

## STUDIES IN ARIZONA LEPIDOPTERA

I. A NEW SUBSPECIES OF *SPEYERIA ATLANTIS* (EDWARDS) FROM THE KAIBAB PLATEAU, GRAND CANYON NATIONAL PARK.

By JOHN S. GARTH

Allan Hancock Foundation, The University of Southern California

Significant progress toward the elucidation of the Great Basin and Rocky Mountain distribution of *Speyeria atlantis* (W. H. Edwards) (1863, p. 54) has been made recently by Dos Passos and Grey (1945, 1947). However, the existence on the Kaibab Plateau of northern Arizona of an isolated colony exhibiting constant differences in size and maculation from the presently recognized races of this polytypic species has apparently escaped attention. As a result of field work conducted by the Allan Hancock Foundation at the North Rim of the Grand Canyon in the summer months of 1946 and 1947, a sufficient series has been accumulated to permit its description.

*SPEYERIA ATLANTIS SCHELLBACHI*, new subspecies

Figures 1-4

*Description:* Above, similar to *S. atlantis chitone* (W. H. Edwards) (1879, p. 82), but with a more ruddy color and more heavily and diffusely patterned throughout. This is especially apparent in the basal suffusion, which tends to obscure the broadened band, and in the black scaling along the veins, which widens perceptibly inside the extradiscal row of round spots.

Below, both sexes approaching *S. atlantis nausicaa* (W. H. Edwards) (1874, p. 104), heavily silvered with occasional partially silvered specimens, the silver spots tending to elongate, all spots edged above with black; ground color of secondaries cinnamon to violet brown mottled with buff, the narrowed submarginal belt remaining buff instead of yellow.

*Expanse:* Males 54-61 mm. (holotype 61 mm.). Females 52-66 mm. (allotype 66 mm.).

*Type material:* Male holotype, AHF No. 471, and female allotype, AHF No. 471a, from Neal Spring, North Rim, Grand Canyon National Park, Coconino County, Arizona, 8,175 feet,

July 5, 1947, collected by John S. Garth, Allan Hancock Foundation survey party. Twenty paratypes as follows: 1 female, North Rim, Grand Canyon, July 29, 1939, Louis Schellbach, collector; 1 female, North Rim, Grand Canyon, August 19, 1942, H. C. Bryant, collector; 1 male, 1 female, Two River Junction, North Rim, Grand Canyon, July 28, 1945, Louis Schellbach, collector, the preceding four paratypes on loan from the Naturalist Workshop, Grand Canyon National Park; 1 male, 1 female, Neal Spring, North Rim, Grand Canyon, August 16, 1946, J. S. Garth, collector; 2 females, Kanabownits Spring, North Rim, Grand Canyon, August 22, 1946, J. S. Garth, collector; 7 males, 2 females, Neal Spring, North Rim, Grand Canyon, July 5 to 8, 1947, J. S. Garth, collector; 1 male, Robbers' Roost Spring, North Rim, Grand Canyon, July 10, 1947, J. S. Garth, collector; 2 females, Swamp Lake and Swamp Ridge, North Rim, Grand Canyon, July 12 and 14, 1947, J. S. Garth, collector.

The holotype, allotype, and ten paratypes are in the collection of the Allan Hancock Foundation, the University of Southern California. The remaining paratypes will be distributed as follows: one male and three females to the Naturalist Workshop, Grand Canyon National Park, one pair each to the United States National Museum, the American Museum of Natural History, and the Los Angeles County Museum.

*Remarks:* The proposed new race of *Speyeria* has been variously determined by competent authorities on the basis of single specimens submitted by park naturalist Louis Schellbach: as "*Speyeria* sp. close to *chitone*" by W. D. Field, and as *Argynnis nausicaa* by J. A. Comstock, both currently recognized as subspecies of *S. atlantis*. The status of *chitone* has been clarified by Dos Passos and Grey (1947, p. 19) with the fixation of Cedar Breaks National Monument, Utah, as type locality, thereby eliminating Arizona from the originally designated range. Similarly, the type locality of *nausicaa* has been fixed, although not without a question mark, as Cochise County, in the southeastern part of Arizona. The same authors have ably defended the designation as racial entities of homogeneous colonies illustrating transition between dissimilar forms. In the light of this reasoning *schellbachi* may be considered as linking *chitone* and *nausicaa*, although geographically isolated from either.

The study of the newly proposed race has been facilitated by a series of 7 male and 8 female specimens of *chitone* from Cedar Breaks, Utah, collected by J. A. Comstock, and by a much longer series of *nausicaa* from the White Mountains of Arizona, collected by E. Yale Dawson. Pertinent to the study were topotypes of the following races of *atlantis*: of *nikias* (Ehrmann) (1917, p. 55), *wasatchia* Dos Passos and Grey (1945, p. 9), and *dorothea* Moeck (1947, p. 73) in the collection of the Los Angeles County

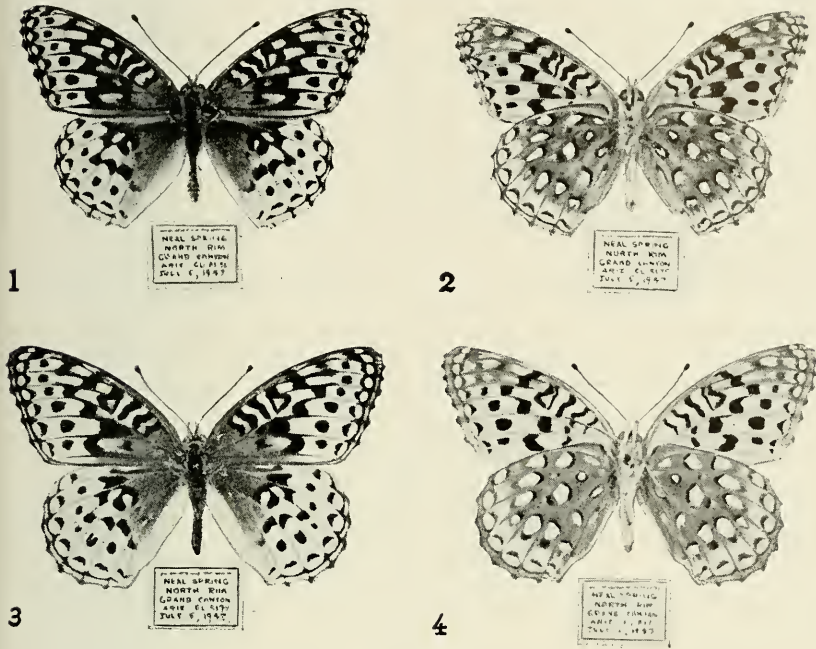


PLATE 1

*SPEYERIA ATLANTIS SCHELLBACHI*, new subspecies

- FIG. 1. Holotype male, upper surface, x .78.  
 FIG. 2. Holotype male, under surface, x .78.  
 FIG. 3. Allotype female, upper surface, x .7.  
 FIG. 4. Allotype female, under surface, x .7.

Museum, and of *tetonia* and *viola* Dos Passos and Grey (1945, pp. 9, 10) in the collection of the Allan Hancock Foundation.

I take pleasure in naming the new subspecies for Louis Schellbach, III, park naturalist, whose enthusiasm as a collector has resulted in acquainting specialists in many fields with the novel and interesting forms to be found within Grand Canyon National Park.

## REFERENCES CITED

DOS PASSOS, C. F., and L. P. GREY

1945. A new species and some new subspecies of *Speyeria* (Lepidoptera, Nymphalidæ). Amer. Mus. Novitates, no. 1279, pp. 1-17, figs. 1-30.  
 1947. Systematic catalogue of *Speyeria* (Lepidoptera, Nymphalidæ) with designations of types and fixations of type localities. *Ibid.*, no. 1370, pp. 1-30.

EDWARDS, W. H.

"1862" [1863]. Descriptions of certain species of diurnal Lepidoptera found within the limits of the United States and British North America. No. 2. Proc. Acad. Nat. Sci. Philadelphia, vol. 14, pp. 54-58.

1874. Description of new species of diurnal Lepidoptera found in North America. Trans. Amer. Ent. Soc., vol. 5, pp. 103-111.

1879. Descriptions of new species of North American butterflies; also, notes upon certain species. Canadian Ent., vol. 11, pp. 81-88.

EHRMANN, G. A.

1917. Some new North American butterflies. Lepidopterist, vol. 1, pp. 54-56.

MOECK, A. H.

1947. A new subspecies of *Speyeria atlantis* (Edwards) from New Mexico (Lepidoptera: Nymphalidæ). Ent. News, vol. 58, pp. 73-75.



## A NOTE ON *CAICELLA MYSIE* (Dyar) WITH A FIGURE OF THE MALE GENITALIA

By J. W. TILDEN

*Caicella mysie* (Dyar) was described in 1904 from two specimens, the holotype and a paratype, taken by Oslar in the Panguonia Mountains, Arizona. It would appear to be a rare or at least a seldom collected species. Part of this may be due to the rather isolated range. In any case, little information seems available beyond the original description, and the genitalia of the male seem never to have been figured. A male specimen taken in the type locality by the author on August 1, 1940, is figured by means of a photomicrograph of the slide of the male genitalia in the accompanying illustration, and for completeness, the insect itself is also figured, since it differs in certain respects from the type.

The present specimen was kindly compared with the type by Mr. W. D. Field of the United States National Museum, and he states that the hyaline spot in the outer third of the cell is broader in the type, completely crossing the cell on both surfaces. In the present specimen this spot is smaller, and is confined to the upper half of the cell, as can be seen by the photograph. Mr. Field also compared the photomicrograph of the male genitalia with the slide made from the male paratype of *mysie*, and considers them to be conspecific. Thus it would appear that there can be little doubt but what the individual that is figured in this article is of