

Bagworms (*Thyridopteryx ephemeraeformis* (Haworth))

By Master Gardener Teresa Casey

Description

Bagworms (*Thyridopteryx ephemeraeformis* (Haworth)) occur throughout the eastern United States and are evident when you find 2-inch-long spindle-shaped silk bags covered with pieces of plant foliage hanging from tree twigs. Bagworms feed on many trees including maple, boxelder, sycamore, willow, black locust, elm, linden, poplar, oak, apple, wild cherry, sassafras, and persimmon; but the preferred hosts are conifers. Arborvitae is highly susceptible. The bagworm is sometimes called the evergreen bagworm and produces one generation per year.

Damage

Bagworm populations are often very dense since female bagworms do not have wings to fly. The resulting excessive plant defoliation from a dense bagworm population may kill conifers within one or two seasons. Damage is most noticeable on ornamental plantings rather than in forests and woodlands.

Mature bagworm larvae usually attach their bags to a branch by wrapping extra silk, which does not decay rapidly. This band of silk might girdle the branch as it grows, resulting in dead branches several years later. Be sure to cut off this silk band when removing bags from a plant.

Biology

The bagworm begins as an egg inside a silk-like bag on a twig, then moves into the larva stage, followed by the pupa stage and finally becomes an adult. The winter is spent as eggs (500 to 1,000) in the mother's bag. The eggs hatch in May and June. The yellow egg, slightly oblong or spherical, about 0.8 mm by 1.0 mm, grows into larva which is 2 to 52 mm (up to 2 inches) long. The



Bagworm bag on Arborvitae.

Credit: [James B. Hanson, USDA Forest Service, Bugwood.org](#)

larva head and forward parts are dark and sclerotized while the rest is pale amber. Larva begin constructing their own bags immediately after hatching from the egg. Before the young worm feeds, it secretes silk and begins to form a bag. Bits of plant tissue become enmeshed in this bag when the worm feeds. Mature larvae may stay on their host plant or drag their bags some distance before firmly attaching the bag for transformation into the adult stage. As the worm grows, the bag enlarges, reaching about 5 cm (about 2 inches) long and 12 mm (about half inch) wide when complete. The bag is fastened to the plant by silk manufactured whenever the worm rests or molts.

In August, the worms mature and change into the pupal stage which is spent inside the bag. In the pupa stage males are slender posteriorly, and females are cylindrical.

CONTACT

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Bagworm pupa inside spindle-shaped bag.

Credit: [Pennsylvania Department of Conservation and Natural Resources - Forestry, Bugwood.org](#)



Adult bagworm moth.

Credit: [Mark Dreiling, Bugwood.org](#)

and both are dark brown. They feed on leaves by extending their heads out of the bag.

In the final stage, the female adult is wingless, has non-functional legs and is grublike without eyes or antennae while the male is a small, brown, hairy moth with clear wings that are about one inch long. During August and September, male moths emerge from their bags to mate, living 1 or 2 days. Female bagworms, living 4 to 9 days, stay inside the bag to mate, attracting males by releasing pheromones. Once the eggs are laid in her bag, the female dies. The eggs overwinter in the mother's bag.

Control Methods

Where practical, bagworms can be removed with scissors or a sharp knife. Bagworms are parasitized by several ichneumonid and chalcid wasps. Low winter temperatures and bird predation on small larvae are also limiting factors for bagworm populations.

Chemical control is effective, particularly in June and early July when the bags are small. Products containing pyrethroids (bifenthrin, zeta cypermethrin, esfenvalerate, etc.), Spinosad, Bt (*Bacillus thuringiensis*), and acephate are labeled for control of bagworms and are easily found in garden centers. Product containing chlorantraniliprole are also effective, and provide extended residue control when used as directed.

For specific chemical controls, see the current state extension recommendations ([2024 North Carolina Agricultural Chemicals Manual](#)).