

**BIOLOGY OF *LOPIDEA NIGRIDEA* UHLER,  
A POSSIBLE APOSEMATIC PLANT BUG  
(HETEROPTERA: MIRIDAE: ORTHOTYLINAE)**

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*Abstract.*—The basic biology of *Lopidea nigridea* Uhler is described, including details of its growth, morphology, behavior, and ecology. Distribution and abundance of this univoltine, brightly colored plant bug were studied from May through August 1985, 1986, 1987 and 1988, at 15 sites within the cirque and valley of Pike Creek, on the eastern scarp of Steens Mountain, southeastern Oregon. At Pike Creek, *L. nigridea* occurs only on the legume *Lupinus caudatus* Kellogg and feeds on the stems, undersides of leaves, flower parts and developing seeds of its lupine host plant. This paper describes the relation between *L. nigridea* and its host plant, and identifies the principal species of visually oriented arthropod predators that occur on or visit this lupine. These predators may function as operators selecting for the evolution of aposematism in *L. nigridea*, and the biology of this plant bug species is placed within the context of how protective resemblance functions in a natural community.

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*Lopidea nigridea* Uhler (Miridae: Orthotylinae) is a brightly colored plant bug belonging to the tribe Orthotylini (Carvalho, 1958; Henry and Wheeler, 1988). Generic relationships within this large complex tribe have yet to be resolved, but *Lopidea* appears related to those genera with sericeous scalelike setae and a single tergal process on the male genital capsule (Stonedahl and Schwartz, 1986).

*Lopidea* is a New World genus with species occurring from Alaska to Honduras. The genus contains 103 species north of Mexico (Henry and Wheeler, 1988) and is now under review by the second author. As currently defined, *Lopidea* comprises those orthotylinines with an oblique transverse suture on the gena and a single tergal process on the right side of the anterodorsal margin of the male genital aperture. Species vary considerably in size (3.5–7.7 mm), but most display some form of red-black, yellow-black or white-black color pattern.

*Lopidea nigridea* Uhler belongs to a group of western species that are very similar in external morphology and general coloration. This species can be confidently distinguished from related species only by examination of the male parameres—its highly variable coloration has contributed to the creation of at least 20 synonyms (Asquith, in press). Species determination was based on examination of type material of *L. nigridea* and its synonyms at the National Museum of Natural History, Washington, D.C., and the California Academy of Sciences, San Francisco, California, with special attention paid to morphological and color variation. From our study of museum specimens and literature records (Kelton, 1980), it appears that *L. nigridea* is widely distributed in western North America (Fig. 1), extending eastward through the northern plains. *L. nigridea* is the most common species of the genus west of the Rocky Mountains and has been collected from sea level to nearly 4,000 m in elevation. Although adults occasionally are found on a variety of different plants, in the western