

LIFE HISTORY NOTES ON *CALLIGRAPHA*
MULTIPUNCTATA MULTIPUNCTATA (SAY)
(COLEOPTERA, CHRYSOMELIDAE)¹

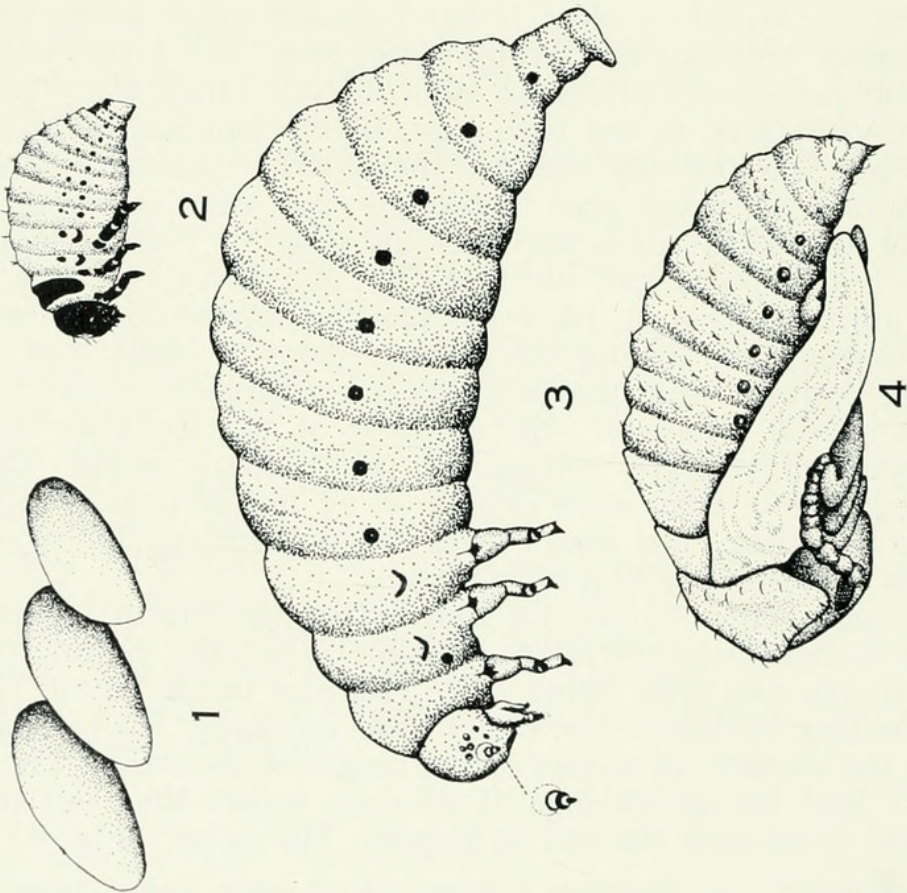
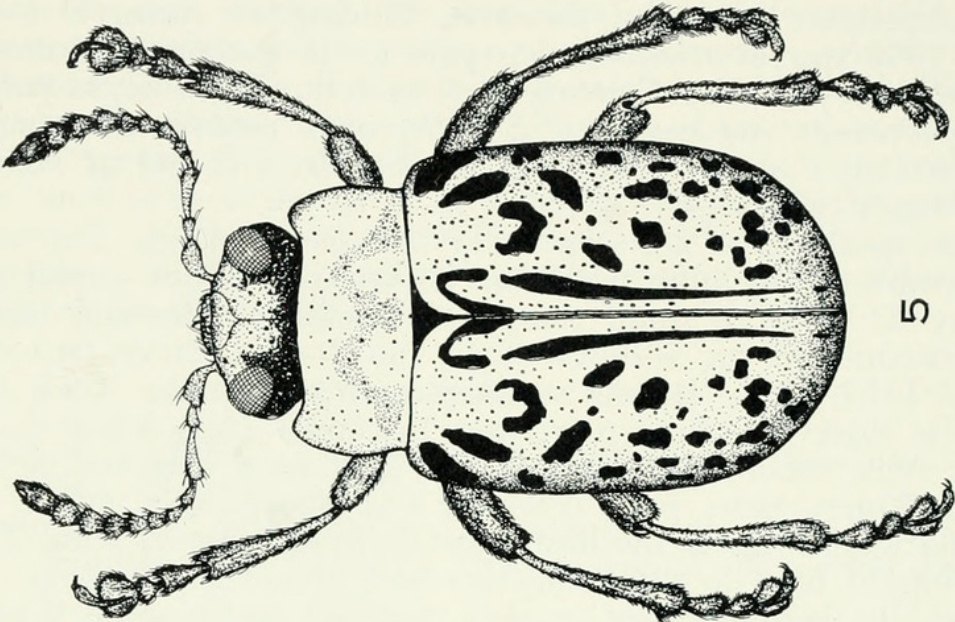
by Vasco M. Tanner

For several years the writer has been gathering information on the immature insects of this area. During the spring and summer of 1958 special attention was paid to the gathering of data on the life history of the Coleoptera. The following observations on the development and behavior of *Calligrapha multipunctata multipunctata* (Say) are recorded for the benefit and aid of students of this family in this area.

This species does not seem to be common in Utah. The writer is not aware of any information on its breeding habits in this area. On May 23, 1958, a small colony of breeding males and females were encountered on willows along the Jordan River two miles West of Lehi, Utah. It was a warm, sunny forenoon when these were first observed. Many pairs were in copula. Only a few clusters of eggs were found, and none of the eggs were observed to have hatched. Thirty pairs were collected and placed in a gallon glass jar along with twigs of the host plant *Salix melanopsis* Nutt. These were brought back to the laboratory and placed in breeding cages in which the bottoms were covered with soil and a small bottle of water containing fresh willows placed in the cages. Fortunately, this particular willow is close at hand since it grows along a stream which passes through the campus and near the laboratory. Five copulating pairs were placed in each of four cages. Only one mating pair was placed in the fifth cage. Before leaving the laboratory at 7:00 p.m. on the day the specimens were collected, May 23, I observed that the single pair in the one cage were in copula. Upon observing this same pair the next morning at 7:00 o'clock, they were still in copula, and the male did not leave the back of the female until 11:00 p.m., May 25. Careful observations were made of this mating pair during the period except at night. There is no evidence, however, that the pair was in continuous coition throughout this period. However, the position of the male as indicated above was not changed throughout the 40-hour period. The first eggs, a cluster of five, were oviposited by this female at 9:00 a.m. the next morning, ten hours after coitus. During the next three days this female laid a total of 31 eggs.

The eggs (Fig. 1) are 1.5 mm in length, .5 mm in diameter, and are a light lemon yellow in color. The eggs began to hatch on the fourth day after being laid. The first instar larvae (Fig. 2) began feeding within a few hours after hatching. No records were kept on the number of instars or the length of the stadia. The larvae (Fig. 3) feed for an average of 23 days before they left the host plant and went into the soil to pupate. The pupal (Fig. 4) period

1. Contribution No. 163, Department of Zoology and Entomology, Brigham Young University.





Tanner, Vasco M. 1958. "LIFE HISTORY NOTES ON CALLIGRAPHA MULTIPUNCTATA MULTIPUNCTATA (SAY) (COLEOPTERA, CHRYSOMELIDAE)." *The Great Basin naturalist* 18, 101–103.

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