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## NEW RHOPALOCERA RECORDS FOR BAJA CALIFORNIA WITH THE DESCRIPTION OF A NEW SPECIES OF HABRODAIS SCUDDER (Lepidoptera: Theclinar)

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### INTRODUCTION

Although the butterfly fauna of southern California has been extensively investigated, its counterpart in Baja California Norte remains poorly known except for the publications of Rindge (1948), Powell (1958), Patterson and Powell (1959), MacNeill (1962), and Holland (1973). Many species were erroneously credited to the Baja California fauna by Hoffman (1940, 1941) in his *Catologo de los Lepidopteros Mexicanos*. In many cases, these were San Diego County rhopaloceran species whose occurrence in Baja California was not based on specimen evidence, but on inference and/or personal communications with William P. Medlar (Research Associate in Lepidoptera, San Diego Natural History Museum).

Except for specimens collected by Gregory S. Forbes, very little current Baja California material has been added to the San Diego Natural History Museum Lepidoptera collection, and much of the older material, credited to this department's holdings, is not present in the collection. The San Diego Natural History Museum, with its proximity to Baja California and interest in this region as one of its primary areas of research, promoted concentrated research efforts during 1979 and 1980. Extensive collecting yielded several new records for Baja California.

The following are species of Rhopalocera whose documented occurrence in Baja California has not been previously published:

*Hesperia juba* (Scudder): Seventeen specimens of *H. juba* were captured 3 km NW of Laguna Hanson, Sierra Juarez, 4 October 1979 (J. Brown & P. Latislaw). *Hesperia juba*, widely distributed throughout the mountainous areas of the west, is quite common in San Diego County. MacNeill (1962) states that *H. juba* unquestionably occurs in the northern boreal ranges but that he had seen no specimens from Baja.

*Hesperia harpalus leussleri* Lindsey: One worn specimen (det: Wm. McGuire) was collected on a ridge about 9 km NW of Laguna Hanson, Sierra Juarez, 24 July 1979 (J. Brown). An additional twenty specimens were collected at the same locality, 4 June 1980 (J. Brown, D. Faulkner, and Wm. McGuire). This subspecies is common in San Diego County, previously its southernmost documented distribution. MacNeill (1962) states, "I know of no specimens from Mexico but the insect can be expected in the Sierra Juarez in June."

*Papilio rudkini* Comstock: Several specimens were observed hilltopping and one collected 1 km east of La Rumarosa, 3 April 1979 (D. Faulkner). Four more specimens were collected at the same locality, 8 April 1980 (J. Brown). A common swallowtail in the Mojave and Colorado deserts of southern California, *P. rudkini* should be expected throughout the desert areas of northern and eastern Baja California Norte wherever its host turpentine broom (*Thamnosma montana* Torr. & Frem.) occurs.

*Papilio indra pergamus* (Edwards): This southernmost subspecies of the *P. indra* complex is common in the higher mountains and occasional on many of the chaparral peaks in San Diego County from late April to early June. Two specimens of this insect were collected on a chaparral peak about 12 km east of Tecate, Baja California Norte, 26 April 1980 (J. Brown) and an additional specimen on 6 May 1980 (J. Brown).

*Satyrus auretorum spadix* (Hy. Edwards): Two specimens were collected near the entrance of Parque Nacional Sierra San Pedro Martir, 22 June 1979 (J. Brown & D. Faulkner). A species formerly regarded as "confined to California" (J. F. Emmel, 1975) and previously known as far south as the mountains of San Diego County, *S. auretorum spadix* should be expected throughout the chaparral and oak woodland areas of northern Baja California Norte, especially in the Sierra Juarez and the Sierra San Pedro Martir.

*Satyrus tetra* (Edwards): Two specimens of *S. tetra* were collected near the entrance of Parque Nacional Sierra San Pedro Martir, 22 June 1979 (J. Brown & D. Faulkner) and many more specimens were collected 9, 18, and 24 July 1979 at various localities in and near the Sierra Juarez. A common San Diego County butterfly with a wide distribution throughout California, *S. tetra* can be expected in the chaparral and mountain areas of Baja California Norte where its host mountain mahogany (*Cercocarpus betuloides* Nutt. ex. T. & G. and *Cercocarpus minutiflorus* Abrams) occurs.

*Strymon bazochii* (Godart): One specimen of *S. bazochii* is in the San Diego Natural History Museum collection with the following data:

Mexico, Baja California Sur, La Burrera Canyon, east of Todos Santos, 21 March 1974 (G. Forbes).

Also one specimen was recently collected at San Bartolo, 1 December 1979 (J. Brown). This species occurs in the Greater Antilles and in the continental tropics from Brazil to southern Texas, where it is a resident (Scott, 1975).

*Strymon cestri* (Reakirt): One specimen of *S. cestri* is in the San Diego Natural History Museum collection with the following data:

Mexico, Baja California Sur, San Bartolo microwave tower, 15 March 1974 (G. Forbes).

Also one male specimen was collected on a hilltop 15-20 km north of Cabo San Lucas, 1 January 1980 (J. Brock). *S. cestri* occurs in Central America and Mexico and strays have been recorded as far north as southern Texas (James A. Scott, 1975).

*Tharsalea arota* (Boisduval): Three specimens were collected from 24-27 km east of Meling Ranch, Sierra San Pedro Martir, 20 & 22 June 1979 (D. Faulkner). Additionally, *T. arota* was found to be quite common 9 km east of Ojos Negros, 4 and 9 June 1980 (J. Brown, D. Faulkner and Wm. McGuire). *T. arota* was previously believed to reach its southernmost distribution in San Diego County where it is considered quite rare (Emmel & Emmel, 1973). Further collecting is needed to define its geographic distribution.

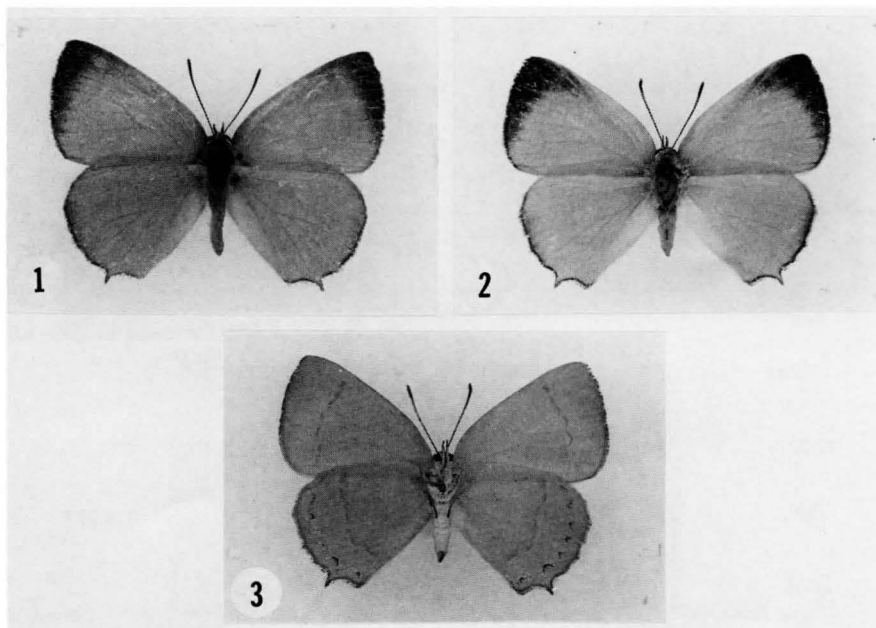
*Vanessa virginiensis* (Dury): Collected at many localities in Baja California Norte including the Sierra San Pedro Martir, Sierra Juarez, and Isla San Martin. *V. virginiensis* is a widespread inhabitant. Why it was previously undocumented from Baja California is strange.

*Danaus plexippus* (Linnaeus): Another widespread species, *D. plexippus* should be expected in much of Baja California Norte. We collected specimens in the Sierra Juarez, 24 July and 4 October 1979. Also, there is a specimen in the San Diego Natural History Museum collection from San Miguel de Comondu, Baja California Sur, 22 March 1974 (G. Forbes). Mention of this species was also probably overlooked in previous Baja publications.

*Opsiphanes boisduvalii* Westwood: One specimen was collected at the Hotel Finisterra, Cabo San Lucas, Baja California Sur, 8-10 October 1979 (J. Brown). Of this species Fruhstorfer (in Seitz, 1924) comments, "a species of restricted range... originally described from Mexico, it extends southward only to Guatemala and Honduras."

In addition to the above list, *Thessalia leanira* (Felder and Felder) near *wrightii* (Edwards), an insect previously collected by Holland (1972) in the Sierra San Pedro Martir, was found during 1979 in good numbers (27 specimens)  $\approx$  26 km east of the Meling Ranch, Sierra San Pedro Martir, 20 & 22 June 1979 (J. Brown & D. Faulkner). In series, this insect displays a consistent distinctness from *T. leanira wrightii* and a closer examination of its affinities to the San Diego County populations should be considered. Also, a phenotypically distinct population of *Apodemia mormo* (Felder and Felder), geographically closest to *Apodemia mormo virgulti* (Behr), but approaching low elevation *Apodemia mormo mejicana* (Behr) in coloration, was sampled (17 specimens) near Laguna Hanson and Arroyo de Sauz in the Sierra Juarez, 4 October 1979 (J. Brown & P. Latislaw).

The most unique butterfly encountered was a new species of *Habrodais*.



Figures 1-3: *Habrodais poodiae*, new species. 1, Holotype ♂, upper surface. 2, Allotype ♀, upper surface. 3, Allotype ♀, under surface.

**Habrodais poodiae**, sp. nov.

Figures 1 ( ♂ ), 2 ( ♀ ), 3 ( ♀ undersurface), 4-6 ( ♂ genitalia).

**Male:** Head and tergal surface of thorax dark brown, covered with fine orange hairs. Sternal region of thorax thickly covered with white hairs. Abdomen a uniform dark brown, arrayed with golden-orange scales. Antennae black with thin, circular, white bands.

Upper surface of forewing an immaculate golden-orange appearance with a well-defined dark brown margin restricted to the apical and marginal areas. Hindwing also exhibits the expansive golden-orange appearance but has the dark brown border generally limited to a fine line along the outer margin. Under surface of the wings ochre with a faint sinous mesial band. Forewing length 15.1 mm (holotype), 31 ♂♂, paratypes, 13.8-15.7 mm ( $\bar{x}$  = 14.73 mm).

**Genitalia:** As illustrated (figures 4-6). See Table 1. The male genitalic structures of *H. poodiae* are very similar to those of *H. grunus*. However, upon close examination, a number of differences appear which can be considered diagnostic. These are compared in Table 1. Female genitalic structures were not examined.

**Female:** No consistent difference in coloration or wing markings from males. Females occasionally possess a slightly more rounded outer margin of the forewing. Length of forewing 14.9 mm (allotype), 27 ♀♀, paratypes, 13.5-17.0 mm ( $\bar{x}$  = 15.0 mm).

**Food Plant:** Presumably canyon oak (*Quercus chrysolepis* Liebman) with which the adults were intimately associated in the field. This would be consistent with the California populations of *H. grunus grunus* (Boisduval). However, there was a definite preference for a smaller leafed form of *Q. chrysolepis* demonstrated in the Baja California population. Also, captive female *H. poodiae* readily oviposited on *Q. chrysopelis*, which is in direct contrast to the observed behavior of nominate *H. grunus*, an insect from which it is notoriously difficult to obtain ova (Comstock and Dammers, 1935; R. Mattoni, personal communication, 1979).

TABLE 1

COMPARISON OF *HABRODAIS* SPECIES MALE GENITALIC CHARACTERS

Character	<i>poodiae</i>	<i>grunus</i>
Falces	Bent	Curved
Uncus	Rounded	Angulate
Valva	Distal end pointed	Distal end rounded
Socii	Thin	Wide

**Distribution:** The presently known distribution of *H. poodiae* encompasses the area in and about the Parque Nacional de Constitucion de 1857, Sierra Juarez, Baja California Norte, Mexico. In this locality it inhabits the cismontane oak woodland at an elevation of 1600 metres. *Habrodais poodiae* should be searched for in other mountainous areas of Baja California Norte inhabited by *Q. chrysolepis*, especially the Sierra San Pedro Martir.

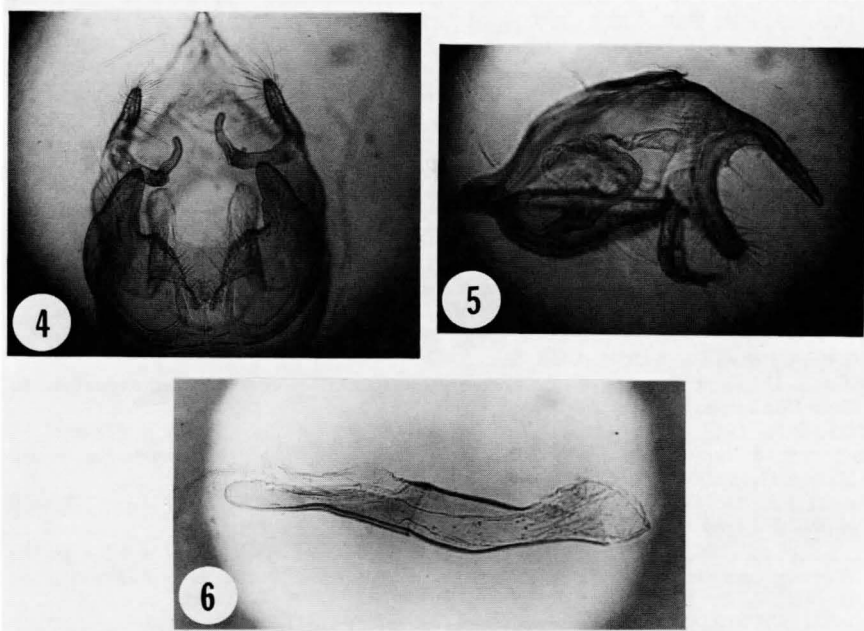
**Flight Period:** Probably early July extending through the end of August. The earliest specimens collected (18 July) gave every indication of having been on the wing for awhile. Live material taken later (24 July) remained alive and active until late August, with the exception of one specimen which did not die until 24 September, a full 2 months following its capture.

Described from a series of 58 specimens collected 18 and 24 July 1979, Sierra Juarez, Baja California Norte, Mexico.

**Holotype:** MEXICO: BAJA CALIFORNIA: Sierra Juarez: 5 km southwest of entrance to Parque Nacional de Constitucion de 1857: Arroyo de Sauz (El Aserradero), 32°00'N, 115° 57'W, elevation 1600 meters.

**Allotype:** Same data as holotype.

**Disposition of type-series:** Both the holotype and allotype are deposited in the Entomology Department, San Diego Natural History Museum. Thirty-six paratypes, with the same data as the primary types, and 4 paratypes collected at the southwest end of Laguna Hanson (Juarez) Parque Nacional de Constitucion de 1857, Baja California Norte, Mexico, 18 July 1979, are also deposited in the San Diego Natural History Museum. Representative pairs from the remainder of the paratype series will be sent to the California Academy of Sciences, American Museum of Natural History, Los Angeles County Natural History Museum, Allyn Museum of Entomology, and the Instituto de Biologia, National University of Mexico.



Figures 4-6: ♂ genitalia of *Habrodais poodiae poodiae*, new species. 4, ventral view of genital capsule. 5, lateral view of genital capsule. 6, Aedeagus.

**Etymology:** The name *poodiae* is derived from Poody Latislaw, without whose generous assistance the discovery and eventual description of this butterfly would have been all but impossible.

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