PRELIMINARY ANALYSIS OF THE DIURNAL LEPIDOPTERA FAUNA OF THE TRÊS PICOS STATE PARK, RIO DE JANEIRO, BRAZIL, WITH A NOTE ON *PARIDES ASCANIUS* (CRAMER, 1775)

Alexandre Soares[1], Jorge M. S. Bizarro[2], Carlos B. Bastos[1], Nirton Tangerini[1], Nedyson A. Silva[1], Alex S. da Silva[1] and Gabriel B. Silva[1]

[1]Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro, Quinta da Boa Vista s/n, 20940-040 RIO DE JANEIRO-RJ, Brasil.
[2]Reserva Ecológica de Guapiaçu, Caixa Postal 98112, 28680-000 CACHOEIRAS DE MACACU-RJ, Brasil.
Correspondence to Alexandre Soares: asoares@mn.ufrj.br

Abstract - This paper deals with the butterfly fauna of the Três Picos State Park (PETP) area, Rio de Janeiro State (RJ), Brazil, sampled by an inventory of the entomological collections housed in the Museu Nacional/UFRJ (MNRJ) and a recent field survey at Reserva Ecologica de Guapiaçu (REGUA). The lowland butterfly fauna (up to 600m) is compared for both sites and observations are presented on *Parides ascanius* (Cramer, 1775).

Resumo - Apresentam-se dados provisórios sobre a Biodiversidade da fauna de borboletas do Parque Estadual dos Três Picos (PETP), Estado do Rio de Janeiro (RJ), Brasil, inventariada mediante o recurso a dados de etiquetas do acervo da coleção entomológica do Museu Nacional/UFRJ (MNRJ) e uma amostragem de campo executada na Reserva Ecologica de Guapiaçu (REGUA). A riqueza da fauna de borboletas da floresta ombrófila densa de baixada (até 600m) é comparada entre ambas as localidades, registrando-se uma extensão recente da área de ocorrência de *Parides ascanius* (Cramer, 1775).

Keywords: Diurnal Lepidoptera, Biodiversity, Museu Nacional, REGUA, Três Picos, checklist, *Parides ascanius*.

INTRODUCTION

Only a mere handful of works dealing with the state of Rio de Janeiro's (RJ) Lepidoptera fauna have been published thus far, even though the area has been collected and visited by naturalists as far back as the XVIIth century (Bönninghausen, 1896, 1901; Capronnier, 1881; May, 1924; Rosa, 1936). Abundant material and types of many taxa (like those of Godart, Hewitson, Schaus, Stichel or Zikán) did, however, find their way out of the state, and a considerable amount of information has been published in scattered sources (Lamas *et al.*, 2004).

Prittwitz (1865) published the first site inventory for RJ, a list of the butterflies of the Corcovado area. It was another half century before more comprehensive sampling efforts and local checklists were published, such as those for the Serra da Mantiqueira, Itatiaia National Park (Zikán 1928; Zikán & Zikán 1968) and more recently the Restinga da Jurubatiba National Park (Monteiro *et al*. 2004). This scarcity of published checklists, plus the fact that the Museu Nacional/UFRJ (MNRJ) harbours a huge Lepidoptera Collection rich in specimens from RJ, prompted and facilitated our research. Here we focus on the butterfly fauna of the Três Picos State Park (PETP) area, where mostly amateur collectors such as Julius Arp, Eduardo May, José Oiticica Filho and Henry Richard Pearson, collected many specimens now donated to the MNRJ. In addition, in the last two decades further important collections have been made by Mr. Nirton Tangerini in Boca do Mato.

We emphasize that this is one of the first extensive local Brazilian checklists that uses data sorted, screened and stored in museum specimen labels, many of them already 50-70 years old, as an essential part of the methodology.

MATERIALS AND METHODS

The remaining biologically valuable patches of the Atlantic Forest Hotspot (Myers 1990, Mittermeier *et al.* 2004) in RJ are virtually confined to the steep mountain chain that runs from east to west separating the coastal plain from the hinterland plateau, with the quaternary alluvial plain's lowland forests being particularly scarce today. A system of National and State Parks was devised as far back as 1937 to protect these forests, with the initial creation of Itatiaia National Park. The backbone of this park system today lies in Serra da Bocaína, Serra dos Órgãos and the Itatiaia massif.

The last addition to this network is the PETP (S22º19'-W42º41'), created in 2002 at the eastern half of the Serra dos Órgãos (state decree #31.343 of 2002/06/05). The park has an area of 46350 ha, including land from around 300-400 m up to 2316 m above sea level, covering five municipalities, with Cachoeiras de Macacu (where the Reserva Ecológica de Guapiaçu, REGUA, is located) contributing 49% of PETP's total area. As with most other reserves, it still lacks an adequate inventory of its arthropod fauna, including Lepidoptera.

REGUA (Fig. 3) is located in the upper Guapiaçu River Valley (22º27'14" S - 42º46'18"W) and was established from a group of private farms, especially São José Farm, registered under Brazilian law as a private non-profit association in 2001. It provides facilities for researchers and contains 7500ha of primary and old secondary forest patches, from lowland (Fig. 4) to above 2000m, besides 90ha of ecotone areas resulting from reforestation (Figs. 5-6) that is now between 3 and 9 years old.

Field research was carried out from September 2007 to September 2009. Collecting and observations were performed once or twice a month, with 3 or 4 collectors in the field, along

several of REGUA's trails, the Green Trail, Red Trail and around the Wetlands (Figs. 5-6), from morning (9:30 am) to afternoon (around 4:00 pm) in open and shady areas. Both hill forest and the riparian vegetation habitats, consisting mainly of recent reforestation or 30-40 years old secondary growth, were sampled.

Specimen collecting (IBAMA permission #10411-1) was performed using entomological nets and bait traps with different kinds of fermented fruits. Baits were prepared by leaving ripe fruit in sugarcane syrup inside a plastic container several days before its use in the field. Following an IBAMA request, a special effort was made to reduce the number of specimens of each species collected, by identifying and releasing specimens of species that had already been collected. In the case of *Parides ascanius*, a threatened species (Mielke & Casagrande 2008), no specimens were taken, its presence being documented only by photographs and sightings. Material collected was identified by comparison with the MNRJ collection, where voucher specimens were deposited. We also examined material in the MNRJ collections for specimens from PETP, and recorded data from approximately 85,000 specimens.

Taxonomy follows Lamas (2004), except for Mielke & Casagrande (2008) for Brassolinae and Bizarro *et al.* (unpublished data) for Charaxinae and Apaturinae.

RESULTS

For the PETP area, a total of 570 species belonging to the six butterfly families were identified (Table 1), 483 of which were already represented in the MNRJ. The latter material was mostly the product of fieldwork done in the Municipalities of Guapimirim, Cachoeiras de Macacu, Nova Friburgo and Teresópolis, from 1920 to 2000, by Julius Arp, Eduardo May, José Oiticica Filho, Henry Richard Pearson and Nirton Tangerini. Fieldwork in REGUA provided 287 species, from which 87 are new additions to the MNRJ, summarised by family in Table 2.

April, May and June were the most species-rich sampled months, with a peak around May (143 different species) (Fig. 1). November, December and January showed the lowest diversity, especially December (with only 74 species). At the family level (Fig. 2), Papilionidae presents a similar late fall peak, Morphini peak around March and the Riodinidae have a winter peak in June. This last family and the Lycaenidae, perhaps allowed by their shorter life cycle, are apparently able to produce a later brood from May to July in southern Brazil, depending on the latitude and altitude. Nymphalidae was the most diverse family with 105 species, while Riodinidae was the least represented (Fig. 2), most likely because of the difficulty in sampling many riodinid species.

The MNRJ contains 6 species from the PETP area included in the Brazilian Red List Of Threatened Species (Mielke & Casagrande 2008): **Papilionidae** - *Eurytides iphitas* (Hübner, [1821]), *Heraclides himeros himeros* (Hopffer, 1865), *Parides ascanius* (Cramer, 1775); **Nymphalidae** – *Actinote quadra* (Schaus, 1902), *Callicore hydarnis* (Godart, [1824]); **Riodinidae** – *Panara ovifera* Seitz, 1916. Of these, only *P. ascanius* was observed in the field, from January to May in 2009; all other records are based on museum specimens.

In addition, a number of other interesting butterfly taxa, which are either localized, rare or seldom seen nowadays, occur in the area (Figs. 8-12). In combination with the exceedingly rich bird fauna (over 450 species in REGUA alone), these species constitute a remarkable asset for attracting 'watchers' or photographers to an area where eco-tourism potential will undoubtedly increase in future. Such species include: **Hesperiidae**: *Phanus australis, Phanus vitreus, Myscelus santhilarius.* – **Papilionidae**: *Parides zacynthus, Parides tros, Protesilaus stenodesmus.* – **Nymphalidae**: *Caligo arisbe fulgens, Caligo beltrao, Dasyophthalma delanira, Narope cyllastros, Godartiana bysses, Pierella nereis, Agrias claudina annetta, Fountainea halice halice, Memphis philumena corita, Prepona deiphile deiphile, Adelpha barnesia barnesia, Adelpha*

Fig. 1. Monthly variation in butterfly diversity at REGUA.

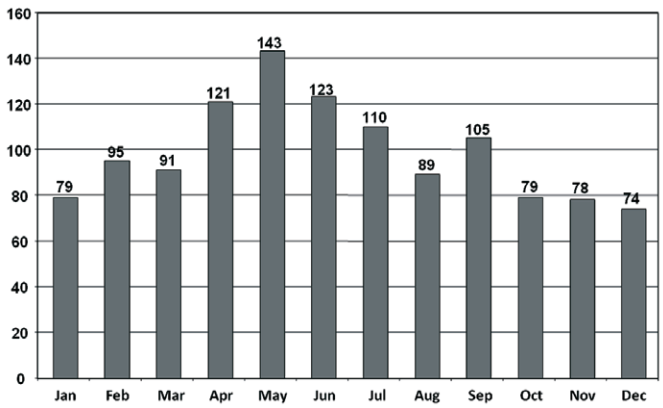
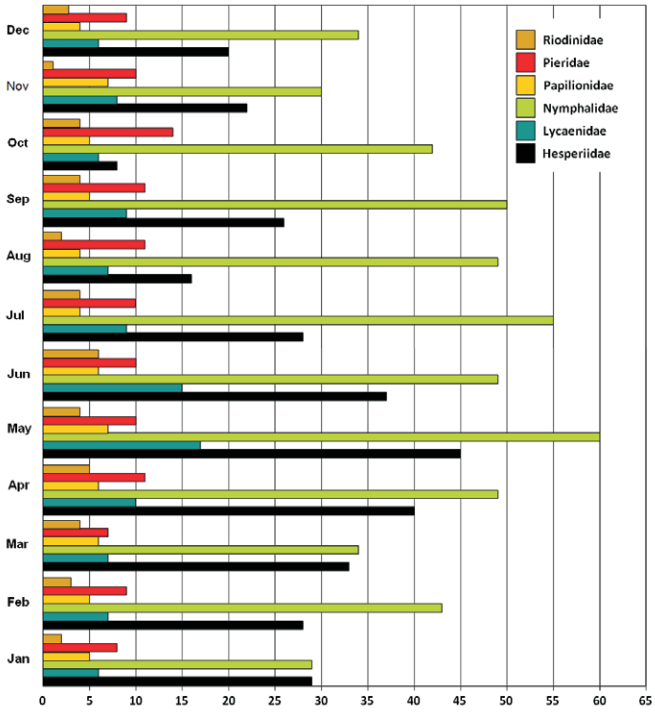


Fig. 2. Monthly variation in butterfly diversity by family at REGUA.



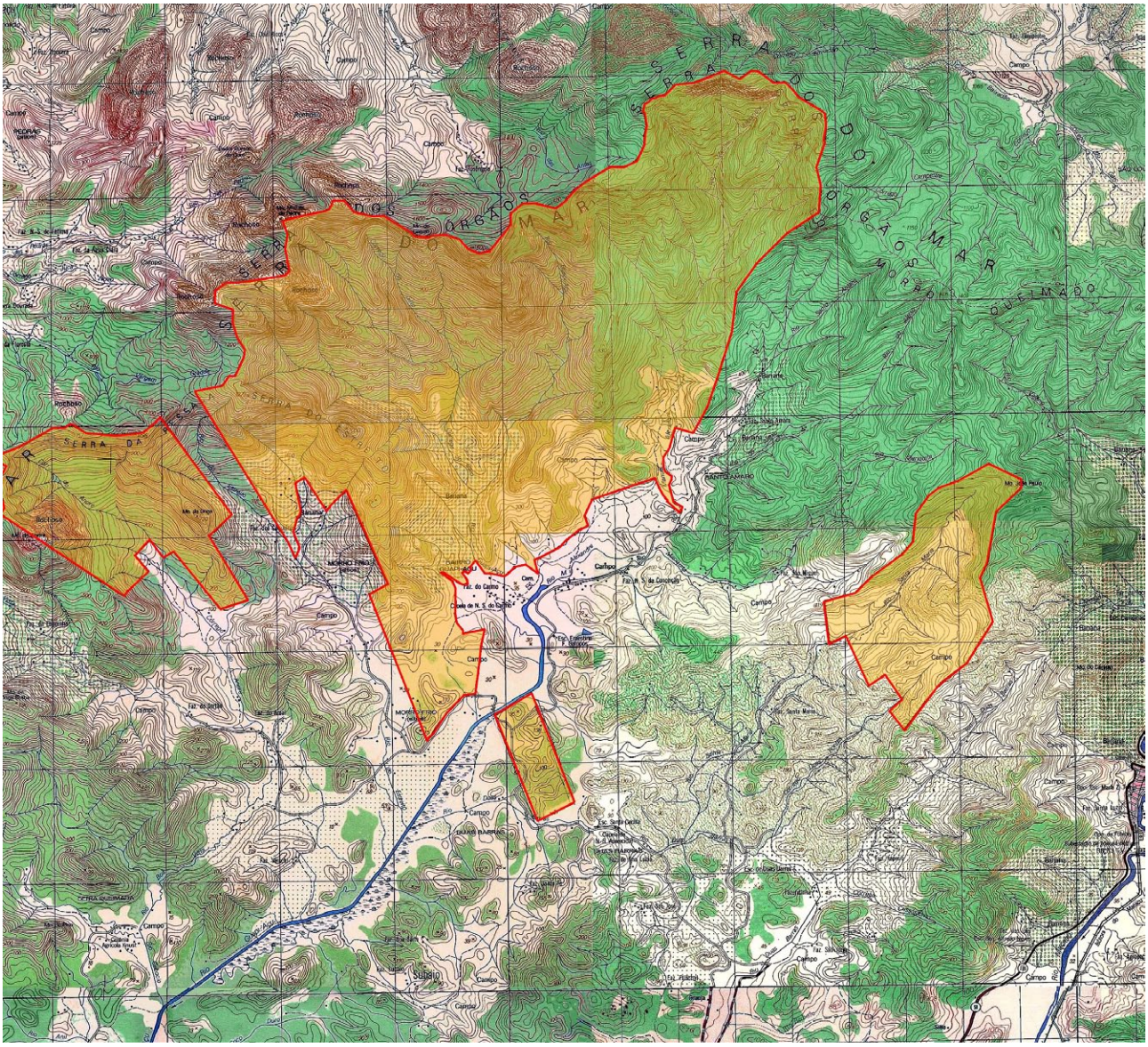


Fig. 3. Map of the Guapiaçu river watershed showing REGUA property (red line limits) and the PETP surrounding area.

radiata radiata, Callicore astarte codomannus, Callithomia lenea methonella, Ithomia agnosia zikani, Melinaea ethra, Napeogenes rhezia yanetta, Morpho athena, Morpho anaxibia, Morpho portis portis. – **Lycaenidae**: *Calycopis gentilla, Evenus batesii.* – **Riodininae***: Catocyclotis aemulius, Eurybia molochina, Melanis unxia unxia, Mesosemia friburgensis, Mesosemia nyctea fluminensis.*

DISCUSSION

To date, around 130 butterfly checklists have been published for Brazil (Santos *et al.* 2008), a minimal effort for a country with continental dimensions. Of these, 60% concern the south and south-eastern states, 17.6% of the national territory, where most of the population lives. If generic state checklists are omitted and only locality inventories are computed, that figure rises up to 75%. Notably, only 22% of checklists are from Conservation Units (Santos *et. al.* 2008). In RJ, Itatiaia Park is the only one with a published checklist (Zikán & Zikán 1968). This is remarkable considering that RJ is one of the best-documented Brazilian states (Santos *et al.* 2008) from the point of view of fauna and flora; thus, the preliminary checklist herein published is now the second largest effort ever taken to document the butterfly fauna of a RJ Atlantic Forest park.

One plausible explanation for the lack of checklists from protected areas is that lengthy and complex bureaucratic processes for obtaining the necessary permits dissuade researchers from attempting to work in such areas. The strong positive correlation between both population and inventory density (Santos *et. al*. 2008) demonstrates the importance of private research in Brazil, carried out at the cost of limited personal resources, working at a relatively small scale in the neighbourhood of the collector's residence, sometimes over lengthy periods. This is precisely the case of the PETP, where the bulk of stored specimens in the MNRJ collections was amassed by the personal work of amateur or professional collectors like Arp, May, Pearson and Tangerini, not necessarily supported by public funding.

By using label data from properly curated specimens, gathered over different time spans in the same localities, we managed to avoid bureaucratic challenges and complement REGUA's two year lowland sampling effort data set, which itself cannot compare with the more than five year sampling effort in Itatiaia Park. Besides, museum specimen label data, combined with actual surveys, provide the potential of establishing an historical reference to assess the variability and mobility of local butterfly faunas over time, something that bears obvious conservation implications.

A total of 483 of PETP's species are from localities within the Municipalities of Guapimirim, Cachoeiras de Macacu, Teresópolis and Nova Friburgo. Of these, 316 are recorded from sites above 600m (Nova Friburgo and Teresópolis), 201 (42%) of which are restricted to these Municipalities. A total of 282 species are from sites below 600m (Guapimirim and Cachoeiras de Macacu), with 167 (34%) restricted to them, leaving 115 (24%) taxa found both below and above 600m. Field sampling at REGUA (<600m) resulted in 287 recorded species, from which 87 are new additions to the MNRJ, thus resulting in lower elevations having higher species richness than higher elevations (>600m). Interestingly, most of the exclusive REGUA records are from Hesperiidae and Lycaenidae; the first group is quite difficult to identify and thus largely ignored by amateur collectors, while the second is difficult to find and sample thoroughly. Given that historically the area has been sampled by different lepidopterists over the years, these results might indicate that the successful recovery of the restored wetland areas have provided a more open terrain for sampling, that is also suitable for Hesperiidae associated with grasses. Furthermore, the 40-50 year old secondary forests surrounding the Green Trail's lower stretch may actually be of good quality, while the ecotone formed between old and newly planted wetland border forest allows optimal fringe conditions for the occurrence of additional butterfly species that are adapted to this successional vegetation type and typically temporally restricted.

One of the most important species recorded during field work in PETP is the threatened troidine swallowtail, *Parides ascanius*, which is endemic to RJ and has not been recorded for decades in the PETP region (see Table I). This insect is usually confined to the coastal 'restingas' where its foodplant *Aristolochia macroura* Gomes thrives (Otero & Brown Jr. 1986), since it requires a relatively humid environment. This butterfly species was seen for the first time in REGUA on *Lantana* blossoms at the beginning of the wetlands trail in January 2009, and subsequently in March, May and June. Adults appeared to be moving towards the forested hill of the Bird Lodge, perhaps seeking shelter during the hottest hours of the day. Besides these records, a photograph of a female *P. ascanius* was taken on February 2008 by a tourist at the Dois Irmãos mountain baseline, Parque Nacional da Serra dos Órgãos (PARNASO) (Magé district), which is around 500m above sea level, 20km west of the Guapimirim valley and 50 km from Guapiaçu.

The presence of recent individuals of this taxon so far inland, in areas where *A. macroura* is conspicuously absent,

Fig. 4. A typical stand of old Lowland Secondary Forest, with the conspicuous whitish foliage of *Cecropia hololeuca* Mig. [Thor Østbye]

Fig. 5. A view of the restored wetlands (three year old). Most of the butterfly sampling was done on the Blue and Brown Trails around these wetlands that wander across 3-5 year old reforested plots and older secondary growth. [Pedro Ventura]

was a surprise. MNRJ botanists (pers. comm.) reported that the only *Aristolochia* registered from REGUA's wetlands is *A. cymbifera* Mart. & Zucc., a plant that is very unsuitable to *P. ascanius* larvae, according to published data (Brown & Otero 1986). However, careful scrutiny on the Bird Lodge hill and other places where troidine swallowtails were seen revealed three unidentified *Aristolochia* species, some of which might be suitable hostplants for *P. ascanius*, given that captive rearing has already revealed preferential oviposition on *A. chamissonis* Duch., for example, rather than on *A. macroura* (Campos pers. com.).

Whether the individuals of *P. ascanius* that we observed represent recent colonization of the area, or whether the species has merely been overlooked in the past, remains to be determined. Possible factors that might drive colonization include climatic changes or urbanization, but clearly much additional research is needed.

Fig. 6. A panoramic view of the restored wetlands area over a 15 year span. These are the ecotone areas where most sampling took place; favored by Hesperiidae, Papilionidae and Pieridae. Red arrow: area frequented by *P. ascanius*. [REGUA Archive / Thor Østbye]

Figure 7. A photo from around 1920, already documenting extensive deforestation at the earlier times of the Guapiaçu basin human occupation. [REGUA Archive]

Table 1 - Preliminary list of the species recorded at the PETP; data from specimens deposited in the MNRJ collected in the municipalities of Guapimirim (Caneca Fria), Cachoeiras de Macacu (Boca do Mato, REGUA), Teresópolis (Soberbo, PARNASO) and Nova Friburgo (Sans Souci, RJ-116).
Legend: GPI – Guapimirim (50-250m): 22°29'35.74"S 42°56'57.56"W; **REG** – REGUA (30-500m): 22º27'14" S , 42º46'18"W; **BM** – Boca do Mato (200-450m): 22°24'21.00"S 42°36'25.24"W; **TER** – Teresópolis (950-1800m): 22°27'18.99"S, 43° 0'2.61"W; **FRI** – Nova Friburgo(850-1300m): 22°16'48.63"S 42°30'49.57"W. * indicates an endangered species.

Superfamily **HESPERIOIDEA**
Family **HESPERIIDAE**
Subfamily **HESPERIINAE**

SPECIES	GPI	REG	BM	TER	FRI
Anthoptus Bell,1942					
001- *A. epictetus* (Fabricius, 1793)		X		X	X
Arita Evans, 1955					
002- *A. mubevensis* (Bell, 1932)					X
Callimormus Scudder, 1872					
003- *C. corades* (C. Felder, 1862)	X	X			
Carystoides Godman, 1901					
004- *C. basoches* (Latreille, [1824])	X	X			
005- *C. noseda* (Hewitson, 1866)	X				
Carystus Hübner, [1819]					
006- *C. phorcus claudianus* (Latreille, [1824])	X				
Cobalopis Godman, 1900					
007- *C. miaba* (Schaus, 1902)		X			
Cobalus Hübner, [1819]					
008- *C. virbius hersilia* (Plötz, 1882);		X			
Corticea Evans, 1955					
009- *C. corticea* (Plötz, 1882)		X			X
Cymaenes Scudder, 1872					
010- *C. tripunctus theogenis* (Capronnier, 1874)		X			
011- *C. uruba uruba* (Plötz, 1886)		X			
012- *C. sp.*		X			
Cynea Evans, 1955					
013- *C. bistrigula* (Herrich-Schäffer, 1869)		X			
014- *C. diluta* (Herrich-Schäffer, 1869)	X				
015- *C. trimaculata* (Herrich-Schäffer, 1869)		X			
Decinea Evans, 1995					
016- *D. dama* (Herrich-Schäffer, 1869)		X			
Enosis Mabille, 1889					
017- *E. schausi* Mielke & Casagrande, 2002		X			
Eutychide Godman, 1900					
018- *E. physcella* (Hewitson, 1866)					X
Hylephila Billberg, 1820					
019- *H. phyleus phyleus* (Drury, 1773)		X			
Lerodea Scudder, 1872					
020- *L. eufala eufala* (W.H. Edwards, 1869)	X	X			
Levina Evans, 1955					
021- *L. levina* (Plötz, 1884)					X
Lycas Godman, 1901					
022- *L. argentea* (Hewitson, 1866)	X				X
Lychnuchoides Godman, 1901					
023- *L. ozias ozias* (Hewitson, 1878)				X	X
Lychnuchus Hübner, [1831]					
024- *L. celsus* (Fabricius, 1793)					X
Methionopsis Godman, 1901					
025- *M. ina* (Plötz, 1882)		X			
Miltomiges Mabille, 1903					
026- *M. cinnamomea* (Herrich-Schäffer, 1869)		X		X	X
Mnasitheus Godman, 1900					
027- *M. ritans* (Schaus, 1902)		X			
Moeris Godman, 1900					
028- *M. striga striga* (Geyer, 1832)		X			
Naevolus Hemming, 1939					
029- *N. orius orius* (Mabille, 1883)		X			X
Niconiades Hübner, [1821]					
030- *N. cydia* (Hewitson, 1876)				X	
Nyctelius Hayward, 1948					
031- *N. nyctelius nyctelius* (Latreille, [1824])		X			
Onophas Godman, 1900					
032- *O. columbaria columbaria* (Herrich-Schäffer, 1870)		X			
Orses Godman, 1901					
033- *O. itea* (Swainson, 1821)					X
Panoquina Hemming, 1934					
034- *P. lucas lucas* (Fabricius, 1793)	X	X			
035- *P. ocola ocola* (W. H. Edwards, 1863)		X			
Papias Godman,1900					
036- *P. phainis* Godman, 1900				X	
Perichares Scudder, 1872					
037- *P. philetes adela* (Hewitson, 1867)	X	X			X
038- *P. philetes aurina* Evans, 1995	X				
039- *P. seneca seneca* (Latreille, [1824])	X				
Phanes Godman, 1901					
040- *P. aletes* (Geyer, 1832)	X	X			
Pheraeus Godman,1900					
041- *P. unia* (Butler,1870)					X
Polites Scudder, 1872					
042- *P. vibex catilina* (Plötz, 1886)		X			
Pompeius Evans, 1955					
043- *P. amblyspila* (Mabille, 1898)		X			
044- *P. pompeius* (Latreille, [1824])	X	X	X		
Psoralis Mabille, 1904					
045- *P.stacara* (Schaus, 1902)				X	X
Remella Hemming, 1939					
046- *R. remus* (Fabricius, 1798)		X			
Saliana Evans, 1955					
047- *S. esperi esperi* Evans, 1955		X			
048- *S. longirostris* (Sepp, [1840])	X	X	X	X	
049- *S. mamurra* (Plötz, 1886)	X				
050- *S. salius* (Cramer, 1775)		X			
051- *S. salona* Evans, 1955	X				
052- *S. triangularis* (Kaye, 1914)				X	
Saniba Mielke & Casagrande, 2003					
053- *S. sabina* (Plötz, 1882)					X
Saturnus Evans, 1955					
054- *S. reticulata conspicuus* (Bell, 1941)		X			
Sodalia Evans, 1955					
055- *S. dimassa* (Hewitson, 1876)		X			
Synapte Mabille, 1904					
056- *S. silius* (Latreille, [1824])	X				
Talides Hübner, [1819]					
057- *T. sinois* Hübner, [1819]	X	X			
Thespieus Godman, 1900					
058- *T. dalman* (Latreille, [1824])	X			X	X
Thracides Hübner, [1819]					
059- *T. cleanthes cleanthes* (Latreille, [1824])		X		X	
060- *T. phidon* (Cramer, 1779)	X				
Tirynthia Godman, 1900					
061- *T. conflua* (Herrich-Schäffer, 1869)		X			
*Tisia*s Godman, 1901					
062- *T. lesueur lesueur* (Latreille, [1824])		X			
Vehilius Godman, 1900					
063- *V. clavicula* (Plötz,1884)				X	
064- *V. inca* (Scudder, 1872)		X			
065- *V. stictomenes stictomenes* (Butler, 1877)		X			
066- *V. vetula* (Mabille, 1878)		X			
067- *V. sp.*	X				
Venas Evans, 1955					
068- *V. caerulans* (Mabille, 1878)		X			
Vertica Evans, 1955					
069- *V. verticalis verticalis* (Plötz, 1882)		X			
Vettius Godman, 1901					
070- *V. diversa lyrcea* (Plötz, 1882)				X	X
071- *V. marcus marcus* (Fabricius, 1787)		X			
072- *V. phyllus prona* Evans, 1955	X	X			
073- *V. triangularis* (Hübner, [1831])			X		
074- *V. umbrata* (Erschoff, 1876)					X
Wallengrenia Berg, 1897					
075- *W. premnas* (Wallengren, 1860)		X			
Xeniades Godman, 1900					
076- *X. chalestra chalestra* (Hewitson, 1866)					X
Zariaspes Godman, 1900					
077- *Z. mys* (Hübner, [1808])					X
Zenis Godman, 1900					
078- *Z. jebus jebus* (Plötz, 1882)		X			

Subfamily **PYRGINAE**

SPECIES	GPI	REG	BM	TER	FRI
Achlyodes Hübner, [1819]					
079- *A. busirus rioja* Evans, 1953	X	X			
080- *A. mithridates thraso* (Hübner, [1807])	X	X			X
Aguna R. C. Williams, 1927					
081- *A. asander asander* (Hewitson, 1867)					X
Anastrus Hübner, [1824]					
082- *A. ulpianus* (Poey, 1832)					X
Anisochoria Mabille, 1877					
083- *A. pedaliodina polysticta* Mabille, 1877					X
Antigonus Hübner, [1819]					
084- *A. erosus* (Hübner, [1812])	X				

Astraptes Hübner, [1819]					
085- *A. alardus alardus* (Stoll, 1790);		X			
086- *A. anaphus anaphus* (Cramer, 1777)		X		X	
087- *A. creteus siges* (Mabille, 1903)		X			X
088- *A. elorus* (Hewitson, 1867)				X	X
089- *A. fulgerator fulgerator* (Walch, 1775)	X	X			
090- *A. naxus* (Hewitson, 1867)				X	X
091- *A. talus* (Cramer, 1777)	X				
Autochton Hübner, 1823					
092- *A. bipunctatus* (Gmelin, [1790])		X			
093- *A. longipennis* (Plötz, 1882)		X		X	
094- *A. neis* (Geyer, 1832)		X			
095- *A. reflexus* (Mabille & Boullet, 1912)			X		
096- *A. sulfureolus* (Mabille, 1883)				X	
097- *A. zarex* (Hübner, 1818)	X				
Bolla Mabille, 1903					
098- *B. catharina* (Bell, 1937)				X	
Bungalotis E. Y. Watson, 1893					
099- *B. astylos* (Cramer, 1780)	X				
100- *B. midas* (Cramer, 1775)	X				
Celaenorrhinus Hübner, [1819]					
101- *C. similis* Hayward, 1933					X
Choides Lindsey, 1921					
102- *C. catillus catillus* (Cramer, 1779)			X		
Chiomara Godmana & Salvin, 1899					
103- *C. mithrax* (Möschler, 1879)		X			X
Cogia Butler, 1870					
104- *C. calchas* (Herrich-Schäffer, 1869)	X	X			
Cycloglypha Mabille, 1903					
105- *C. enega* (Möschler, 1877)					X
106- *C. thrasibulus thrasibulus* (Fabricius, 1793)	X				X
107- *C. tisias* (Godman & Salvin, 1896)	X	X			X
Diaeus Godman & Salvin, 1895					
108- *D. lacaena* (Hewitson, 1869)					X
Dyscophellus Godman & Salvin, 1893					
109- *D. ramusis damias* (Plötz, 1882)	X				
Ebrietas Godman & Salvin, 1896					
110- *E. anacreon anacreon* (Staudinger, 1876)		X			
111- *E. infanda* (Butler, 1877)				X	
Epargyreus Hübner, [1819]					
112- *E. socus socus* (Hübner, [1825])	X			X	X
Gesta Evans, 1953					
113- *G. gesta* (Herrich-Schäffer, 1863)		X			
Gorgopas Godman & Salvin, 1894					
114- *G. petale* (Mabille, 1888)				X	
Gorgythion Godman & Salvin, 1896					
115- *G. begga begga* (Prittwitz, 1868)		X			X
Helias Fabricius, 1807					
116- *H. phalaenoides phalaenoides* (Fabricius, 1807)	X				X
Heliopetes Billberg, 1820					
117- *H. alana* (Reakirt, 1868)		X			X
118- *H. arsalte* (Linnaeus, 1758)		X	X	X	
119- *H. omrina* (Butler, 1870)		X	X		
Milanion Godman & Salvin, 1895					
120- *M. leucaspis* (Mabille, 1878)					X
Mylon Godman & Salvin, 1894					
121- *M. pelopidas* (Fabricius, 1793)			X		
Narcosius Steinhauser, 1986					
122- *N. colossus granadensis* (Möschler, 1879)	X				
Nascus E. Y. Watson, 1893					
123- *N. phocus* (Cramer, 1777)	X	X	X		
Nisoniades Hübner, [1819]					
124- *N. bipuncta* Schaus, 1902	X	X			X
Noctuana Bell, 1937					
125- *N. diurna* (Butler, 1870)				X	X
Oechydrus E. Y. Watson, 1893					
126- *O. chersis evelinda* (Butler, 1870)				X	
Ouleus Lindsey, 1925					
127- *O. fridericus riona* Evans, 1953	X	X			
Pachyneuria Mabille, 1888					
128- *P. inops* (Mabille,1877)		X			
Pellicia Herrich-Schäffer, 1870					
129- *P. costimacula costimacula* (Herrich-Schäffer, 1870)		X			
Phanus Hübner, [1819]					
130- *P. australis* L. D. Miller, 1965	X				
131- *P. vitreus* (Stoll, 1781)		X	X		
Phocides Hübner, [1819]					
132- *P. pialia pialia* (Hewitson, 1857)				X	
133- *P. pialia maximus* (Mabille, 1888)				X	X
134- *P. pigmalion hewitsonius* (Mabille, 1883)				X	
135- *P. polybius polybius* (Fabricius, 1793)		X		X	
Polyctor Evans, 1953					
136- *P. polyctor polyctor* (Prittwitz, 1868)	X		X	X	X
Polygonus Hübner, [1825]					
137- *P. leo leo* (Gmelin, [1790])					X
138- *P. savigny savigny* (Latreille, [1824])	X				
Polythrix E.Y.Watson, 1893					
139- *P. caunus* (Herrich-Schäffer, 1869)		X			
Proteides Hübner, [1819]					
140- *P. mercurius* (Fabricius, 1787)			X		
Pyrdalus Mabille, 1903					
141- *P. corbulo corbulo* (Stoll, 1781)					X
Pyrgus Hübner, [1819]					
142- *P. communis communis* (Grote, 1872)					X
143- *P. oileus* (Linnaeus, 1767)	X	X			X
Pythonides Hübner, [1819]					
144- *P. jovianus fabricii* W. F. Kirby, 1871		X	X		
145- *P. lancea* (Hewitson, 1868)			X	X	X
Quadros Lindsey, 1925					
146- *Q. cerialis* (Stoll, 1782)		X		X	X
Ridens Evans, 1952					
147- *R. fulima* Evans, 1952	X	X			
Salatis Evans, 1952					
148- *S. salatis* (Stoll, 1782)	X				
Sarmientoia Berg, 1897					
149- *S. phaselis* (Hewitson, 1867)				X	X
Sostrata Godman & Salvin, 1895					
150- *S. bifasciata bifasciata* (Ménétriés, 1829)	X	X			
Spathilepia Butler, 1870					
151- *S. clonius* (Cramer, 1775)	X	X			
Staphylus Godman & Salvin, 1896					
152- *S. incisus* (Mabille, 1878)	X				
Theagenes Godman & Salvin, 1896					
153- *T. dichrous* (Mabille, 1878)					X
Trina Evans, 1953					
154- *T. geometrina geometrina* (C. Felder & R. Felder, 1867)		X			X
Typhedanus Butler, 1870					
155- *T. undulatus* (Hewitson, 1867)		X			
Urbanus Hübner, [1807]					
156- *U. belli* (Hayward, 1935)			X		
157- *U. dorantes dorantes* (Stoll, 1790)	X	X		X	
158- *U. dorysus albicuspis* (Herrich-Schäffer, 1869)	X				
159- *U. esmeraldus* (Butler, 1877)		X			X
160- *U. esta* (Evans, 1952)	X				
161- *U. procne* (Plötz, 1880)	X	X		X	X
162- *U. pronta* Evans, 1952	X				
163- *U. proteus proteus* (Linnaeus, 1758)		X		X	
164- *U. simplicius* (Stoll, 1790)	X	X			
165- *U. teleus* (Hübner, 1821)	X	X		X	
Viola Evans, 1953					
166- *V. violella* (Mabille, 1898)		X			
Xenophanes Godman & Salvin, 1895					
167- *X. tryxus* (Stoll, 1780)		X			X
Zera Evans, 1953					
168- *Z. tetrastigma erisichthon* (Plötz, 1884)		X			
169- *Z. zera zera* (Butler, 1870)		X			

Subfamily **PYRRHOPYGINAE**

SPECIES	GPI	REG	BM	TER	FRI
Elbella Evans, 1951					
170- *E. intersecta losca* Evans, 1951	X				
Mimoniades Hübner, 1823					
171- *M. montana* Zikán, 1938					X
172- *M. ocyalus* Hübner, 1823				X	
173- *M. versicolor versicolor* (Latreille, [1824])				X	X
Myscelus Hübner, 1819					
174- *M. epimachia epimachia* Herrich-Schäffer, 1869		X		X	
175- *M. santhilarius* (Latreille, [1824])	X	X			

Pyrrhopyge Hübner, [1819]					
176- *P. thericles rileyi* Bell, 1931					X

Superfamily **PAPILIONOIDEA**
Family **LYCAENIDAE**
Subfamily **POLYOMMATINAE**

SPECIES	GPI	REG	BM	TER	FRI
Elkalyce Bálint & K. Johnson, [1996]					
177- *E. cogina* (Schaus, 1902)					X
Hemiargus Hübner, 1818					
178- *H. hanno hanno* (Stoll, 1790)	X	X			
Leptotes Scudder, 1876					
179- *L. cassius cassius* (Cramer, 1775)		X			
Zizula Chapman, 1910					
180- *Z. cyna* (W. H. Edwards, 1881)		X			

Subfamily **THECLINAE**

SPECIES	GPI	REG	BM	TER	FRI
Allosmaitia Clench, [1964]					
181- *A. strophius* (Godart, [1824])					X
Arawacus Kaye, 1904					
182- *A. ellida* (Hewitson, 1867)		X			X
183- *A. meliboeus* (Fabricius, 1793)				X	X
Arcas Swainson, 1832					
184- *A. ducalis* (Westwood, 1852)			X	X	
185- *A. imperialis* (Cramer, 1775)		X	X		
Arumecla Robbins & Duarte, 2004					
186- *A aruma* (Hewitson, 1877)		X			
Atlides Hübner, [1819]					
187- *A. cosa* (Hewitson, 1867)					X
188- *A. polybe* (Linnaeus, 1763)	X				
189- *A. zava* (Hewitson, 1878)					X
Calycopis Scudder, 1876					
190- *C. caulonia* (Hewitson, 1877)		X			
191- *C. gentilla* (Schaus, 1902)		X			
Celmia K. Johnson, 1991					
192- *C. celmus* (Cramer, 1775)		X			
Contrafacia K. Johnson, 1989					
193- *C. imma* (Prittwitz, 1865)	X				
Cyanophrys Clench, 1961					
194- *C. acaste* (Prittwitz, 1865)	X	X			
195- *C. amyntor* (Cramer, 1775)			X		
196- *C. herodotus* (Fabricius, 1793)		X			
197- *C. remus* (Hewitson, 1868)					X
Erora Scudder, 1872					
198- *E. campa* (Jones, 1912)		X			
Evenus Hübner, [1819]					
199- *E. batesii* (Hewitson, 1865)		X			
200- *E. regalis* (Cramer, 1775)	X	X			
Iaspis Kaye, 1904					
201- *I. talayra* (Hewitson, 1868)	X	X			
Lamprospilus Geyer, 1832					
202- *L. badaca* (Hewitson, 1868)		X			X
203- *L. nubilum* (H. H. Druce, 1907)				X	X
204- *L. arza* (Hewitson, 1874)	X				
Laothus K. Johnson, Kruse & Kroenlein, 1997					
205- *L. phydela* (Hewitson, 1867)					X
Megathecla Robbins, 2002					
206- *M. cupentus* (Stoll, 1781)		X			
Michaelus Nicolay, 1979					
207- *M. jebus* (Godart, [1824])		X			
Ministrymon Clench, 1961					
208- *M. cleon* (Fabricius, 1775)					X
209- *M. una* (Hewitson, 1873)		X			
Ocaria Clench, 1970					
210- *O. ocrisia* (Hewitson, 1868)		X			
211- *O. thales* (Fabricius, 1793)		X			
Ostrinotes K. Johnson, Austin, Le Crom & Salazar, 1997					
212- *O. sophocles* (Fabricius, 1793)		X			X
213- *O. tympania* (Hewitson, 1869)		X			
Panthiades Hübner, 1819					
214- *P. hebraeus* (Hewitson,1867)	X				
Parrhasius Hübner, [1819]					
215- *P. polibetes* (Stoll, 1781)	X				
Pseudolycaena Wallengren, 1858					
216- *P. marsyas* (Linnaeus, 1758)	X	X	X		X
Rekoa Kaye, 1904					
217- *R. malina* (Hewiston, 1867)					X
218- *R. marius* (Lucas, 1857)	X	X			
219- *R. meton* (Cramer, 1779)	X	X			
220- *R. palegon* (Cramer, 1780)		X			
Siderus Kaye, 1904					
221- *S. philinna* (Hewitson, 1868)	X				
Strephonota K. Johnson, Austin, Le Crom & Salazar, 1997					
222- *S. elika* (Hewitson, 1867)	X	X			
223- *S. sphinx* (Fabricius, 1775)		X			
224- *S. tephraeus* (Geyer, 1837)		X	X		
Strymon Hübner, 1818					
225- *S. astiocha* (Prittwitz, 1865)		X		X	X
226- *S. megarus* (Godart, [1824])	X	X			X
227- *S. mulucha* (Hewitson, 1867)		X			
228- *S. yojoa* (Reakirt, [1867])		X			X
229- *S. ziba* (Hewitson, 1868)	X				X
Symbiopsis Nicolay, 1971					
230- *S. strenua* (Hewitson, 1877)				X	
Thepytus Robbins, 2004					
231- *T. thyrea* (Hewitson, 1867)				X	
Thestius Hübner, [1819]					
232- *T. azaria* (Hewitson, 1867)				X	
Theritas Hübner, 1818					
233- *T. deniva* (Hewitson, 1874)				X	
234- *T. hemon* (Cramer, 1775)	X	X	X		
235- *T. triquetra* (Hewitson, 1865)		X			X
Tmolus Hübner, [1819]					
236- *T. cydrara* (Hewitson, 1868)		X			
237- *T. echion* (Linnaeus, 1767)		X			
Ziegleria K. Johnson, 1993					
238- *Z. hesperitis* (Butler & H. Druce, 1872).		X			

Family **NYMPHALIDAE**
Subfamily **APATURINAE**

SPECIES	GPI	REG	BM	TER	FRI
Doxocopa Hübner, [1819]					
239- *D. agathina vacuna* (Godart, [1824])	X	X			
240- *D. kallina* (Staudinger, 1886)	X				
241- *D. laurentia laurentia* (Godart, [1824])	X			X	X
242- *D. zunilda zunilda* (Godart, [1824])			X		

Subfamily **BIBLIDINAE**

Biblis Fabricius, 1807					
243- *B. hyperia hyperia* (Cramer, 1779)	X				
Callicore Hübner, [1819]					
244- *C. astarte codomannus* (Fabricius, 1781)	X	X			
245- *C. hydarnis* (Godart, [1824])*				X	X
246- *C. hydaspes* (Drury, 1782)	X	X			
247- *C. pygas pygas* (Godart, [1824])	X				
248- *C. sorana sorana* (Godart, [1824])	X				
Catonephele Hübner, [1819]					
249- *C. acontius caeruleus* (Jenkins, 1985)	X	X			
250- *C. numilia penthia* (Hewitson, 1852)	X	X			
251- *C. sabrina* (Hewitson, 1852)	X			X	
Diaethria Billberg, 1820					
252- *D. candrena candrena* (Godart, [1824])					X
253- *D. clymena janeira* (C. Felder,1862)	X	X	X	X	X
254- *D. eluina eluina* (Hewitson, [1855])					X
Dynamine Hübner, [1819]					
255- *D. agacles agacles* (Dalman, 1823)					X
256- *D. artemisia artemisia* (Fabricius, 1793)					X
257- *D. athemon maeon* (Doubleday, 1849)			X		X
258- *D. postverta postverta* (Cramer, 1779)		X	X	X	X
259- *D. tithia tithia* (Hübner, [1823])					X
Epiphile Doubleday, [1845]					
260- *E. orea orea* (Hübner, [1823])				X	
Eunica Hübner, [1819]					
261- *E. maja maja* (Fabricius, 1775)	X		X		
Haematera Doubleday, 1849					
262- *H. pyrame pyrame* (Hübner, [1819])	X	X			X
Hamadryas Hübner, [1806]					

263- *H amphinome amphinome* (Linnaeus, 1767) X X X X
264- *H. arete* (Doubleday, 1847) X X X
265- *H. epinome* (C. Felder & R. Felder, 1867) X X
266- *H. februa februa* (Hübner, [1823]) X X
267- *H. feronia feronia* (Linnaeus, 1758) X X X X
268- *H. fornax fornax* (Hübner, [1823]) X
269- *H. iphthime iphthime* (H. W. Bates, 1864) X
270- *H. laodamia laodamia* (Cramer, 1777) X X X
Myscelia Doubleday, [1845]
271- *M. orsis* (Drury, 1782) X X
Pyrrhogyra Hübner, [1819]
272- *P. neaerea ophni* Butler, 1870 X X
Sea Hayward, 1950
273- *S. sophronia* (Godart, [1824]) X X X
Temenis Hübner, [1819]
274- *T. laothoe* cf. *bahiana* Fruhstorfer, 1907 X X

Subfamily **CHARAXINAE**

SPECIES	GPI	REG	BM	TER	FRI
Agrias Doubleday, [1845]					
275- *A. claudina annetta* (Gray, 1832)	X		X		
Archeoprepona Fruhstorfer, 1915					
276- *A. amphimachus amphimacus* (Fabricius, 1775)	X	X			
277- *A. demophon demophon* (Linnaeus, 1758)	X	X			X
278- *A. demophoon antimache* (Hübner, [1819])	X	X			
279- *A. meander castorina* (E. May, 1932)	X	X			
Consul Hübner, [1807]					
280- *C. fabius drurii* (Butler, 1874)	X	X			
Fountainea Rydon, 1971					
281- *F. halice halice* (Godart, [1824])				X	
282- *F. ryphea phidile* (Geyer, 1837)	X		X		X
Hypna Hübner, [1819]					
283- *H. clytmnestra huebneri* Butler, 1866	X	X			
Memphis Hübner, [1819]					
284- *M. acidalia victoria* (H. Druce, 1877)	X		X		
285- *M. appias* (Hübner, [1825])	X				X
286- *M. basilia drucei* (Staudinger, 1887)	X				
287- *M. leonida editha* (W.P. Comstock, 1961)	X				
288- *M. moruus stheno* (Prittwitz, 1865)	X	X	X		
289- *M. otrere* (Hübner, [1825])				X	X
290- *M. philumena corita* (Fruhstorfer, 1916)	X		X		
291- *M. xenocles marginalis* (A. Hall, 1935)			X		
292- *M. sp.*	X				
Prepona Boisduval, 1836					
293- *P. deiphile deiphile* (Godart, [1824])			X		
294- *P. laertes laertes* (Hübner, [1811])	X	X			
Siderone Hübner, [1823]					
295- *S. galanthis galanthis* (Cramer, 1775)	X	X		X	
Zaretis Hübner, [1819]					
296- *Z. isidora isidora* (Cramer, 1779)	X				
297- *Z. itys itylus* (Westwood, 1850)	X	X	X		X

Subfamily **DANAINAE**

SPECIES	GPI	REG	BM	TER	FRI
Danaus Kluk, 1780					
298- *D. gilippus gilippus* (Cramer, 1775)		X		X	X
299- *D. erippus* (Cramer, 1775)		X	X		X
Lycorea Doubleday, [1847]					
300- *L. halia discreta* Haensch, 1909		X	X		X
301- *L. ilione ilione* (Cramer, 1775)				X	X

Subfamily **HELICONIINAE**

SPECIES	GPI	REG	BM	TER	FRI
Actinote Hübner, [1819]					
302- *A. carycina* Jordan, 1913	X		X		X
303- *A. conspicua* Jordan, 1913				X	
304- *A. dalmeidai* Francini, 1996				X	
305- *A. melanisans* Oberthür, 1917	X				
306- *A. parapheles* Jordan, 1913			X		
307- *A. pellenea pellenea* Hübner, [1821]		X	X	X	X
308- *A. quadra* (Schaus, 1902)*				X	
309- *A. rhodope* d'Almeida, 1923				X	
310- *A. thalia pyrrha* (Fabricius, 1775)		X	X	X	X
311- *A. sp.*					X
Agraulis Boisduval & Le Conte, [1835]					
312- *A. vanillae maculosa* (Stichel, [1908])	X	X		X	X
Dione Hübner, [1819]					
313- *D. juno juno* (Cramer, 1779)	X	X			X
Dryas Hübner, [1807]					
314- *D. iulia alcionea* (Cramer, 1779)	X	X	X		X
Eueides Hübner, 1816					
315- *E. aliphera aliphera* (Godart, 1819)		X			
316- *E. isabella dianasa* (Hübner, [1806])		X	X	X	
317- *E. pavana* Ménétriés, 1857					X
318- *E. vibilia vibilia* (Godart, 1819)		X	X		
Euptoieta Doubleday, 1848					
319- *E. hegesia meridiania* Stichel, 1938					X
Heliconius Kluk, 1780					
320- *H. besckei* Ménétriés, 1857				X	X
321- *H. erato phyllis* (Fabricius, 1775)	X	X	X	X	X
322- *H. ethilla narcaea* (Godart, 1819)	X	X	X	X	X
323- *H. numata robigus* Weymer, 1875			X		
324- *H. sara apseudes* (Hübner, [1813])		X		X	X

Subfamily **ITHOMIINAE**

SPECIES	GPI	REG	BM	TER	FRI
Aeria Hübner, 1816					
325- *A. olena* Weymer, 1875		X			
Callithomia H. W. Bates, 1862					
326- *C. lenea methonela* (Weymer, 1875)		X			
Dircenna Doubleday, 1847					
327- *D. dero rheo* C. Felder & R. Felder, 1860		X	X	X	X
Epityches d'Almeida, 1938					
328- *E. eupompe* (Geyer, 1832)		X	X	X	X
Episcada Godman & Salvin, 1879					
329- *E. clausina striposis* Haensch, 1909		X	X		X
330- *E. hymenaea hymenaea* (Prittwitz, 1865)		X	X		
331- *E. philoclea* (Hewitson, [1855])				X	
Heterosais Godman & Salvin, 1880					
332- *H. edessa* (Hewitson [1855])		X			X
Hypoleria Godman & Salvin, 1879					
333- *H. adasa adasa* (Hewitson, [1855])				X	
Hypothyris Hübner, 1821					
334- *H. ninonia daeta* (Boisduval, 1836)	X	X	X		X
Ithomia Hübner, 1816					
335- *I. drymo* Hübner, 1816		X	X		X
336- *I. agnosia zikáni* d'Almeida, 1940		X			
Mechanitis Fabricius, 1807					
337- *M. lysimnia lysimnia* (Fabricius, 1793)		X	X	X	X
338- *M. polymnia casabranca* Haensch,1905		X			X
Melinea Hübner, 1816					
339- *M. ethra* (Godart, 1819)				X	
340- *M. ludovica paraiya* Reakirt, 1866			X		
Methona Doubleday, 1847					
341- *M. themisto* (Hübner, 1818)		X			
Napeogenes H. W. Bates, 1862					
342- *N. rhezia yanetta* (Hewitson, 1867)		X			
Oleria Hübner, 1816					
343- *O. aquata* (Weymer, 1875)		X			X
Placidina d'Almeida, 1928					
344- *P. euryanassa* (C. Felder & R. Felder, 1860)		X	X	X	X
Pseudoscada Godman & Salvin, 1879					
345- *P. erruca* (Hewitson 1855)				X	
Pteronymia Butler & H. Druce, 1872					
346- *P. euritea* (Cramer, 1780)		X	X		X
347- *P. sylvo* (Geyer, 1832)			X		
Scada W. F. Kirby, 1871					
348- *S. karschina karschina* (Herbst, 1792)			X		
Thyridia Hübner, 1916					
349- *T. psidii hippodamia* (Fabricius, 1775)		X		X	

Subfamily **LIBYTHEINAE**

SPECIES	GPI	REG	BM	TER	FRI
Libytheana Michener, 1943					
350- *L. carinenta carinenta* (Cramer, 1777)		X			

Subfamily **LIMENITIDINAE**

Adelpha Hübner, [1819]					
351- *A. barnesia barnesia* Schaus, 1902			X		
352- *A. cocala didia* Fruhstorfer, 1915	X	X	X		
353- *A. cytherea aea* (C. Felder & R. Felder, 1867)	X	X			
354- *A. erotia erotia* (Hewitson, 1847)		X			
355- *A. iphiclus ephesa* (Ménétriés, 1857)	X	X			X
356- *A. lycorias lycorias* (Godart, [1824])	X	X	X		
357- *A. malea goyama* Schaus, 1902		X			
358- *A. mythra* (Godart, [1824])				X	X
359- *A. plesaure plesaure* Hübner, 1823	X				
360- *A. radiata radiata* Fruhstorfer, 1915		X			
361- *A. serpa serpa* (Boisduval, 1836)	X	X	X		X
362- *A. syma* (Godart, [1824])			X		X

Subfamily **CYRESTINAE**

Marpesia Hübner, 1818					
363- *M. chiron marius* (Cramer, 1779)	X	X	X		
364- *M. petreus petreus* (Cramer, 1776)	X	X	X		
365- *M. themistocles themistocles* (Fabricius, 1793)			X		
366- *M. zerynthia zerynthia* Hübner, [1823]			X	X	

Subfamily **MORPHINAE**

SPECIES	GPI	REG	BM	TER	FRI
Antirrhea Hübner, [1822]					
367- *A. archaea* Hübner, [1822]	X	X			
Blepolenis Röber, 1906					
368- *B. batea batea* (Hübner, [1821])	X			X	X
Brassolis Fabricius, 1807					
369- *B. astyra astyra* Godart, [1824]		X			
Caligo Hübner, [1819]					
370- *C. arisbe fulgens* Rothschild, 1916				X	X
371- *C. brasiliensis* (C. Felder, 1862)	X	X			X
372- *C. illioneus illioneus* (Cramer, 1775)					X
Catoblepia Stichel, 1901					
373- *C. amphirhoe* (Hübner, [1825])		X	X	X	X
Dasyophthalma Westwood, 1851					
374- *D. creusa creusa* (Hübner, [1821])				X	
375- *D. delanira* (Hewitson, 1862)*					X
376- *D. rusina principesa* (Stichel, 1904)				X	X
Eryphanis Boisduval, 1870					
377- *E. automedom amphimedom* (C. Felder & R. Felder, 1867)					X
378- *E. reevesii reevesii* (Doubleday, [1849])	X			X	X
Morpho Fabricius, 1807					
379- *M. anaxiba* (Esper, [1801])			X		
380- *M. athena* Otero, 1966				X	X
381- *M. epistrophus epistrophus* (Fabricius, 1796)	X		X		
382- *M. helenor achillaena* (Hübner, [1823])	X	X	X		
383- *M. hercules* (Dalman, 1823)			X	X	X
384- *M. menelaus coeruleus* (Perry, 1810)	X	X	X		
385- *M. portis portis* (Hübner, [1821])			X	X	X
Narope Doubleday, 1849					
386- *N. cyllastros* (Doubleday, [1849])	X				
Opoptera Aurivillius, 1882					
387- *O. syme* (Hübner, [1821])	X			X	X
Opsiphanes Doubleday, [1849]					
388- *O. cassiae crameri* (C. Felder & R. Felder, 1862)	X		X		
389- *O. invirae pseudophilon* (Fruhstorfer, 1907)	X				
390- *O. quiteria meridionalis* (Staudinger, 1887)	X				

Subfamily **NYMPHALINAE**

SPECIES	GPI	REG	BM	TER	FRI
Anthanassa Scudder, 1875					
391- *A. frisia hermas* (Hewitson, 1864)		X			
Anartia Hübner, [1819]					
392- *A. amathea roeselia* (Eschscholtz., 1821)	X	X	X	X	X
393- *A. jatrophae jatrophae* (Linnaeus, 1763)		X	X	X	X
Chlosyne Butler, 1870					
394- *C. lacinia saundersi* (Doubleday, [1847])	X	X			X
Colobura Billberg, 1820					
395- *C. dirce dirce* (Linnaeus, 1758)	X	X	X		
Eresia Boisduval, 1836					
396- *E. eunice eunice* (Hübner, [1807])			X		
397- *E. lansdorfi* (Godart, 1819)		X			X
Historis Hübner, [1819]					
398- *H. acheronta acheronta* (Fabricius, 1775)	X	X	X		
399- *H. odius odius* (Fabricius, 1775)	X	X	X		X
Hypanartia Hübner, [1821]					
400- *H. bella* (Fabricius, 1793)	X	X			X
401- *H. lethe* (Fabricius, 1793)	X	X		X	X
Junonia Hübner, [1819]					
402- *J. evarete evarete* (Cramer, 1779)	X	X	X	X	
Ortilia Higgins, 1981					
403- *O. ithra* (W. F. Kirby, 1900)		X			X
Siproeta Hübner, [1823]					
404- *S. epaphus trayja* Hübner, [1823]					X
405- *S. stelenes meridionalis* (Fruhstorfer, 1909)		X	X		
Smyrna Hübner, [1823]					
406- *S. blomfildia blomfildia* (Fabricius, 1781)	X				
Tegosa Higgins, 1981					
407- *T. claudina* (Eschscholtz, 1821)		X			X
Telenassa Higgins, 1981					
408- *T. teletusa teletusa* (Godart, [1824])				X	X
Vanessa Fabricius, 1807					
409- *V. braziliensis* (Moore, 1883)		X	X	X	X
410- *V. myrimna* (Doubleday, 1849)	X	X		X	X

Subfamily **SATYRINAE**

SPECIES	GPI	REG	BM	TER	FRI
Archeuptychia Forster, 1964					
411- *A. cluena* (Drury,1782)	X				
Capronnieria Forster, 1964					
412- *C. galesus* (Godart, [1824])		X			X
Chloreuptychia Foster, 1964					
413- *Chloreuptychia arnaca* (Fabricius, 1776)		X			
Eteona Doubleday, 1848					
414- *E. tisiphone* (Boisduval, 1836)	X	X		X	X
Euptychia Hübner, 1818					
415- *E. mollina* (Hübner, [1813])		X			
Forsterinaria Gray, 1973					
416- *F. necys* (Godart, [1924])	X			X	X
417- *F. quantius* (Godart, [1824])					X
418- *F. stelligera* (Butler, 1874)					X
Godartiana Forster,1964					
419- *G. byses* (Godart, [1824])			X		X
Hermeuptychia Forster, 1964					
420- *H. hermes* (Fabricius, 1775)	X	X		X	X
Magneuptychia Forster, 1964					
421- *M. libye* (Linnaeus, 1767)	X				
Moneuptychia Forster, 1964					
422- *M. griseldis* (Weymer, 1911)					X
423- *M. paeon* (Godart, [1824])	X				X
424- *M. soter* (Butler, 1877)					X
Pareuptychia Forster, 1964					
425- *P. ocirrhoe interjecta* (d'Almeida, 1952)		X	X		
Paryphthimoides Forster, 1964					
426- *P. phronius* (Godart, [1824])		X			
427- *P. poltys* (Prittwitz, 1865)		X			
Pharneupytchia Forster, 1964					
428- *P. innocentia* (C. Felder & R. Felder, 1867)			X		
Pierella Westwood, 1851					
429- *P. lamia lamia* (Sulzer, 1776)	X	X		X	
430- *P. nereis* (Drury, 1782)		X		X	

Praepedaliodes Forster, 1964					
431- *P. phanias* (Hewitson, 1862)				X	X
Splendeuptychia Forster, 1964					
432- *S. ambra* (Weymer, [1911])					X
433- *S. doxes* (Godart, [1824])			X		
434- *S. hygina* (Butler, 1877)					X
435- *S. sp.*				X	
Taygetis Hübner, [1819]					
436- *T. laches marginata* Staudinger, [1887]	X	X			
437- *T. sosis* Hopffer, 1874	X				
438- *T. virgilia* (Cramer, 1776)	X				
439- *T. yphtima* Hübner, [1821]				X	X
Yphthimoides Forster, 1964					
440- *Y. borasta* (Schaus, 1902)					X
441- *Y. maepius maepius* (Godart, [1824])		X	X		
Zischkaia Forster, 1964					
442- *Z. pronophila* (Butler, 1867)				X	X

Family **PAPILIONIDAE**
Subfamily **PAPILIONINAE**

SPECIES	GPI	REG	BM	TER	FRI
Battus Scopoli, 1777					
443- *B. crassus crassus* (Cramer, 1777)	X	X			
444- *B. polydamas polydamas* (Linnaeus, 1758)	X	X	X	X	X
445- *B. polystictus galenus* (Fruhstorfer, 1907)	X		X	X	X
Eurytides Hübner, [1821]					
446- *E. bellerophon* (Dalman, 1823)			X		
447- *E. dolicaon deicoon* (C. Felder & R. Felder, 1864)				X	X
448- *E. iphitas* (Hübner, [1821])*			X		
Heraclides Hübner, [1819]					
449- *H. anchisiades capys* (Hübner, [1809])	X	X			X
450- *H. astyalus astyalus* (Godart, 1819)	X	X	X		
451- *H. hectorides* (Esper, 1794)			X	X	
452- *H. himeros himeros* (Hopffer, 1865)*			X		
453- *H. thoas brasiliensis* (Rothschild & Jordan, 1906)	X	X	X		X
454- *H. torquatus polybius* (Swainson, 1823)	X				X
Mimoides K.Brown, 1991					
455- *M. lysithous lysithous* (Hübner, [1821])				X	X
456- *M. protodamas* (Godart, 1819)			X	X	
Parides Hübner, [1819]					
457- *P. agavus* (Drury, 1782)			X	X	X
458- *P. anchises nephalion* (Godart, 1819)	X	X	X		
459- *P. ascanius* (Cramer, 1775)*	X	X			
460- *P. bunichus bunichus* (Hübner, [1821])				X	
461- *P. proneus* (Hübner, [1831])				X	X
462- *P. tros tros* (Fabricius, 1793)	X	X	X		
463- *P. zacynthus zacynthus* (Fabricius, 1793)	X	X			
Protesilaus Swainson, [1832]					
464- *P. helios* (Rothschild & Jordan, 1906)	X		X	X	X
465- *P. protesilaus protesilaus* (Linnaeus, 1758)			X		
466- *P. protesilaus nigricornis* (Staudinger, 1884)			X		
467- *P. stenodesmus* (Rothschild & Jordan, 1906)		X	X		
468- *P. telesilaus telesilaus* (C. Felder & R. Felder, 1864)			X		
Pterourus Scopoli, 1777					
469- *P. menatius cleotas* (Gray, 1832)			X		
470- *P. scamander grayi* (Boisduval, 1836)				X	
Protographium Munroe, 1951					
471- *P. asius* (Fabricius, 1782)	X	X	X	X	X
472- *P. thyastes thyastes* (Drury, 1782)		X	X		

Family **PIERIDAE**
Subfamily **COLIADINAE**

SPECIES	GPI	REG	BM	TER	FRI
Anteos Hübner, [1819]					
473- *A. clorinde* (Godart, [1824])	X				
474- *A. menippe* (Hübner, [1818])	X	X			
Aphrissa Butler, 1873					
475- *A. statira statira* (Cramer, 1777)	X	X	X		X
Eurema Hübner, [1819]					
476- *E. albula albula* (Cramer, 1775)		X	X	X	X
477- *E. arbela arbela* Geyer, 1832					X
478- *E. deva deva* (Doubleday, 1847)		X	X	X	X
479- *E. elathea flavescens* (Chavannes, 1850)	X	X		X	X
480- *E. phiale paula* Röber, 1909					X
Phoebis Hübner, [1819]					
481- *P. argante argante* (Fabricius, 1775)	X	X	X	X	X
482- *P. philea philea* (Linnaeus, 1763)	X	X	X	X	X
483- *P. sennae sennae* (Linnaeus, 1758)	X	X	X	X	X
Pyrisitia Butler, 1870					
484- *P. leuce leuce* (Boisduval, 1836)				X	X
485- *P. nise tenella* (Boisduval, 1836)	X	X	X	X	X
Rhabdodryas Godman & Salvin, 1889					
486- *P. trite banksi* (Breyer, 1939)	X	X	X	X	

Subfamily **DISMORPHIINAE**

SPECIES	GPI	REG	BM	TER	FRI
Dismorphia Hübner, 1816					
487- *D. amphione astynome* (Dalman, 1823)		X	X		
488- *D. astyocha* Hübner, [1831]					X
489- *D. crisia crisia* (Drury, 1782)				X	
490- *D. thermesia thermesia* (Godart, 1819)				X	X
Enantia Hübner, [1819]					
491- *E. limnorina* (C. Felder & R. Felder, 1865)		X		X	
492- *E. lina psamathe* (Fabricius, 1793)				X	X
493- *E. melite melite* (Linnaeus, 1763)	X				
Leucidia Doubleday, 1847					
494- *L. elvina* (Godart, 1819)		X			
Pseudopieris Godman & Salvin, 1889					
495- *P. nehemia nehemia* (Boisduval, 1836)				X	X

Subfamily **PIERINAE**

Archonias Hübner, [1831]					
496- *A. brassolis tereas* (Godart, 1819)		X	X	X	X
Ascia Scopoli, 1777					
497- *A. monuste orseis* (Godart, 1819)	X	X		X	X
Catasticta Butler,1870					
498- *C. bithys* (Hübner, [1831])				X	X
499- *C. huebneri* Lathy & Rosemberg, 1912				X	X
Ganyra Billberg, 1820					
500- *G. phaloe endeis* (Godart, 1819)		X	X		
Glutophrissa Butler, 1887					
501- *G. drusilla drusilla* (Cramer, 1777)	X	X	X		X
Hesperocharis C. Felder, 1862					
502- *H. anguitea anguitea* (Godart, 1819)		X	X	X	X
503- *H. emeris* (Boisduval,1836)				X	
504- *H. erota* (Lucas, 1852)				X	X
Leptophobia Butler, 1870					
505- *L. aripa balidia* (Boisduval, 1836)		X	X	X	X
506- *L. eleusis eleusis* (Lucas, 1852)				X	
Melete Swainson, [1831]					
507- *M. lycimnia flippantha* (Fabricius, 1793)		X	X		X
508- *M. lycimnia paulista* (Fruhstorfer, 1908)	X				X
Pereute Herrich–Schaeffer, 1867					
509- *P. antodyca* (Boisduval, 1836)				X	X
510- *P. swainsoni* (Gray, 1832)				X	

Family **RIODINIDAE**
Subfamily **EUSELASIINAE**

SPECIES	GPI	REG	BM	TER	FRI
Euselasia Hübner, [1819]					
511- *E. hygenius occulta* Stichel, 1919		X	X		
512- *E. thucydides thucydides* (Fabricius, 1793)				X	X
513- *E. utica* (Hewitson, [1855])			X		

Subfamily **RIODININAE**

Adelotypa W. Warren, 1895					
514- *A. bolena* (Butler, 1867)				X	
515- *A. leucophaea* (Hübner, [1821])				X	X
Anteros Hübner, [1819					
516- *A. renaldus notius* Stichel, 1911				X	
Apodemia C. Felder & R. Felder, 1865					
517- *A. castanea* (Prittwitz, 1865)	X		X		X
Baeotis Hübner, [1819]					
518- *B. melanis* Hübner, [1831]				X	X
Caria Hübner, 1823					
519- *C. castalia* (Ménétriés, 1855)				X	
Catocyclotis Stichel, 1911					
520- *C. aemulius* (Fabricius, 1793)		X			
Chalodeta Stichel, 1910					
521- *C. chelonis* (Hewitson, 1866)				X	
522- *C. theodora* (C. Felder & R. Felder, 1862)					X
Chorinea Gray, 1832					
523- *C. heliconides* (Swainson, [1833])			X		
Cremna Doubleday, 1847					
524- *C. alector* (Geyer, 1837)				X	
Dachetola J.Hall, 2001					
525- *D. azora* (Godart, [1824])		X			X
Detritivora J. Hall & Harvey, 2002					
526- *D. gynaea* (Godart, [1824])	X	X			X
Echydna J. Hall, 2002					
527- *E. chaseba* (Hewitson, 1854)			X	X	X
528- *E. punctata* (C. Felder & R. Felder, 1861)					X
Emesis Fabricius, 1807					
529- *E. fatimella fatimella* Westwood, 1851		X			
530- *E. lupina melancholica* Stichel,1916					X
531- *E. ocypore zelotes* Hewitson, 1872		X			X
532- *E. russula* Stichel, 1910	X	X			
Eurybia [Illiger], 1807					
533- *E. molochina molochina* Stichel, 1910	X	X		X	
534- *E. misellivestris* Stichel, 1910				X	
535- *E. pergaea* (Geyer, 1832)					X
Juditha Hemming, 1964					
536- *J. azan azan* (Westwood, 1851)			X		
Lasaia H. W. Bates, 1868					
537- *L. agesilas agesilas* (Latreille, [1809])	X	X			X
Lemonias Hübner, [1807]					
538- *L. zygia zygia* Hübner, [1807]		X		X	X
Leucochimona Stichel, 1909					
539- *L. icare matatha* (Hewitson, 1873)		X	X		
Melanis Hübner, [1819]					
540- *M. smithiae xarifa* (Hewitson, 1853)	X				
541- *M. unxia unxia* (Hewitson, [1853])		X		X	
Menander Hemming, 1939					
542- *M. menander nitida* (Butler, 1867)				X	
543- *M. pretus pretus* (Cramer, 1777)	X				
Mesene Doubleday, 1847					
544- *M. epaphus epaphus* (Stoll, 1780)	X				
545- *M. florus* (Fabricius, 1793)	X				
546- *M. pyrippe pyrippe* Hewitson, 1874	X		X		
Mesosemia Hübner, [1819]					
547- *M. acuta* Hewitson, 1873					X
548- *M. friburgensis* Schaus, 1902				X	X
549- *M. minos tetrophthalma* Stichel, 1915	X				
550- *M. nyctea fluminensis* J. Zikán, 1942	X				
551- *M. odice* (Godart, [1824])			X		X
Metacharis Butler, 1867					
552- *M. lucius* (Fabricius, 1793)	X		X		X
553- *M. ptolomaeus* (Fabricius, 1793)				X	
Napaea Hübner, [1819]					
554- *N. orpheus* (Westwood, 1851)					X
555- *N. umbra* (Boisduval, 1870)		X	X		
Notheme Westwood, 1851					
556- *N. erota agathon* (C. Felder & R. Felder, 1865)			X		
Nymphidium Fabricius, 1807					
557- *N. lisimon attenuatum* Stichel, 1929	X				
Panara Doubleday, 1847					
558- *P. ovifera* Seitz, 1913*				X	
559- *P. phereclus* (Linnaeus, 1758)					X
560- *P. soana soana* Hewitson, 1875					X
Pirascca J.Hall & Willmott, 1996					
561- *P. sagaris satnius* (Dalman, 1823)	X				
Rhetus Swainson, [1829]					
562- *R. arcius arcius* (Linnaeus, 1763)				X	
563- *R. periander eleusinus* Stichel, 191o	X	X	X		
Sarota Westwood, 1851					
564- *S. chrysus* (Stoll, 1781)	X				
Stalachtis Hübner, 1818					
565- *S. susanna* (Fabricius, 1787)			X	X	
Stichelia J. Zikán, 1949					
566- *S. bocchoris suavis* (Stichell, 1911)					X
Symmachia Hübner, [1819]					
567- *S. menetas menetas* (Drury, 1782)				X	
Synargis Hübner, [1819]					
568- *S. calyce* (C. Felder & R. Felder, 1862)		X	X		
569- *S. phliasus phliasus* (Clerck, 1764)				X	X
Syrmatia Hübner, [1819]					
570- *S. nyx* (Hübner, [1817])	X		X		X

Note: *An asterisk after the name indicates an endangered species.

Fig. 8. *Myscelus santhilarius* (Latreille, [1824]) [Hank & Priscilla Brodkin]

Fig. 9. *Evenus batesii* (Hewitson, 1865) [Hank & Priscilla Brodkin]

Fig. 10. *Mesosemia nyctea fluminensis* J. Zikán, 1942 [Hank & Priscilla Brodkin]

Fig. 11. *Catocyclotis aemulius* (Fabricius, 1793) [Hank & Priscilla Brodkin]

CONCLUSIONS

The field sampling accomplished through this research, even if limited in time, increased the number of butterfly species known from the PETP lowland areas. This result confirms that even the most complete representations of butterfly faunas in collections can be increased with time and repeated sampling (Summerville & Crist 2005), adding the so-called 'rarer' species and thus enhancing its reference value.

We wish to highlight the importance of accessing label data from specimens properly curated and housed in both Brazilian and foreign collections as a means of complementing or compensating for bureaucratic misgivings and the lack of resources and adequate funding for field sampling. In contrast to Brazil's poor field and 'museum' sampling, Mexico already has a massive database of over 450,000 distributional records (Luis et al 2003), gathered from museum specimen labels, that have been used to produce the Mexican Lepidoptera checklists (Llorente et al 2004).

The figure of 540 species obtained for PETP is actually a fraction, perhaps approximately 75%, of the final figure expected. The Riodinidae are the most poorly represented and certainly still far from representative, given the number of species known from other extremely well sampled coastal lowland and mountainous Atlantic Forest localities, both north and south of REGUA. Such localities include Santa Teresa (ES), with 769 species registered, with around 900 expected to occur there (Brown Jr. & Freitas 2000), Itatiaia Park (RJ, MG), with a record number of 914 species (Zikán & Zikán 1968), and Joinville (SC) (Mielke et al unpublished data), at a little over 800. It seems possible that the forests in the PETP, because of the large altitudinal gradient and the peculiar microclimates of the area, with very mild winter cold spells, have the potential to host even more species than, for instance, the extremely well known area around Joinville, which is south of the Tropic of Capricorn.

The diversity of butterflies observed and collected in REGUA's lowland areas is high, and several local factors could have contributed to this diversity. Such factors include the successful restoration of the wetlands over the last 8 years and the lowland and hill pastures over the last 30-50 years, with local deforestation well documented as far back as the beginning of the XX century (Fig. 7). Supporting this suggestion is the presence of taxa that are so-called "indicators of primary forests". Indeed, some of the old secondary forests in REGUA, up to 600m, surround mountaintops where selectively logged primary forest has been left untouched, providing a rich

Table 2. Percentage of total species by families.

Family	NMRJ Collection	Sampled at REGUA (not present in MNRJ)	TOTAL (%)
Hesperiidae	131	94 (45)	176 (28%)
Lycaenidae	41	39 (21)	62 (9%)
Nymphalidae	187	105 (17)	204 (45%)
Papilionidae	30	13 (0)	30 (5%)
Pieridae	37	20 (1)	38 (10%)
Riodinidae	57	16 (3)	60 (3%)
TOTAL	**483**	**287 (87)**	**570**

Fig. 12. *Melanis unxia* Hewitson, 1853. Regua's Bird Lodge hill, begining of the Blue Trail. [Richard White]

matrix source for seed and sapling recruitment to the secondary patches. In addition, the creation of a temporary transition habitat, or ecotone, between the original forested areas and the regions in the process of restoration (Wetlands and Atlantic Forest), supply a breeding ground for specialists in this more ephemeral habitat type.

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