

NOTES ON THE LIFE HISTORY OF *PHILOTES RITA*
ELVIRAE (Lepidoptera; Lycaenidae)

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The rare and elusive little "blue," described and illustrated by Mattoni (1966) as *Philotes rita elvirae*, is known to only a few of the rugged collectors who have ranged the desert areas of southern California.

The type series was taken by Christopher Henne in a desert wash about 3.5 miles southwest of Pearblossom, Los Angeles County, California; elevation 3400 feet. The butterflies may be taken on the wing from July to September, in a narrow belt northward from Little Rock in the Juniper Hills area, S.W. of Pearblossom to Walker Pass summit, Mammoth Camp, and Bishop. They are associated with a late-blooming "wild buckwheat," *Eriogonum plumatella* D. & H.

The female deposits her eggs singly, each deep in the flower of the *Eriogonum*. Eggs laid September 16 to 20, hatched September 28 to 31, 1964.

EGG: (FIGURES 1 A AND B)

Diameter, 0.5 mm. Height, 0.25 mm.

Color, pale green. Form, echinoid, with the top deeply depressed. The surface is covered with a network of minute hexagonal pits, surrounded by raised white walls. This network extends across the floor of the micropylar depression, in the center of which is a minute, barely discernible micropyle. The emerging larva exits from the side of the egg, leaving most of the shell intact.

LARVA, FIRST INSTAR:

Described from a single example, two days after hatching. Length, 0.9 mm. Width approximately 0.1 mm.

Head, jet black. Body cylindrical, not tapering toward cauda. Color, light yellow-green.

Two longitudinal rows of short translucent setae occur, one on each side of the middorsal area. Another row of setae of the same char-

acter occurs dorsolaterally. There are apparently additional setae lateroinferiorly, but the single larva could not be sacrificed to allow closer handling and definition of details.

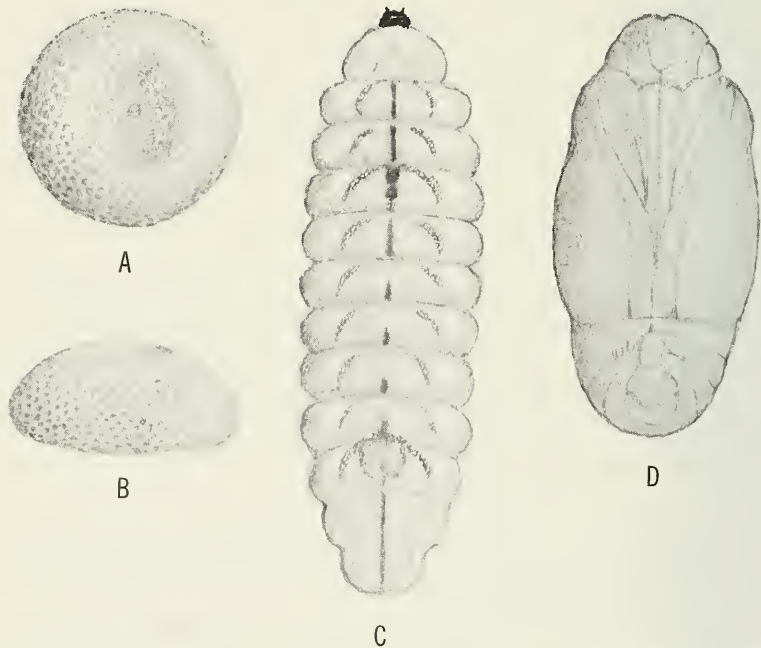
Most of the larvae subsequently received at our Del Mar laboratory died, probably as a result of foodplant substitution. They did not take normally to our coastal *E. fasciculatum*. However, many were reared to maturity at our desert laboratory where their normal foodplant, the flowers of *Eriogonum plumatella*, was readily procurable.

LARVA OF 6 MM LENGTH: (FIGURE 1 C)

Greatest width, 2 mm. Probably in penultimate instar. Form, the usual lycaenid slug-like character, but with the segments protruding, as shown in the illustration.

Head, jet black, and completely retracted when at rest.

Body, ground color, ivory-white, slightly tinged with green. A middorsal discontinuous line, formed of pinkish-brown dashes. A dorsolateral line of curved brownish-pink dashes from the 3rd to



Reproduced from water color drawing by John A. Comstock.

Figure 1. Life history of *Philotes rita elvira*. All figures enlarged. A. Egg, top view. B. Egg, side view. C. Larva, dorsal surface. D. Pupa, ventral surface.

11th segments, the caudalmost bearing a large speckled brownish oval spot middorsally. Legs, black. Prolegs concolorous with body; crochets, brown. The body surface encrusted with minute white stubby knobs or setae.

MATURE LARVA:

The single surviving example in our Del Mar laboratory was obviously somewhat less than normal size as a result of semi-starvation and unnatural thermal environment. Its measurements were very little in excess of those for the penultimate instar.

In color and markings it also approximated the prior instar except for a slightly stronger clarification of the pinkish-brown lines and dashes.

Normal pupation occurs among small flat pebbles and dried branches near the base of the foodplant. Our single example in Del Mar pupated in the *Eriogonum* blossom.

PUPA: (FIGURE 1 D)

Length, 4.5 mm. Greatest width, 2.5 mm. Two pupae reared under normal desert environment by Henne measured: length, 6 mm, greatest width, 3.5 mm. Form, robust.

Color, at first a delicate green; later, uniform orange-yellow. Eyes not prominent. Head, evenly rounded. Antennae reaching to wing margins; much wider in distal one-fourth, where they cover over and obscure the maxillae. Body surface rugose to finely granular. Segmental lines narrow and indistinct. They have been purposely slightly intensified in the drawing. Spiracles small, slightly darker than the ground. No knobs or spines on the caudal tip, except for a few short minute yellow spicules, which serve as anchorage for the cast-off larval skin.

Two California lepidopterists have recently published papers on the *Philotes enoptes* and *P. rita* subspecies which have expanded and clarified our understanding of the complex. Langston (1964) gave special emphasis to the species occurring in the central coastal area of California. He named two new subspecies, *P. enoptes bayensis*, and *P. enoptes tildeni*. Mattoni (1966) discussed the subspecies *P. rita coloradensis* and *P. rita alvirae*. The last one of these is discussed, and its early stages illustrated in this contribution. It is hoped that these combined efforts will prompt other lepidopterists to carry along further the study of extensions in range, specificity of food plants, and metamorphoses.

LITERATURE CITED

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