An annotated check list of Ecuadorian Nymphalidae, Part I: Heliconiinae (Lepidoptera)

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Abstract: A list of 14 Acraeini and 43 Heliconiini species is reported and seven further species are predicted to occur in Ecuador. Notes on systematics are given and data on bionomics of the species mostly from field experience in the last 15 years. The major taxonomic changes are as follows: *Altinote erinome mathani* (OBERTHÜR, 1917) **stat. rev.** et **comb. nov.**, *Altinote hilaris desmiala* (JORDAN, 1913) **stat. rev.** et **comb. nov.** The nominal taxa *laeta* OBERTHÜR, 1917 and *amphilecta* JORDAN, 1913, are sunk as **junior synonyms** of *diversa* JORDAN, 1913 and *aereta* JORDAN, 1913, respectively. These taxa are considered to be the two Ecuadorian subspecies of *Altinote stratonice* (LATREILLE, 1817). *Altinote erebia* (OBERTHÜR, 1917) is assumed to be a species distinct from *Altinote tenebrosa* (HEWITSON, 1868).

Kommentiertes Verzeichnis der ecuadorianischen Nymphalidae, Teil 1: Heliconiinae (Lepidoptera)

Zusammenfassung: Eine kommentierte Liste von 14 Acraeini- und 43 Heliconiini-Arten wird für Ecuador gegeben, dazu 7 weitere Arten, die vermutlich dort vorkommen. Systematische Kommentare und solche zur Biologie der Arten aus den letzten 15 Jahren Freilanderfahrung werden gegeben. Die vorgenommenen taxonomischen Änderungen siehe im englischen Abstract.

Introduction

This third contribution aimed at a better knowledge of Ecuadorian Lepidopterous fauna deals with one of the most amazing taxon of the Neotropics. In a recent classification of Nymphalidae, HARVEY (1991) has shown that the Neotropical Heliconiinae can be divided into two tribes, i. e. Acraeini and Heliconiini.

Species and subspecies of Heliconiinae from Ecuador were described in the past mainly by HEWITSON (1852-1877, 1869-1870, 1877), DOGNIN (1887-1896), WEYMER (1890, 1894), REBEL (1902), STICHEL (1903, 1906, 1914), RIFFARTH (1907), NIEPELT (1908), STRAND (1914-1918) and NEUSTETTER (1928). More recently, BROWN (1976 a, 1976 b, 1979), DESCIMON & MAST DE MAEGHT (1971), and NEUKIRCHEN (1991, 1996) added informa-

tion on distribution and systematics of Heliconiini. A complete illustrated revision of the genera *Eueides*, *Neruda* and *Heliconius* is given by Holzinger & Holzinger (1995).

Lists of collecting localities were given by Haensch (1903), Brown (1941), Brown (1979), and Paynter & Traylor (1977).

Information on ecological, geobotanical and geographic features of Ecuador can be found in Acosta Solis (1966), Cañadas Cruz (1983), Harling

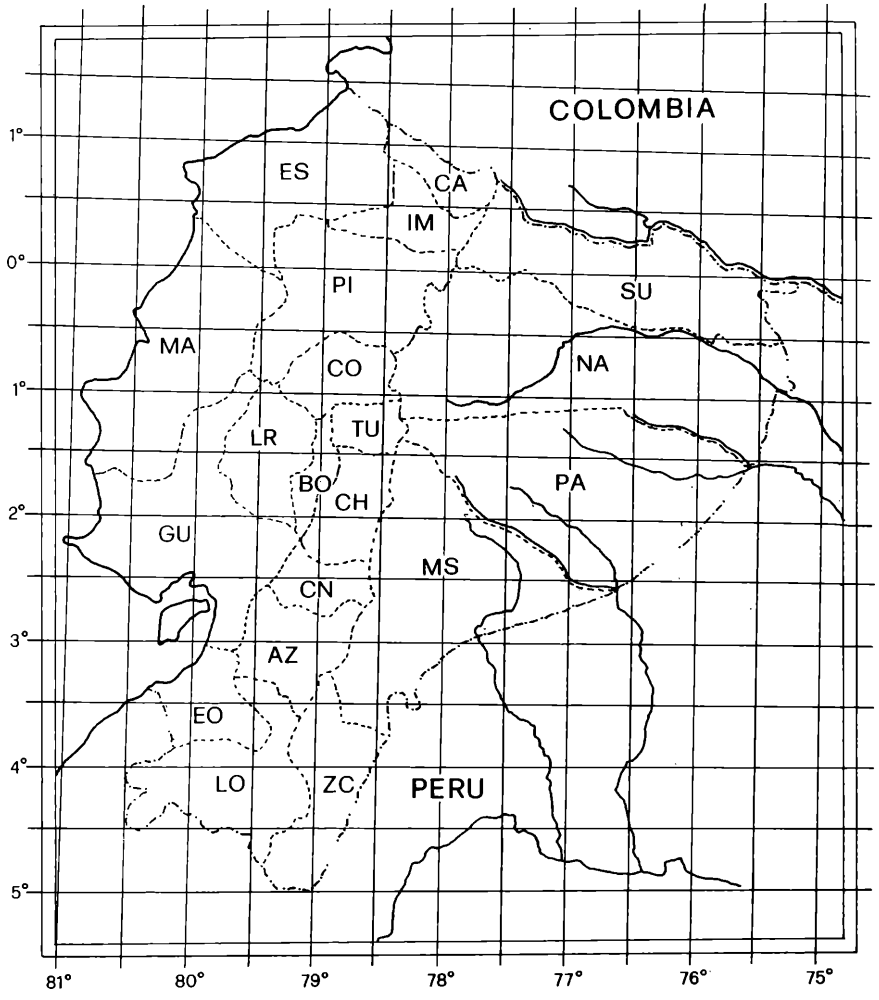

Fig. 1: Map of Ecuador with provinces; abbreviations see in text.

(1979), BEST & KESSLER (1995), RACHELI & PARISET (1993), RACHELI ([1997]).

Taxa which were or are reported from areas just outside the country are also listed for probable future additions to the Ecuadorian fauna.

Abbreviations

Provinces of Ecuador (see Fig. 1): Carchi (CA); Imbabura (IM); Esmeraldas (ES); Sucumbios (SU); Pichincha (PI); Napo (NA); Cotopaxi (CO); Manabí (MA); Los Ríos (LR); Bolívar (BO); Chimborazo (CH); Tungurahua (TU); Pastaza (PA); Guayas (GU); Cañar (CN); Morona Santiago (MS); Azuay (AZ); El Oro (EO); Loja (LO); Zamora Chinchipe (ZC).

Distribution = distribution in Ecuador; FW(s) = forewing(s); HW(s) = hindwing(s); HT = holotype; ST(s) = syntype(s); LT = lectotype; PT(s) = paratype(s); ISS = incorrect subsequent spelling; ssp. = subspecies.

Collections: BMNH = The Natural History Museum, London. PUCE = Pontificia Universidad Catolica, Entomologia, Quito. MJP = Museo de Historia Natural, Lima. All specimens in coll. RACHELI, Rome, if not stated otherwise.

Nymphalidae, Heliconiinae

Acraeini

This group of aposematic, poisonous and mimetic butterflies occurs in a variety of forms in several kinds of habitats from sea level up to more than 3000 m. They are often found in hundreds at puddles, usually one or two species only. Otherwise they are taken singly along forest paths or open areas. They are strongly seasonal and short-lived as adults. Females are seldom seen flying and usually bask on leaves up the trees and on flowers of *Eupatorium*. They are surely involved in mimicry being both cryptic and aposematic. In fact, it is not unusual to find puddling, among dozen of *Actinote* individuals, one specimen of the melitaeine *Phyciodes* looking and behaving exactly like an *Actinote*.

The systematics of these Acraeid butterflies is still under work, and it is not unlikely that the species' arrangements by JORDAN (1910, 1913 a, 1913 b, 1916) and OBERTHÜR (1917) will eventually be completely modified. POTTS (1943, 1944) revised the American species and split the genus *Actinote* into 3 groups: *Actinote* (sensu stricto), the (new) genus *Altinote*

(Altinote) and its (new) subgenus *Altinote (Abananote)*. The genus *Altinote* POTTS, 1943 is here retained separately. A recent phylogenetic hypothesis is supported by PIERRE (1987) who included all *Actinote* species in a clade comprising also a part of the African species, once considered in *Acraea* (s. l.). Not all type specimens have been examined and the present arrangement is only tentative. A review of the Colombian species has been recently given by ANDRADE-C. (1995) who tentatively reports 21 species from Ecuador. It is a pity that some serious misidentifications leave doubts on the species reported.

According to ACKERY (1988) the larvae exploit a variety of plants, among which in *Senecio* and *Eupatorium* the presence of dehydropyrrolizidine alkaloids (PAs) has been demonstrated. BROWN & FRANCINI (1990) have shown that *Actinote* species, both larvae and adults, consume PAs from their Asteraceae hostplants. They do not store these compounds, but synthesize for defence cyanogenic glucosides as Heliconiini do. This phenomenon is considered the most evolved among aposematic butterflies.

Altinote abana (HEWITSON, 1868)

TL Ecuador.

Distribution: "Sarayacu" (PA) in coll. BMNH; Loja-Zamora 2150 m (LO); S. Francisco (LO); Gualaquiza 1200 m (MS); Zamora 12 km E, 1500 m (ZC); Zamora 3 km E, 1200 m (ZC).

An uncommon species, apparently restricted to the south above 1000 m.

Altinote erinome (FELDER & FELDER, 1861)

TL Ecuador [S Peru].

Although described from Ecuador, the type-locality should be restricted to south Peru, as it has not been collected in Ecuador in recent times. There are few specimens labeled "Ecuador" in BMNH which correspond to Peruvian populations. The ssp. *mathani* OBERTHÜR, 1917 (TL Chachapoyas) may occur in south Ecuador. This taxon is very similar to *A. euryleuca* but with a red costal strip on the FWs.

Altinote euryleuca (JORDAN, 1910)

TL Peru, Moyobamba.

A very uncommon species in collections, possibly entering only marginally into south Ecuador from north Peru where the species is uncommon. There are two specimens labeled "S. Chima" [?= Rio La Chima,

Bolívar] and Loja in coll. BMNH. OBERTHÜR (1917) reports the species from Sarayacu collected by BUCKLEY, but this appears to be an unsuitable locality for this species. The nominal taxon *carmentis* POTTS, 1944 (TL Moyobamba region, Peru) might be a synonym of this species.

Altinote radiata (HEWITSON, 1868)

TL Ecuador.

Distribution: Sarayacu (PA) (OBERTHÜR 1917); Loja (LO) in coll. BMNH; Loja-Zamora 2150 m (LO); Zamora 15 km E 1600 m (ZC); Gualaquiza 1500 m (MS).

A very easily recognizable species. It is not abundant and usually found singly among other *Actinote* species above 1000 m. It was common in the cloud forests above Zamora at 1800 m during April 1986. It seems to be restricted in the south, Sarayacu therefore being an unsuitable locality.

Altinote alcione (HEWITSON, 1852)

TL "Quito".

Distribution: Chiguinda 1400 m (AZ), Paramba (IM), Chimbo (CH), Balzar (GU), Angamarca (CO), Sarayacu (PA), Rio Numbala (LO), Palanda in coll. BMNH; El Reventador 1500 m (SU); Alluriquin (PI); Rio Chisinche 1700 m (PI); Rio Napo (TU); Rio Topo (TU); Misahualli (NA); Pununo (NA); Las Minas 500 m (NA); Rio Latas 550 m (NA); Tzatzayacu 750 m (NA); Rio Chalua 1000 m (NA); Macas 1070 m (MS); Macas-Puyo, rio Chapayma 1000 m (PA); Talag (NA); Rio Pimpilala (NA); Loja-Zamora 2150 m (LO); Zamora 1500 m (ZC); Parque Podocarpus 1200 m (ZC).

A very variable species with several differentiated populations in Ecuador. The sexes are similar and often in the literature the female has been confused with that of *A. dicaeus*. Reported also as *A. corduba* HEWITSON, 1874, by DOGNIN (1891) from Loja. This name should relate to the Bolivian populations.

The distribution of the various morphs in Ecuador is at present not known exactly, but it appears that, contrary to the opinion of D'ABRERA (1987), there is only one morph at each locality. In fact, populations of the upper Napo area are yellow with a subapical band on the FWs (f. *alcione*). This morph is found up to El Reventador in Sucumbios, and in the south at the Pastaza-Napo boundary (Tzatzayacu 750 m). At upper altitudes in the Napo area, above Talag at 700-900 m, mixed populations occur with yellow and orange morphs, with or without subapical band. Along a belt from south of Puyo down to Zamora river, the orange form *theophila* occurs. The species is scarcer when compared to other *Actinote* species, and even scarcer on the western side (f. *elatus*). A list of the

morphs described from Ecuador or from nearby areas is as follows: f. *elatus* DRUCE, 1903, TL Paramba; = f. *sarsanda* DRUCE, 1903, TL Chimbo; = f. *subelatus* JORDAN, 1913, TL Los Llanos & Balzapamba; ?= *moneta* POTTS, 1944, TL 2-4°S, 78°W, Ecuador; f. *alcione* HEWITSON, 1852, TL "Quito"; f. *theophila* DOGNIN, 1887, TL Zamora; f. *salmonea* JORDAN, 1910, TL North Peru, Huayabamba river, SE Chachapoyas.

Altinote dicaeus (LATREILLE, [1817])

TL ["Perou", see OBERTHÜR (1917)].

= *Actinote diceus* auct., ISS .

= *A. albofasciata* HEWITSON, 1869; TL Ecuador [Rio Verdi].

= *A. rosaria* WEYMER, 1890; TL "Zwischen Baños und Jíbaria del Píntuc; Huamboya".

= *A. napensis* JORDAN, 1910; TL Ecuador, Rio Napo, Baeza.

Distribution: El Rosario (TU), Baños (TU), Alpayacu (TU), Rio Verde (TU), Ambato (TU), Archidona (NA), Canelos (PA), Sarayacu (PA), Gualaquiza (MS) in coll. BMNH; El Reventador 1500 m (SU); S. Rosa de Quijos 1700 m (NA); Cuyuja 2150 m (NA); Cosanga 1850 m (NA); Hollin 1000 m (NA); Rio Chalua 1000 m (NA); Cordillera de Huacamayo 2000 m (NA); Baeza 2050 m (NA); Rio Blanco 1400 m (TU); Rio Topo 1200 m (TU); Rio Blanco 1600 m (TU); rio Ulba 2400 m (TU); Loja-Zamora 2150 m (LO); Zamora 1500 m (ZC)

A. dicaeus has a wide range from Venezuela to south Peru, with distinct subspecies and characteristic females in Ecuador, large, brownish, and with a white subapical band on the FWs. In Ecuador the species is fairly common although not abundant above 1000 m. In spite of the many named forms, the males, pink and black, show a scarce variability, while females have the white bands of the FWs of variable size. If the Ecuadorian populations deserve a subspecific name the senior synonym is *albofasciata* HEWITSON. — According to JORDAN (1916) *A. callianira* (HÜBNER, 1837) (TL "Mexico") is the ssp. of *A. dicaeus* from Peru, but D'ABRERA (1987) raised *callianira* to specific status and separated it from *dicaeus*.

Altinote eresia (FELDER & FELDER, 1862)

TL Nova Granada, Bogota.

Distribution: Ambato (TU), Archidona (NA), Rio Verde (TU) in coll. BMNH.

There are no recent records of this species from Ecuador whose populations were named *leptogramma* JORDAN, [1913] (TL Baños, Pastaza, Ecuador).

Altinote hilaris (JORDAN, 1910)

TL Rio Toro [Junín, Peru].

Distribution: Archidona (NA) in coll. BMNH; Rio Bermejo (NA) and Huacamayo 2000 m (NA) in coll. MJP; Nanegalito 1500 m (PI); Rio Verde (TU); Rio Blanco (TU); Rio Ulba 1800 m (TU).

A. desmiala is considered a valid species also by recent authors (D'ABRERA 1987, ANDRADE-C. 1995), but examination of new data and male genitalia has shown that it is related to *A. hilaris* from Peru. It appears to be a very local and scarce species. Data of recent specimens suggest that it is localized above 1500 m, therefore the type-locality Archidona for ssp. *desmiala* JORDAN, 1913 (TL Archidona [HT]) seems unsuitable. The female was described by TALBOT (1932) and it is similar to the male but larger. The sspp. *culoti* OBERTHÜR, 1917 (TL Ambato), and *brownorum* POTTS, 1943 (TL Ecuador, Yungilla 1700 m) appear to be synonyms although typical material of the latter taxon has not been examined. The species has been reported by SALAZAR (1993) and ANDRADE-C. (1995) from both slopes of the Colombian Cordillera near the Ecuadorian border in Nariño.

Altinote euclia (DOGNIN, 1887)

TL Environs de Loja.

Distribution: Tandapi 1600-1700 m (PI); Guayquichuma 1800 m (LO).

This species is altitudinally and geographically separated from *A. negra* with which it may be conspecific, *A. euclia* occurring above 1500 m in different kinds of habitats, preferably in montane forests. It occurs also in southern xerothermic areas and these populations, which are ochre-yellow, are identifiable as the nominotypical subspecies which intergrades with ssp. *catochaera* JORDAN, 1910 (TL San Pablo, north Peru, 2000 m), distributed in north Peru from Piura to Cajamarca (Lamas, 1977b). Northern populations may be distinguished as ssp. *leontine* WEYMER, 1890 (TL Ibarra, 2300 m).

Altinote negra (FELDER & FELDER, 1862)

TL not stated [upper Rio Huallaga, above Yurimaguas].

Distribution: Rio Verde 1300 m (TU); Mera 1100 m (TU); Zamora 1200-1500 m (ZC); Gualaquiza 1100 m (MS); Macas 1050 m (MS).

We list provisionally under the name *negra* a number of populations of different pattern and colouration distributed on the eastern side of the Andes and in the south part of the country. So far this species has been

found only in the East side at 1000-1500 m from Zamora to the Pastaza valley. The ssp. *scotosis* JORDAN, 1910 (TL Zamora, Ecuador), is variable and intergrading in the south to the Peruvian populations.

Altinote neleus LATREILLE, [1813]

TL Colombia.

= *edulis* WEYMER, 1890; TL Huamboya.

= *ara* HEWITSON, 1877; TL Ecuador [Jima].

Distribution: Ambato (TU), Rio Verde (TU), Quito (PI), Rio Numbala (ZC), Alpayacu (TU), Baños (TU), S. Francisco (TU), Jorge (NA), Macas (MS) in coll. BMNH; Rio Topo 1200 m (TU); Rio Anzu 1200 m (TU); Rio Negro 1500 m (TU); S. Rosa de Quijos 1700 m (NA); Huacamayo 1800 m (NA); Cosanga 1850 m (NA); Cuyuja 2150 m (NA); Rio Chalua 1000 m (NA); Loja 2150 m (LO); Zamora 1500 m (ZC);

Sometimes confused with *A. alcione*, but *A. neleus* shows a strong sexual dimorphism. Males are easily distinguished by the reddish abdomen, the female is brown with a whitish band on the FWs. It is correctly figured by D'ABRERA (1987: 436). The males with red patch on the cell of HWs underside were described as f. *haemera* JORDAN, 1913 (TL Zamora). It is a common species above 1000 m, females always very scarce.

Altinote ozomene (GODART, 1824)

TL Colombia.

Distribution: Ambato (TU), Baños (TU), Rio Verde (TU), Angamarca (CO), S. Jorge (NA), "Aguano" (NA), Chimbo (CH), Zaruma (EO), Zamora (ZC), Loja (LO) in coll. BMNH; Esmeraldas (ES), Lita (IM), Isla Anaconda (NA) in coll. PUCE; Alluriquin 800 m (PI); Tandapi 1500 m (PI); La Union 1340 m (PI); La Virgen 2000 m (PI); Rio Chisinche 1700 m (PI); Tandayapa 1515 m (PI); La Maná 1000 m (LR); Guayquichuma 1200-2200 m (LO).

A very common species in the West from 500 to 2000 m, but strongly seasonal, with various named forms of doubtful systematical significance. Records from the eastern side are doubtful or at least not confirmed in recent times. Populations from the south are characterized by the very small size and females have only little red at the base of the wings. These populations are distinguished as ssp. *cleasa* HEWITSON, 1868 (TL Ecuador, = *catopasta* JORDAN, 1910 (TL western Ecuador: Chimbo and Jaruma [= Zaruma]), which is also found in Piura (LAMAS 1977 a). Populations from north and central-western Ecuador are identifiable as ssp. *gabrielae* REBEL, 1902 (TL [Ec. occ.] Balzapamba; Agua Santo). The name *zarayaquilionis* STRAND, 1916 (TL Ecuador, Zarayaquilo) is unavailable.

Altinote stratonice (LATREILLE, [1813])

TL Colombia.

Distribution: Gualaquiza (MS), Aguano (NA), Baños (TU), St. Inez (TU), Canelos (PA), Zamora (ZC) in coll. BMNH; El Reventador 1500 m (SU); La Merced de Jondachi 1250 m (NA); Cuyuja 2250 m (NA), Baeza 2000 m (NA); Rio Chalua 1000 m (NA); Cosanga 1850 m (NA); Hollin 1000 m (NA); Oritoyacu 1800 m (NA); Cordillera de Galera 1200 m (NA); Macas 1050 m (MS).

A widespread species on the eastern side, often abundant but strongly seasonal. The various populations show a high degree of variability and have received several names in the past. We recognize all the northern populations under the subspecific name of *amphilecta* JORDAN, [1913] (TL Ecuador, Gualaquiza). From field experience this subspecies is distributed along the eastern side from Colombian borders down to the left bank of rio Napo, at altitudes between 1000 and 2000 m. The nominal taxa *aereta* JORDAN, 1913 (TL Zamora) and *laeta* OBERTHÜR, 1917 (TL [STs: 2 ♂♂ Ambato, 1 ♀ Baños, in BMNH]) appear to be junior synonyms. The taxon *albunea* POTTS, 1944 (TL Rio Jondachi, near Archidona 800 m, Ecuador) from the description seems to be this same taxon. The populations from Pastaza valley, and from Macas down to Zamora are referable to ssp. *diversa* JORDAN, 1913 (TL Baños [2 ♂♂, 1 ♀ STs in BMNH]). These populations are quite different from northern populations and reminiscent of *A. negra*.

Altinote callianthe (FELDER & FELDER, 1862)

TL Nova Granada in provincia Bogotá.

A. callianthe is a very local species distributed in Venezuela and Colombia and we doubt the origin of *rufa* from Ecuador or at least it has not been collected anymore since its description. This species was reported from Ecuador by JORDAN (1910) who described on the HT ♂ from Zamora ssp. *rufa*. From the original description the blue sheen of the upperside less glossy than in *callianthe*, no distinct blue sheen outside the patch of FW; this patch rufous red, being much deeper in tone than in *callianthe* and of a different shape. The two spots M1-SM2 of the patch extend much nearer to the outer margin where they are more or less acuminate, the posterior spot being also narrower proximally than in *A. callianthe*, the black discocellular spot less prominent on account of the rufous spots beyond it being very obscure. On the underside the HWs less distinctly striped in outer half than in *callianthe*.

Altinote tenebrosa (HEWITSON, 1868)

TL Ecuador

= *Acraea segesta* WEYMER, 1890; TL Huamboya.

= *Acraea dognini* SCHAUS, 1902; TL Ambato, Ecuador.

Distribution: Huamboya (MS), Zamora (ZC), "Sarayacu" (PA), "Canelos" (PA) in coll. BMNH; Rio Blanco 1400 m (TU); San Francisco 1500 m (TU); Rio Cristal 1600 m (TU); Baños 1800 m (TU); Rio Ulba 1700 m (TU); Rio Topo 1200 m (TU); Baeza 2050 m (NA); Mera 1100 m (PA); Macas 1050 m (MS); Loja 2150 m (LO).

This species is reported also in recent literature as *A. segesta* (see D'ABRERA 1987). *A. tenebrosa* represents its female, and this name has priority over *A. segesta*. It is an easily recognizable species widely distributed on the eastern side above 1000 m but never abundant. Females are very scarce, larger and duller than the male with large postdiscal and apical black patch. The variability of the Ecuadorian populations is neglectable although females from the south are more brightly coloured. Populations from north Peru are smaller and with faint designs on the underside of the wings.

Actinote erebia OBERTHÜR, 1917 (HT ♂: Chachapoyas) is syntopic with *A. tenebrosa* in north Peru, in the Chachapoyas and Rodriguez de Mendoza areas, and it is very similar to the taxon referred to as *A. naura* by ANDRADE-C. (1995, figs. 11-12). Therefore it may seem a good species found so far in Colombia and in Peru.

Actinote thalia (LINNAEUS, 1758)

TL Amer. mer.

Distribution: Chimbo (CH), Paramba (IM), Zamora (ZC), Loja (LO) in coll. BMNH; Mindo 1000 m (PI); Nanegalito 1500 m (PI); Alluriquin 850 m (PI); La Union del Toachi 1340 m (PI); Rio Chisinche 1700 m (PI); Tandapi 1500 m (PI); Guayquichuma 1200-1500 m (LO).

This is a very common, widespread and often abundant species on the western side. It is bound for altitudes between 800 to 2000 m. The following ssp. were described from Ecuador: ssp. *cedestis* JORDAN, 1913 (TL Zamora, south eastern Ecuador; = *cedestes* auctorum, ISS) and ssp. *suspecta* JORDAN, 1913 (TL Paramba).

Actinote pellenea HÜBNER, 1820-1821

TL Rio de Janeiro.

Distribution: Quito (PI), Paramba (IM), Balzapamba (BO), Canelos (PA), Loja (LO) in coll. BMNH; Talag 800 m (NA); Tzatzayacu 750 m (NA); Puyo, rio

Chapayma 900 m (PA); Valladolid 5 km N, 1200 m (ZC); Guayquichuma 1200 m (LO).

We consider under this name a widespread neotropical species from Costa Rica to Brasil, although some authors tend to separate it in a number of vicariant species. The species is extremely variable, red, yellow and mixed populations are reported all over the range. Usually individuals are smaller than those of *A. thalia* and show a black discal design on both sides of the HWs. JORDAN (1916) reported as a good species *A. equatoria* BATES, 1864 (TL western side of Chimborazo) from Venezuela to Bolivia. We consider *equatoria* as the western Ecuadorian subspecies which extends its range also into Tumbes, NW Peru (LAMAS 1977 b). The status of *grammica* JORDAN, 1913 (TL Paramba, Rio Mira, 1000 m) is still unresolved. In Ecuador the species is extremely scarce or at least poorly observed. Populations of *A. pellenea* from Rodriguez de Mendoza, north Peru, known as ssp. *epiphaea* JORDAN, 1913 (TL Peru, Rio Palcazu) comprehend a mixture of red and yellow individuals. The few Ecuadorian specimens examined from the eastern side are similar to *epiphaea*. It is not clear whether *A. melampeplos* GODMAN & SALVIN 1882 (TL Costa Rica) is a different species and whether it occurs in Ecuador.

Heliconiini

(See DESCIMON & MAST DE MAEGHT 1971, 1984, ACKERY & SMILES 1976, BROWN 1976 a, 1976 b, 1979.) Since a long time, following the pioneering assessment of EMSLEY (1965), this group of butterflies has received the attention of researchers for a series of studies which should be too long to list here. DESCIMON & MAST DE MAEGHT (1971) gave the first modern treatment of Ecuadorian heliconiids but their list is not flawless. The distribution and systematics of the species occurring in Ecuador, other than those in the Neotropics, have been reviewed by BROWN (1976 a, 1976 b, 1979). *H. atthis* and *H. timareta* are endemics to Ecuador. Many species are common and abundant, only a few are rarely seen especially those with restricted ranges. The highly polymorphic sylvaniforms and the *erato-melpomene*-like species make sometime identification difficult. It is stressed that populations from the Pastaza valley are numerically dropping down each year due to the severe human impact on the environmental conditions in the area. *H. hierax, H. hecuba, H. timareta* and *H. congener* are severely threatened to extinction.

Philaethria dido (LINNAEUS, 1763)

TL Amer. mer.

Distribution: Sucumbios, Napo, Pastaza, Tungurahua, Morona-Santiago, Zamora-Chinchipe.

Common and widespread on the East, apparently unrecorded recently from the the West side, except for the citation by CAMPOS (1927) from Bucay and Chimbo.

Agraulis vanillae (LINNAEUS, 1758)

TL America.

Distribution: Esmeraldas; Pichincha; Los Ríos; Guayas; Napo; Pastaza; Tungurahua.

Moderately common in secondary forests and open places on both sides of the Andes. The species occurs also in the Galápagos islands as ssp. *galapagensis* HOLLAND, 1889 (TL Chatham Island). In the West the populations are referable to ssp. *forbesi* MICHENER, 1942 (TL Lima, Peru), and in the East as ssp. *lucina* FELDER & FELDER, 1862 (TL Rio Negro).

Dione juno (CRAMER, [1779])

TL Suriname.

Distribution: Pichincha; Bolívar; Chimborazo; Los Ríos; Sucumbios; Pastaza; Tungurahua; Napo; Morona-Santiago; Zamora-Chinchipe; Loja.

A common species on both sides of Cordillera in open places. The eastern populations are usually referred to as the nominotypical subspecies, the western ones are known as *andicola* BATES 1864 (TL "western roots of Chimborazo") [STs Tacunga and Canelos (see ACKERY & SMILES 1976)]. Sometimes the morph *miraculosa* HERING, 1926 (TL Peru, Arequipa) occurs together with intermediate specimens.

Dione moneta HÜBNER, [1825]

TL not stated.

Distribution: Rio Toachi 1200 m (PI); Sta Rosa (PI); Tandayapa 1515 m (PI); Alluriquin 1000 m (PI); La Union 1300 m (PI); Zamora 1200 m (ZC).

D'ABRERA (1984) claims that it does not occur in Ecuador. It is not uncommon and apparently distributed above 1000 m on the West side only as ssp. *butleri* STICHEL, 1907 [STs Colombia, R. Magdalena; Ecuador, Balzapamba]. There is a solitary record from Zamora.

Dione glycera (FELDER & FELDER, 1861)

TL Venezuela. Nova Granada in provincia Bogotá prope Muzo.

Distribution: Quito 2800 m (PI); Lago Cotopaxi 3400 m (CO); Otavalo 2600 m (IM); Machachi 2500 m (PI); Chillo 2200 m (PI); Cuyuja 2100 m (NA); Huacamayo 1800 m (NA); Baños 1800 m (TU); Azogues 2000 m (CN); Cuenca 2000 m (AZ); Loja 2200 (LO); Catamayo 1800 m (LO).

The species is restricted to valleys from 1500 up to 3400 m of both slopes of the Andes.

Podotricha telesiphe (HEWITSON, 1867)

TL Ecuador.

Distribution: La Bonita (CA); San Rafael 1300 m (NA); Baeza 2200 m (NA); Rio Chalua 1200 m (NA); Rio Zuñag 1200 m (TU); Rio Topo 1200 m (TU); Rio Blanco 1600 m (TU); Abitagua 1300 m (TU); La Conquista 1400 m (TU); Machay (TU).

The variation of this species as well its comimic *Heliconius telesiphe* has been illustrated by VANE-WRIGHT et al. (1975). These authors, although feeling uncertain about the correctness of the localities on some Ecuadorian specimen, claimed that both white and yellow morphs occur together in the Pastaza valley. According to our experience only one morph, similar to that of *H. telesiphe,* is present at each locality. Lectotypes were selected by VANE-WRIGHT et al. (1975) for both yellow and white morphs, i.e., *tithraustes* SALVIN, 1871 (LT ♂ Rio Topo) and *telesiphe* (LT ♂ "Ecuador"). Unfortunately then, the whereabouts of the type-locality of *P. telesiphe* is vague. Because only yellow-striped morph *tithraustes* occurs in northern and central Ecuador, it will be interesting to have more data from south Ecuador from where probably the syntipic series of *P. telesiphe* originated. Usually uncommon, but sometimes abundant in the Pastaza valley at several localities between 1200 and 1800 m. Early stages and behaviour of adult female in Ecuador were reported by PENZ (1995).

Podotricha euchroia (DOUBLEDAY, [1847])

TL Venezuela, New Granada.

Distribution: "Forma" *mellosa:* Tandayapa (PI); Tandapi, La Virgen 2000 m (PI); Macas (MS), Balzapamba (BO), Baños (TU), Vilcabamba (LO), Niebli (PI) in coll. BMNH. – "Forma" *straminea:* El Calvario 2940 m (CA); Cuyuja 2150 m (NA); Rio Blanco 1600 m (TU); Machay (TU); Cotacachi (IM), Balzapamba (BO) in coll. BMNH.

A Colombian Ecuadorian endemism uncommon on both sides of the Cordillera usually above 1800 m. A LT ♂ was selected by VANE-WRIGHT et

al. (1975) from New Granada, Colombia. Two groups of differently coloured populations are known, i.e., *mellosa* STICHEL, 1906 (TL Ecuador) and *straminea* RILEY, 1926 (TL Ecuador, Balzapamba [HT ♂]). These are considered as two valid subspecies by BROWN (1979), although he did not substantiate his statement. The biometric approach by VANE-WRIGHT et al. (1975) suggested the existence of a latitudinal gradient perhaps correlated with temperature. Due to the scarcity of specimens, the distribution of the morphs in Ecuador is not well known, but from the scanty material it seems that *mellosa* is distributed on the West side and *straminea* in the East.

Dryadula phaetusa (LINNAEUS, 1758)

TL "Indiis".

Distribution: Esmeraldas, Sucumbios, Napo, Pastaza, Morona-Santiago, Zamora-Chinchipe.

A widespread but not abundant species in Oriente. In the West much scarcer and localized.

Dryas iulia (FABRICIUS, 1775)

TL "America" [Antille, Grenada].

Distribution: Esmeraldas, Guayas, Pichincha, El Oro, Sucumbios, Napo, Pastaza, Cañar, Morona-Santiago, Zamora-Chinchipe, Loja.

A common species on both sides of the Andes found in open places. In the West the populations are recognised as ssp. *moderata* STICHEL, 1907 (TL Chimbo) while the Amazonian populations as ssp. *alcionea* CRAMER, 1779.

Eueides procula (DOUBLEDAY, [1848])

TL Venezuela.

Distribution: Esmeraldas, Pichincha, Manabí, Guayas, Cotopaxi; Bolívar, Los Ríos; Pastaza, Tungurahua; Zamora-Chincipe.

An uncommon species in the East; these populations are known as ssp. *edias* HEWITSON, 1861 (TL New Granada). Moderately common along the Pastaza valley. In the West the distribution is imperfectly known, the populations referable to as ssp. *eurysaces* HEWITSON, 1864 (TL Quito).

Eueides lineata SALVIN & GODMAN, 1868

TL Valley of Polochic.

Distribution: Tinalandia 550 m (PI); Alluriquin 700 m (PI).

This Mesoamerican species occurs in the western part of the country from where ssp. *emsleyi* BROWN [1976] (TL Colombia, Antioquia, Valdivia) was described based on a series of 1 ♂, 2 ♀♀ and 1 ♀ from Colombia and Ecuador, respectively. Only a few specimens were found within a remnant of forest near Alluriquin. Apparently it is a very rare species, but probably it occurs in all western Ecuador in scattered colonies.

Eueides libitina STAUDINGER, 1885

TL "Cayenne".

This species is a vicariant of *E. lineata* which occurs in Colombia along the upper Putumayo river. It may be present in NE Ecuador.

Eueides vibilia (GODART, 1819)

TL Brésil.

Distribution: Napo; Guayas.

Originally reported and described from the western side by STICHEL (1903) as ssp. *vicinalis* (TL Palmar) where it is a very uncommon species. It also occurs along the east side as ssp. *unifasciatus* BUTLER, 1873 (TL Ega, Amazons).

Eueides lampeto BATES, 1862

TL S. Paulo, U. Amazons.

Distribution: Napo, Pastaza, Tungurahua, Morona-Santiago, Zamora-Chinchipe.

It is a rare and very scarce species. The species shows a very variable phenotype and many morphs occurring in Ecuador have been described: *acacetes* HEWITSON, 1869, TL Ecuador [Curaray]; *amoena* STICHEL, 1903, TL Santa Inéz; *pallida* RIFFARTH, 1907, TL Ob. Pastaza; *fuliginosa* STICHEL, 1903, TL Santa Inéz, Baños 1200-2000 m; *carbo* STICHEL, 1903; TL Ecuador, Santa Inéz.

Eueides lybia (FABRICIUS, 1775)

TL "India".

Distribution: Esmeraldas.

A species confined in the NW corner of Ecuador known so far from the province of Esmeraldas (BROWN, 1979). These populations are referable to ssp. *olympia* FABRICIUS, 1793.

Eueides isabella (CRAMER, [1781])

TL Suriname.

This is the commonest of the *Eueides* species found also in open places, with differentiated subspecies on both sides of the Andes. Several intergrading forms occur: *ecuadorensis* STRAND, 1909, TL Los Llanos, Ecuador, 1400 m; *margaritifera* STICHEL, 1903, TL Peru; *vegetissima* STICHEL, 1903, TL Santa Inéz; *seitzi* STICHEL, 1903, TL Santa Inéz, Ecuador and Columbia; *huebneri* MÉNÉTRIES, 1857, TL Brasil; *dissoluta* STICHEL, 1903, TL Peru (Tarapoto, La Mercedes) "und Bolivien".

Distribution: Pichincha; Guayas; Napo; Tungurahua; Pastaza; Morona-Santiago.

Eueides heliconioides FELDER & FELDER, 1861

TL Ecuador [= Bolivia?].

= *E. eanes* HEWITSON, 1861, TL Amazons [for name priority see LAMAS (1988)].

According to BROWN (1979) this species does not occur in Ecuador, and probably it has been confounded with *E. tales*.

Eueides tales (CRAMER, [1775])

TL Suriname.

Distribution: Sucumbios; Napo; Pastaza; Morona-Santiago; Zamora-Chinchipe.

Locally uncommon in the East side as ssp. *calathus* STICHEL, 1907 (TL Ecuador, Sarayacu; Ober Pastaza). The systematics and eco-ethology of the species were reviewed by BROWN & HOLZINGER (1973).

Eueides aliphera (GODART, 1819)

TL Brésil.

Distribution: San Mateo (ES); Apuya (NA); Coca (NA); Zamora 1500 m (ZC); Tinalandia (PI).

Widespread on both sides of the Andes with two different subspecies with a striking resemblance to the respective subspecies of *Dryas iulia*. The nominotypical subspecies occurs in the East. In the West ssp. *cyllenella* SEITZ, [1913] (TL not stated; = *E. cyllenula* SEITZ, 1924, ISS) occurs. The species was not recorded from Ecuador by HOLZINGER & HOLZINGER (1995).

Neruda aoede (HÜBNER, 1816)

TL Brasilien.

Distribution: Napo (NA) in coll. BMNH; Ahuano (NA); Chumbuyacu (NA); Pununo (NA); Apuya (NA); Cotundo 1300 m (NA); Macas (MS).

A very uncommon species found on the eastern side. The Ecuadorian populations are differentiated into ssp. *bartletti* DRUCE, 1876 (TL [Peru:] Santa Cruz & Cosñipata valley [LT ♂, Peru, Loreto, Santa Cruz, see LAMAS 1988]) in central countries, and into a new (undescribed) subspecies from Morona-Santiago.

Laparus doris (LINNAEUS, 1771)

TL Surinam.

Distribution: Rio Pimpilala 700 m (NA); Chumbuyacu (NA); Tzatzayacu (NA); Cotundo 1300 m (NA) (red and mixed); Rio Topo 1200 m (TU) (red); Coca (NA) (blue); Archidona (NA) (mixed: blue × red).

Uncommon in the West, widespread in the East, but never abundant. The western subspecies is *aristomache* RIFFARTH, 1901 (TL Balzapamba), and green, red and blue morphs occur. The nominotypical ssp. in the East intergrades with ssp. *delila* HÜBNER, 1813 (TL not stated [Pebas]).

Heliconius hierax HEWITSON, 1869

TL Ecuador [Rio Topo].

Distribution: Topo (TU); Abitagua (TU); Rio Negro 1500 m (TU); Macas (MS).

An uncommon andean species distributed in the upper Pastaza valley and in Morona-Santiago and Zamora-Chinchipe areas from 1000 to 1800 m. It is becoming scarcer every year for the heavy deforestation of the Pastaza valley. The morph *semibrunnea* NIEPELT, 1923 is characterized for the absence of the red pattern on the FWs.

Heliconius hecuba HEWITSON, 1858

TL New Granada.

Distribution: Rio Cristal 1000 m (ZC) in coll. Neukirchen; Baeza 2050 m (NA); Santa Rosa de Quijos 1700 m (NA); Machay 1800 m (TU); Chinchin 2000 m (TU); Macas (MS); Sucua (MS).

A scarce species restricted to the montane forest of the eastern Cordillera from 1200 to 2000 m. Several populations have been named and often the species occurs, at least in the Pastaza valley and above Macas, together with the ithomiine mimic *Elzunia humboldt* (LATREILLE, 1811). The following morphs have been described from Ecuador: *flavus* BROWN, 1979 (nec NEUSTETTER, 1928), TL Ecuador (Macas); *choarina* HEWITSON, 1872, TL Ecuador; *cacicus* BROWN, 1979 (nec NEUSTETTER, 1928), TL Ecuador (Macas); ?= *bonplandi* NEUKIRCHEN, 1991, TL Ecuador, Morona Santiago, Macas; ?= *lamasi* NEUKIRCHEN, 1991, TL Ecuador, Zamora, Chin-

chipe, Rio Cristal 1000 m. The nomenclatorial status of the different morphs is to be revised. It appears that the unavailable name *cacica* proposed by NEUSTETTER (1928) was validated by BROWN (1979) and therefore *bonplandi* NEUKIRCHEN, 1991 will become a junior synonym. Northern populations (*flavus*) are very similar to *tolima* FASSL, 1912, from Tolima, Colombia. The populations of the Pastaza valley are currently known as ssp. *choarina*.

Heliconius xanthocles BATES, 1862

TL Demerara. Brit. Guiana.

Distribution: Pununo (NA); Apuya (NA); Misahualli (NA); Talag (NA); Archidona (NA); Latas (NA); Pano (NA); Jatunyacu (NA). Zamora (ZC), Mayaycu (ZC), Macas (MS) reported by HOLZINGER & BROWN (1982).

The systematics of this widespread Amazonian species has been discussed by HOLZINGER & BROWN (1982). Two subspecies are reported for Ecuador, namely *napoensis* HOLZINGER & BROWN, 1982 (TL Napo, Oriente, Rio Anzu), and *zamora* HOLZINGER & BROWN, 1982 (TL road to Loja, 4-10 km W of Zamora, 1100-1500 m). This latter can be separated by the reduction of the postcellular spots of the FWs. The species is not common and found usually as single individuals. It has a fast, high flight. The behaviour of Colombian populations was reported by MALLET & JACKSON (1980).

Heliconius wallacei REAKIRT, 1866

TL Amazonas.

Distribution: Napo; Pastaza; Morona-Santiago; Zamora-Chinchipe.

A locally common species in the East. HOLZINGER & HOLZINGER (1995) did not show this species on the distribution map (pl. 14) but, in contrast, they reported *H. antiochus* which does not seem to occur in Ecuador. The populations are referable to ssp. *flavescens* WEYMER, 1890 (TL Ecuador).

Heliconius burneyi (HÜBNER, 1826)

TL Brasilien.

The species is unrecorded from Ecuador properly, except for the citation from Napo by DESCIMON & MAST DE MAEGHT (1971). It may occur in the Amazonian lowlands.

Heliconius numata (CRAMER, 1780)

TL Suriname.

Distribution: Sucumbios, Napo, Pastaza, Morona-Santiago, Zamora-Chinchipe.

A common and widespread species on the East side only. It shows an extraordinary wide array of morphs. The most common morphs are *aristiona* and *euphrasius* or hybrids with *euphone* and *lenaeus*. The following is a list of morphs which occur in Ecuador: *euphone* FELDER & FELDER 1862, TL N. Granada, Fusagasuga; *lepidus* RIFFARTH, 1907, TL Villavicencio; *lenaeus* WEYMER, 1890, TL "Caucathal, Loja, Huayabamba"; *aristiona* HEWITSON, 1853, TL Colombia; *bicoloratus* BUTLER, 1873, TL Nauta, Amazons; *euphrasius* WEYMER, 1890, TL Llanos de San Martin (Colombia) & Ecuador; *silvana* STOLL, 1781, TL Surinam; *ignotus* JOICEY & TALBOT, 1917, TL Charapè, N. Peru (supergene morph of *talboti*, see BROWN 1976 a); *talboti* JOICEY & KAYE, 1917, TL Rentema Falls, N. Peru.

Heliconius ismenius LATREILLE, [1817]

TL Colombia.

Distribution: Esmeraldas, Pichincha, Manabí, Los Ríos, Cotopaxi, Guayas.

This is the vicariant of *H. numata* and distributed only in the West as ssp. *metaphorus* WEYMER, 1884 (TL Chonana, Ecuador). Moderately common throughout the year.

Heliconius pardalinus BATES, 1862

TL S. Paulo, U. Amazons.

Distribution: Sarayacu (PA), Nashiño (NA) in coll. BMNH; Limoncocha (SU).

Although it is known from the neighbourhood of Limoncocha and old specimens are reported from Pastaza and Napo, this species may be more widespread in the lowlands of Amazonia. It occurs in Colombia eastwards of the Lago Agrio area from where ssp. *orteguaza* BROWN, 1976 (TL Colombia, Caqueta, the Rio Orteguaza) has been described.

Heliconius hecale (FABRICIUS, 1775)

TL Surinam.

Distribution: Quevedo (LR); Angamarca (CO); Rio Arajuno (NA); Misahualli (NA); Apuya (NA); Rio Pimpilala (NA); San José (PA); Sarayacu (PA).

Scarce and localized on both slopes with two main, and quite distinct, morphs. The western ssp. is *australis* BROWN, [1976] (TL Manabí, Palmar 200 m), and it has already been noted by this author that it is extremely

scarce. Possibly, as BROWN (1976 b) suggests, this is due to the scarcity of the foodplant (*Passiflora vitifolia*) or to the peripheral range of the butterflies. Perhaps also a short imaginal phase in March/April could be a cause for overlooking this species. Amongst large numbers of *H. ismenius* only two specimens of *hecale* were found in the last 15 years! In the East the populations are referable to ssp. *quitalenus* HEWITSON, 1853 (TL Quito), widely distributed but individuals never abundant.

Heliconius atthis DOUBLEDAY, [1847]

TL Guayaquil.

Distribution: Esmeraldas, Imbabura, Pichincha, Los Ríos, Cotopaxi, Guayas.

This endemic species is common and widespread in the West, sometimes locally abundant especially during April and May. The morph *gerstneriana* DESCIMON & MAST DE MAEGHT, 1971 (TL Rio Daute) falls into the variability of the species.

Heliconius cydno DOUBLEDAY, [1847]

TL Santa Fé de Bogotá.

Distribution: Esmeraldas, Pichincha, Los Ríos, Bolívar, Chimborazo, Cañar, Cotopaxi, Guayas.

A polymorphic species distributed only in the West as ssp. *alithea* HEWITSON, 1869, TL Ecuador [Jorge]. The form *haenschi* RIFFARTH, 1900 (TL Balzapamba) is a white morph occurring with the frequency of about 20 % together with yellow *alithea*. Ssp. *zelinde* BUTLER, 1869 (TL "W. coast of America") occurs in the NW corner, as it was reported by BROWN (1976 b) from Esmeraldas. The following are variants of *alithea: neustetteri* RIFFARTH, 1908 (TL Balzapamba und Riobamba); *minor* RIFFARTH, 1907 (TL Balzapamba); *egregia* RIFFARTH, 1909 (TL Balzapamba).

Heliconius timareta HEWITSON, 1867

TL Ecuador.

Distribution: Tungurahua, Morona-Santiago.

An endemic, uncommon species syntopic with *H. melpomene plesseni* from the upper valleys of Pastaza and Macas with four main morphs. Populations from Morona-Santiago are characterized by the absence of the yellow patch at the tip of the cell of the FWs (BROWN pers. comm.). Relatively common during 1980–1985 along the Puyo–Baños road at 1200–1700 m, it is becoming scarcer every year due to the heavy de-

forestation of its habitat. Many named morphs occurring in various frequencies at each locality: *virgata* STICHEL, 1907, TL Santa Inez; *contigua* WEYMER, 1890, TL Agoyan, 1600 m; *richardi* RIFFARTH, 1900, TL Santa Inez; *strandi* NEUSTETTER, 1928 (TL Ecuador, [Zarayaquillo] cf. HOLZINGER & HOLZINGER 1974).

Heliconius elevatus NÖLDNER, 1901

TL Amazonas.

Distribution: Talag (NA); Rio Pimpilala (NA); Rio Latas (NA); Apuya (NA); Cotundo (NA); Zarayaquillo (PA); Macas (MS).

A very rare species of which only a few real Ecuadorian specimens are known from 500 to 1000 m.

Heliconius melpomene (LINNAEUS, 1758)

TL "America".

An extremely polymorphic and polytypic species, always scarcer than the syntopic *H. erato*. It flies all the year round, being more abundant during April-May in the West, and during December-January in the East. In Ecuador several different populations occur, and they have been considered either as subspecies or as morphs. Along an ecotonal belt of approximately 50 km of length and 10 km of width, at the foothills of the Andes in Pastaza, Napo and Tungurahua, at altitudes between 900-1200 m, populations of ssp. *malleti* and ssp. *plesseni* hybridize, more or less like *H. erato notabilis* and *H. e. lativitta* do in the same places. The genetics and the experimental hybridization of Ecuadorian populations have been treated by SHEPPARD et al. (1985). The western populations have a stable pattern and are known as ssp. *cythera* HEWITSON, 1869 (TL Ecuador [Angus = Rio Angas, Cañar]). They are widespread in Esmeraldas, Imbabura, Pichincha, Loja, Cañar, Bolívar, Guayas, El Oro. In the East, apart the several described morphs, the following taxa can be distinguished as subspecies: *plesseni* RIFFARTH, 1907, TL Baraneas (sic), ober Pastazza, Ecuador; *aglaope* FELDER & FELDER, 1862, TL Rio Negro [between Tarapoto and Yurimaguas, see LAMAS 1988]; *malleti* LAMAS, 1988, TL Ecuador, Napo, Misahualli m 500 [= *aglaope* auctorum, nec FELDER & FELDER, 1862]; *ecuadorensis* EMSLEY, 1964 (nec NEUSTETTER, 1908), TL Macas, see HOLZINGER & HOLZINGER (1974).

Heliconius erato (LINNAEUS, 1758)

TL "Indiis".

As it is well known from an important series of studies, this species shows a parallel variation with *H. melpomene* in the Neotropics. There are more than 30 morphs described for both species in Ecuador. These are summarized by DESCIMON & MAST DE MAEGHT (1971). Numerically in Ecuador this species is more abundant than *H. melpomene* and it shares the same habitats. We list here the various recognized subspecies with relative distributions:

ssp. *cyrbia* GODART, 1819

TL [West Ecuador]

Distribution: Esmeraldas, Imbabura, Pichincha, Manabí, Cañar, Bolívar, Chimborazo, Guayas, Loja, El Oro.

ssp. *lativitta* BUTLER, 1877

TL Ega, Guayaquil, Rio Madeira [STs Guayaquil; Boa Vista, R. Madeira; Ega, Amazons] (= *radiata* OBERTHÜR, 1916, TL Guayaquil).

Distribution: Pastaza, Tungurahua, Napo, Sucumbios.

ssp. *notabilis* SALVIN & GODMAN, 1868

TL Canelos (= *unimaculata* HEWITSON, 1869, TL Canelos).

Distribution: Pastaza, Napo, Morona-Santiago.

ssp. *etylus* SALVIN, 1871

TL Guadalquiza.

Distribution: Napo, Azuay, Morona-Santiago.

Heliconius himera HEWITSON, 1867

TL Ecuador.

Distribution: Guayquichuma 1200 m (LO); Valladolid 15 km N 1500 m (ZC).

This taxon, erroneously reported from Tungurahua by DESCIMON & MAST DE MAEGHT (1971), is phenotypically quite distinct from *H. erato*, and is restricted to xeric environments in Loja and Zamora-Chinchipe provinces and in north Peru (MALLET 1993). DESCIMON & MAST DE MAEGHT (1984) observed *H. erato cyrbia* and *H. himera* hybridizing in a site in the province of Loja. The number of specimens of the two species and hybrids during July 1982 was 31:11:6, respectively. Eventually these taxa were considered as semispecies. During July 1994 we collected on the very same spots as those reported, but no hybrids occurred although the 3:1 ratio for *H. cyrbia* and *H. himera* was still the same. The number of hybrids reported by DESCIMON & MAST DE MAEGHT (1984) is unexpectedly

high if the taxa were to be considered as different species, and the absence of hybrids during 1994 could be related to the fact that they are indeed two separate species and that the observed hybridization has been only a very rare phenomenon.

Heliconius hecalesia HEWITSON, 1853

TL New Granada.

Distribution: Rio Toachi (PI); La Chima (BO); Rio Palenque (LR).

A very uncommon species restricted to a few localities along the western side above 500 m. Ecuadorian populations are currently known as ssp. *eximius* STICHEL, 1923 (TL Colombia, Rio Jacula).

Heliconius charitonia (LINNAEUS, 1767)

TL "America" [Puerto Rico]

Distribution: Esmeraldas (ES); Tinalandia (PI); Rio Toachi (PI); Alluriquin (PI); Santo Domingo (PI); Puerto Lopez (MA); Vilcabamba (LO); Guayquichuma (LO); Naranjal (GU).

A common species in the West but rather localized. It is apparently absent or very scarce on the East side although it was reported from Sucua by DESCIMON & MAST DE MAEGHT (1971). In the West and South of the country ssp. *peruvianus* FELDER & FELDER, 1859 (TL [Quito]) occurs. This subspecies is locally common and restricted mostly to xeric environments. The range of ssp. *peruvianus* extends also along the coast of Peru. This ssp. has a wing pattern convergent with that of *H. atthis* and *Elzunia pavonii*. Both subspecies of *H. charitonia* are always scarce and restricted to patches of forests within downgraded areas. Surely once it was more widespread but is now endangered due to the destruction of the western premontane forests. BROWN (1976 b) considers the populations from Pichincha as *bassleri* × *peruvianus*. Typical *peruvianus* occurs from Esmeraldas southwards.

Heliconius clysonymus LATREILLE, [1817]

TL [Venezuela].

Distribution: Pastaza, Tungurahua, Napo, Morona-Santiago, Zamora-Chinchipe; Imbabura, Pichincha, Los Ríos, Bolívar, Cañar, Chimborazo, Guayas.

This species is found on both slopes of the Andes above 800 m. The nominotypical subspecies lives in the East, while in the West ssp. *hygiana* HEWITSON, 1867 (TL Quito) is found. It may be found also in the South of Loja area, as ssp. *tabaconas* BROWN, [1976] (TL N Peru, Charapi,

Cajamarca). This subspecies has a close resemblance with *H. erato himera*. The morph *albescens* KAYE, 1916, has been described from Zamora.

Heliconius telesiphe DOUBLEDAY, [1847]

TL Bolivia.

Distribution: Sucumbios, Tungurahua, Pastaza, Napo; Zamora-Chinchipe, Morona-Santiago.

A high altitude species found from 1000 to over 2000 m. Northern Ecuadorian populations are referable to the yellow-banded ssp. *sotericus* SALVIN, 1871 (TL Guaymay, Ecuador, LT ♂ selected by VANE-WRIGHT et al. 1975). Populations from the South may be a different subspecies. The morph *cretacea* NEUSTETTER, 1916 (TL French Guyana [= Peru]) does not seem to reach Ecuador, but it is restricted to some areas of NW Peru. It is to note that populations from NE Peru, Rodriguez de Mendoza area, are referable to *telesiphe*.

Heliconius demeter STAUDINGER, 1897

TL [Peru] Iquitos.

Reported from the lower Putumayo river by BROWN & BENSON (1975) but apparently never collected in Ecuador proper in recent times, although BROWN & HOLZINGER (1973), discussing the mimetic interactions of *Eueides tales calathus*, reported this species from "eastern Ecuador" together with *H. astraea* and *H. burneyi*. Both species were never reported from Ecuador but they may occur along the lower Napo river.

Heliconius sara (FABRICIUS, 1793)

TL Guaiana.

Distribution: Esmeraldas, Imbabura, Pichincha, Manabí, Los Ríos, Cotopaxi, Guayas; Sucumbios; Napo; Tungurahua; Morona-Santiago; Zamora-Chincipe; Loja.

A common species widespread along both sides of the Andes, in the West ssp. *sprucei* BATES, 1864 (TL Chimborazo) and in the East ssp. *thamar* (HÜBNER, 1806).

Heliconius leucadia BATES, 1862

TL S. Paulo, U. Amazons.

Distribution: Napo; Abitagua in coll. BMNH; Tena (NA); Archidona (NA); Rio Negro 1200 m (TU).

This species has been reported by BROWN (1976 b) from east central

Ecuador up to 1000 m. Recently, NEUKIRCHEN (1996) has described Ecuadorian populations as ssp. *andromeda* (TL Ecuador, Pastaza, Puyo-Tena km 25). Undoubtedly, it is very scarce and localized.

Heliconius congener WEYMER, 1890

TL "Baños und Jivaría del Píntuc [Puyo]"

Distribution: El Reventador 1500 m (SU); Baeza 2050 m (NA); Abitagua (TU); La Jullita (TU); Topo (TU). Cumanda (MS); Zamora (ZC); Podocarpus National Park 1300 m (ZC).

Probably the eastern vicariant of *H. sapho*. BROWN (1979) links this species with *H. hewitsonii* and *H. antiochus*. It is distributed with scattered populations on the East side only at elevations of 800-1500 m. Never abundant and extremely localized.

Heliconius eleusinus STAUDINGER, 1885

TL Gebiet des Rio San Juan.

Distribution: Esmeraldas, Imbabura, Pichincha, Manabí, Los Ríos, Guayas.

A moderately common forestal species distributed on the Pacific side. The populations are known as ssp. *primularis* BUTLER, 1869 (TL "Guayaquil and Rio Napo"). Reported by HOLZINGER & HOLZINGER (1995) from Rio Napo, but this locality is erroneous. The form *deflava* JOICEY & KAYE, 1917 (TL Paramba, Ecuador) is a dark transitional form to *eleusinus*, which was found in typical specimens in Esmeraldas province, near San Lorenzo. The morph *deflava* is characterized by the absence of the yellowish colouration on the upperside of the HWs. Intermediate populations between *eleusinus* and *primularis* occur in Imbabura (BROWN, 1976 b). Ssp. *primularis* is also reported by LAMAS (1977 a) from Tumbes, N. Peru.

Heliconius sapho (DRURY, 1782)

TL "Jamaica".

Distribution: Esmeraldas, Pichincha, Los Ríos, Cotopaxi.

A common species along the West side especially during April-May. The populations are known as ssp. *candidus* BROWN, [1976], TL Ecuador.

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