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Volume 13 Number 11 March 2024

Fern-feeding Caterpillars

Are your ferns failing to fill out as they have in past years? The culprit could be the larval stage of the Florida fern moth (Calloplistria floridensis), one of five species of fern moths.

The Florida fern moth can be found throughout the United States, the Caribbean, Mexico, and Central America. It was first characterized in the US in Florida in 1852 and has since been documented throughout the country from California to the Central Plains, the Southwest, the Upper Midwest, and from Florida to New England along the East Coast. Its ability to naturalize in these areas, however, has not been confirmed.



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Figure 1 and 2. Boston ferns show significant damage from Florida fern moth caterpillar feeding (left). Caterpillars can strip entire fern fronds of leaves before being detected, leaving plants with sparse canopies (right). Images courtesy of Beth Scheckelhoff.

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Regardless, all life stages of the Florida fern moth are easily transported in containers and/or on plant material to new destinations - whether that be a greenhouse, garden center, inside a consumer's home, or in the landscape.

The Florida fern moth is a pest of at least 14 different types of commercially-grown ferns such as the Leatherleaf, Boston, Northern maidenhair, Maiden, Staghorn, Rabbit foot, and Bird's nest fern, among others (Figure 1 and 2). It is also a pest of at least one non-fern host plant, the asparagus fern (*Asparagus sprengeri*).



Figure 3. Late instar caterpillars of the Florida fern moth. Different color morphs are commonly found ranging from green to brown to black. Image courtesy of [Chazz Hesselein, Alabama Cooperative Extension System, Bugwood.org](https://bugwood.org)

A female Florida fern moth can lay 200 or more eggs in her lifespan. These are placed singularly on the underside of leaves or along fronds as they emerge. Upon hatching, tiny larvae emerge to feed on the foliage. Damage can vary from mild to severe, depending upon the number of caterpillars per plant and their stage of development. During the daytime, caterpillars hide within the crown of the plant, at or beneath the soil surface. This can make detection difficult. Florida fern moths primarily feed during the nighttime or when light levels are low.

Caterpillars go through five to six instar stages before they pupate. Instar development varies with temperature but can take six to seven weeks to complete at 70°F. Early instar caterpillars are pale green while later instars can be green, brown, or black and may have white markings (Figure 3). Pupae are brown and found just beneath the soil surface. Pupation lasts about two and a half weeks at 70°F.

The adult Florida fern moth is approximately 1" in length and exhibits distinctive wing markings as well as dense, fine hairs along its body (Figure 4). These distinct characteristics are used to identify this moth from other owl moths.



Figure 4. An adult Florida fern moth with distinct wing markings and tufts of fine hairs along the legs and body. Image courtesy of Mark Dreiling, Bugwood.org.



Figure 5. Multiple adult Florida fern moths were found beneath a horizontal airflow fan in this greenhouse. Image courtesy of Beth Scheckelhoff.

Finding and Controlling Fern Moths. Have you had trouble finding fern moths in your greenhouse? Here are a few tips to alert you to their presence:

- Tattered foliage indicates feeding whether caterpillars are visible or not.
- Fecal pellets may be found on benches or the ground below.
- Adult moths are present in and around production areas.

As with any integrated pest management strategy, preventing fern moths from entering your greenhouse is an important first step. Inspect and quarantine all incoming ferns for pupa in the soil, caterpillars, and adult moths in the foliage and crown of the plants. Place sticky cards at canopy height to monitor for adults. Hand-picking caterpillars can be effective when numbers are low. For larger infestations, pesticide applications may be warranted.

Pesticide resistance in the Florida fern moth has been a concern for many years, particularly with Florida growers. Rotating products with different active compounds and modes of action will help avoid future resistance development. A complete listing of products labeled for use on caterpillars in the greenhouse can be found in the [New England Greenhouse Floriculture Guide](#). Additional recommendations from Dr. Dave Smitley at Michigan State University can be found [here](#).

Resources and Additional Information

- Biology and Management of the Florida Fern Caterpillar (1999)-
https://mrec.ifas.ufl.edu/cutfol/cutpubs/cfg_99_1.pdf
- Florida Fern Caterpillar-
<https://mrec.ifas.ufl.edu/lso/entomol/ncstate/cater9.htm>
- Insect Highlight: Florida Fern Caterpillar -
https://agriculture.ks.gov/docs/default-source/pp-insect-reports/thousandcankersdiseaseofwalnutsquarantine.pdf?sfvrsn=5cff88c1_0

Additional Images

- <https://www.insectimages.org/browse/detail.cfm?imgnum=5459348>
- <https://bugguide.net/node/view/3965/bgimage?from=>

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