Mountain-Mahogany Looper

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The mountain-mahogany looper, *Anacamptodes clivinaria profanata* (Barnes and McDunnough), is present in portions of the Western United States and western Canada (fig. 1), where it principally infests several plants in the rose family. It has killed large numbers of curlleaf mountain-mahogany (*Cercocarpus ledifolius* Nutt.) in southwestern Idaho and antelope bitterbrush (*Purshia tridentata* (Pursh) DC.) in eastern Oregon. Less commonly, the looper infests bitter cherry (*Prunus emarginata* Dougl.) and snowbrush ceanothus (*Ceanothus velutinus* Dougl.). The larvae thrive on the wild rose (*Rosa* sp.) in the laboratory but have not been found naturally on this plant.

The natural hosts preferred by the looper are favored foods of deer and elk. Destruction of their foliage (fig. 2) by the looper and other insects lessens the carrying capacity of game ranges and may decrease the production of game animals.

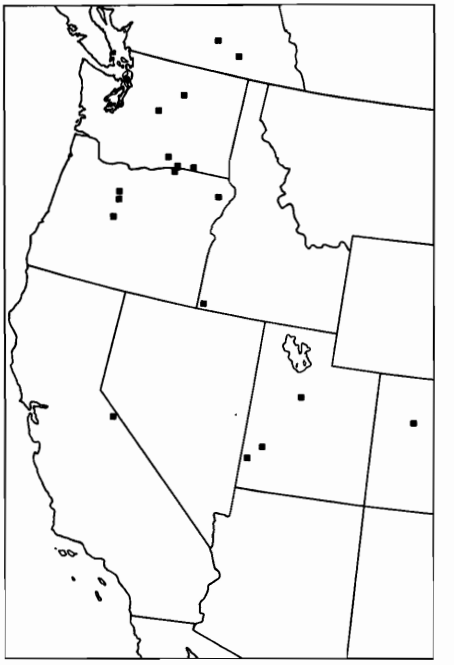

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Figure 1.—Geographic range of the mountain-mahogany looper. Squares denote collection sites (Rindge 1966).

Description

The egg of the mountain-mahogany looper (fig. 3, *A*) is satiny green, about 0.8 millimeter long, and slightly blunt at the ends. Undulating ridges on its surface give it a wrinkled appearance under magnification.

Mature larvae may attain a length of 33 mm. The larva shown in fig. 3, *B* is a typical looper, lacking prolegs on all but the sixth and last abdominal segments. The second abdominal segment has conspicuous, darkly pigmented tubercles on the upper side. The larvae vary greatly in color. On mountain-mahogany, their bodies are often cream colored

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Figure 2.—Mountain-mahogany tree defoliated by the looper.

with a black, diamond pattern on the top. Less commonly, they may be rather uniformly gray or mottled reddish and black. Larvae reared on the wild rose have uniformly yellow or purplish-gray bodies, except for dark tubercles. The mottlings on the headcapsules of larvae vary in color from black to reddish brown.

The rather stout pupa (fig. 3, *C*) is shiny brown and ranges in length from 9 to 14 mm. Its abdomen is marked by small pits and terminates with four sharp points at the anal end. The genital opening of the female is located between the eighth and ninth abdominal segments; in the male, it spans the ninth segment and is more conspicuous.

The adult moth (fig. 3, *D* and *E*) is gray and has black and brown markings on the wings. The posterior margins of the wings are marked by a serrated black line of scales, in back of which is a fringe of gray scales. The wing span varies from 27 to 36 mm. The antennae of the male are featherlike; those of the female are beadlike. Pairs of black spots occur dorsally on the abdomen.

Life History and Habits

The mountain-mahogany looper has one generation per year. The moths appear throughout most of June in Idaho but have been collected from April to July in other localities. New adults emerge from the soil after dark and rest upon nearby woody material; the wings hang downward (fig. 4) until they expand and harden.

The moths are active only at night. During the day they rest on the host plants with their wings spread. Egg-laden females apparently do not fly until some eggs are laid.

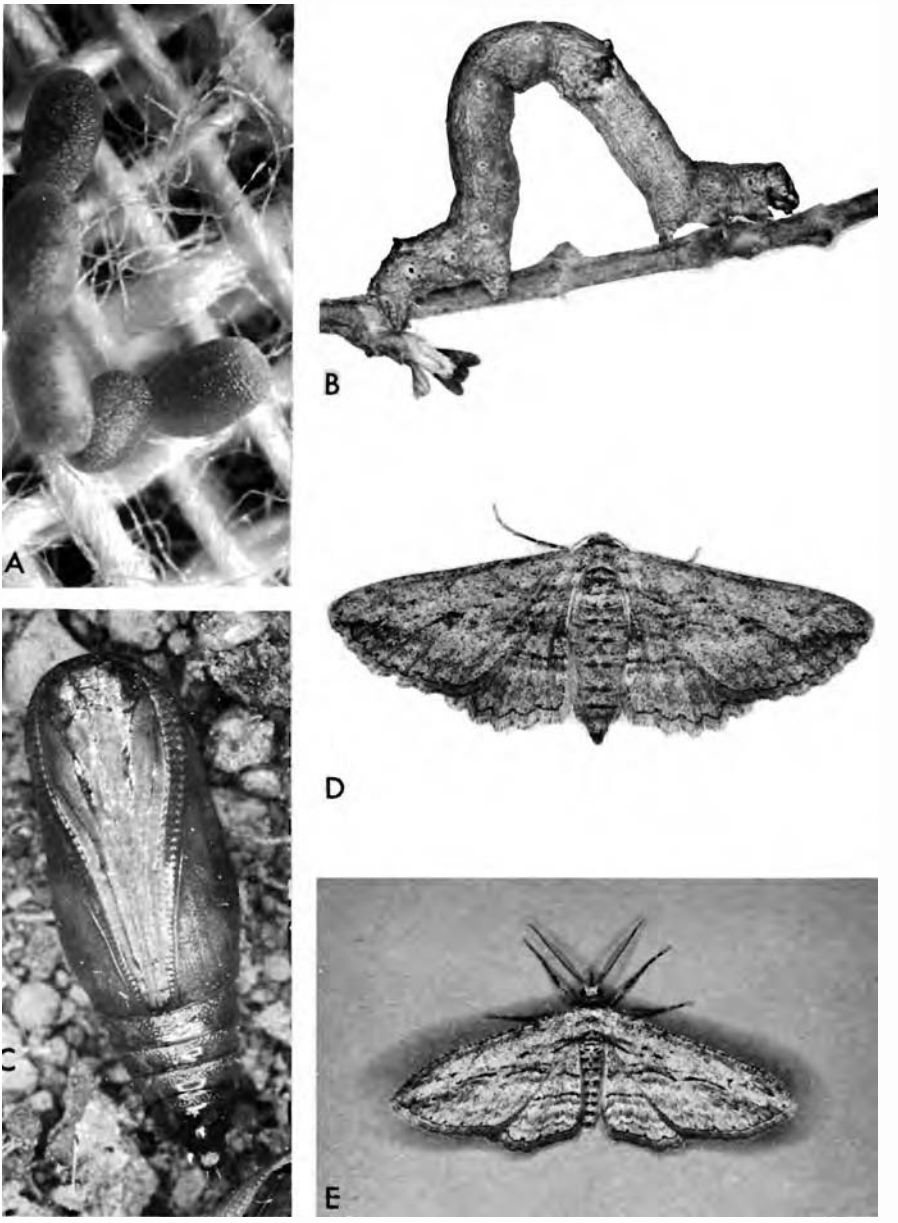

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Figure 3.—Life stages of the mountain-mahogany looper: *A*, Eggs (X 21); *B*, mature larva (X 3.3); *C*, male pupa (X 5.3); *D*, female moth (X 2.1); and *E*, male moth (X 1.6).

A female may lay up to 700 eggs, but the average is about 350. Eggs are laid in clusters in bark crevices and hatch in 2 to 3 weeks.

In early July, the tiny (2.3 mm. long) larvae appear and begin etching the leaf surfaces by their feeding. Later, they notch the leaves by feeding on the margins, sometimes consuming the leaves entirely. When disturbed, as by ants, a looper drops from the plant for a short distance on a silk thread (fig. 5). Later, it regains its position on the plant by pulling itself up the thread, using its legs. When undisturbed and prior to molting, a looper often rests in an extended position (fig. 6), anchored at its ends by the anal prolegs and a strand of silk extending to the twig. This stance enhances its remarkable resemblance to a twig, affording it protection from enemies.

By mid-August the loopers mature and descend on silk threads to the ground. Then they enter the soil, where they change to pupae and pass the winter.

Natural Control

Relatively little is known about the parasites and predators of the looper. However, the following have been reared from pupae: a tachinid fly of the genus *Blondelia;* an ichneumon wasp, *Melanichneumon* sp.; and two pteromalid wasps, *Tritneptis* sp. and *Cyclogastrella deplanta* (Nees.). Of these, the pteromalids appear to be most abundant.

In the best known outbreak, in Idaho, disease was not found to be a factor in the decline of the moth population. Rather, the loopers became so abundant that many of them starved, especially during the second year of the infestation. At that time the loopers were observed dropping to the bare ground prematurely and ascending such nonhosts as western juniper (*Juniperus occidentalis* Hook.) in a desperate search for food.

In some localities, site characteristics and host density may suppress looper populations below damaging

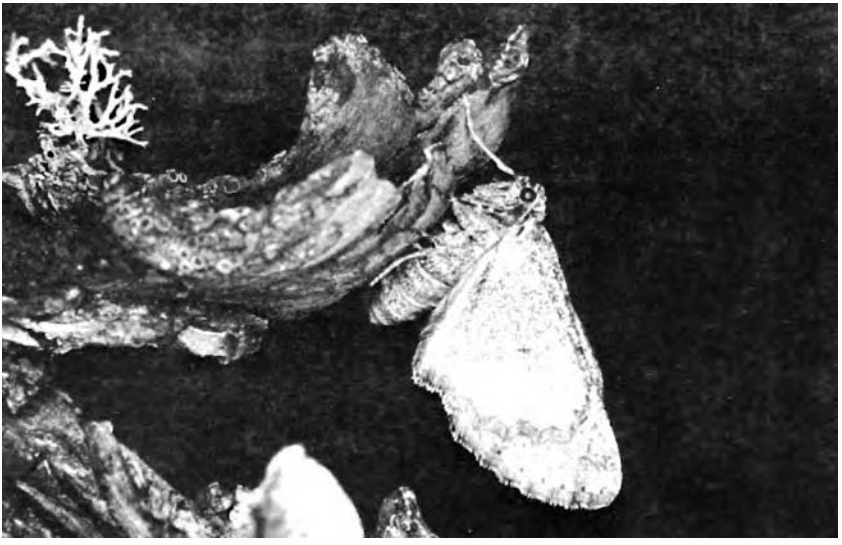

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Figure 4.—Newly-emerged female moth in the position assumed while wings expand and harden (X 2.5).

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Figure 5.—Larvae drop from branches on silk threads when disturbed (X 0.7).

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Figure 6.—Immature larva in characteristic stance assumed when molting or at rest (X 5.3).

levels. The severe, sun-exposed sites often occupied by mountain-mahogany, for example, may not provide a suitable soil environment for pupation. Also, serious outbreaks have occurred only where the two major host plants (mountain-mahogany and antelope bitterbrush) were growing in sizable, dense, pure stands. Scattered host plants evidently do not provide, or are not associated with, an environment conducive to large populations of the insect.

References

STUDIES RELATED TO THE CONTROL OF ANACAMPTODES CLIVINARIA (GUENEE) (LEPIDOPTERA: GEOMETRIDAE.) H. W. FLAKE. M.S. Thesis, Utah State Univ., 41 p. 1964.

BIONOMICS OF ANACAMPTODES CLIVINARIA PROFANATA (LEPIDOPTERA: GEOMETRIDAE) ON MOUNTAIN MAHOGANY IN IDAHO. M. M. FURNISS AND W. F. BARR. Univ. Ida. Agr. Exp. Sta. Res. Bull. 73, 24 p. 1967.

A REVISION OF THE MOTH GENUS ANACAMPTODES (LEPIDOPTERA, GEOMETRIDAE). F. H. RINDGE. Amer. Mus. Nat. Hist. Bull. 132: 177–243. 1966.

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