

**Morphological Descriptions of *Laricobius nigrinus* (Coleoptera: Derodontidae),
a Predator of the Hemlock Woolly Adelgid, *Adelges tsugae* (Homoptera: Adelgidae)**

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Abstract

Laricobius nigrinus Fender (Coleoptera: Derodontidae), native to Western North America, is being evaluated as a potential biological control agent of the hemlock woolly adelgid, *Adelges tsugae* Annand (Homoptera: Adelgidae). Members of the genus *Laricobius* are known to feed on adelgids. As there are no descriptions of various life stages of *L. nigrinus* in the published literature, they are presented here.

Adult. Size small, length 2.1 to 3.1 mm (n = 100); dorsally convex and ventrally flattened; black and shining on dorsal surface; body covered with fine erect hairs; elytra striate with 10 rows of oval punctures; antennae 11-segmented with three-segmented club; tarsal segmentation 5-5-5 with segments 1 to 3 lobed and 4 reduced; claws simple; no sexual dimorphism.

Egg. Bright yellow; shiny; oval; length 0.37 to 0.50 mm; width 0.24 to 0.33 mm (n = 34).

Larva. Larval body elongate, slightly fusiform, with scattered short setae; no urogomphi on tergite 9; legs well developed, five-segmented; antennae well developed, three-segmented; four larval instars, L4 length 1.52 to 5.44 mm (n = 161); yellow-green to brown; move by drawing terminus of abdomen toward thorax; feed on eggs within woolly ovisacs; cuticular secretions adhere wool to cuticle; mature larvae drop to the soil to pupate.

Pupa. Exarate type, yellow; external genitalia protracted.

Keywords:

Laricobius nigrinus, morphological description.