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REPORTS ON THE MARGARET M. CARY—CARNEGIE MUSEUM EXPEDITION TO BAJA CALIFORNIA, MEXICO, 1961.

7. The Family Hesperiidae (Lepidoptera)

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This is the seventh of a series of papers based on the Margaret M. Cary — Carnegie Museum Expedition to Baja California, Mexico, 1961, to appear in the Annals of Carnegie Museum. For an account of the itinerary and description of localities, see the first paper in this series [Richard M. Fox, Ann. Carnegie Mus., 36 (16): 181-192]. Except as noted, all specimens including type series discussed in the following study are in the collection of Carnegie Museum.

INTRODUCTION

The Hesperiidae of Baja California have been reviewed by MacNeill (1962). This paper adds locality records and confirms the occurrence in the Cape region of some poorly known skippers. Two additional species are added to the list of peninsular skippers, the rare *Thorybes valeriana* (Plötz) and *Pyrgus o. oileus* (Linné). Two new peninsular subspecies were described in a preceding paper (Miller and MacNeill, 1969). The list of hesperiids is by no means complete; there is still an undescribed subspecies of *Paratrytone melane* (Edwards) in the high mountains south of La Paz; *Prenes californica* A. G. Weeks is still an unknown butterfly; possibly there are other species of *Erynnis* in the mountains. And the spring skipper fauna has been poorly sampled.

The Expedition personnel collected 1558 hesperiids of 87 species. Of these, 411 specimens of 81 species were taken on the mainland, and 1147 specimens of 26 species collected on the peninsula. Four of these species are represented by separate mainland and peninsular subspecies.

In addition to the Expedition material, I have examined a small number of skippers from the San Diego Natural History Museum, and these are reported under the appropriate species below.

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I wish to express my appreciation to the late Dr. Richard M. Fox and to Harry K. Clench of the Section of Insects and Spiders, Carnegie Museum, for their encouragement and suggestions. Dr. C. Don MacNeill identified some specimens for which we had no comparative material, and generally was most helpful. Thanks go to Dr. C. F. Harbison, San Diego Natural History Museum, for the loan of specimens. Finally, the greatest thanks are due Mrs. Margaret M. Cary of Philadelphia, Pennsylvania, for making this study possible by sponsoring the Expedition.

Zoogeography, Cape Region Hesperiidae

The occurrence outside the Cape region of the Hesperiidae thus far recorded from there is summarized in Table 1. From these data it becomes apparent that not all the skippers in the region were derived from the same geographic source, nor were they simultaneous arrivals at the tip of the peninsula. The 28 species show five general distributional patterns, which are summarized below.

1. *Basically temperate species showing affinities to the California mountains.* There are two of these species known from the tip of the peninsula at present, both in the high mountains of the Sierra de la Laguna. When these mountains become better collected, particularly in the spring, the number will probably increase. Both species are represented in the Cape region by endemic subspecies, *Erynnis tristis pattersoni* Burns, and an unnamed subspecies of *Paratrytone melane* (see MacNeill, 1962: 110-111). These two primarily temperate skippers have also managed to penetrate the Mexican highlands, with *melane* extending as far south as the Cerro de la Muerte in Costa Rica. The differentation shown by these butterflies in the Cape region indicates long isolation from their northern relatives, and their temperate habitat on the peninsula suggests that they arrived at a time when the peninsula was moister and perhaps cooler than at present. Truxal (1960: 168) discusses the post-Miocene extension of the Arcto- and Madro-Tertiary geofloras into the peninsula, and it seems likely that the introduction of *tristis* and *melane* into the Cape region was synchronous with this event.

2. *Sonoran desert species neither found in southern California nor significantly penetrating the tropics.* There are five of these species: *Thorybes valeriana* (Plötz), *Systasea zampa* (Edwards), *Pyrgus philetas* Edwards, *Nastra neamathla* (Skinner and Williams) and *Lerodea dysaules* Godman. The lack of differentiation of the Cape region populations of these species indicates some interconnection with

TABLE 1

DISTRIBUTION OF HESPERIIDAE SPECIES OF THE CAPE REGION SHOWING ENDEMICITY OF CAPE FAUNA

Species	Distribution Outside Cape Region							
	BCN	SC	CM	AM	ASD	MH	SM	SA
Chioides catillus				a	a	a	a	b
Urbanus proteus	a?	a	a	a	a	a	a	a
dorantes	?			b	b	b	b	b
Thorybes valeriana					a	a?		
Cogia hippalus	b?		b	b	b	b	b	b
Staphylus ceos	a	a			a			
Systasea zampa	a				a			
Chiomara asychis					b	b	b	b
Erynnis funeralis	a	a	a	a	a	a	a	a
tristis	b	b	b	b		b		
Pyrgus communis	a	a	a	a	a	a	b	b
oileus					a	a	a	a-b
philetas	a				a			
Heliopetes domicella	a?				a	a	a	b
laviana	a?				a	a	a	b
Pholisora catullus	a	a	a	a	a	a		
Nastra neamathla	a?				a			
Copaeodes aurantiaca	a	a			a	a		
Hylephila phyleus	a	a	a	a	a	a	a	a-b
Polites sabuleti	b	b	b	b	b			
Atalopedes campestris	a	a	a	a	a	a	a	a
Paratrytone melane	b	b						
Amblyscirtes tolteca					?	?	?	
Lerodea eufala	a	a	a	a	?	?	?	a-b
dysaules	a?				a	a		
Calpodes ethlius	a?	a	a	a	a	a	a	a
Panoquina panoquinoides	a	a			a		b	b

a = subspecies same as, b= subspecies different from, those found in the Cape region. Abbreviations for places outside the Cape region are: BCN, Baja California Norte; SC, southern California; CM, California mountains; AM, Arizona mountains; ASD, Arizona-Sonora desert; MH, Mexican highlands; SM, southern Mexico; SA, South America.

mainland populations, or isolation of relatively short duration. In either event, these skippers are probably later, perhaps even post-Pleistocene, arrivals. All are lowland butterflies.

3. *Sonoran desert species that have penetrated California but not the tropics.* There are four of these species: *Staphylus ceos* (Edwards), *Pholisora catullus* (Fabricius), *Copaeodes aurantiaca* (Hewitson), and *Polites sabuleti* (Edwards). One of these is represented by an endemic Cape region subspecies, *Polites sabuleti margaretae* Miller and MacNeill, but the peninsular populations of the other three species are indistinguishable from their mainland counterparts. *P. sabuleti* inhabits the coastal grasslands on the peninsula, while the others are of more general occurrence in the lowlands. All are probably fairly recent arrivals on the peninsula. *P. sabuleti* is a well-known polytypic species,

whereas the others have no presently recognized geographic isolates.

4. *Sonoran desert, and humid or subhumid, tropical species not found in southern California.* There are eight species in this group: *Chioides catillus* (Cramer), *Cogia hippalus* (Edwards), *Chiomara asychis* (Stoll), *Pyrgus oileus* (Linné), *Heliopetes domicella* (Erichson), *H. laviana* (Hewitson) and *Amblyscirtes tolteca* Scudder. This group is second only to Group 1 in degree of endemism. Three of the species have endemic Cape region subspecies, *Urbanus dorantes calafia* (Williams), *Cogia hippalus peninsularis* Miller and MacNeill, and *Chiomara asychis pelagica* (Weeks), and the peninsular populations of *catillus* and *laviana* may be distinguished from their mainland relatives by differences too slight to warrant naming them. Fives species, *catillus, laviana, domicella, asychis* and *oileus,* are also represented in South America by different subspecies, while *tolteca* has two subspecies in Mexico: the nominate one in southern Mexico and *prenda* Evans in Sonora. Most, if not all, these species are earlier arrivals in the Cape region, probably post-Miocene and certainly pre-Pleistocene.

5. *Widely distributed tropical and subtropical species.* There are eight species in this category: *Urbanus proteus* (Linné), *Erynnis funeralis* (Scudder and Burgess), *Pyrgus communis* (Grote), *Hylephila phyleus* (Drury), *Atalopedes campestris* (Boisduval), *Lerodea eufala* (Edwards) *Calpodes ethlius* (Stoll), and *Panoquina panoquinoides* (Skinner). None of these has an endemic Cape region subspecies, and in only one species (*panoquinoides*) can the peninsular material be distinguished from either Mexican or Californian specimens. *P. panoquinoides* is unique in the group as a colonial butterfly intimately associated with coastal or even salt-marsh grasses. Five of the other members of the group, *proteus, phyleus, campestris, eufala,* and *ethlius,* are strong-flying tropical skippers that have been taken as far north as the northern United States, but they probably are not resident there. These species arrived in the Cape region, probably in recent times, either over water or via land, through the Sonoran desert. *C. ethlius,* though, is so intimately associated with cannas wherever it is found that it is impossible to ascertain whether it actually arrived in the Cape region under its own power or was imported by man with his ornamental cannas. No specimens were taken on the peninsula except in canna gardens. The other two species, *E. funeralis* and *P. communis,* are widespread butterflies which certainly arrived recently, probably by way of the Sonoran desert.

In summary: all members of Group 1 are represented by endemic subspecies derived from the California mountains, and they probably date from the post-Miocene floral invasion of the peninsula; all members of Group 2 are recent arrivals from the Sonoran desert; the members of Group 3 arrived fairly recently from the Sonoran desert, although *sabuleti* may be an earlier immigrant; the members of Group 4 are early arrivals from the Sonoran desert, as evidenced by their distinctness from mainland populations; and the Group 5 skippers are recent arrivals of widely distributed, strong flying species, one of which, *ethlius*, may have been introduced by man.

SYSTEMATIC ACCOUNT

In the following account, no attempt has been made to separate the peninsular from the mainland skippers, except by separately listing the records from the various Mexican states. I have listed the material that was available from the San Diego Museum of Natural History separately at the end of the discussion.

Subfamily PYRRHOPYGINAE

Mysoria affinis (Herrich-Schäffer), 1869.

This skipper is known from the western lowlands of Mexico and occurs infrequently in Guatemala (Evans, 1951: 69). It was not taken on the peninsula; indeed, no pyrrhopygine is known from there.

SINALOA: 16 mi. north of Mazatlán, 1 ♀ 29-x.

Subfamily PYRGINAE

Phocides pigmalion belus Godman and Salvin, 1893.

Evans's description (1952: 13) of this Mexican subspecies mentions "... costal spot over cell spot vestigial." While this description applies to males, the females have the costal spot well developed. This skipper is not common in collections.

SINALOA: Mazatlán, 2 ♂ 1 ♀ 24-x, 1 ♀ 26-x.

Proteides mercurius mercurius (Fabricius), 1787.

The single specimen taken by the mainland party is in all respects referable to the mainland subspecies of this skipper. The species is general throughout the Neotropics.

SINALOA: Urías, 2 mi. south of Mazatlán, 1 ♀ 31-x.

Epargyreus exadeus complex.

Although this species was recorded from Baja California, MacNeill (1962: 95) has discussed the problems inherent in such a record. The three specimens collected by the mainland party show another of the

problems—exact species determination in the *exadeus* complex is difficult, if not altogether impossible at present. When I was at the British Museum in 1964 I examined the series of *Epargyreus* arranged by Evans and found that it was confused. The entire genus, and particularly the *exadeus* complex, is impossible to identify with certainty using Evans's keys (1952). A careful and exhaustive revision of this genus is necessary before any certain identifications may be made.

The males before me apparently represent two species: the one from 19 miles east of Concordia, Sinaloa, keys to *socus* Hübner, but the genitalia are like *exadeus* Cramer. The one from 2 miles east of Concordia keys to *spina* Evans. The female appears to be of *spina.*

SINALOA: 2 mi. east of Concordia,, 1 ♂ 25-x; 17 mi. east of Concordia, 1 ♀ 1-xi; 19 mi. east of Concordia, 1 ♂ 25-x.

Polygonus leo leo (Gmelin), 1790.

This species, which occurs generally throughout the Neotropics, was represented by a single specimen taken by the mainland party. This specimen is similar to a long series from Yucatán and definitely is referable to the nominate subspecies.

SINALOA: 17 mi. east of Concordia, 1 ♂ 1-xi.

Chioides catillus albofasciata (Hewitson), 1867.

This species in its several subspecies is found throughout much of tropical America. The subspecies *albofasciata* is recorded from Arizona through Central America and into Colombia (Evans, 1952: 56). This species is not an inhabitant of the very wet tropical forests. It prefers drier, more open situations than do other "long-tails."

C. c. albofasciata is an avid flower visitor, showing definite preferences for zinnias in cultivated gardens, the "desert willow" (*Chilopsis linearis*), and the flowers of large Compositae in the arroyos. These butterflies are very pugnacious and will engage others in mock combat at any time.

This species was taken both on the peninsula and in Sinaloa, but it is surprisingly absent from collections made in Sonora. I have never seen *catillus* as abundant as it was in Baja California Sur. The series from the peninsula differs from the mainland representatives in the characteristics described by MacNeil (1962: 95), but the differences are not of a magnitude to warrant description of the Baja California population as an entity distinct from the mainland *albofasciata.*

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1 ♂ 21-x; Rancho Rosarito, 1 ♂ 23-x; Rancho Vinorama, 2 ♂ 23-x; Rancho El Novillo, 1 ♂ 28-x;

Rancho Palmarito, 1 ♂ 1 ♀ 27-x, 1 ♀ 31-x, 1 ♂ 4-xi, 1 ♂ 30-xi; Arroyo Hondo, near El Triunfo, 1 ♂ 24-x; Mesa Puerta Azul, 1 ♂ 1-xi; Arroyo San Bartolo, 4 ♂ 2-xi, 4 ♂ 3-xi, 1 ♂ [14?]-xi; Boca de la Sierra, 1 ♂ 24-xi; San José del Cabo, 1 ♂ 22-xi, 3 ♂ 2 ♀ 23-xi, 2 ♂ 7 ♀ 25-xi; Arroyo Candelaria, 2 ♂ 1 ♀ 24-xi, 1 ♂.

SINALOA: 48 mi. northwest of Culiacán, 1 ♂ 1 ♀ 23-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x.

Two additional specimens have been seen from the collection of the San Diego Natural History Museum.

BAJA CALIFORNIA SUR: La Paz, 1 ♀ 13-ix-1959; Colonia Calles, 1 ♂ 15-ix-1959 (both C. F. Harbison).

Chioides zilpa zilpa (Butler), 1874.

I can see no difference between the specimens the mainland party took in Sonora and Sinaloa and others from Central America. The specimens are not referable to the northern subspecies *namba* Evans. *C. z. zilpa* is found from Mexico to northern South America.

SONORA: 12 mi. south of Hermosillo, 1 ♂ 1 ♀ 20-x.

SINALOA: 16 mi. north of Mazatlán, 1 ♀ 28-x; Urías, 2 mi. south of Mazatlán, 1 ♀ 31-x; 8 mi. west of Concordia, 1 ♀ 2-xi; 19 mi. east of Concordia, 1 ♀ 25-x, 1 ♂ 1-xi.

Aguna asander asander (Hewitson), 1867.

The nominate subspecies is found generally throughout the Neotropics; there are two West Indian subspecies. This skipper is not found on the peninsula.

SINALOA: 17 mi. east of Concordia, 3 ♂ 2 ♀ 1-xi.

Aguna metophis (Latreille),1824.

This rare species is recorded from Mexico, Nicaragua, Panama, Venezuela, and Brazil (Evans, 1952: 63). A single specimen was taken by the mainland party.

SINALOA: Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x.

Typhedanus undulatus (Hewitson), 1867.

This species is found generally throughout the hotter parts of the Neotropics; it has not been taken on the peninsula.

SINALOA: 48 mi. northwest of Culiacán, 1 ♂ 23-x; Mazatlán, 1 ♂ 24-x; Urías, 2 mi. south of Mazatlán 1 ♂ 31-x; 19 mi. east of Concordia, 1 ♂ 25-x, 1 ♂ 1-xi.

Polythrix octomaculata octomaculata (Sepp), 1848.

The nominate subspecies is found generally throughout the continental Neotropics. It has not been recorded from Baja California.

SINALOA: 16 mi. north of Mazatlán, 1 ♂ 29-x.

Cadatractus arizonensis (Skinner), 1905.

The species is known from Arizona, Mexico and Central America. Rindge (1948: 306) records a specimen of *"Heteropia cyda"* from Baja California which MacNeill (1962: 96) feels may be referable to the present species. No *Codatractus* were taken on the peninsula by the expedition.

SINALOA: 16 mi. r.orth of Mazatlán, 2 ♀ 28-x.

Urbanus proteus proteus (Linné), 1758.

The nominate subspecies is known from the entire continental Neotropics, and is common as far north as the southeastern United States. *U. proteus* is a common species in the better-watered parts of the peninsula.

These butterflies are avid flower visitors and show some pugnacity toward others of their own kind, but not to the same degree as does *C. catillus albofasciata.*

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 2 ♂ 1 ♀ 21-x, 1 ♂ 2 ♀ 22-x, 1 ♂ 4-xi, 1 ♂ 8-xi; Rancho Rosarito, 1 ♀ 23-x; Rancho Vinorama, 1 ♂ 23-x; Rancho Palmarito, 1 ♂ 30-xi, 2 ♂ 4-xii; Arroyo Hondo, near El Triunfo, 1 ♀ 1-xi; Mesa Puerta Azul, 1 ♂ 12-xi; Arroyo San Bartolo, 1 ♂ 1 ♀ 3-xi; Bahía de Palmas, 1 ♂ 3 ♀ 20-xi; San José del Cabo, 1 ♀ 23-xi, 1 ♂ 2 ♀ 25-xi; Puerto Chileno, 3 ♂ 2 ♀ 22-xi, 2 ♂ 26-xi; Arroyo Candelaria, 2 ♀ 24-xi; 4 mi. south of Arroyo Candelaria, 1 ♂ 1 ♀ 24-xi.

Urbanus dorantes dorantes (Stoll), 1790.

In its nominate subspecies this species is one of the commonest hesperiids throughout the American tropics, but the long series from the Cape region of Baja California shows the peninsular material to represent a distinct subspecies. There are also Antillean subspecies.

SONORA: Hermosillo, 3 ♂ 2 ♀ 20-x.

SINALOA: 16 mi. north of Mazatlán, 1 ♂ 28-x, 4 ♂ 29-x; Mazatlán, 3 ♂ 24-x, 2 ♂ 1 ♀ 26-x, 1 ♂ 31-x; Urías, 2 mi. south of Mazatlán, 3 ♂ 1 ♀ 31-x; 5 mi. west of Concordia, 1 ♀ 2-xi; 2 mi. east of Concordia, 1 ♂ 3 ♀ 25-x; 17 mi. east of Concordia, 2 ♂ 3 ♀ 1-xi; 19 mi. east of Concordia, 1 ♂ 1 ♀ 25-x.

Urbanus dorantes calafia (Williams) 1926.

This subspecies was synonymized to nominate *dorantes* by Evans

(1952:92), but he saw no peninsular specimens. The Baja California material is extremely distinct from mainland examples, particularly in the extensive olive-gray overscaling of the upper surface and the grayer under surface lacking the purplish sheen of nominate *dorantes*. A more detailed description of *calafia* is given by MacNeill (1962:97).

These butterflies are avid flower visitors and are found almost anywhere in the Cape region where there is green vegetation. During the morning and late afternoon these butterflies are seen in the open, but during the heat of the day they are active only in shady spots. On two occasions (Mesa Puerta Azul, 1-xi, and Boca de la Sierra, 24-xi) we encountered swarms of *calafia* during the hottest part of the day under trees, feeding at flowers and flying about. No specimens were seen in open sunlight except when they were flying from the shade of one tree to the shade of another. I observed a similar phenomenon with the mainland subspecies in Costa Rica during July and August, 1963. Inasmuch as high temperature, greater amount of incident light, and lower relative humidity all were conditions during the times that we observed these habits, it is impossible to determine which factor governs the *dorantes* habit of seeking shade in midday. Perhaps all factors were in operation. None of the other skippers showed this disposition to escape the sun of the hot part of the day while remaining active. This was the skipper most often attracted to light on the peninsula, and it seems to be somewhat crepuscular, flying much later than most other skippers.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1♂ 1♀ 20-x, 2♂ 4♀ 22-x, 2♂ 6-xi, 1♂ 7-xi, 1♂ 8-xi; southeast shore of La Paz harbor, 2♂ 2♀ 10-xi; Rancho Vinorama, 1♂ 23-x; Racho El Novillo, 5♂ 4♀ 28-x; Rancho Palmarito, 3♂ 1♀ 27-x, 1♂ 30-x, 3♀ 31-x, 1♂ 1♀ 4-x, 2♀ 5-xi, 3♂ 2♀ 30-xi, 1♀ 4-xii; Arroyo Hondo, near El Triunfo, 12♂ 8♀ 24-x; Mesa Puerta Azul, 2♂ 24-x, 12♂ 6♀ 1-xi, 9♂ 1♀ 12-xi; Arroyo San Bartolo, 4♂ 1♀ 2-xi, 4♂ 3♀ 3-xi, 1♂ 1♀ 12-xi; Bahía de Palmas, 1♂ 12-xi, 1♂ 16-xi, 3♂ 1♀ 20-xi; roadway 5 kilometers south of Rancho Buenavista, 10♂ 4♀ 25-x; Miraflores, 3♀ 25-x; Boca de la Sierra, 4♂ 8♀ 13-xi, 2♂ 2♀ 24-xi; Arroyo San Bernardo, 1♂ 1♀ 18-xi; Rancho San Bernardo, 500-600 m., 1♂ 17-xi; Arroyo El Rincón, 1♀ 26-xi; San José del Cabo, 2♂ 1♀ 22-xi; 4 mi. SW of San José del Cabo, 2♀ 24-xi; Puerto Chileno, 3♂ 3♀ 22-xi, 1♂ 26-xi; Cabo San Luca, 1♀ 23-xi; Arroyo Candelaria, 2♂ 24-xi; 4 mi. south of Arroyo Candelaria, 2♂ 4♀ 24-xi.

Ten additional specimens have been examined from the collection of the San Diego Museum of National History.

BAJA CALIFORNIA SUR: San Bartolo, 9♂ 24-xi-1956; Todos Santos, 1♀ 10-ix-1958 (C. F. Harbison).

Urbanus teleus Hubner, 1821.

This skipper is found throughout the continental Neotropics but has not been recorded from the peninsula.

SONORA: 16 mi. south of Guaymas, 1 ♂ 21-x.

SINALOA: 16 mi. north of Mazatlán, 1 ♂ 29-x; Urías, 2 mi. south of Mazatlán, 2 ♂ 31-x; 19 mi. east of Concordia, 1 ♀ 1-xi; 17 mi. east of Concordia, 1 ♂ 1-xi.

Urbanus simplicius (Stoll), 1790.

This species has often been confused with the following one, but Tilden (1965) has given the characters for separating them. My own experience in Costa Rica indicated that *simplicius* is more characteristic of wetter environments than is *procne*. The present species is known from Mexico to Paraguay and Argentina.

SINALOA: Mazatlán, 1 ♂ 24-x; 19 mi. east of Concordia, 1 ♀ 25-x.

Urbanus procne (Plötz), 1881.

This is the species generally referred to in the literature as *simplicius* from the United States (see Tilden, 1965). *U. procne* has the wider range of the two, being commonly found from southern Texas to Argentina, and it is more tolerant of dry conditions than is *simplicius*. The present species has not been recorded from Baja California.

SONORA: 12 mi. south of Hermosillo, 1 ♂ 20-x; 16 mi. south of Guaymas, 1 ♂ 21-x; 16 mi. south of Navojoa, 1 ♂ 22-x.

SINALOA: 46 mi. north of Los Mochis, 2 ♂ 22-x; 10 mi. southeast of Los Mochis, 5 ♂ 23-x; 11 mi. north of Mazatlán, 1 ♂ 28-x; 16 mi. north of Mazatlán, 1 ♂ 24-x; Mazatlán, 1 ♀ 24-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x; 2 mi. east of Concordia, 1 ♂ 25-x.

Urbanus chales (Godman and Salvin), 1893.

This species is thus far known only from western Mexico (Evans, 1952: 98). It is not common in collections.

SINALOA: 19 mi. east of Concordia, 1 ♂ 25-x, 1-xi.

Astraptes fulgerator azul (Reakirt), 1866.

A. f. azul is the subspecies of this attractive skipper found in Mexico, Central America, and western South America. It has been recorded from southern Texas. This species is another that has not been taken in Baja California.

SINALOA: Mazatlán, 1 ♂ 24-x; 19 mi. east of Concordia, 2 ♂ 26-x.

Achalarus albociliatus albociliatus (Mabille), 1877.

The nominate subspecies occurs from Mexico to Costa Rica, but it has not been recorded from the peninsula.

SINALOA: 16 mi. north of Mazatlán, 1 ♂ 29-x; Mazatlán, 1 ♀ 24-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 1 ♀ 31-x; 17 mi. east of Concordia, 1 ♂ 1-xi.

Achalarus toxeus (Plötz), 1882.

This "species" is in a confused state. Evans (1952: 128, pl. 21) describes and presents five different genitalic configurations (poorly drawn) of the valva with the comment, "The cuiller of the clasp varies considerably, as specified in the list of the B. M. material. But the differences seem to be individual rather than sub-specific." In my opinion these differences are possibly specific, but the material available is not sufficient for definitive determinations. Significant results might be obtained by rearing through a few broods of these butterflies to see whether or not various configurations of the valva might occur in siblings. The material at hand from Sonora and Sinaloa either agrees with the figure of the genitalia given in Lindsey, Bell and Williams (1931: pl. 5, fig. 7, as *coyote*) or the valva is more pointed than in that figure. From Evans's figures it is difficult to determine which of his groups are represented in our material, but probably groups D and E are. All the males have well-defined costal folds and apical hyaline spots; the female lacks the apical spots.

SONORA: Hermosillo, 1 ♂ 20-x.

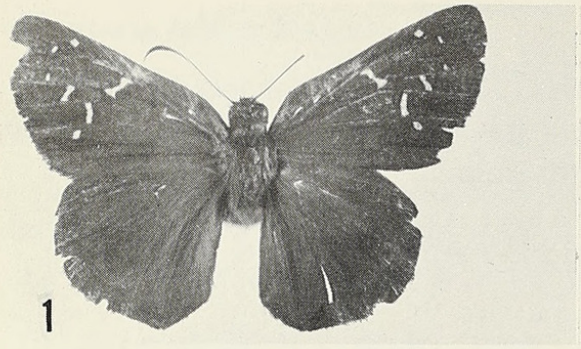
SINALOA: Mazatlán, 2 ♂ 24-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 1 ♀ 31-x.

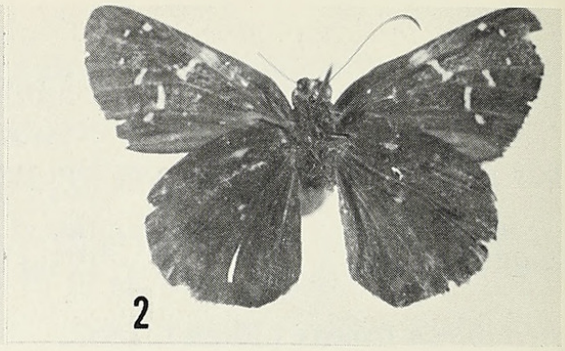
Thorybes valeriana (Plötz), 1882.

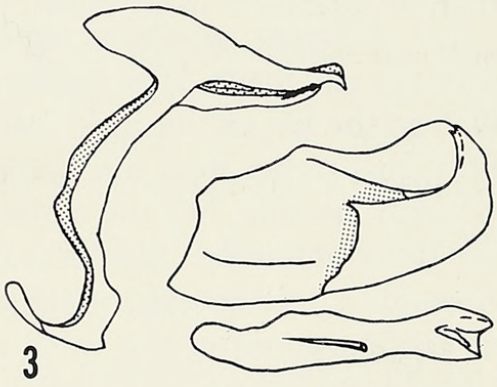
Figs. 1, 2 (♂), 3 (♂ genitalia).

Two ragged males of this species (determined by C. Don MacNeill) were taken on the peninsula and represent the first records from Baja California. These skippers are too worn to be compared profitably with mainland material and must be referred simply to *valeriana* at present. Evans (1952: 132) synonymizes the Dyar names *mysie* and *uvydixa* to *valeriana*, but MacNeill (*in litt.*) expresses some doubt as to the validity of Evans's conclusion. Much more material is necessary before any decisions can be made on these names.

BAJA CALFORNIA SUR: 4 mi. south of Arroyo Candelaria, 2 ♂ 26-x.







Figs. 1-3. All *Thorybes valeriana* (Plötz), ♂, Arroyo Candelaria, Baja California Sur, Mexico, 26-x-1961. Fig. 1, upper side : Fig. 2, under side; Fig. 3, ♂ genitalia.

Cabares potrillo potrillo (Lucas), 1857.

The nominate subspecies is found from southern Texas to Costa Rica, and in the West Indies. It is unrecorded from the peninsula.

SINALOA: 48 mi. northwest of Culiacán, 2 ♂ 1 ♀ 23-x; 16 mi. north of Mazatlán, 1 ♀ 29-x.

Celaenorrhinus fritzgaertneri fritzgaertneri Bailey, 1880.

This species occurs on the continent from southern Texas to Costa Rica (Evans, 1952: 165).

SINALOA: 17 mi. east of Concordia, 1 ♀ 1-xi.

Cogia hippalus hippalus (Edwards), 1882.

Two specimens of this subspecies were taken by the mainland party. They are distinct from the subspecies *peninsularis* represented in the Cape region and described previously (Miller and MacNeill, 1969: 20-21). MacNeill (1962) mentions the possibility that the nominate subspecies may occur on the peninsula in the San Pedro Mártir massif, Baja California Norte, but it has not been recorded to date.

SINALOA: 16 mi. north of Mazatlán, 1 ♂ 28-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x

Cogia hippalus peninsularis Miller and MacNeill, 1969.

This subspecies is restricted to the Cape region, as far as known. The records and characteristics are given in the original description (Miller and MacNeill, 1969: 20-21).

Cogia calchas (Herrich-Schäffer), 1869.

This species is one of the commonest in the Neotropics, but it is unrecorded from the peninsula. I have found it more commonly in disturbed areas, rather than in forest.

SINALOA: 17 mi. east of Concordia, 1 ♂ 1-xi.

Arteurotia tractipennis tractipennis Butler and Druce, 1872.

This species is widespread on the Mexican and Central American mainland.

SINALOA: 16 mi. north of Mazatlán, 3 ♂ 1 ♀ 29-x.

Nisoniades rubescens (Möschler), 1876.

This species is widely distributed throughout the moister parts of the Neotropics, but it has not been reported from the peninsula.

SINALOA: Urías, 2 mi. south of Mazatlán, 1 ♀ 31-x; 19 mi. east of Concordia, 1 ♀ 1-xi.

Pellicia costimacula arina Evans, 1953.

The subspecies *arina* is the Central American representative of this widely spread Neotropical skipper. All the specimens taken on the Expedition were captured on the mainland.

SINALOA: Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x; 5 mi. west of Concordia, 1 ♂ 2-xi.

Pellicia dimidiata dimidiata Herrich-Schäffer, 1870.

This is another widespread tropical species that has not been recorded from Baja California.

SINALOA: Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x; 5 mi. west of Concordia, 1 ♂ 2-xi.

Noctuana noctua bipuncta (Plötz), 1884.

This, too, is a mainland species; the subspecies *bipuncta* is known from Mexico to Nicaragua.

SINALOA: 19 mi. east of Concordia, 1 ♂ 1-xi.

Noctuana stator (Godman and Salvin), 1899.

This is another mainland species that does not reach the peninsula.

SINALOA: 19 mi. east of Concordia, 2♂ 1♀ 25-x.

Bolla phylo pullata (Mabille), 1878.

This Central American butterfly is represented in the Expedition collection by a single female which is provisionally placed here.

SINALOA: 19 mi. east of Concordia, 1♀ 25-x.

Bolla clytius (Godman and Salvin), 1897.

This uncommon species is thus far known only from western continental Mexico and Honduras (Evans, 1953: 83).

SONORA: 12 mi. south of Hermosillo, 2♂ 20-x; 36 mi. north of Guaymas, 2♂ 20-x.

SINALOA: 46 mi. north of Los Mochis, 1♂ 22-x; 48 mi. northwest of Culiacán, 1♂ 1♀ 23-x.

Staphylus ceos (Edwards), 1882.

This species is basically a member of the Sonoran desert fauna that has also penetrated Baja California. I can detect no difference between the peninsular and mainland populations.

On the peninsula *ceos* was rather widely distributed, though never abundant. It generally sought the shadiest places available and seldom ventured far from them, at least during the hours of hot sunlight — I never saw it in the early morning or late afternoon. This species may be taken occasionally at water.

BAJA CALIFORNIA SUR: Rancho El Novillo, 2♂ 28-x; Rancho Palmarito, 1♂ 27-x, 1♂ 4-xii; Arroyo San Bartolo, 1♂ 2♀ 2-xi; Bahía de Palmas, 1♂ 16-xi; roadway 5 kilometers south of Rancho Buenavista, 1♀ 25-x; Boca de la Sierra, 1♀ 13-xi, 2♂ 24-xi; Arroyo Candelaria, 1♂ 26-x; 4 mi. south of Arroyo Candelaria, 1♂ 1♀ 24-xi.

SONORA: 16 mi. south of Guaymas, 1♂ 21-x.

Staphylus mazans mazans (Reakirt), 1866.

These specimens seem to be referable to typical *mazans* (type-locality: near Veracruz, Mexico), not to *ascaphalus* (Staudinger). The various subspecies, if subspecies they are, of *mazans* seem to replace *ceos* in the more humid parts of Mexico.

SINALOA: 48 miles northwest of Culiacán, 2♀ 23-x; 16 mi. north of Mazatlán, 3♂ 29-x; 5 mi. west of Concordia, 1 ♀ 2-xi; 19 mi. east of Concordia, 2♂ 1♀ 25-x.

Mylon pelopidas (Fabricius), 1793.

This is a moderately common skipper throughout the more humid parts of the Neotropics. It is not found on the peninsula.

SINALOA: 5 mi. west of Concordia, 1 ♂ 2-xi.

Mylon lassia (Hewitson), 1868.

This species is found on the mainland from Mexico to northern South America.

SINALOA: 19 mi. east of Concordia, 1 ♀ 1-xi.

Antigonus erosus (Hübner), 1812.

This is a widespread continental Neotropical species.

SINALOA: 48 mi. northwest of Culiacán, 2 ♀ 23-x.

Systasea zampa (Edwards), 1876.

Hesperia zampa Edwards, 1876. Trans. Amer. Ent. Soc., 5: 207 (type-locality: South Apache, Arizona).

Antigonus evansi Bell, 1941. Ent. News, 52: 165; fig. 2 (type-locality: Baboquivari Mts., Arizona). New synonomy.

Figs. 4, 5 (Neotype ♂), 6 (Neotype ♂ genitalia).

Edwards (1876: 207) described *Hesperia zampa* from a single example collected at "South Apache, Arizona" and retained it in his own collection. Later he sent this specimen and several others to Speyer for study (Brown, 1964). This shipment of butterflies was lost when the S. S. *Pomerania* went down in the English Channel, so it is apparent that the type of *zampa* was lost.

Holland (1931: pl. 46, fig. 1) wrote the next chapter in the history of this name by figuring a specimen of *S. pulverulenta* (Felder) as the "type" of *zampa*. As noted above, that specimen cannot be the authentic holotype of *zampa*, and was not even from the Edwards collection. It bears only the printed labels, "Arizona" and "Holland/Collection." The Holland designation of the identity of *zampa*, however, was accepted by many subsequent authors, notably Bell (1941: 164) and Evans (1953: 160). Both placed *zampa* in the synonymy of *pulverulenta*, justifiably if the specimen figured by Holland were the holotype of *zampa*. Bell (1941: 165) then described the second species of the genus occurring in North America as *Antigonus evansi*.

Inasmuch as Bell and Evans have successfully separated these two species, I am reluctant to upset current nomenclature. I have discussed

the status of the present species with several colleagues who have had extensive field experience in Arizona, and while all of us have seen hundreds of examples of this skipper, none of us has seen an unquestionably authentic specimen of *pulverulenta* from that state. The few specimens that bear data other than the vague "Arizona" of earlier collectors are specimens taken by O. C. Poling that are labeled as from the Baboquivari Mountains. Poling, a professional collector, also collected extensively in the Davis Mountains, Texas (where *pulverulenta* occurs), and he was not overly careful with his data. So I suspect that at least some of the specimens he labeled as from Arizona were actually collected in Texas. Since I can find no authentic *pulverulenta* from Arizona, and since there are two specimens of "*evansi*" from Arizona in the Edwards collection, I reluctantly designate one of the latter as the neotype of *Hesperia zampa* Edwards. This specimen bears labels as follows: first, a handwritten label, "Zampa ♂/Edw. Ariz[a].";" second, a printed label, "Edwards/Collection"; and third, a partly printed, partly handwritten label, "Neotype/Hesperia/zampa ♂/W. H. EDWARDS/ designated by/Lee D. Miller, 1965." The designation of this specimen has been done with the knowledge and encouragement of F. Martin Brown, who is engaged in a complete study of the Edwards types.

The present species is well differentiated by Bell (1941: 164-166) and Evans (1953: 160), as *evansi*, and these works should be consulted for a complete listing of the distinguishing characteristics.

H. zampa is a desert or subdesert species, whereas *pulverulenta* occurs in less arid situations. We found the present species around watering places where it flew close to the ground, rarely visited flowers and lighted with the wings half open. These skippers were never particularly abundant.

The Expedition records are as follows:

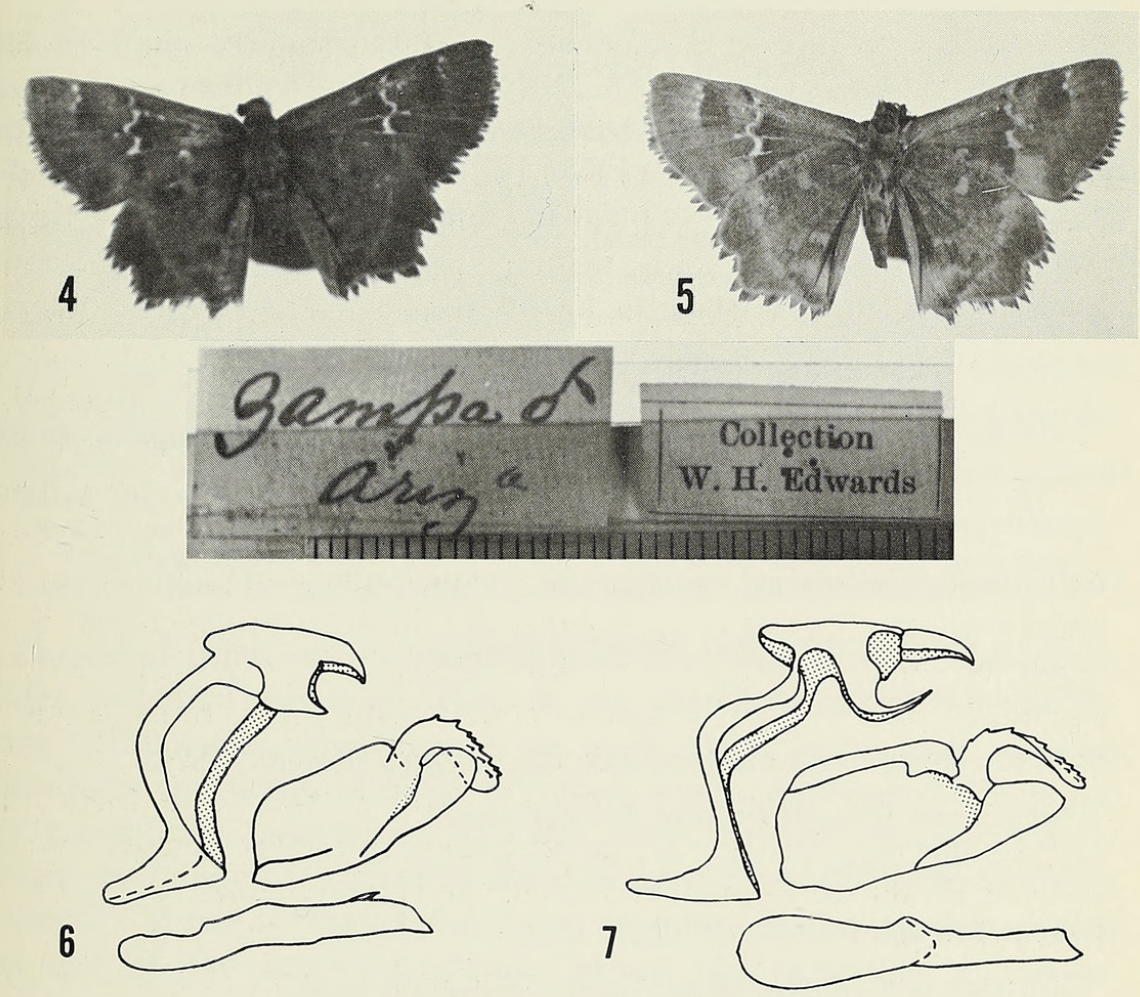
BAJA CALFORNIA SUR: Rancho Palmarito, 4♂ 2♀ 27-x, 1♂ 31-x, 3♂ 1♀ 4-xi, 3♂ 1♀ 5-xi, 8♂ 2♀ 30-xi.

SONORA: 12 mi. south of Hermosillo, 3♂ 20-x; 10 mi. northwest of Caborca, 1♂ 1♀ 19-x.

Systasea pulverulenta (Felder), 1869.

Fig. 7 (♂ genitalia).

Evans (1953: 160) lists specimens from Arizona, Texas, Mexico, and Guatemala but, as indicated in the discussion of *zampa*, the records of



Figs. 4-7. *Systasea zampa* (Edwards), neotype ♂, "Arizona," upper side. Fig. 5, same, under side. Fig. 6, same, ♂ genitalia. Fig. 7, *S. pulverulenta* (Felder), ♂ genitalia.

the present species from Arizona are apparently based on erroneous data.

All specimens taken by Expedition personnel were collected on the mainland.

SONORA: 16 mi. south of Navojoa, 1 ♂ 22-x.

SINALOA: 16 mi. north of Mazatlán, 1 ♂ 29-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x; 4 mi. southeast of Mazatlán, 1 ♂ 25-x.

Zopyrion sandace Godman and Salvin, 1896.

This species is found in the moderately humid parts of Mexico and Guatemala.

SINALOA: 48 mi. northwest of Culiacán, 1 ♂ 23-x; 16 mi. north of Mazatlán, 1 ♂ 29-x; Urías, 2 mi. south of Mazatlán, 9 ♂ 3 ♀ 29-x; 17 mi. east of Concordia, 2 ♂ 1-xi.

Achylodes thraso tamenund (Edwards), 1870.

I am retaining the Edwards name *tamenund* for the Texas and Mexican material, although Evans (1953: 177) synonymized it to the nominate race. It is an exclusively mainland subspecies, and there are three West Indian ones.

SINALOA: 16 mi. north of Mazatlán, 2 ♂ 2 ♀ 29-x.

Achylodes selva Evans, 1953.

This species seems to be restricted to the higher, subtropical moist forests of the Neotropics.

SINALOA: 19 mi. east of Concordia, 1 ♂ 25-x.

Timochares ruptifasciata ruptifasciata (Plötz), 1884.

This is another mainland Mexican species.

SINAOLA: Mazatlán, 1 ♂ 28-x.

Anastrus sempiternus sempiternus (Butler and Druce), 1872.

This species is another from the mainland.

SINALOA: Mazatlán, 1 ♂ 26-x, 1 ♂ 27-x, 2 ♂ 29-x.

Anastrus tolimus tolimus (Plötz), 1884.

This, too, is a species found on the mainland only.

SINALOA: Mazatlán, 1 ♀ 27-x, 1 ♂ 3-xi.

Chiomara asychis georgina (Reakirt), 1868.

This subspecies is the one represented in the southernmost United States, Mexico, and Central America. Evans (1953: 198) considers the Baja California material to be the same subspecies, as does MacNeill (1962: 100), but the peninsular specimens are consistently so different from mainland ones that the Weeks name *pelagica* (see below) is resurrected for them.

SONORA: Hermosillo, 1 ♂ 1 ♀ 20-x; 12 mi. south of Hermosillo, 3 ♂ 20-x; 36 mi. north of Guaymas, 1 ♂ 20-x.

SINALOA: 46 mi. north of Los Mochis, 2 ♂ 22-x; 19 mi. north of Los Mochis, 1 ♂ 22-x; 17 mi. east of Concordia, 1 ♂ 1-xi; 22 mi. east of Concordia, 2 ♂ 25-x.

Chiomara asychis pelagica (Weeks), 1891.

The peninsular *asychis* are very different from the mainland representatives of this species, hence I am restoring the Weeks name *pelagica* to them. This subspecies most closely resembles Argentinian

and Bolivian specimens of *C. a. autander* (Mabille) and bears little resemblance to the Mexican and Central American *georgina*. The differences between *georgina* and *pelagica* are summarized in Table 2.

TABLE 2

Chiomara asychis: DIFFERENTIATING CHARACTERS OF THE SUBSPECIES *georgina* (MEXICAN MAINLAND) AND *pelagica* (BAJA CALIFORNIA)

georgina	*pelagica*
1. ♂ ♀ paler above.	1. ♂ ♀ darker above.
2. Discal spot in forewing space Cu_2-2A always white.	2. Discal spot in forewing space Cu_2-2A often gray, never white in ♀.
3. Hindwing white discal band broad and well developed.	3. Hindwing white discal band narrow, often broken and obsolete in ♀.
4. Sexual dimorphism slight.	4. Sexual dimorphism marked.
5. ♀ hindwing below with little basal and discal brown mottling.	5. ♀ hindwing below with prominent basal and discal brown mottling.

These butterflies were common almost everywhere on the peninsula where collecting was done. They do not visit flowers as avidly as do some of the other skippers and are more likely to be seen sunning themsleves on the tips of twigs with their wings outstretched. They are not particularly pugnacious, although they may on occasion attack almost anything that moves in their vicinity. The silhouette of these butterflies at rest is characteristic: the wings are held outstretched and the tips of the forewings droop, giving the butterflies a convex appearance.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1♂ 21-x, 1♂ 1♀ 6-xi; 28-x; Rancho Palmarito, 3♂ 1♀ 27-x, 1♂ 30-x, 4♂ 2♀ 31-x, 4♂ 4-xi, 1♀ 5-xi, 9♂ 6♀ 30-xi, 5♂ 4-xii; Arroyo Hondo, near El Triunfo, 3♂ 24-x; Mesa Puerta Azul, 1♂ 1♀ 12-xi; Arroyo San Bartolo, 2♂ 1♀ 2-xi, 2♂ 3-xi, 2♂ 12-xi, 1♂ 14-xi; roadway 5 kilometers south of Rancho Buenavista, 3♀ 25-x; Arroyo San Bernardo, 1♂ 18-xi; Arroyo El Rincón, 2♀ 26-xi; San José del Cabo, 5♂ 5♀ 22-xi, Puerto Chileno, 2♂ 2♀ 22-xi, 1♂ 26-xi; Arroyo Candelaria, 4♂ 24-xi; 4 mi. south of Arroyo Candelaria, 3♂ 1♀ 26-x, 2♂ 3♀ 24-xi.

Two additional specimens have been examined in the collection of the San Diego Museum of Natural History.

BAJA CALFORNIA SUR: San Bartolo, 1♂ 24-xi-1959; Las Parras, 1♂ 14-xi-1961 (C. F. Harbison).

Gesta gesta invisus (Butler and Druce), 1872.

The present subspecies is represented on the mainland from southern Texas to Costa Rica.

SINALOA: 16 mi. north of Mazatlán, 1♀ 29-x; Mazatlán, 1♂ 24-x, 1♂ 2♀ 28-x; 19 mi. east of Concordia, 4♂ 1♀ 25-x.

Erynnis funeralis (Scudder and Burgess), 1870.

I am following Burns (1964) in attributing specific rank to *funeralis*, but most authors have considered it a subspecies of *zarucco* (Lucas).

This species is one of the most distinctive elements of the Sonoran desert fauna, and it is common in Baja California. In sharp contrast to most of the skippers, *funeralis* is to be found even in the very dry desert and in the brightest, hottest sunshine. It is very pugnacious and will engage in mock combat with almost anything that moves. It visits flowers frequently, showing a particular preference for the flowers of large yellow composites.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 2♂ 2♀ 6-xi, 1♂ 8-xi; Rancho Rosarito, 5♂ 3♀ 23-x; southwest shore of La Paz harbor, 2♂ 8-xi, 2♂ 1♀ 10-xi, 1♂ 5-xii, 1♂ 6-xii; Rancho Vinorama, 1♂ 23-x; Rancho El Novillo, 2♂ 28-x; Rancho Palmarito, 1♂ 27-x, 1♂ 31-x, 2♂ 4-xi, 5♂ 30-xi; Mesa Puerta Azul, 2♂ 1-xi; Arroyo San Bartolo, 2♂ 2-xi, 3♂ 1♀ 3-xi, 1♀ 12-xi; Bahía de Palmas, 1♀ 12-xi; road 5 kilometers south of Rancho Buenavista, 1♂ 1♀ 25-x; Miraflores, 1♀ 25-x; La Ciénaga I, 1270 m., 1♂ 1♀ 16-xi; Puerto Chileno, 1♂ 22-xi; Cabo San Lucas, 1♂ 23-xi; Arroyo Candelaria, 1♂ 24-xi, 1♀ 26-x; 4 mi. south of Arroyo Candelaria, 1♀ 24-xi.

BAJA CALIFORNIA NORTE: 21 mi. south of Mexicali, 1♂ 17-x.

SONORA: 10 mi. northwest of Caborca, 2♂ 19-x; 12 mi south of Hermosillo, 2♂ 2♀ 20-x; 26 mi. north of Guaymas, 1♀ 20-x.

SINALOA: 48 mi. northwest of Culiacán, 1♂ 23-x.

Ten additional specimens have been examined from the collection of the San Diego Museum of Natural History.

BAJA CALIFORNIA SUR: Las Parras, 1♀ 19-xi-1952; Colonia Calles, 1♀ 15-ix-1959.

BAJA CALIFORNIA NORTE: Valle de la Trinidad, 2♂ 16-iii-1936; Santo Tomás, 2♂ 1♀ 20-iii-1935, 1♂ 16-ix-1935; Santa Agueda, 1♂ 16-ix-1935 (all C. F. Harbison).

Erynnis tristis pattersoni Burns, 1964.

This subspecies was originally described from seven males collected in the Sierra de la Laguna (sometimes called Sierra de la Victoria). The genitalia of the two males taken by the Expedition look more like those of *E. tristis tatius* (Edwards) than those of the nominate subspecies. These two specimens were taken at the top of a windswept grassy hill at an elevation of 1270 meters. Oaks were plentiful nearby; these are postulated as the food plant by Burns (1964: 143). Since the type series was taken in May and the Expedition material was collected in November, this species is at least double-brooded in the Cape region.

BAJA CALIFORNIA SUR: La Ciénega, I, Sierra Laguna, 1270 m., 2♂ 15-xi.

Pyrgus communis albescens Plötz, 1884.

This is another of the Sonoran desert species that has become successfully established throughout the peninsula. Its habits are quite similar to those shown by other *communis* populations throughout the United States and Mexico.

BAJA CALIFORNIA SUR: Southeast shore of La Paz harbor, 1 ♀ 10-xi; Rancho Palmarito,, 3 ♂ 2 ♀ 27-x, 3 ♂ 4 ♀ 31-x, 7 ♂ 5 ♀ 4-xi, 4 ♂ 2 ♀ 5-xi, 5 ♂ 2 ♀ 20-xi; Mesa Puerta Azul, 1 ♂ 1-xi; Arroyo San Bartolo, 1 ♂ 12-xi; Bahía de Palmas, 1 ♂ 20-xi; Rancho San Bernardo, 1 ♂ 17-xi; Caduaño, 1 ♂ 25-xi; Arroyo Candelaria, 2 ♂ 24-xi; 4 mi. south of Arroyo Candelaria, 1 ♂ 26-x.

Three additional specimens have been examined from the collection of the San Diego Museum of Natural History.

BAJA CALIFORIA SUR: Comondú, 2 ♂ 16-xii-1956.

BAJA CALIFORNIA NORTE: Santa María, 1 ♂ 23-viii-1953 (C. F. Harbison).

Pyrgus oileus oileus (Linné), 1767.

This subspecies is widespread throughout Mexico, Central America, and the Antilles, but it has not been previously recorded from Baja California. A single male in the Expedition material from the Cape region represents the first record from the peninsula of this species.

BAJA CALIFORNIA SUR: Rancho Palmarito, 1 ♂ 30-xi.

SONORA: 16 mi. south of Navojoa, 1 ♀ 22-x.

SINALOA: 48 mi. northwest of Culiacán, 2 ♂ 4 ♀ 23-x; 16 mi. north of Mazatlán, 1 ♂ 28-x, 1 ♂ 29-x; Mazatlán, 1 ♂ 1 ♀ 24-x; Urias, 2 mi. south of Mazatlán, 1 ♂ 2 ♀ 31-x; 19 mi. east of Concordia, 5 ♂ 5 ♀ 25-x; 17 mi. east of Concordia, 1 ♀ 29-x, 3 ♀ 1-xi; 2 mi. east of Concordia, 2 ♂ 25-x.

Pyrgus philetas Edwards, 1881.

I agree entirely with MacNeill (1962: 101), who has reinstated *philetas* as a distinct species. Evans (1953: 222) had placed it as a subspecies of *oileus*. The present species is characteristic of the Sonoran and Chihuahuan desert and is found in the Cape region of Baja California.

This skipper was found wherever there was water, though it was seldom abundant. It visits flowers and is particularly fond of those of the "desert willow." Many other specimens were collected at mud puddles. *P. philetas* seems to be more widespread throughout the Cape region than *albescens*, but is not as common as that species in areas where both are present.

BAJA CALIFORNIA SUR: Rancho Palmarito, 2 ♂ 27-x; 1 ♀ 30-x, 1 ♂ 2 ♀ 31-x, 3 ♀ 4-xi, 2 ♂ 1 ♀ 5-xi; Rancho Vinorama, 1 ♂ 23-x; Arroyo Hondo, near El Triunfo, 1 ♂

24-x; Mesa Puerta Azul, 1 ♂ 1-xi; Arroyo San Bartolo, 1 ♂ 2-xi, 1 ♂ 3-xi; Bahía de Palmas, 1 ♀ 20-xi; roadway 5 kilometers south of Rancho Buenavista, 3 ♂ 25-x; Boca de la Sierra, 2 ♂ 13-xi, 1 ♂ 24-xi; Arroyo San Bernardo, 2 ♂ 18-xi; Rancho San Bernardo, 500-600 m., 1 ♂ 17-xi; La Ciénaga I, Sierra Laguna, 1270 m., 1 ♂ 1 ♀ 16-xi; Arroyo El Rincón, 1 ♂ 1 ♀ 26-xi; San Jose del Cabo, 1 ♂ 2 ♀ 25-xi; Arroyo Candelaria, 2 ♀ 26-x; 1 ♂ 24-xi; 4 mi. south of Arroyo Candelaria, 1 ♂ 26-x, 2 ♂ 24-xi.

SONORA: 12 mi. south of Hermosillo, 2 ♂ 2 ♀ 20-x.

SINALOA: Urías, 2 mi. south of Mazatlán, 2 ♂ 31-x.

Heliopetes domicella domicella (Erichson), 1848.

This subspecies is found infrequently from Texas and Arizona south to northern South America. A few specimens have been recorded previously from the peninsula.

This butterfly was never common and was taken only in several arroyos, although at Rancho Palmarito I saw a specimen or two that eluded me. Generally they were seen flying about in moderate shade or visiting low flowers. Unlike many of their relatives, these butterflies are very inconspicuous in the field. They are not combative, in contrast to most Mexican *Heliopetes*.

The single female from south of Hermosillo is a striking aberration, differing from the ordinary female in the following particulars: the apical-submarginal row of white spots on the forewing, both above and below, is fused into a band that is connected to the discal white band, leaving a subtriangular black patch at the end of the forewing cell. The hind wing pattern is more or less normal, perhaps showing the white discal band a bit more developed.

BAJA CALIFORNIA SUR: Arroyo San Bartolo, 1 ♂ 3-xi, 1 ♂ 12-xi; roadway 5 kilometers south of Rancho Buenavista, 1 ♂ 25-v; Arroyo San Bernardo, 1 ♂ 18-xi.

SONORA: La Zorra, 10 mi. northwest of Caborca, 1 ♂ 1 ♀ 19-x; 12 mi. south of Hermosillo, 3 ♂ 1 ♀ 20-x.

SINALOA: 16 mi. north of Mazatlán, 1 ♀ 28-x; 5 mi. west of Concordia, 1 ♀ 2-xi.

Heliopetes macaira macaira Reskirt, 1866.

This species has not been found on the peninsula. The nominate subspecies is moderately common from Texas to Panama.

SINALOA: 48 mi. northwest of Culiacán, 2 ♂ 23-x; Mazatlán, 2 ♀ 24-x; Urías, 2 mi. south of Mazatlán, 2 ♂ 31-x.

Heliopetes laviana laviana (Hewitson), 1868.

This widespread tropical species is common in the Cape region of Baja California.

Almost wherever there is water, natural or otherwise, *laviana* is abundant. These butterflies are avid flower visitors, preferring the flowers of low composites or leguminous plants. Otherwise the males will establish territories and attempt mock combat with other members of their species, but they are not as pugnacious as some of the "long-tails."

BAJA CALIFORNIA SUR: Rancho Rosarito, 2♂ 1♀ 23-x; Rancho El Novillo, 1♀ 28-x; Rancho El Salto, 1♀ 28-x; Rancho Palmarito, 2♀ 27-x, 3♂ 2♀ 31-x, 2♂ 4-xi; 21♂ 4♀ 30-xi; Arroyo Hondo, near El Triunfo, 2♂ 24-x; Arroyo San Bartolo, 1♂ 12-xi; roadway 5 kilometers south of Sancho Buenavista, 1♂ 25-x; Miraflores, 1♂ 25-x; Boca de la Sierra, 1♂ 28-xi; Arroyo El Rincón, 1♀ 26-xi; Puerto Chileno, 1♀ 22-xi; Arroyo Candelaria, 1♂ 24-xi; 4 mi. south of Arroyo Candelaria, 2♂ 24-xi.

SINALOA: 46 mi. north of Los Mochis, 9♂ 22-x; 19 mi. north of Los Mochis, 1♂ 23-x; 48 mi. northwest of Culiacán, 1♂ 23-x; 16 mi. north of Mazatlán, 1♂ 24-x; 17 mi. east of Concordia, 1♂ 1-xi; 19 mi. east of Concordia, 1♀ 25-x; 19 mi. east of Concordia, 1♀ 25-x; 17 mi. east of Concordia, 1♂ 1-xi.

Pholisora catullus (Fabricius), 1793.

This species is primarily North American, but is also known from northern Sonora and from scattered localities along the Baja California peninsula where it is not common.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 2♂ 21-x, 1♀ 22-x; Rancho Palmarito, 1♂ 27-x; roadway 5 kilometers south of Rancho Buenavista, 1♀ 25-x; Arroyo El Rincón, 1♂ 26-xi; 4 mi. south of Arroyo Candelaria, 1♂ 26-x.

Three additional specimens have been examined from the collection of the San Diego Museum of Natural History.

BAJA CALIFORNIA NORTE: Valle de la Trinidad, 1♂ 16-iii-1936; Santo Tomés, 2♂ 20-iii-1935 (C. F. Harbison).

Callimormus saturnus (Herrich-Schäffer), 1869.

This skipper is common throughout the humid portions of the Neotropics.

SINALOA: 16 mi north of Mazatlán, 1♀ 29-x; 11 mi. north of Mazatlán, 1♂ 27-x, 1♂ 28-x; 19 mi. east of Concordia, 1♂ 1♀ 25-x, 1♀ 1-xi.

Subfamily HESPIINAE

Monca telata tyrtaeus (Plötz), 1883.

This subspecies is moderately common in Mexico and Central America. It is not known from the peninsula.

SINALOA: Mazatlán, 2♂ 24-x.

Nastra neamathla (Skinner and Williams), 1923.

This species was first recorded from the peninsula by MacNeill (1962: 103-104), who reported specimens from Canyon San Pedro in the Sierra de la Laguna of the Cape region. The specimens listed below indicate that *neamathla* may actually be widely distributed throughout the Cape region, but it is apparently never common. With the abundance of *Lerodea e. eufala* (Edwards), however, it may have been overlooked by most collectors, since the two have rather similar habits.

BAJA CALIFORNIA SUR: Rancho Palmarito, 1 ♂ 4-xii; Arroyo San Bartolo, 1 ♂ 1 ♀ 2-xi; San José del Cabo, 1 ♂ 23-xi.

Cymaenes odilia trebius (Mabille), 1891.

Two specimens of this species were taken by the mainland party.

SINALOA: 5 mi. west of Concordia, 1 ♂ 2-xi; 19 mi. east of Concordia, 1 ♀ 1-xi.

Vehilius inca (Scudder), 1872.

This species is common in the continental Neotropics.

SINALOA: 17 mi east of Concordia, 1 ♂ 1-xi; 19 mi. east of Concordia, 1 ♀ 25-x, 1 ♂ 1 ♀ 1-xi.

Lerema lumina (Herrich-Schäffer), 1869.

Evans (1955: 163) records this species only from Guatemala, Costa Rica, Panama, and Colombia, but I have seen specimens from Mexico. The specimen listed below is the first I am aware of from so far north on the west coast.

SINALOA: Mazatlán, 1 ♂ 28-x.

Lerema accius accius (Abbot and Smith), 1797.

This subspecies is common in the southern United States and Mexico and occurs more infrequently in Central America. It has not been reported from the peninsula.

SONORA: Hermosillo, 1 ♂ 1 ♀ 20-x.

SINALOA: Mazatlán, 1 ♂ 29-x; 2 mi. east of Concordia, 1 ♂ 1 ♀ 25-x; 19 mi. east of Concordia, 1 ♂ 25-x.

Vettius fantasos fantasos (Stoll), 1780.

This species is common in the humid parts of the Neotropics, but seems to be absent from arid or semi-arid regions.

SINALOA: 48 mi. northwest of Culiacán, 1 ♂ 1 ♀ 23-x.

Ancyloxypha arene (Edwards), 1871.

This species replaces *numitor* (Fabricius) in the southwestern United States, Mexico, and Central America. It has not been recorded from the peninsula, but there is the barest possibility it may occur in suitable habitats in the northern part near the mouth of the Colorado River.

SONORA: 16 mi. south of Navojoa, 1 ♂ 22-x; 16 mi. south of Guaymas, 2 ♀ 21-x.

SINALOA: 48 mi. northwest of Culiacán, 1 ♂ 1 ♀ 23-x; Mazatlán, 1 ♂ 31-x.

Copaeodes aurantiaca (Hewitson), 1868.

This species and the next tend to replace one another, *aurantiaca* being far more abundant in the very arid regions, while *minima* is commoner in more humid environments. The present species is found in the southwestern United States and western Mexico, including the peninsula.

C. aurantiaca was present in almost all areas of the peninsula visited by the Expedition, even in some of the driest arroyos. It does not visit flowers as readily as most of the skippers, but when it does, it prefers large yellow composites. Most of the time, however, it perches on a rock or a twig and waits for other butterflies, with whom it engages in mock combat.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1 ♂ 21-x, 1 ♂ 22-x; 5 mi. east of La Paz, 2 ♀ 9-xi; southeast shore of La Paz harbor, 1 ♂ 1 ♀ 8-xi; Rancho Rosarito, 3 ♂ 1 ♀ 23-x; Rancho Vinorama, 1 ♀ 23-x; Rancho El Novillo, 2 ♂ 28-x; Rancho Palmarito, 3 ♂ 1 ♀ 27-x, 3 ♂ 31-x, 1 ♀ 4-xi, 3 ♂ 1 ♀ 5-xi, 2 ♂ 1 ♀ 30-xi, 1 ♂ 1 ♀ 4-xii; Mesa Puerta Azul, 3 ♂ 24-x, 1 ♂ 25-x, 1 ♂ 1-xi, 2 ♂ 2-xi, 1 ♂ 12-xi; Arroyo San Bartolo, 1 ♂ 2-xi, 2 ♂ 3-xi; Miraflores, 1 ♂ 25-x; Boca de la Sierra, 2 ♂ 2 ♀ 24-xi, 4 ♂ 28-xi; Rancho San Bernardo, 1 ♂ 14-xi; San José del Cabo, 1 ♂ 22-xi; Puerto Chileno, 2 ♂ 22-xi; 4 mi. south of Arroyo Candelaria, 2 ♂ 24-xi.

SONORA: 12 mi. south of Hermosillo, 1 ♂ 2 ♀ 20-x; 36 mi. south of Guaymas, 1 ♂ 20-x.

SINALOA: Mazatlán, 1 ♀ 24-x.

Two additional specimens have been examined from the collection of the San Diego Natural History Museum.

BAJA CALIFORNIA NORTE: Valle de la Trinidad, 1 ♂ 16-iii-1936; Santa Agueda, 1 ♂ 16-ix-1935.

Copaeodes minima (Edwards), 1870.

This species occurs in moist to semi-arid areas from the southern United States to Costa Rica. It has not been reported from the peninsula.

SINALOA: Mazatlán, 1 ♀ 24-x, 4 ♂ 2 ♀ 26-x, 1 ♀ 29-x, 1 ♂ 31-x; Urías, 2 mi. south of Mazatlán, 1 ♀ 31-x.

Hylephila phyleus phyleus (Drury), 1770.

This species, one of the most widespread in the Neotropics, penetrates the temperate regions to the north and south. It is common on the peninsula.

H. phyleus is an avid flower visitor and almost any cultivated flower garden on the peninsula swarmed with these butterflies. Even when they are visiting flowers, these butterflies are always ready to engage another butterfly, a bird, or a butterfly collector in mock combat. They are easily captured when they are visiting blossoms, but otherwise these skippers are extremely wary.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1- 20-x, 8♂ 2♀ 21x, 1♀ 7-xi; southeast shore of La Paz harbor, 4♂ 8♀ 8-xi, 2♂ 3♀ 10-xi, 1♂ 5-xii; Rancho Palmarito, 1♀ 31-x, 2♂ 4-xi, 1♀ 5-xi; Mesa Puerta Azul, 1♂ 24-x; Arroyo San Bernardo, 1♂ 17-xi; San José del Cabo, 2♀ 23-xi, 3♀ 25-xi; Arroyo Candelaria, 1♂ 2♀ 26-x.

SONORA: 5 mi. west of Riito, 1♀ 17-x; 16 mi. south of Guaymas, 1♂ 21-x, 1♂ 22-x.

SINALOA: Mazatlán, 1♂ 26-x; Urías, 2 mi. south of Mazatlán, 1♂ 1♀ 31-x; 5 mi west of Concordia, 1♂ 2-xi.

Two other specimens from the collection of the San Diego Natural History Museum have been examined.

BAJA CALIFORNIA SUR: Commondú, 1♀ 16-xi-1956.

BAJA CALIFORNIA NORTE: El Barril, 1♀ 14-iii-1947 (C. F. Harbison).

Yvretta carus subreticulata (Plötz), 1883.

A single small, rather dark female of this subspecies was taken by the mainland party. I am indebted to Dr. C. Don MacNeill for identifying the specimen. Thus far *subreticulata* is known from western Mexico and Guatemala; it does not appear to be common.

SINALOA: Mazatlán, 1♀ 24-x.

This subspecies is widespread throughout the American tropics but has not been recorded from the peninsula.

SINALOA: 16 mi. north of Mazatlán, 1♀ 29-x; Mazatlán, 3♂ 24-x, 1♀ 27-x, 2♂ 28-x; Urías, 2 mi. south of Mazatlán, 2♂ 31-x; 22 mi. east of Concordia, 1♂ 25-x.

Polites sabuleti chusca (Edwards), 1873.

This is the subspecies found in the Sonoran desert. It almost certainly occurs in Baja California Norte, since the specimens taken by the mainland party were collected just across the Colorado River from that state.

SONORA: 5 mi. west of Riito, 1♂ 2♀ 17-x.

Polites sabuleti margaretae Miller and MacNeill, 1969.

This subspecies is known from only a few scattered coastal localities in the Cape region of Baja California Sur. The records and characteristics are given in the original description (Miller and MacNeill, 1969: 22-23).

Wallengrenia otho (Abbot and Smith), 1797, subspecies.

There are no records of *otho* from the peninsula. The mainland specimens more nearly resemble *curassavica* (Snellen) than nominate *otho*, but Evans (1955: 333) mentions only *otho* from Mexico. The nearest records cited for *curassavica* are from Panama. Much work needs to be done on the *otho* complex both on the mainland and in the Antilles, before we shall have a reasonable understanding of the subspecies involved.

SINALOA: Urías, 2 mi. south of Mazatlán, 1 ♀ 1-xi; 19 mi. east of Concordia, 1 ♀ 31-x.

Pompeius pompeius (Latreille), 1824.

This species is one of the commonest skippers in disturbed areas of the continental Neotropics. It is not known from the peninsula.

SINALOA: Mazatlán, 2 ♂ 1 ♀ 24-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 1 ♀ 31-x; 17 mi. east of Concordia, 1 ♀ 25-x.

Atalopedes campestris (Boisduval), 1852.

This species is widespread throughout the United States, Mexico and Central America. It was common particularly in cultivated areas of Baja California Sur, where its habits are sustantially the same as in the United States.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 3 ♂ 2 ♀ 22-x, 2 ♀ 6-xi, 1 ♀ 7-xi, 1 ♂ 8-xi; southeast shore of La Paz harbor, 1 ♂ 8-xi, 6 ♂ 3 ♀ 10-xi; Rancho Palmarito, 1 ♀ 30-xi; Mesa Puerta Azul, 1 ♂ 1-xi; San José del Cabo, 1 ♀ 22-xi, 3 ♂ 1 ♀ 25-xi.

SINALOA: 19 mi. north of Los Mochis, 1 ♂ 22-x.

Mellana eulogius (Plötz), 1883.

This species is widespread throughout the Neotropics.

SINALOA: 16 mi. north of Mazatlán, 1 ♂ 29-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x.

Atrytonopsis ovinia zaovinia Dyar, 1913.

No *Atrytonopsis* has been recorded from the peninsula. The present subspecies is restricted to the Sonoran desert.

SONORA: Hermosillo, 1 ♂ 1 ♀ 20-x.

Amblyscirtes tolteca Scudder, 1872, ?subspecies.

The nominate subspecies is widely distributed in southern Mexico, and the subspecies *prenda* Evans is thus far known only from Tucson, Arizona; and Guaymas, Sonora. Rindge (1948: 309) recorded this skipper from the peninsula, but the specimen was not available for study by MacNeill, who concluded (1962: 111) that *tolteca* was "a doubtful inhabitant" of the peninsula. Expedition personnel collected a dozen specimens in scattered localities in the Cape region, so this species is definitely present in the peninsula. All these specimens are worn, however, and I have no specimens at hand of *prenda*, so I am unable to say which subspecies is represented by the Cape material. The specimens are generally a bit smaller than a series at hand from Pisté, Yucatán, but there is no evidence of the grayish flush Evans (1955: 389) employs to characterize *prenda*.

A. tolteca is not a common species, and its secretive habits would account for its being overlooked. It has a rapid flight and always remains close to the ground. It is not a pugnacious butterfly and is so unobtrusive that the collector must be especially observant to find specimens. The only flowers visited were those that grew close to the ground, such as coralvine.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1 ♂ 19-x, 1 ♂ 21-x; Rancho Palmarito, 1 ♂ 27-x, 1 ♂ 31-x, 3 ♂ 1 ♀ 5-xi; Puerto Chileno, 1 ♂ 22-xi; Cabo San Lucas, 1 ♀ 23-xi, 1 ♀ 24-xi; 4 mi. south of Arroyo Candelaria, 1 ♂ [26-xi] (26-x).

Lerodea eufala eufala (Edwards), 1869.

This species is common throughout the American tropics and subtropics. It is abundant in Baja California Sur.

These butterflies are avid flower visitors, preferring the cultivated varieties, and "desert willow," coralvine, and large yellow composite blossoms. While these butterflies are combative, they are not as aggressive as *H. phyleus* or *C. aurantiaca*. Along with those two species *eufala* is one of the most abundant hesperiines on the peninsula.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1 ♂ 2 ♀ 19-x, 1 ♂ 20-x, 3 ♂ 1 ♀ 21-x, 12 ♂ 17 ♀ 22-x, 1 ♂ 4-xi, 2 ♂ 1 ♀ 6-xi, 4 ♂ 7-xi, 1 ♂ 8-xi, 2 ♂ 1 ♀ 10-xi; southeast shore of La Paz harbor, 9 ♂ 8-xi, 9 ♂ 2 ♀ 10-xi, 2 ♂ 1 ♀ 5-xii; Rancho Rosarito, 1 ♀ 23-x; Rancho El Novillo, 1 ♂ 28-x; Rancho Palmarito, 7 ♂ 27-x, 3 ♂ 1 ♀ 31-x, 2 ♂ 2 ♀ 4-xi, 2 ♂ 4 ♀ 5-xi, 6 ♂ 3 ♂ 30-xi, 3 ♀ 4-xii; Arroyo Hondo, near El Triunfo, 1 ♂ 1 ♀ 24-x; Mesa Puerta Azul, 1 ♂ 3 ♀ 24-x, 2 ♂ 1 ♀ 1-xi; Arroyo San Bartolo, 2 ♂ 2 ♀ 2-xi, 1 ♂ 3-xi, 2 ♂ 2 ♀ 12-xi, 1 ♂ 14-xi; Rancho Ensenada de Palmas, 1 ♂ 16-xi; Bahía de Palmas, 1 ♂ 16-xi,

1 ♂ 20-xi; Boca de la Sierra, 1 ♀ 24-xi, 1 ♂ 28-xi; Arroyo San Bernardo, 1 ♂ 18-xi; Rancho San Bernardo, 1 ♂ 14-xi; La Ciénaga I, 1 ♂ 16-xi; San José del Cabo, 1 ♂ 22-xi, 9 ♂ 5 ♀ 23-xi, 14 ♂ 4 ♀ 25-xi; Puerto Chileno, 3 ♂ 22-xi; Cabo San Lucas, 2 ♂ 23-xi; Arroyo Candelaria, 1 ♂ 24-xi; 4 mi. south of Arroyo Candelaria, 1 ♂ 26-x, 4 ♂ 1 ♀ 24-xi.

SONORA: 5 mi. west of Riito, 1 ♂ 17-x; 10 mi. northwest of Caborca, 1 ♂ 19-x; Hermosillo, 1 ♂ 20-x; 12 mi. south of Hermosillo, 3 ♀ 20-x; 22 mi. north of Ciudad Obregon, 1 ♂ 21-x; Guaymas, 1 ♂ 21-x.

SINALOA: 16 mi. north of Mazatlán, 1 ♀ 29-x; Mazatlán, 1 ♀ 24-x, 1 ♀ 29-x, 1 ♀ 31-x.

Lerodea dysaules Godman, 1900.

This species is known only from Baja California Sur and western Mexico. It is closely related to *L. arabus* (Edwards) and is probably a subspecies of that species. There is a wide range of individual variation in the specimens before me. All males have faintly delimited spots on the under surface of the hindwing in at least spaces M_3-Cu_1 and Cu_1-Cu_2. The spotting of the forewing, however, is far more variable: the cell spot is obsolescent in one of the males, a female from Baja California, and the female from Sinaloa, and the spots in general are variously developed, from prominent to almost obsolete, particularly those in spaces M_3-Cu_1 and Cu_2-2A. The variation is without regard to the configuration of the male genitalia.

These butterflies are rather secretive skippers, little given to combativeness. They fly low, along the ground, and are attracted only to flowers that are a foot or less in height.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1 ♂ 20-x, 1 ♀ 21-x, 1 ♀ 21-x; southeast shore of La Paz harbor, 1 ♂ 8-xi; Rancho Rosarito, 1 ♂ 1 ♀ 23-x.

SONORA: Hermosillo, 1 ♂ 20-x.

SINALOA: Mazatlán, 1 ♀ 28-x.

Two more specimens have been examined from the collection of the San Diego Natural History Museum.

BAJA CALIFORNIA SUR: Comondú, 1 ♂ 1 ♀ 16-xi-1952 (C. F. Harbison).

Calpodes ethlius (Stoll), 1782.

This species is abundant throughout many parts of the Neotropics, seemingly limited by the distribution of its foodplant, *Canna*. Since it has been recorded on the peninsula only from the environs of settlements where many ornamental cannas are grown year in ad year out, I am inclined to the opinion that *ethlius* is not native to Baja California, but rather was introduced there along with ornamental cannas. *C.*

ethlius is, however, a well-known migrant (see Welling, 1964), and it is possible that stray specimens have often reached Baja California on their own. But not until the advent of cultivated cannas was there opportunity for this butterfly to establish colonies there. In any event, this species is certainly not part of the natural peninsular fauna and is a recent arrival.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1 ♂ 22-x; Bahía de Palmas, 1 ♂ 1 ♀ 16-xi, 1 ♂ 2 ♀ 20-xi.

SINALOA: Mazatlán, 2 ♂ 27-x, 1 ♂ 1 ♀ 29-x.

Panoquina panoquinoides errans (Skinner), 1892.

This subspecies was well characterized by MacNeill (1962: 113-114). It is known from California, most of the peninsula, and western coastal Mexico.

These butterflies are always associated with coastal grasses and are seldom found far from them. They are most active late in the afternoon, when the males will take positions on grass stems and engage one another in mock combat or will hover around females. The females generally fly deep in the grass and are not so combative as the males. These skippers seldom visit flowers, but flowers were not abundant on the tidal flats where we observed these butterflies.

BAJA CALIFORNIA SUR: La Paz, Hotel Guaycura grounds, 1 ♀ 22-x; southeast shore of La Paz harbor, 21 ♂ 5 ♀ 8-xi, 14 ♂ 10 ♀ 10-xi, 10 ♂ 10 ♀ 5-xii, 2 ♂ 6-xii; San José del Cabo, 1 ♂ 22-xi, 4 ♂ 23-xi, 5 ♂ 25-xi, 1 ♀ 26.xi.

SINALOA: Mazatlán, 2 ♂ 1 ♀ 26-x, 2 ♂ 1 ♀ 28-x, 1 ♂ 29 ♀ x, 1 ♂ 31-x.

An additional specimen from the collection of the San Diego Natural History Museum has been examined.

BAJA CALIFORNIA NORTE: Calmallí, 1 ♂ 24-vii-1953.

Panoquina ocola (Edwards), 1863.

This species is widespread in the tropics and subtropics; it reaches the Antilles, but has not been recorded from the peninsula.

SONORA: 16 mi. south of Guaymas, 1 ♂ 1 ♀ 21-x.

SINALOA: 19 mi. north of Los Mochis, 1 ♂ 22-x; 10 mi. southeast of Los Mochis, 1 ♂ 2 ♀ 23-x; 16 mi. north of Mazatlán, 3 ♂ 29-x; Mazatlán, 1 ♀ 26-x, 1 ♀ 28-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x; 17 mi. east of Concordia, 1 ♂ 1 ♀ 25-x, 1 ♂ 1-xi.

Panoquina pauper pauper (Mabille), 1878.

A single specimen of this rather uncommon tropical species was taken by the mainland party.

SINALOA: 11 mi. north of Mazatlán, 1 ♀ 28-x.

Nyctelius nyctelius nyctelius (Latreille), 1824.

This species is widespread throughout western Mexico, Central and South America, and the Antilles. It is not known from the peninsula.

SINALAO: 10 mi. southeast of Los Mochis, 1 ♀ 23-x; Urías, 2 mi. south of Mazatlán, 1 ♂ 31-x; 17 mi. east of Concordia, 1 ♀ 1-xi.

Thespeius dalman (Latreille), 1824.

This species has a wide range in the continental Neotropics.

SINALOA: 17 mi. east of Concordia, 1 ♂ 1-xi.

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