy under *A. tolimus robigus* and return it to a species-level taxon. Specimens of this species have been seen from Colima, Guerrero, Jalisco, Michoacán, and Nayarit in western Mexico. Miller's (1970) report of *A. t. tolimus* from Sinaloa may represent *A. luctuosus*.

With the identification of *A. luctuosus* as a valid species, *A. t. robigus* and *A. t. tolimus* now appear as geographical replacements. The genitalia of the two are virtually identical (Austin 1998; Figs. 75-78 herein) and they are here considered to be conspecific.

Anastrus obscurus Hübner, 1824
Anastrus neaeris neaeris (Möschler, 1879), **reinstated status**
Anastrus neaeris narva Evans, 1953, **new combination, confirmed status**
(Figs. 79-80, 131)

Llorente *et al.* (1990) and Warren (2000) considered *Anastrus obscurus neaeris* as a species separate from *A. obscurus*. Austin (1998) noted the similarities between the genitalia of *A. o. neaeris* and *A. o. narva* and suggested that additional study of the putative taxa of this species was needed.

Examples of *A. obscurus* were examined from southern Brazil. These, although similar in pattern to its putative subspecies, are noticeably larger (male forewing length of *A. obscurus* = 22.4 mm, female = 24.0; male forewing length of *A. o. neaeris* and *A. o. narva* = 20-22 mm, female = 20-23 mm). Their genitalia also differ with the male of *A. obscurus* having a very broad style from the ampulla, a very long harpe (similar to that of *Anastrus virens* Austin, 1998), and a broad saccus and the female having a broad sterigma and a differently shaped antrum (compare with Austin 1998 and Figs. 79, 131 herein). Because of these differences, *Achlyodes neaeris* is considered a species-level taxon (following Warren 2000) with *Anastrus obscurus narva* placed as a subspecies of it. The male genitalia of *A. n. neaeris* are illustrated herein; the male genitalia of *A. n. narva* and the female genitalia of both subspecies were illustrated by Austin (1998).

Anastrus virens albopannus Austin, **new subspecies**
(Fig. 81)

Description. Male - forewing length = 21.2 mm; forewing with very narrow costal fold, apex pointed, outer margin slightly convex; hindwing more or less triangular, outer

margin slightly convex; dorsum black; forewing with broad, somewhat iridescent blue-green marginal band curving proximad (leaving apex black) to costal margin, costal margin with similar color distad, gradually becoming duller blackish green proximad; hindwing distal 2/3 somewhat iridescent blue-green vaguely divided in middle by narrow and darker postmedial line, color becoming duller to base of wing, costal margin pale yellow-brown, anal margin brown; fringes of both wings dark gray.

Ventral forewing purple-brown, vague blue and purple iridescence along costa, outer and anal margins paler brown, shining gray on both sides of basal 1/3 of vein 2A and beneath base of discal cell; hindwing purple-brown, overscaled with white from posterior discal cell and posterior cell M_2-M_3, extending to vein 2A and anal margin distad, sparser anteriorly, heavier posteriorly to discal cell and vein M_3; vague postmedial and submarginal bands of darker brown.

Head dark brown, white beneath eyes; palpi missing; antennae black with narrow but distinct white at segments on inner surface, ochreous on venter distad and beneath club, tips of antennae missing; thorax dark brown on dorsum, mixed black and white on venter; legs blackish with numerous white scales, tibiae smooth, mid-tibia with single pair of long spurs, hind tibia with two pairs of spurs plus long black hair tuft fitting into thoracic pouch; abdomen dark brown on dorsum, white on venter.

Male genitalia - tegumen flat, constricted in middle in dorsal view, continued to claw-like uncus in lateral view; uncus divided, arms relatively closely spaced, parallel; gnathos divided, arms thin, tapering caudad; vinculum broad; saccus broad, cephalad end bulbous; valva with margin of costa-ampulla relatively straight, ampulla continued caudad as finger-like style, ampulla also with triangular extension on inner side of valva; harpe extended caudad, narrow, caudal end somewhat expanded and with blunt teeth on entire dorsal edge, thin and sharply pointed projection dorsad from dorsal edge cephalad near ampulla; aedeagus tubular, phallobase with slight ventro-cephalad orientation out of line with remainder of aedeagus, aedeagus with two rows of small teeth near dorsal edge of the left side caudad (Fig. 81).

Female - unknown.

Type. Holotype male with the following labels: white, printed - / MEX: OAXACA / Mpio. Stgo. Comaltepec / Valle / Nacional: / Metates, 900 m / IX-1980 / L. Gonzalez-Cota /; white, printed and handprinted - / Genitalic Vial / GTA-10904 /; red, printed - / HOLOTYPE / *Anastrus virens / albopannus/* Austin /. Paratype: MEXICO: Veracruz; Santiago, Tuxtla, Popoctepetl, 10 Aug. 1980 (male, MZFC). The types are deposited at "Alfonso L. Herrera" Museo de Zoologia, Facultad de Ciencias, Universidad Nacional Autonóma de México.

Type locality. MEXICO: Oaxaca; Mpio. Stgo. Comaltepec, Valle Nacional, Metates, 900m. The ecology of this area was discussed by Luis *et al.* (1991).

Etymology. The name means white patch and refers to the white area on the ventral hindwing.

Distribution and phenology. Besides Mexico, the taxon is known from Costa Rica (Alajuela and Heredia provinces; April, May) and Panama (Canal Zone, February).

Diagnosis and discussion. *Anastrus virens* Austin, 1998, was recently described and known only from Rondônia, Brazil (Austin 1998). Subsequently, *A. virens* was found among material from Ecuador (Napo; Yasuni Research Station, vicinity of the junction of Río Tiputini and Río Rumiyaco, 350m), indicating that this species is more widespread in South America (this study). Within series of *A. neaeris* from Mexico and Central America were males of *A. virens* with white on the posterior part of the ventral hindwing. *Anastrus virens* thus becomes the sixth species of the genus, joining *Anastrus sempiternus* (Butler & H. Druce, 1872), *A. tolimus*, *Anastrus petius* (Möschler, 1876), *Anastrus meliboea* (Godman & Salvin, 1894), and *A. neaeris*, with a phenotype in Mexico and/or Central America having whitish or pale blue on the posterior portion of the ventral

hindwing and a phenotype in South America on which this area is not whitened. *Anastrus virens albopannus* is virtually identical to nominotypical *A. virens* except for the white on the ventral hindwing. The male from Panama has white scaling on the ventral hindwing intermediate between that on specimens from Mexico and Costa Rica and those from South America.

Helias phalaenoides (Hübner, 1812)
Helias godmani (Mabille & Boullet, 1917), **reinstated status**
Helias cama Evans, 1953, **new status**
(Figs. 82-84, 134-136)

Four subspecies were recognized within *H. phalaenoides* by Evans (1953). Although these differ variously in size, markings, and genitalia and exhibit potential sympatry, they have generally been retained as subspecies (*e.g.*, Brown and Mielke 1967; Monroe and Miller 1967; Steinhauser 1975; de la Maza and de la Maza 1985, 1993; Bridges 1988, 1993; de la Maza and White 1990; de la Maza *et al.* 1991; Lamas 1994; Robbins *et al.* 1996; Austin *et al.* 1996, 1998; Murray 2000).

Helias cama has a dark ventral hindwing similar to that of *H. phalaenoides*, but has a disconnected dark band on the forewing (continuous on *P. phalaenoides*) and different male and female genitalia (Figs. 84, 136), especially the uncus and valvae. We thus confirm the species-level status for this taxon indicated by Llorente *et al.* (1990) and Warren (2000); this a new rather than reinstated status.

Diphoridas godmani may be sympatric with *H. cama* and *H. phalaenoides* as indicated by Evans (1953) with records of all three for Panama, of both *H. cama* and *H. godmani* for Colombia (these also occur in Costa Rica with *H. cama* being recorded at two east slope locales and *H. godmani* at two west slope localities), and of both *H. godmani* and *H. phalaenoides* for Ecuador. *H. godmani* has extensive white on the ventral hindwing (different from both *H. cama* and *H. phalaenoides*) and the dark band on the forewing is disconnected as on *H. cama*. The genitalia of *H. godmani* are different from both *H. cama* and *H. phalaenoides* (Figs. 83, 135). Because of these differences and potential sympatry noted above, the status of *Diphoridas godmani* is here reinstated to that of a full species. The remaining putative subspecies, *Helias phalaenoides palpalis* (Mabille & Boullet, 1917), has not been examined.

Theagenes albiplaga (C. & R. Felder, 1867)
Theagenes aegides (Herrich-Schäffer, 1869), **confirmed reinstated status**
(Figs. 63-64, 116-117)

Llorente *et al.* (1990) considered *Antigonus aegides* as a species-level taxon without comment. Warren (2000) informally reinstated this taxon to species-level status apart from *T. albiplaga* based largely upon apparent differences in the illustrated genitalia (Godman and Salvin 1879-1901; Hayward 1933b, 1948; Evans 1953). The figure in Godman and Salvin (1879-1901) is faulty with the right valva missing the triangular ampulla and the left valva missing the elongate and heavily dentate ampulla. Genital differences, however, do exist between *T. albiplaga* and *T. aegides* (Figs. 63-64, 116-117) that reinforce their distinctive wing patterns. The valvae of the male genitalia are particularly diagnostic, especially with the harpe being more massive on *T. albiplaga*. They are considered different species and *Antigonus aegides* is here formally reinstated to species-level status.

Gesta gesta (Herrich-Schäffer, 1863)
Gesta invisus (Butler & Druce, 1872), **confirmed reinstated status**
(Figs. 56-58, 91-92)

Evans (1953) included *Thanaos invisus* as a subspecies of *G. gesta* despite described differences in markings and genitalia; it has generally been retained as such subsequently (Comstock and Kendall 1967; Tilden 1974; Steinhauser 1975; Miller and Brown 1981; Bridges 1988, 1993; Ferris 1989; Llorente *et al.* 1990; de la Maza and White 1990; de la Maza *et al.* 1991; de la Maza and Gutiérrez 1992; de la Maza and de la Maza 1993; Vargas *et al.* 1996; Austin *et al.* 1998) except for Durden (1982), Warren *et al.* (1998), Opler (1999), and Warren (2000). *Gesta invisus* has relatively narrower wings than *G. gesta* and has smaller or usually absent subapical forewing macules (prominent on *G. gesta*). The difference in the hindwing fringe color as noted by Evans (1953; white on *G. invisus*, brown on *G. gesta*) appears to be individual variation as suggested. White-fringed individuals have been seen from Mexico to Brazil and Bolivia. Genital differences between the two taxa go beyond those of the valvae (Figs. 57-58) noted by Evans (1953) and include female genitalia (Figs. 91-92). The right valva of *G. gesta* has a less well-developed process from the costa/ampulla than *G. invisus*, a narrower style, and a more elongate and narrower harpe. The harpe of the left valva of *G. gesta* is similarly narrower. Additional differences exist in the uncus, tegumen, gnathos, saccus, and aedeagus. It is therefore confirmed that *Thanaos invisus* is a valid species as so treated without comment by Warren (2000). Sympatry between the taxa should be sought in Costa Rica or Panama and putative intermediate material from northern South America (Evans 1953) requires careful reexamination. A single male seen from Curaçao resembles *G. gesta* superficially, but seems to have genitalia differing in several details from both *G. gesta* and *G. invisus* (Fig. 56). A third species may well exist, but more material needs examination before this can be elaborated (Curaçao material was listed as *G. gesta* by Debrot *et al.* 1999).

Heliopetes laviana (Hewitson, 1868)
Heliopetes libra Evans, 1944, **new status**
(Figs. 59-60, 105)

Evans (1944) described *H. laviana libra* and that taxon has been retained as a subspecies of *H. laviana* subsequently (Evans 1953; Bridges 1988, 1993) despite its distinctive phenotype and potential sympatry with *H. lavaina* itself and its putative subspecies *Heliopetes laviana leca* (Butler, 1870). Male genitalia of *H. laviana* and *H. libra* differ, especially in the configuration of the valva and orientation of the caudal end of the harpe (Figs. 59-60). The latter is here raised to species-level status.

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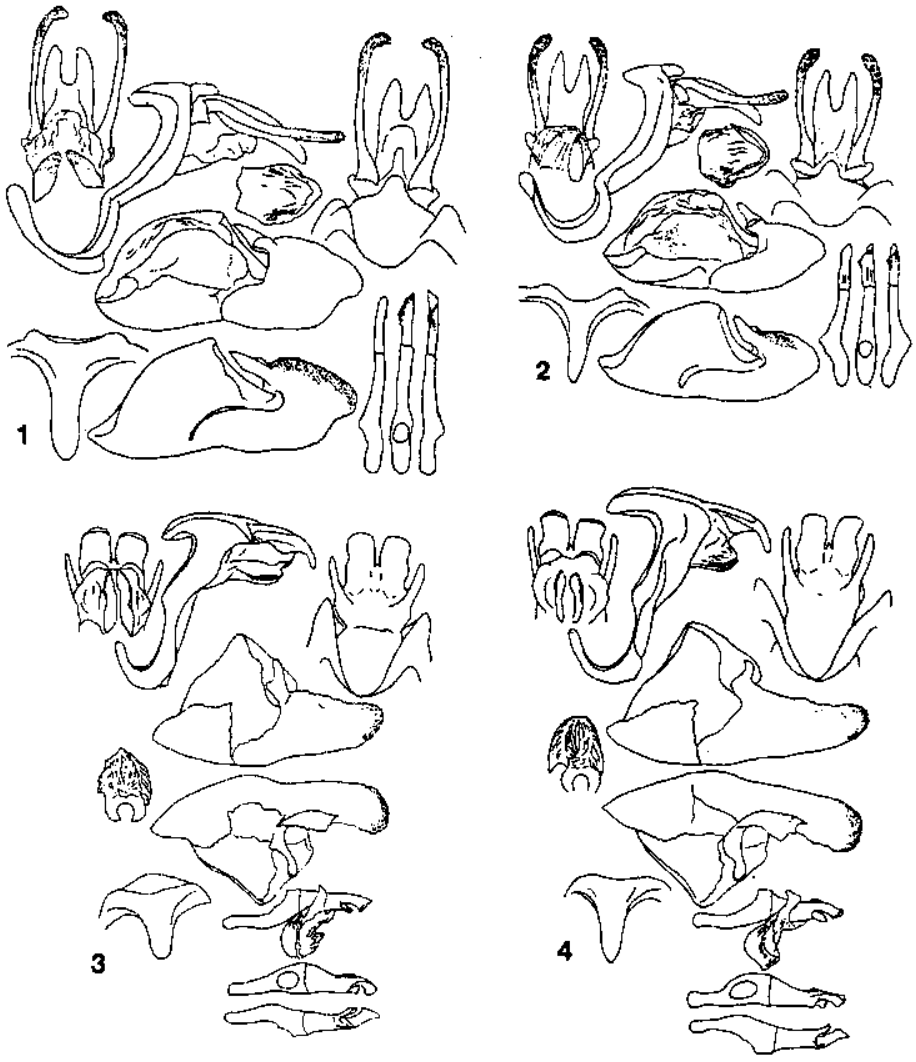
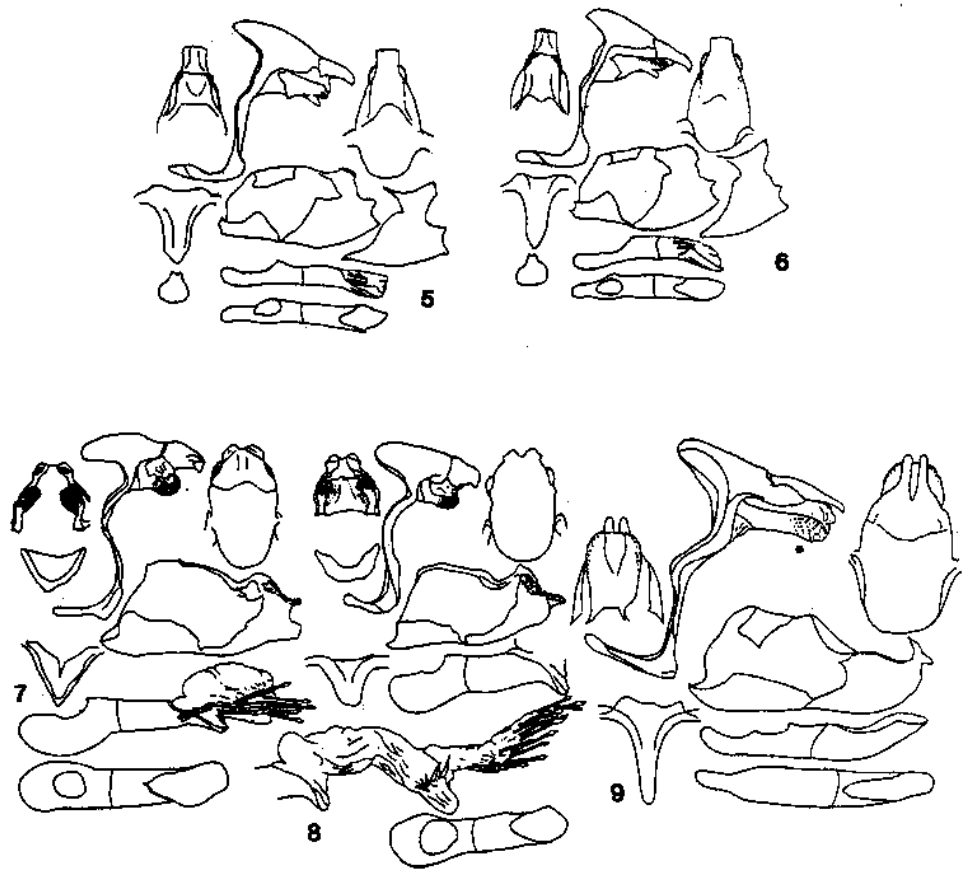
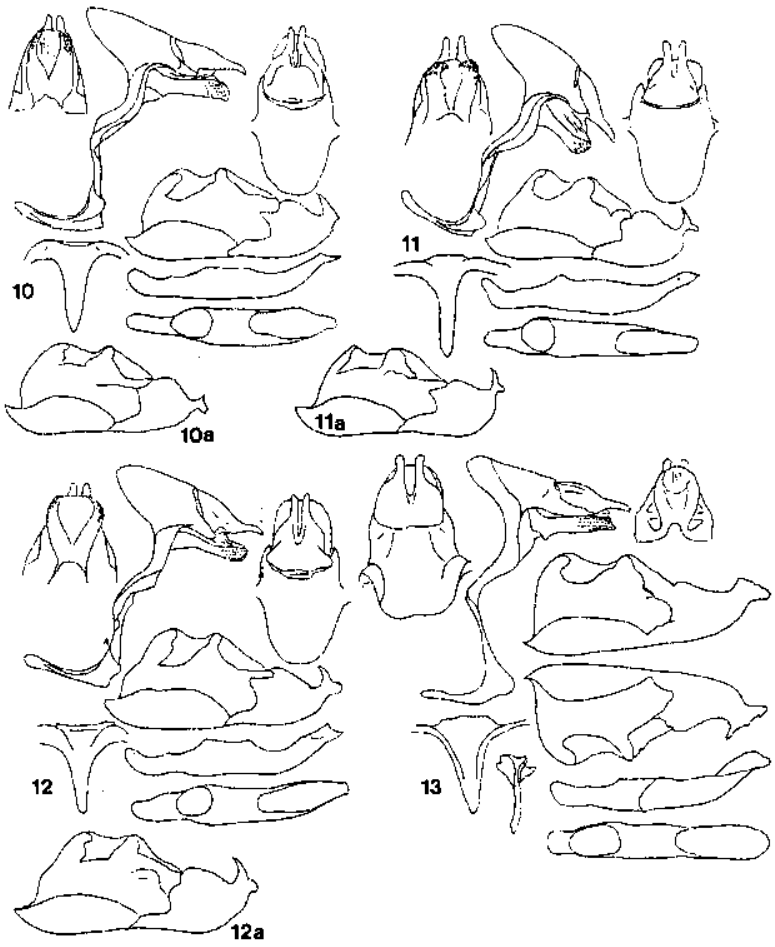


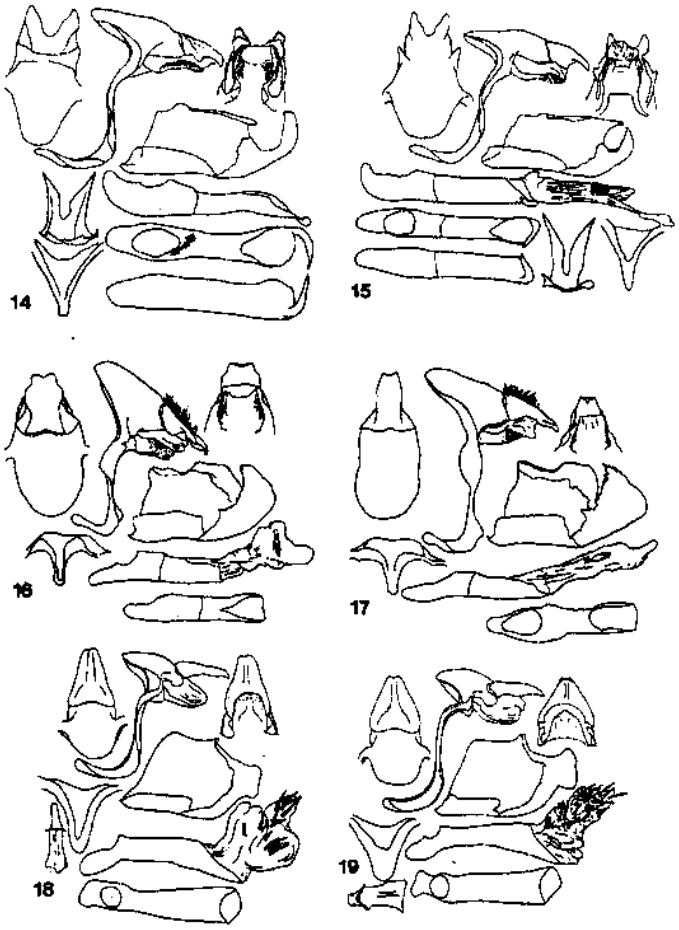
Figures 1-4. Male genitalia of *Pyrrhopyge* and *Chalypyge*. 1. *Pyrrhopyge thericles*- BRAZIL: Rondônia; 62 km S Ariquemes, linha C-20, 7 km E B-65, Fazenda Rancho Grande, 16 Aug. 1993 (GTA #3684); 2. *Pyrrhopyge pseudophidias* - PANAMA: Canal Zone; Cocoli, 26 Dec. 1983 (GTA #11020); 3. *Chalypyge chalybea chalybea* - MEXICO: Jalisco; Guadalajara, May 1940 (ADW #99-185); 4. *Chalypyge chalybea chloris*- MEXICO: Jalisco; Ahuacapán, SSE of Autlán, 900m, 9 June 1994 (ADW #99-182).



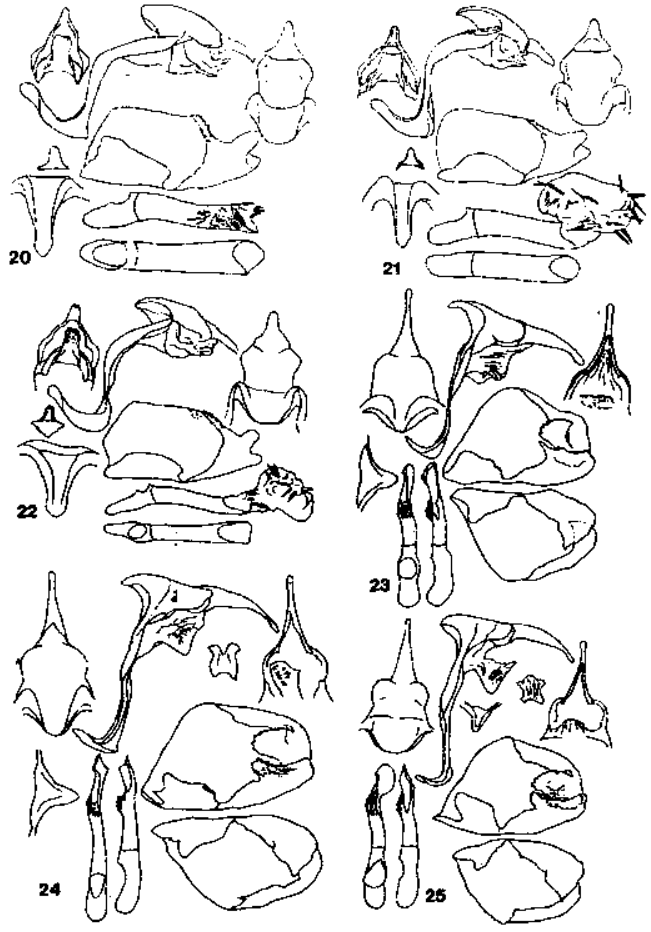
Figures 5-9. Male genitalia of *Hyalothyrus*, *Chrysoplectrum*, and *Chioides*. 5. *Hyalothyrus neleus neleus* - BRAZIL: Rondônia; linha C-5, off B-65, 19 km S Cacaulândia, 13 Dec. 1990 (GTA #4809); 6. *Hyalothyrus neleus pemphigargyra* - COSTA RICA: Puntarenas Prov.; Ruta 2, Rio Catarata, 27 Sept. 1986 (GTA #4808); 7. *Chrysoplectrum perniciosus* - BRAZIL: Rondônia; 62 km S Ariquemes, linha C-20, 7 km E B-65, Fazenda Rancho Grande, 26 Oct. 1992 (GTA #3406); 8. *Chrysoplectrum epicincea* - COSTA RICA: Guanacaste; Playa Nosara, 10m, 8 Feb. 1996 (GTA #10077); 9. *Chioides catillus jethira* - ECUADOR: Guayas Prov.; ca. 10 km W Guayaquil on rd. to Salinas, 7 Mar. 1977 (GTA #10140).



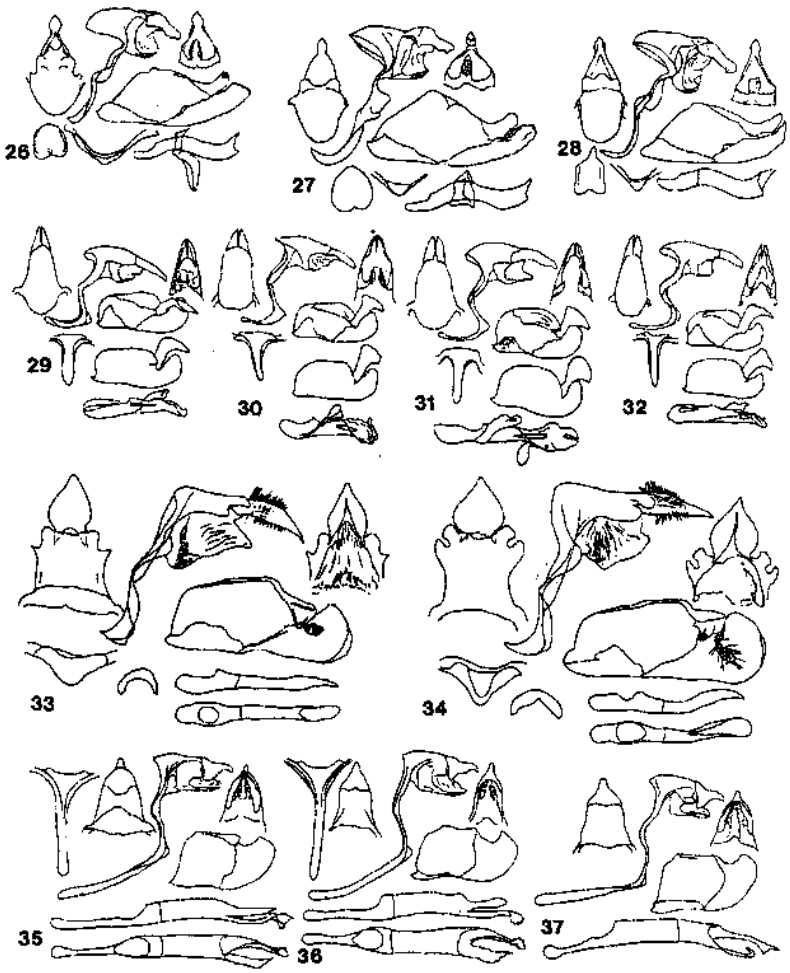
Figures 10-13. Male genitalia of *Chioides*. 10. *Chioides catillus catillus* - BRAZIL: Rondônia; linha C-10 (at Rio Pardo), off B-65, 5 km S Cacaulândia, 7 Aug. 1993 (GTA #10142); 10a. *Chioides catillus catillus* - BRAZIL: Rondônia; linha C-10 (at Rio Pardo), off B-65, 5 km S Cacaulândia, 2 Aug. 1993 (GTA #10141); 11. *Chioides catillus albius* - COSTA RICA: San José Prov.; Ruta 7, 10.3 km E Puriscal (Santiago), 17 Sept. 1987 (GTA #10134); 11a. *Chioides catillus albius* - COSTA RICA: Alajuela Prov.; Rio Virilla, 5.5 km SW Guacima, 7 Sept. 1987 (GTA #10135); 12. *Chioides albofasciatus* - MEXICO: Campeche, W of Campeche on Hwy 180, 15 Aug. 1962 (GTA #10136); 12a. *Chioides albofasciatus* - MEXICO: Sinaloa, Mazatlán, 29 Dec. 1973 (GTA #10137); 13. *Chioides churchi* - JAMAICA: St. Elizabeth; Calabash Bay, 21 Mar. 1996 (GTA #10298).



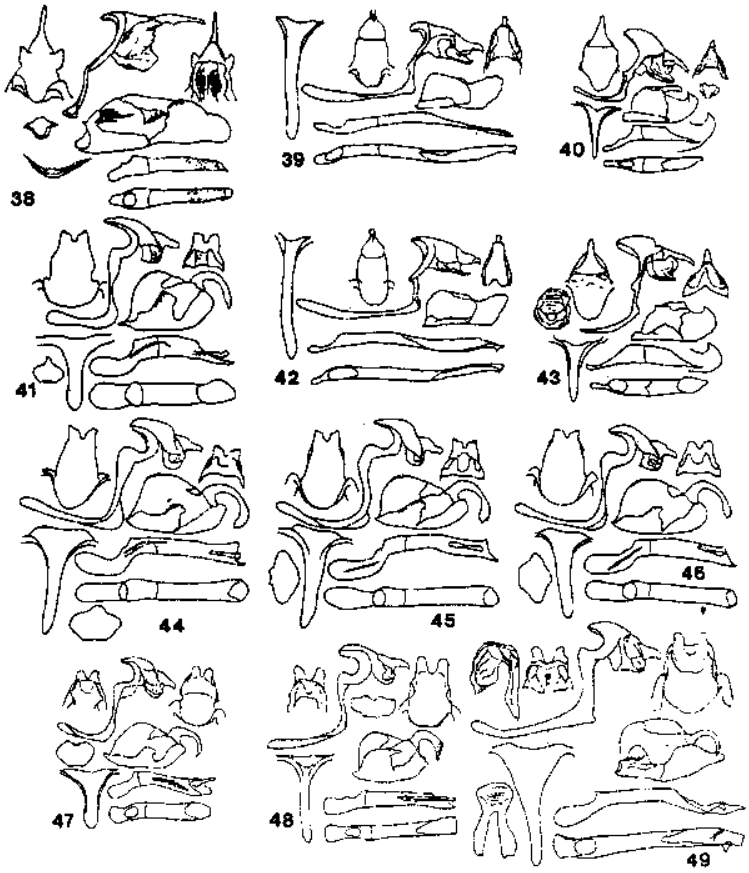
Figures 14-19. Male genitalia of *Polythrix*, *Zestusa*, and *Cogia*. 14. *Polythrix asine* - COSTA RICA: Heredia Prov.; Chilamate, Finca Selva Verde, 24 Sept. 1986 (GTA #614); 15. *Polythrix mexicanus* - COSTA RICA: San José Prov.; rd. from Villa Colon to Finca El Rodeo, 16 Sept. 1987 (GTA #666); 16. *Zestusa elwesi* - MEXICO: Durango; Mpio. El Salto, hwy. 40, 1 km southwest of Cerro el Madroño, 2450m, 29 Apr. 1998 (GTA #10436); 17. *Zestusa staudingeri* - MEXICO: Chiapas; El Triunfo, 10 Mar. 1987 (GTA #10435); 18. *Cogia cajeta cajeta* - MEXICO: Puebla; 16 mi. NW of Tchuitzingo, 26 June 1970 (GTA #10040); 19. *Cogia cajeta eluina* - COSTA RICA: Guanacaste Prov.; Ruta 1, 1.0 km W Rio Piedras, 24 Sept. 1987 (GTA #10038).



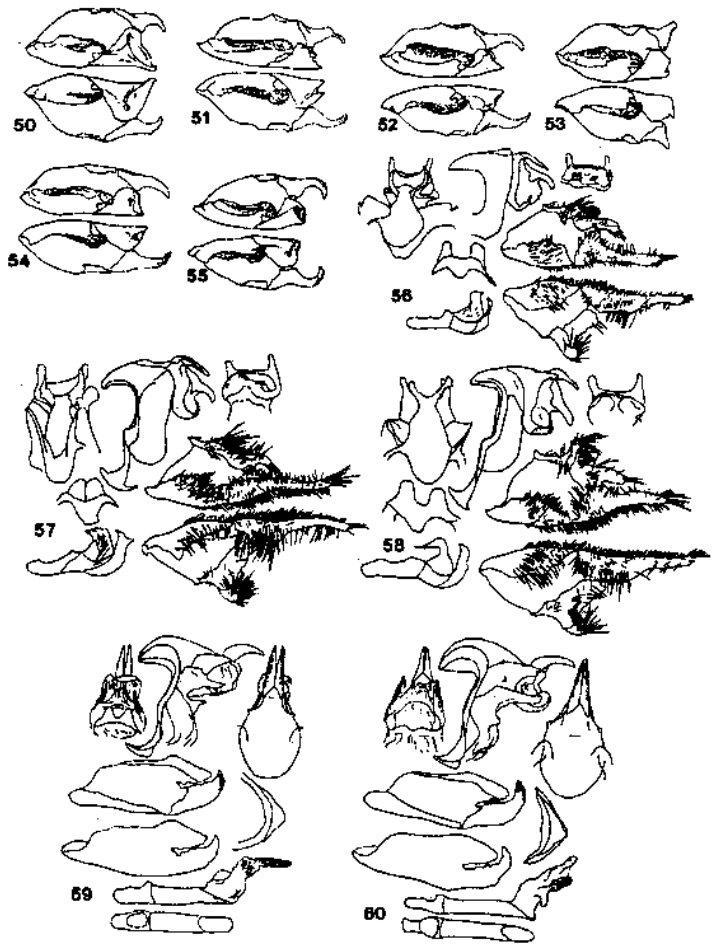
Figures 20-25. Male genitalia of *Cogia* and *Noctuana*. 20. *Cogia hippalus hippalus* - ARIZONA: Santa Cruz Co.; hwy. 82, mile 5, northeast of Nogales, 1 Aug. 1991 (ADW #00-23); 21. *Cogia hippalus hiska* - COSTA RICA: San José Prov.; road from Villa Colon to Finca El Rodeo, 2 Oct. 1987 (GTA #10935); 22. *Cogia outis* - OKLAHOMA: Wagoner Co.; Lake Bixhoma, 10 May 1990 (GTA #11048); 23. *Noctuana noctua* - COLOMBIA: Cerro Batero, Risaraleda, 1600m, 30 July 1994 (GTA #10624); 24. *Noctuana lactifera lactifera* - COSTA RICA: San José Prov.; W of Patarra, Cerro los Castro, 16 Nov. 1989 (GTA #10030); 25. *Noctuana lactifera bipuncta* - MEXICO: Oaxaca; Pluma Hidalgo, 23 July 1988 (GTA #10050).



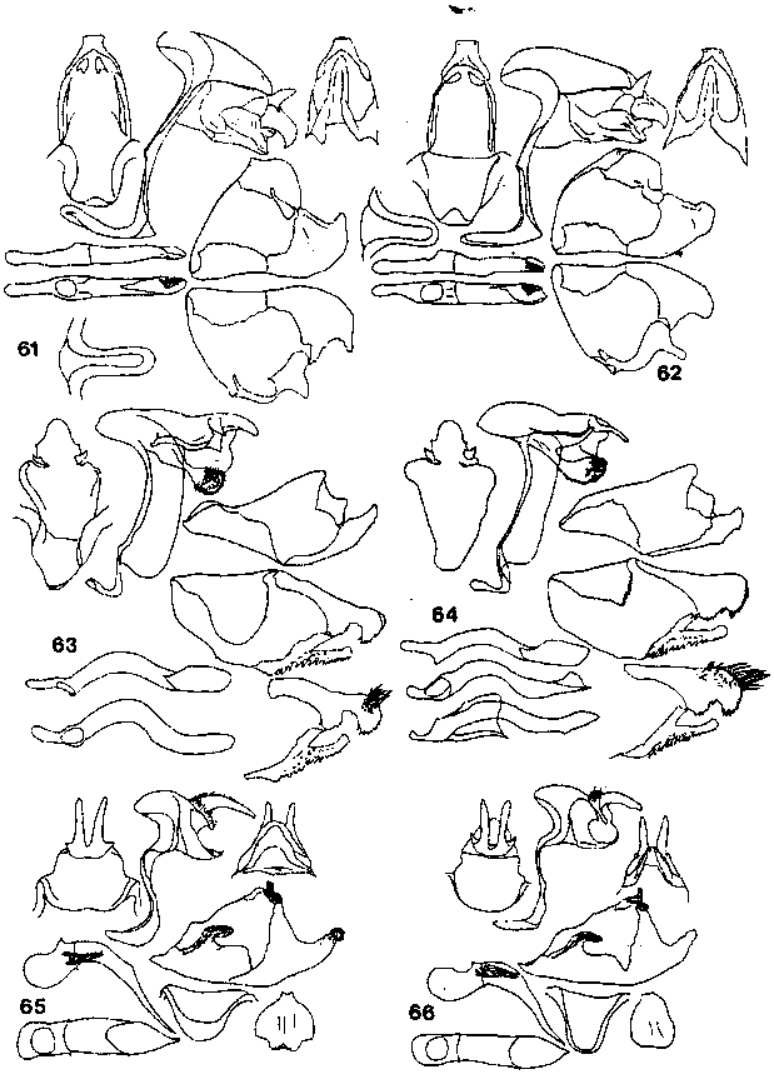
Figures 26-37. Male genitalia of *Cyclosemia*, *Diaeus*, *Bolla*, and *Pythonides*. 26. *Cyclosemia herennius* - BRAZIL: Rondônia; 62 km S Ariquemes, linha C-20, 7 km E B-65, Fazenda Rancho Grande, 17 Nov. 1990 (GTA #10024); 27. *Cyclosemia subcaerulea* - COSTA RICA: Heredia Prov.; Sarapiqui, La Selva, 21 Oct. 1987 (GTA #10115); 28. *Cyclosemia elelea* - ECUADOR: Napo; Campo Yuca, km 26, Coco-Tarocoa, 350 m (ADW #99-262); 29. *Diaeus lacaena* - VENEZUELA: N Barinas State; Qda. El Rincon, ca. km 16, Barinitas-Altamira, 700m, 23 Oct. 1979 (GTA #11058); 30. *Diaeus varna* - COSTA RICA: Cartago Prov.; Tuis-Moravia Rd., 11.5 km E Tuis, 1 Sept. 1987 (GTA #9999); 31. *Diaeus ambata* - ECUADOR: Tungarahua Prov., Rio Topo nr. Rio Pastaza, 27 Dec. 1981 (GTA #10026); 32. *Diaeus variegata* - BRAZIL: Rondônia; linha 2.5 off B-65, 12.5 km S Cacaulândia, 12 Dec. 1990 (GTA #10000); 33. *Bolla phylo* - ECUADOR: Pichincha Prov.; Hotel Tinalandia, 12 km E Santo Domingo de los Colorados, 750-850m, 10 May 1988 (GTA #693); 34. *Bolla pullata* - COSTA RICA: Limon Prov.; Ruta 32, Rio Blanco, 5.9 km W Guapiles, 12 Sept. 1986 (GTA #10150); 35. *Pythonides jovianus jovianus* - ECUADOR: Sucumbios; La Selva Biological Station, 4 Dec. 1997 (GTA #10119); 36. *Pythonides jovianus amaryllis* - COSTA RICA: Alajuela Prov.; 6.8 km W Atenas, 27 Dec. 1984 (GTA #1822); 37. *Pythonides jovianus fabricii* - BRAZIL: Rondônia; 62 km S Ariquemes, linha C-20, 7 km E B-65, Fazenda Rancho Grande, 6 Dec. 1991 (GTA #1812).



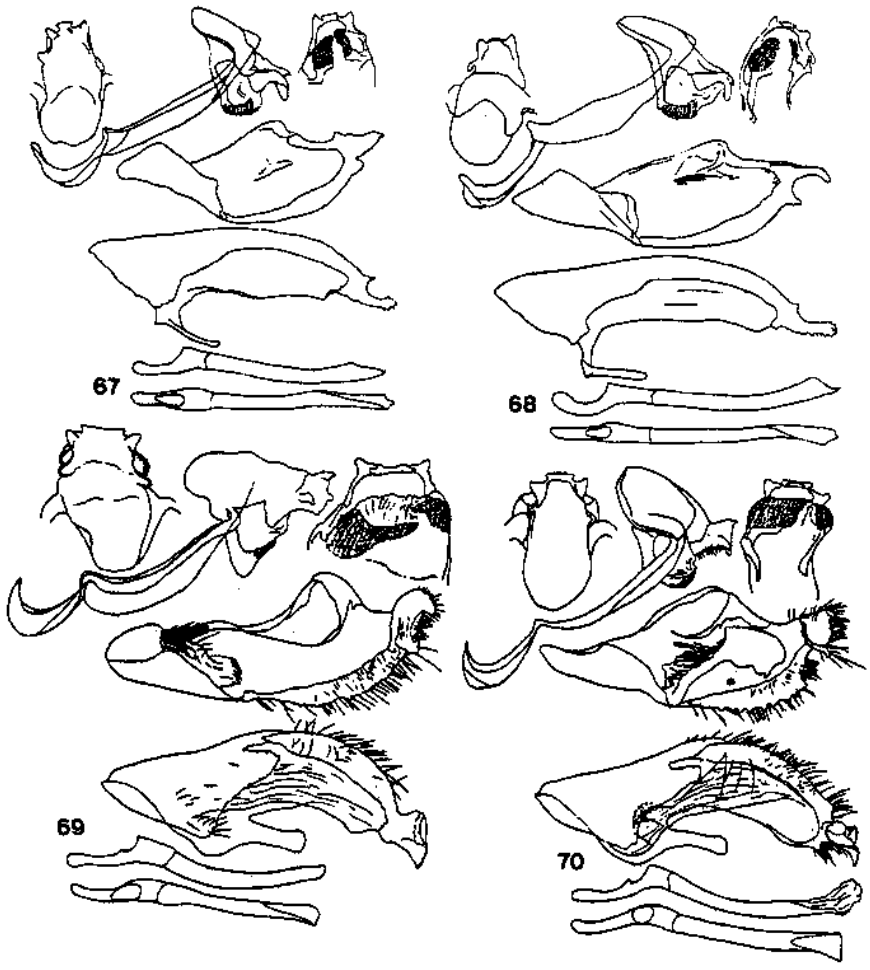
Figures 38-49. Male genitalia of *Staphylus*, *Pythonides*, and *Paches*. 38. *Staphylus carragoa* - COSTA RICA: Alajuela Prov.; 6.8 km W Atenas, 22 Mar. 1985 (SRS #2986); 39. *Pythonides herennius* - BRAZIL: Rondônia; 62 km S Ariquemes, linha C-20, 7 km E B-65, Fazenda Rancho Grande, 17 Nov. 1990 (GTA #3358); 40. *Pythonides limaea* - ECUADOR: Napo; Yasuni Research Station, vic. jct. Rio Tiputini and Río Rumayaco, 350m, 9 Sept. 1999 (ADW #99-277); 41. *Paches gladiatus* - ECUADOR: Napo; Yasuni Research Station, vic. jct. Río Tiputini and Río Rumiyaco, 350m, 9 Sept. 1999 (GTA #11026); 42. *Pythonides proxenus* - COSTA RICA: Heredia Prov.; 3.8 km N Santa Clara, 5 Sept. 1987 (GTA #3359); 43. *Pythonides pteras* - COSTA RICA: Sarapiqui District, Ruta 9, Chilamate, Finca El Bejuco, 30 Mar. 1989 (GTA #3360); 44. *Paches loxus loxus* - VENEZUELA: Zulia, Perija, El Tucuco, 24 June 1979 (GTA #11027); 45. *Paches loxus gloriosus* - GUATEMALA: Petén; El Remate, Cerro Cahui, 28 Sept. 1994 (GTA #5161); 46. *Paches loxus loxana* - BRAZIL: Rondônia; linha C-10 (at Rio Pardo), off B-65, 5 km S Cacaulândia, 6 Apr. 1995 (GTA #10064); 47. *Paches polla* - COSTA RICA: Alajuela Prov.; Ruta 11, Rio Colorado, 6.4 km E of Atenas, 29 Aug. 1987 (GTA # 11067); 48. *Paches exosa* - BRAZIL: Rondônia; 62 km S Ariquemes, Fazenda Rancho Grande, 180m, 18 Mar 1989 (GTA #340); 49. *Paches trifasciatus* - ECUADOR: Sucumbios Prov.; 7 km SE Coca, La Selva Station, 250m, 11 June 1998 (GTA #9920).



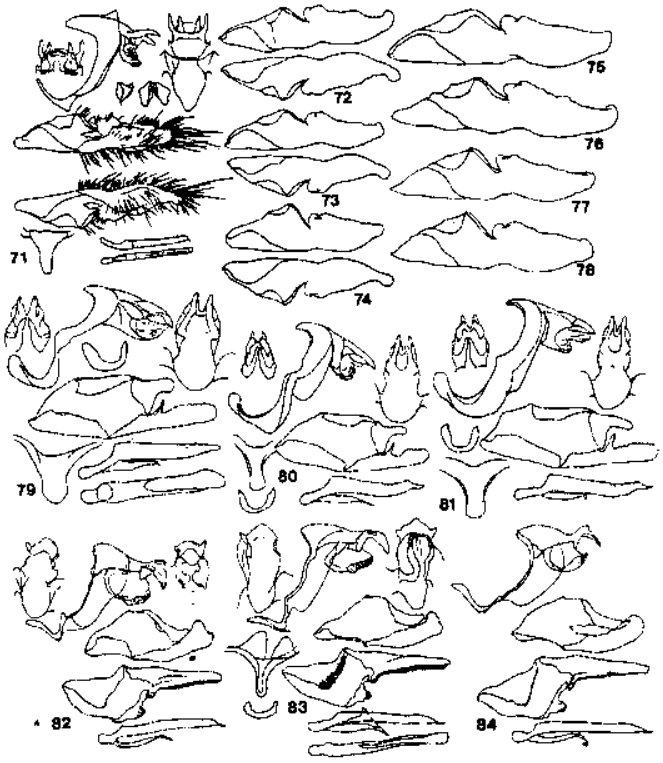
Figures 50-60. Male genitalia of *Anisochoria*, *Gesta*, and *Heliopetes*. 50. *Anisochoria pedaliodina extincta* - BRAZIL: Rondônia; ca 70 km S Ariquemes, B-80 between linhas C-10 and 15, 19 Nov. 1991 (GTA #2126); 51. *Anisochoria pedaliodina extincta* - BRAZIL: Rondônia; linha C-2.5, off B-65, 12.5 km S Cacaulândia, 2 Nov. 1990 (GTA #10239); 52. *Anisochoria pedaliodina extincta* - BRAZIL: Rondônia; 62 km S Ariquemes, off B-65, vic. Fazenda Rancho Grande, 180m, 10 Nov. 1989 (GTA #2125); 53. *Anisochoria bacchus* - MEXICO: Chiapas, ca 3 mi S Simojovel, 3000', 22 June 1989 (GTA #10049); 54. *Anisochoria pedaliodina pedaliodina* - ECUADOR: Napo R., Anaconda Island, 22 Aug. 1976 (GTA #10235); 55. *Anisochoria pedaliodina polysticta* - COSTA RICA: Alajuela Prov.; Rio Virilla, 5.5 km SW Guacima, 7 Sept. 1987 (GTA #7386); 56. *Gesta "gesta"* - CURAÇAO (GTA #10008); 57. *Gesta gesta* - BRAZIL: Rondônia; linha C-5 off B-65, 10 km S Cacaulândia, 14 Dec. 1990 (GTA #9982); 58. *Gesta invisus* - MEXICO: Veracruz; Paso de la Oyehas, 20 Aug. 1962 (GTA #9981); 59. *Heliopetes laviana* - MEXICO: Veracruz; Paso de la Oyehas, 20 Aug. 1962 (GTA #11083); 60. *Heliopetes libra* - BOLIVIA: Sud Yungas Prov.; La Paz Dept., 5 km E Rio Selva Resort, 2500', 7 Mar. 2000 (GTA #11082).



Figures 61-66. Male genitalia of *Achlyodes*, *Theagenes*, and *Carrhenes*. 61. *Achlyodes pallida* - PERU (northern): Rodriquez de Mendoza, 12 Aug. 1971 (ADW #96-42); 62. *Achlyodes pallida* - COSTA RICA: San José Prov.; Paso Ancho, 30 Mar. 1985 (GTA #619); 63. *Theagenes aegides* - MEXICO: Oaxaca; canyon N San Filepe, 5 Sept. 1988 (GTA #10093); 64. *Theagenes albiplaga* - ECUADOR: Prov. Pastaza; Rio Negro nr. Rio Pastaza, 30 June 1980 (GTA #10092); 65. *Carrhenes callipetes* - MEXICO: Oaxaca; Pitla-Tlaxiaco, 7 Aug. 1992 (GTA #10322); 66. *Carrhenes meridensis* - COSTA RICA: San José Prov.; cerro west of Patarra, 12 Oct. 1987 (GTA #7453).



Figures 67-70. Male genitalia of *Timochares*. 67. *Timochares ruptifasciata* - TEXAS: Hidalgo Co.; Bentsen State Park, 13 Aug. 1973 (ADW #99-410); 68. *Timochares runia* - JAMAICA: Trelawny Parish, Trelawny Beach, 17 July 1995 (ADW #99-411); 69. *Timochares trifasciatus* - GUATEMALA: Petén; Parque Nacional Tikal, E of Cauba, 1 Oct. 1994 (GTA #10622); 70. *Timochares* - MEXICO: Nayarit; 7 km E of San Blas, 19 Aug. 1967 (GTA #10627).



Figures 71-84. Male genitalia of *Anastrus* and *Helias*. 71. *Anastrus luctuosus* - MEXICO: Nayarit; Mpio. San Blas, Singayta, 100m, 25 Dec. 1996 (GTA #10614); 72. *Anastrus luctuosus* - MEXICO: Jalisco; Mismaloya, about 16 km southwest of Puerto Vallarta on hwy. 200, 27 Dec. 1994 (GTA #10303); 73. *Anastrus luctuosus* - MEXICO: Jalisco; Mismaloya, about 16 km southwest of Puerto Vallarta on hwy. 200, 27 Dec. 1994 (GTA #10304); 74. *Anastrus luctuosus* - MEXICO: Jalisco; Mismaloya, about 16 km SW Puerto Vallarta on Hwy 200, 30 Dec. 1994 (GTA #10302); 75. *Anastrus tolimus tolimus* - GUATEMALA: Petén; Parque Nacional Tikal, 11 July 1993 (GTA #6603); 76. *Anastrus tolimus tolimus* - GUATEMALA: Petén; Parque Nacional Tikal, 26 Sept. 1992 (GTA #10332); 77. *Anastrus tolimus tolimus* - GUATEMALA: Petén; Parque Nacional Tikal, 8 Feb. 1992 (GTA #10333); 78. *Anastrus tolimus tolimus* - GUATEMALA: Petén; Parque Nacional Tikal, 6 Feb. 1992 (GTA #10334); 79. *Anastrus obscurus* - BRAZIL: São Paulo; no date (GTA #10443); 80. *Anastrus neaeris neaeris* - GUATEMALA: Petén; Parque Nacional Tikal, 5 Nov. 1993 (GTA #6601); 81. *Anastrus virens albopannus* - MEXICO: Oaxaca; Mpio. Stgo. Comaltepec/Valle Nacional, Metates, 900m, Sept. 1980 (GTA #10904); 82. *Helias phalaenoides* - BRAZIL: Rondônia; linha C-0, off B-65, 15 km S Cacaulândia, 23 Apr. 1991 (GTA #10008); 83. *Helias godmani* - PANAMA: Canal Zone; Pipeline Road, 50', 30 June 1988 (GTA #10148); 84. *Helias cama* - GUATEMALA: Petén; Parque Nacional Tikal, 17 June 1994 (GTA #10005).

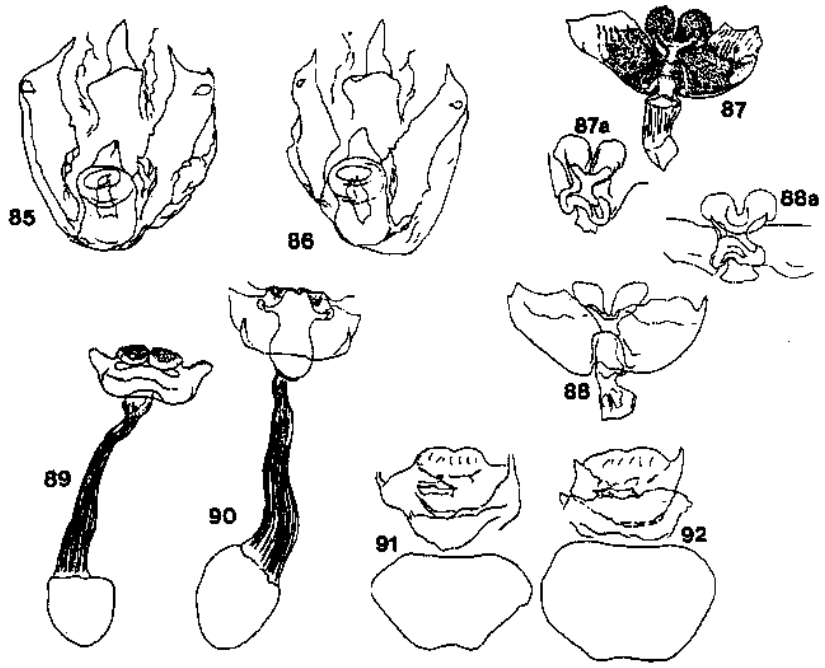
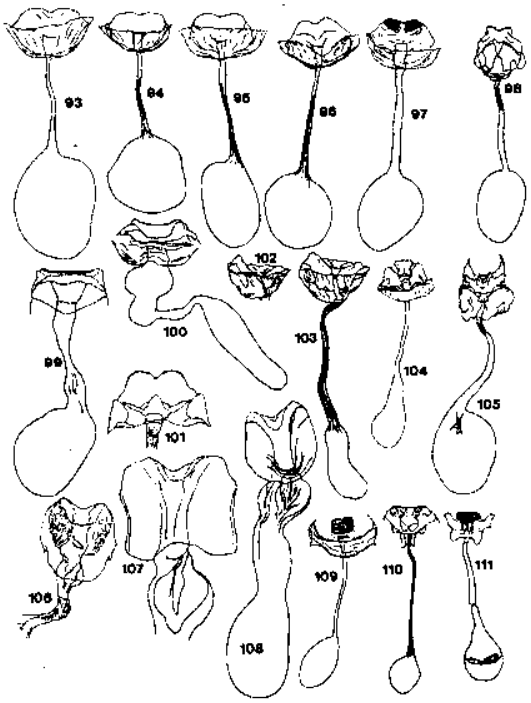
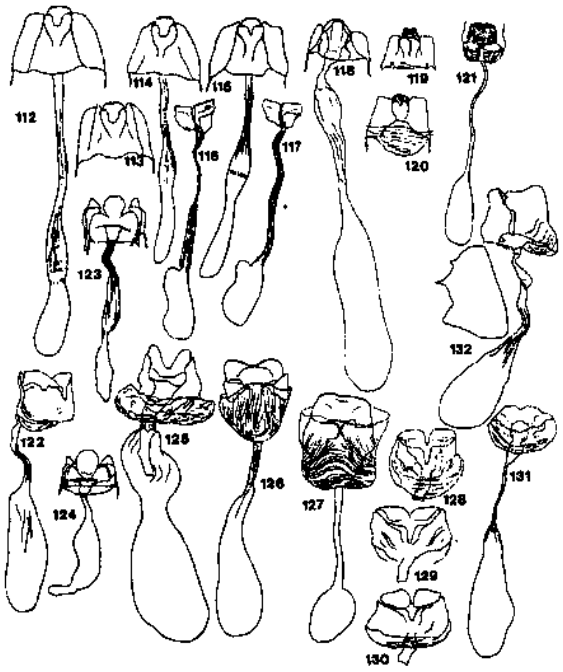


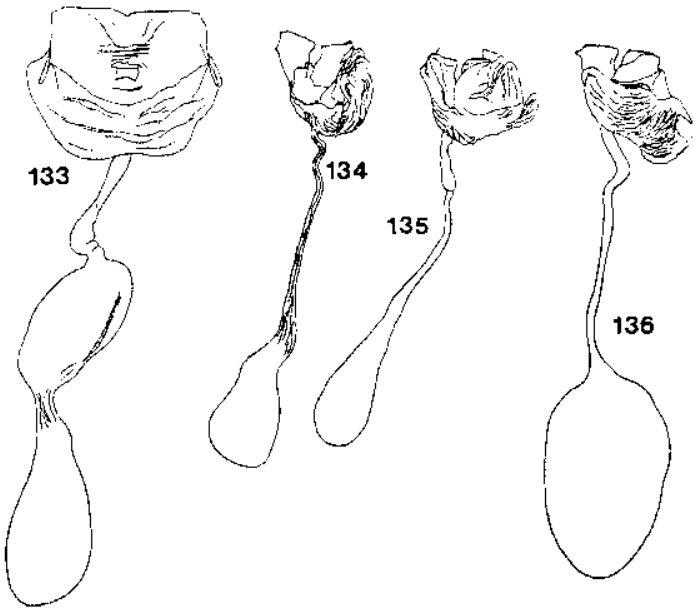
Figure 85-92. Female genitalia of *Chalypyge*, *Hyalothyrus*, *Polythrix*, and *Gesta*. 85. *Chalypyge chalybea chalybea* - MEXICO: Jalisco; Guadalajara, May 1940 (ADW #99-193); 86. *Chalypyge chalybea chloris* - MEXICO: Jalisco; Puerto Vallarta, 30 Dec. 1988 (ADW #99-189); 87. *Hyalothyrus neleus neleus* - BRAZIL: Rondônia; 62 km S Ariquemes, linha C-20, 7 km E B-65, Fazenda Rancho Grande, 18 Nov. 1991 (GTA #4812); 87a. *Hyalothyrus neleus neleus* - BRAZIL: Rondônia; 62 km S Ariquemes, Fazenda Rancho Grande, 180m, 18 Mar. 1989 (GTA #4813); 88. *Hyalothyrus neleus pemphigargyra* - COSTA RICA: Puntarenas Prov.; Ruta 2, Rio Catarata, 5 Apr. 1989 (GTA #4810); 88a. *Hyalothyrus neleus pemphigargyra* - COSTA RICA: Alajuela Prov.; Upala Rd., 18.3 km S Upala, 22 Sept. 1987 (GTA #4811); 89. *Polythrix asine* - COSTA RICA: Alajuela Prov.; 6-8 km W Atenas, 27 Dec. 1981 (GTA #10952); 90. *Polythrix mexicanus* - COSTA RICA: Limon Prov.; Playa Bananito, 13 Sept. 1986 (GTA #10953); 91. *Gesta gesta* - BRAZIL: Rondônia; linha C-5 off B-65, 10 km S Cacaulândia, 14 Dec. 1990 (GTA #9985); 92. *Gesta invisus* - COSTA RICA: Alajuela Prov.; Ruta 11, Rio Colorado, 6.4 km E Atenas, 29 Aug. 1987 (GTA #9996).



Figures 93-111. Female genitalia of *Chioides*, *Achalarus*, *Zestusa*, *Noctuana*, *Anisochoria*, *Heliopetes*, *Cogia*, *Diaeus*, and *Bolla*. 93. *Chioides catillus catillus* - BRAZIL: Rondônia; 67 km S Ariquemes, linha C-10, 5 km S Cacaulândia, 18 Sept. 1993 (GTA #10325); 94. *Chioides catillus albius* - COSTA RICA: Puntarenas Prov.; Rio Pita (=Tarcolitos), 18 Sept. 1987 (GTA #10324); 95. *Chioides catillus jethira* - ECUADOR: Pichincha; Tinalandia, 24 May 1977 (GTA #10323); 96. *Chioides albofasciatus* - MEXICO: Sinaloa; Mazatlán, 30 Dec. 1973 (GTA #10326); 97. *Chioides churchi* - JAMAICA: St. Elizabeth; Calabash Bay, 20 Mar. 1996 (GTA #10299); 98. *Chioides zilpa* - MEXICO: Sonora (GTA #10901); 99. *Achalarus casica* - MEXICO: Michoacán; Mpio. Uruapan, Cerro de la Cruz, 2000m, 23 Aug. 1997 (GTA #10438); 100. *Achalarus tehuacana* - MEXICO: Coahuila; km 214, Cuatro Cienegas, San Pedro de los Colonias, 19 Mar. 1996 (GTA #10440); 101. *Zestusa elwesi* - MEXICO: Guanajuato; Mpio. Dolores Hidalgo, hilltop ca. 5 km NE Santa Rosa on S side Hwy 110, ca. 2600m, 28 Mar. 2001 (GTA #11080); 102. *Noctuana lactifera bipuncta* - MEXICO: Chiapas; ca. 3 mi. S Simojoval, 3000', 5-6 Sept. 1989 (GTA #10051); 103. *Noctuana lactifera lactifera* - COSTA RICA: San José Prov.; cerro W of Patarra, 12 Oct. 1987 (GTA #10152); 104. *Anisochoria pedaliodina extincta* - BRAZIL: Rondônia; 62 km S Ariquemes off B-65, vic. Fazenda Rancho Grande, 180m (GTA #10961); 105. *Heliopetes laviana* - MEXICO: San Luis Potosi; nr. El Salto Falls, 8 Aug. 1992 (GTA #11087); 106. *Cogia outis* - TEXAS: Tarrent Co.; Benbrook Reservoir, 16 June 1974 (GTA #10425); 107. *Cogia hippalus hippalus* - MEXICO: Sonora; San Carlos, 24 Sept. 1978 (GTA #10424); 108. *Cogia hippalus hiska* - COSTA RICA: San José Prov.; Ruta 7, 9.3 km S Villa Colon, 17 Sept. 1987 (GTA #10936); 109. *Diaeus varna* - COSTA RICA: Puntarenas Prov.; Finca Las Cruces, 5 km south of San Vito de Java, 10 Sept. 1987 (GTA #10954); 110. *Bolla pullata* - COSTA RICA: Limon; Puerto Viejo, 13 Sept. 1986 (SRS #3003); 111. *Bolla phylo* - ECUADOR: Pichincha; Tinalandia, near Santo Domingo de los Colorados, 700m, 18 May 1997 (GTA #10898).



Figures 112-132. Female genitalia of *Paches, Theagenes, Eracon, Timochares, Carrhenes, Cogia, Cyclosemia*, and *Anastrus*. 112. *Paches loxus loxus* - PANAMA: Canal Zone; Black Tank Rd., Ft. Sherman, 5 Aug. 1978 (GTA #11028); 113. *Paches loxus gloriosus* - GUATEMALA: Petén; Parque Nacional Tikal, 2 Feb. 1992 (GTA #10991); 114. *Paches loxus loxana* - BRAZIL: Rondônia; linha C-20 at Rio Pardo, off B-65, 10 Dec. 1990 (GTA #10065); 115. *Paches gladiatus* - ECUADOR: Napo; Yasuni Research Station, vic. jct. Río Tiputini and Rio Rumiyaco, 350m, 8 Sept. 1999 (GTA #11029); 116. *Theagenes aegides* - MEXICO: Oaxaca; Hwy 75, ca. 5 mi. N Oaxaca, 11 Aug. 1988 (GTA #10094); 117. *Theagenes albiplaga* - BOLIVIA: Dept. of La Paz; Zongo Valley, Oct. 1979 (GTA #10095); 118. *Paches trifasciatus* - ECUADOR: Sucumbios Prov.; La Selva Biological Station, 10 Nov. 1997 (GTA #9939); 119. *Paches polla* - COSTA RICA: San José Prov.; Barrio del Carmen, San Miguel de Llano, 12 Mar. 1986 (GTA #11058); 120. *Paches exosa* - BRAZIL: Rondônia; linha C-2.5, off B-65, 12.5 km S Cacaulândia, 13 Nov. 1990 (GTA #11066); 121. *Eracon bitemata* - COSTA RICA: Puntarenas Prov.; Osa Peninsula, Rincon, 29 Feb. 1968 (GTA #10215); 122. *Timochares ruptifasciata* - MEXICO: Sonora; Rt 16, Rio San José de Pimas, 25 Aug. 1984 (GTA #10960); 123. *Carrhenes meridensis* - COSTA RICA: Alajuela Prov.; Rio Angel, vic. La Virgin del Socorro, 13 Apr. 1989 (GTA #7376); 124. *Carrhenes callipetes* - MEXICO: Guerrero; Mpio. Atoyac, Los Retrocecos, 1580-1650m, 23 Jan. 1987 (GTA #10442); 125. *Cogia cajeta eluina* - COSTA RICA: Guanacaste Prov.; Ruta 1, 1.1 km SE Rio Estranque, 18 Sept. 1986 (GTA #10956); 126. *Cyclosemia subcaerulea* - COSTA RICA: Heredia Prov.; Sarapiqui, La Selva, 18 Apr. 1987 (GTA #10023); 127. *Cyclosemia elelea* - ECUADOR: Napo; Campo Yuca, km 26, Coca-Taracoa, 350m, 15 Apr. 1995 (GTA #10895); 128. *Anastrus luctuosus* - MEXICO: Colima; Pedro Nuñez (La Bayera), 4 km NE La Central, 4 Jan. 1996 (GTA #10300); 129. *Anastrus luctuosus* - MEXICO: Colima; 2 km W Chandiablo, 2 Jan. 1996 (GTA #10301); 130. *Anastrus luctuosus* - MEXICO: Nayarit; Mpio. San Blas, Singayta, 100m, 20 Dec. 1996 (GTA #10305); 131. *Anastrus obscurus* - BRAZIL: São Paulo; no date (GTA #10444); 132. *Timochares trifasciatus* - MEXICO: Chiapas; Independencia; San Antonio Buenavista, July 1982 (ADW #00-244).



Figures 133-136. Female genitalia of *Achlyodes* and *Helias*. 133. *Achlyodes pallida* - COSTA RICA: Alajuela Prov.; 6.8 km W Atenas, Dec. 1984 (GTA #10931); 134. *Helias phalaenoides* - BRAZIL: Rondônia; 67 km S Ariquemes, linha C-10, 5 km S Cacaulândia, 11 Sept. 1993 (GTA #10169); 135. *Helias godmani* - COSTA RICA: San José Prov.; Rio Chirripo Pacífico, 5.0 km W Rivas, 14 Sept. 1987 (GTA #10007); 136. *Helias cama* - COSTA RICA: Heredia Prov.; Sarapiquí Dist., Ruta 9, Chilamate, Finca Selva Verde, 31 Mar. 1989 (GTA #10006).