REDISCOVERY OF APODEMIA PHYCIODOIDES (RIODINIDAE)

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ABSTRACT. Apodemia phyciodoides Barnes & Benjamin had previously been known only from the holotype and allotype, which were taken in the Chiricahua Mountains of Arizona. Evidence indicates that these were captured by O. C. Poling, possibly in 1915. During 1978, 1979 and 1980, the authors took about 50 specimens from four major drainages on both sides of the continental divide in the Mexican states of Chihuahua and Sonora. Specimens were recorded in the months of April, June, August and September.

Technical literature today abounds with anecdotes of 19th century naturalists, but we are discouraged from relating contemporary incidents in scholarly journals. This policy deprives posterity of what may someday be of considerable interest. (It would be highly amusing to know Paul Ehrlich's first words when handed the first specimen of what Clench and he later named *Sandia macfarlandi*.) Toward this end, we offer the following informal account of the rediscovery of *Apodemia phyciodoides*, a butterfly "lost" for more than 60 years.

A. phyciodoides was described by William Barnes & F. H. Benjamin (1924), based on a male holotype labelled "Chiricahua Mountains/Cochise Co./Ariz." and an allotype labelled "Paradise/Cochise Co./Ariz." These specimens are presently in the U.S. National Museum of Natural History collection.

While we cannot be sure who collected the type material, available evidence points strongly to O. C. Poling, a pioneer collector/dealer in the southwestern U.S. In a letter to Henry Skinner dated 20 August 1915, Poling indicated he had been collecting "since early spring" with two assistants at Paradise, Arizona, and intended to return to Quincy, Illinois, on "Oct. 1st." This letter was written on stationery with the letterhead of the "Paradise Mining and Milling Co." Poling was a supplier of specimens to a number of eastern lepidopterists, including Skinner and Barnes. His style of concentrated collecting for long periods at one locale (as in the Baboquivari Mountains, Arizona, and Davis Mountains, Texas) resulted in unusual records and series of specimens that have never been duplicated. We have a specimen of *Catocala delilah desdemona* Hy. Edwards with a locale label bearing identical data (though set in different type) to that of the *phycio-doides* allotype. This specimen was obtained from A. E. Brower, who in turn related that Otto Poling had collected "a large number of *C*. *d. desdemona* in the Southwest."

In any event, no further specimens of *phyciodoides* were apparently taken until 1978, despite intensive searching in southeastern Arizona, especially in the last 20 years. Thus, the species has been rarest of all Nearctic butterflies in collections.

The senior author has been desirous of traversing the Sierra Madre Occidental in Mexico since 1964. In April 1978, a serious attempt finally became possible. While this attempt did not accomplish the primary objective, an unrecognized *Apodemia* was taken at a number of sites, initially near Colonia Juárez, Chihuahua. Interestingly, this site is very close to the type locality of *Speyeria nokomis coerulescens* Holland (1900), where Charles H. T. Townsend had collected in 1899 (see Fig. 1). Townsend took at least four other taxa which were undescribed at the time (Clench, 1965). It is surprising that neither Townsend nor subsequent *coerulescens*' collectors in the area found *phyciodoides*.

Coincidence entered the story in April 1979, when Holland decided to make 1979 the year to survey the Organ Mountains near Las Cruces, New Mexico (Holland, 1974). There conversations with the junior author, who was doing research on *Apodemia* at the New Mexico State University, turned to the unrecognized *Apodemia* from the Sierra Madre. On Holland's next trip to Las Cruces, he taped an envelope with unspread specimens to Forbes' door, went collecting in the Organ Mountains, and returned to Albuquerque, where an excited Forbes had been trying for some time to call him concerning the identity of the *Apodemia*.

A joint trip to Colonia Juárez in June of 1979 yielded additional *phyciodoides* specimens and new collection sites, and fulfilled Holland's ambition of 15 years to traverse the Sierra Madre. Forbes made additional trips in August and September of 1979, which provided further records of flight periods. Fig. 2 illustrates a typical specimen from that locality. We now believe *phyciodoides* is widely distributed throughout the northeastern extremity of the Sierra Madre and is multiple brooded from at least April to September. Our records follow in the Appendix. That the rarest Nearctic butterfly has been abundantly flying just 100 miles south of the border the last 60 years should serve to impress all collectors in the American Southwest of the lepidopterists' "rose garden" right in our backyard.

The ecological associations of *phyciodoides* are imperfectly known. At Colonia Juárez, it appeared to be most common at the mouth of



FIG. 1. Locations at which *Apodemia phyciodoides* has been found, with indication of 5000' and 7000' elevation contours.

narrow canyons opening on the Rio Piedras Verdes in a *Prosopsis-Celtis-Aloysia* association. Several specimens were taken at blooms of annual *Eriogonum*. A few individuals were collected in grassy clearings adjacent to the *Baccharis-Salix* vegetation along the stream, but the species does not appear to be riparian in the manner of *Calephelis* (it was never collected at profuse *Baccharis* blooms along the stream). It was also collected in adjacent grassy canyons among shrubs of *Quercus* and *Aloysia* but was not found in the xeric, mesquite-ocotillo, desert-scrub bordering the river canyon. One specimen was taken along with *Apodemia nais* (Edw.) on the Rio de Los Lobos (see Fig. 1) in the lower pine zone, indicating that the species extends to higher elevations; a broad altitudinal range is not unusual in *Apodemia*.

A peculiarity of Sierra Madre collections is the lack of records for Apodemia palmeri (Edw.), which is often abundant in Prosopsis-Baccharis habitat such as occurs at Colonia Juárez. The correlation between presence of phyciodoides and absence of palmeri is one that requires further study. To our knowledge, Emesis zela cleis (Edw.) is the only other riodinid thus far collected at Colonia Juárez, although Calephelis nemesis (Edw.), C. arizonensis McAlpine and Apodemia hepburni Godman & Salvin might also occur there (at the Tres Rios site, phyciodoides and arizonensis have been taken together). From our limited experience, phyciodoides, where present, would seem considerably less common than A. palmeri, but somewhat more abundant than A. hepburni (which itself is very poorly known).

In concluding, we must consider the apparent absence of *phycio-doides* from the Chiricahua Mountains today. There seems little reason to doubt the data on the type specimens. Until recently, the insect was not known from elsewhere, and if Poling was the collector, his locally intensive field work might have yielded an otherwise overlooked riodinid. Poling's locale labels, although often imprecise, are usually considered reliable.

We might then consider the possible recent extinction of *phycio-doides* in southeastern Arizona. There is at present no habitat on the eastern side of the Chiricahua Mountains that exactly matches the Colonia Juárez locality. The area around Paradise is higher (elevation 5800') and is more heavily grown with oaks and junipers. Yet, at the same time it lacks the permanent riparian habitat characteristic of all known *phyciodoides* sites. We have no way of knowing if the types were captured at higher, wetter locales west of Paradise or at more xeric spots to the east.

There are presently stretches of open desert that effectively separate the Sierra Madre from the Chiricahua Mountains from the stand-



point of *phyciodoides* dispersal. Evidence exists for a drying trend in this region (Schulman, 1956) with resultant elevation of life zones. As stated by Lowe (1964), even a slight change in the precipitation-evaporation ratio can markedly change the vegetation at one locality. From Fig. 1 we may visualize a time when more of a vegetative continuum existed between the Sierra Madre and the Chiricahuas. It is thus fully possible that a declining relictual population of *phyciodoides* inhabited the Chiricahuas until early in this century and has been extinguished without a natural means of introduction. However, we must temper such speculation with the observation that only two specimens were captured in the first place and that its precise habitat requirements are still poorly known.

From Fig. 1 we may also note that other ranges (Animas Mountains and the nearby Peloncillo Mountains) are much closer to the present range of *phyciodoides* than the Chiricahuas and have not been so intensively collected. Searches might also focus more profitably on the southern end of the Chiricahua range. Possibly, more intensive work in Mexico might yield habitat-foodplant information that will enable us to rediscover the species in the southwestern United States.

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FIG. 2. Apodemia phyciodoides ♂, dorsal and ventral surfaces; 5 mi. NW Colonia Juárez, canyon of Rio Piedras Verdes, 5000′, Chihuahua, Mexico, 28 June 1979, leg. R. Holland.

APPENDIX

Records of Apodemia phyciodoides

MEXICO, Chihuahua:

5-6 mi. NW Colonia Juárez, canyon of Rio Piedras Verdes, 5000': 9 April 1978 (3δ δ) RWH, 10 April 1978 (1δ) RWH, 25 June 1979 (3δ δ) GSF, 26 June 1979 (2δ δ) GSF, (5δ δ) RWH, 24 Aug. 1979 (1δ, 1 ♀) GSF, 25 Aug. 1979 (1 ♀, 7 δ δ) GSF, 11 Sept. 1979 (1♀, 5δ δ) GSF, (1δ) N. J. Miles, 3 April 1980 (2♀♀, 3δ δ) GSF, 4 April 1980 (3δ δ) GSF, (1δ) S. Judd

9.5 mi. NW Colonia Juárez, 5500': 10 April 1978 (299, 1 3) RWH

6.5 mi. W Rancho Gavilán, 23.4 mi. E Tres Rios, 5600' (30°3'N, 108°32'W). 13 April 1978 (13) RWH

Sonora:

Tres Rios at Rio Bivaspe (29°52'N, 108°38'W) 4800': 12 April 1978 (5さよ) RWH, 13 April 1978 (1よ) RWH

6.2 mi. N of Mesa Tres Rios & 50.3 mi. S of Huachinera on Rio de Los Lobos, 5900' (29°41'N, 108°49'W): 1 July 1979 (1♂) B. Harris

BOOK REVIEW

Journal of the Lepidopterists' Society 35(3), 1981, 232

LES ATTACIDAE AMERICAINS. THE ATTACIDAE OF AMERICA (=SATURNIDAE): ARSEN-URINAE, by Claude Lemaire. 1980. Neuilly-sur-Seine, France: C. Lemaire. 199 pp., 171 figs., 76 pls. (4 in color).

In continuation of the series, *Les Attacidae Americains*, and following publication in 1978 of volume 1, Lemaire here presents volume 2. This volume treats the entirely Neotropical subfamily Arsenurinae, encompassing 57 species and including some of the more spectacular saturniids, as in the genus *Copiopteryx*. As in volume 1, each species is illustrated full size among the 76 plates, of which 4 are in color. Likewise, the text continues in the previous manner, with each species text in French followed by an English summary. Thus, persons not familiar with French can still easily use the volumes.

Only three new subspecies are described in volume 2. One new tribe is proposed for the monobasic genus *Almeidaia*.

Technically, this second volume continues Lemaire's excellent coverage. Full synonymies are given for all taxa and all infraspecific names are noted in synonymy. Lemaire follows priority strictly; thus, adopting the name Arsenurinae over the more commonly used Rhescyntinae. I found no major errors or misspellings. My only criticism involves the retention of some of the subspecies, inasmuch as they are not geographically isolated in some cases and may indeed only represent altitudinal forms. However, the subspecies category is fortunately used sparingly, which can only be praised when compared to such examples as *Zygaena* and *Parnassius*, where the use of subspecies has been taken to its most absurd extreme.

We can but welcome this new addition to Dr. Lemaire's continuing revision of the New World saturniids (or Attacidae) and hope for a short interval for the next volume in the series to be published.

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