

Azalea Leafminer, *Caloptilia azaleella* (Brants) (Insecta: Lepidoptera: Gracillariidae)¹

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Introduction

The azalea leafminer, *Caloptilia azaleella* (Brants), is a larva of a tiny purple- and yellow-marked moth. It is found in Florida wherever azaleas are grown. FDACS/ Division of Plant Industry records reveal that larvae have been collected in Florida in every month of the year. However, infestations are most noticeable in nurseries from early spring through August. Leaf injury by the larva is very characteristic. The folding over of the leaf tip or leaf margin occurs after the larva emerges from within the leaf.

Distribution

This insect is a destructive pest of azaleas throughout the range of the host. The insect is found from Florida to Texas and north to Long Island, New York, West Virginia and the Ohio Valley. It is also found in northern California and the U.S. Pacific Northwest (Johnson and Lyon 1994, Heppner 2003).

Description and Biology

The adult azalea leafminer deposits eggs on the underside of the leaf along the midrib. When mature, the larva often selects an undamaged leaf, rolls up in it and pupates. The adult moth emerges in about a week, mates and begins the cycle again (Johnson and Lyon 1994).

The azalea leafminer is a leafminer only for the first half of its larval life. Upon hatching, the young larva enters the leaf directly beneath its eggshell and feeds as a leafminer, creating a blister on the underside of the leaf. The mined area turns brown (Johnson and Lyon 1994).

Once it has reached mid-sized, the larva migrates to the upper leaf surface and by means of silk pulls the leaf over its body and chew holes in the leaf. The larva may also tie newly expanding leaves together at the tip of a shoot and feed in the same manner. At this point, the larva is then known as a leaf-tier. Injured leaves usually turn yellow and drop (Johnson and Lyon 1994).

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Figure 1. Mature larva of the azalea leafminer, *Caloptilia azaleella* (Brants). Credits: Russell F. Mizell, University of Florida

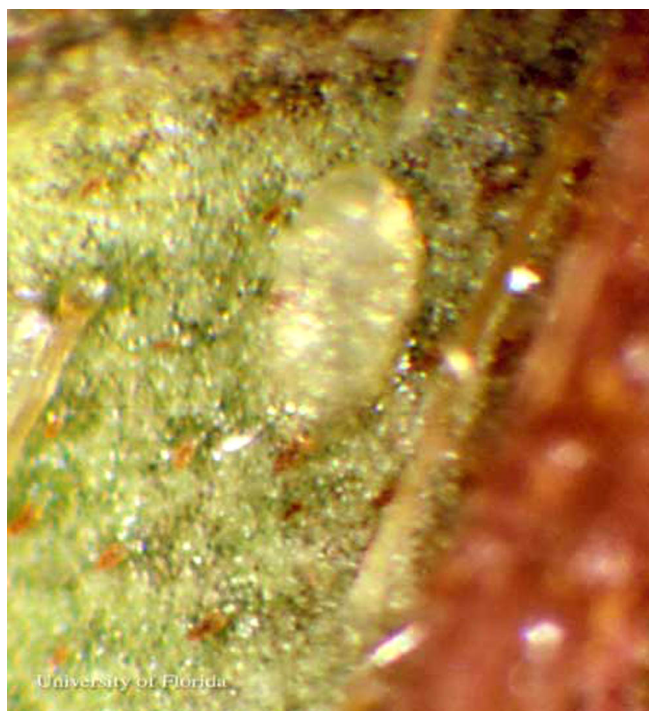


Figure 2. Egg of the azalea leafminer, *Caloptilia azaleella* (Brants). Credits: Russell F. Mizell, University of Florida



Figure 3. Pupa (pupal case removed) of the azalea leafminer, *Caloptilia azaleella* (Brants). Credits: Russell F. Mizell, University of Florida



Figure 4. Young larva (white area) of the azalea leafminer, *Caloptilia azaleella* (Brants). Note brown color of mined area. Credits: Division of Plant Industry



Figure 5. Mid-sized larva of the azalea leafminer, *Caloptilia azaleella* (Brants). Note frass (insect waste) at right of image. Head of larva is at left. Credits: Russell F. Mizell, University of Florida

The larval stage that folds the leaf is about 0.5 inch long, yellowish, and with three pairs of abdominal prolegs which are found on abdominal segments 3, 4, and 5. The proleg hooks (crochets) are singly arranged in a U-shaped pattern (penellipse), with a series of crochets within the penellipse.



Figure 6. Larva with abdominal segments bearing prolegs indicated by number. Credits: Division of Plant Industry

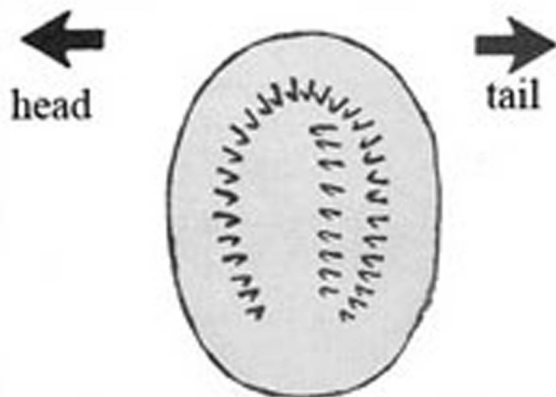


Figure 7. Ventral view of left proleg, fourth abdominal segment, showing arrangement of crochets.

The adult is a small, yellow or golden-colored moth with purplish markings on the wings. The wingspread is about 10 to 13 mm. Most of its life is spent hidden among the leaves of the host.



Figure 8. Adult azalea leafminer, *Caloptilia azaleella* (Brants), at lower right. Note azalea leaf damage in background. Credits: Russell F. Mizell, University of Florida



Figure 9. Ovipositor of adult female azalea leafminer, *Caloptilia azaleella* (Brants). Credits: Russell F. Mizell, University of Florida

In Florida, there is continuous breeding. Georgia has reported three to four generations a year, while even as far north as Long Island there are two generations per year. In Oregon, there are three generations per year and the insect overwinters as a last-instar larva or pupa in a rolled leaf, or occasionally as a tiny miner in a leaf (Johnson and Lyon 1994).

Hosts

Azaleas (*Rhodendron* spp.) are the only hosts recorded for this insect.

Economic Importance

This leaf miner is a pest of container and field-grown azalea nursery stock. However, plants in the landscape are also commonly attacked. Injured leaves usually turn yellow and drop, thus causing an unsightly plant. If the insect is controlled early, the plants will outgrow the injury it causes (Johnson and Lyon 1994).



Figure 10. Under leaf surface of azalea foliage damaged by azalea leafminer, *Caloptilia azaleella* (Brants). Early instar injury (straight arrows), late instar injury (curved arrows). Credits: Division of Plant Industry



Figure 11. Upper leaf surface of azalea foliage damaged by azalea leafminer, *Caloptilia azaleella* (Brants). Credits: Division of Plant Industry

Management

Cultural Control

Prune off and destroy infested branches. Keep plants healthy (properly irrigated and fertilized) so they can tolerate and outgrow the damage (Buss 2006).

Biological Control

There are at least three different species of parasitoids of the azalea leafminer of the genus *Sympiesis* Förster (Hymenoptera: Eulophidae). They are the major species attacking the pupa (Mizell and Schiffhaur 1991).



Figure 12. Larva of a *Sympiesis* sp. parasitoid feeding on a larva of an azalea leafminer, *Caloptilia azaleella* (Brants). Credits: Russell F. Mizell, University of Florida

Chemical Control

Leafminers are difficult to control as they are protected by leaf tissue. The best time to manage them is when larvae first hatch inside the leaves and begin to feed as plant damage is minimal. When many large or long mines are seen, the leafminer may have completed its development, and control is not useful (Buss 2006).

For more information see the Insect Management Guide for Leafminers on Ornamental Plants.

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