



THE BAGWORM

A GUIDE TO RECOGNITION AND HABITS ON ALABAMA TREES



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CONTENTS

Introduction	1
Description	2
Habits and Seasonal Cycle	3
Damage, Importance, and Control	6
Selected References	6

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*Information contained herein is available to all persons
regardless of race, color, sex, or national origin.*

THE BAGWORM¹ A GUIDE TO RECOGNITION AND HABITS ON ALABAMA TREES

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Bagworm is a fitting name for this unusual and often destructive caterpillar. The name comes from the larva and the everpresent bag (Photo 1) in which it lives. The bagworm is native to the U.S. and occurs throughout much of the area east of the Rocky Mountains. Larvae feed on the foliage of many species of trees and shrubs, often causing serious damage to woody ornamentals and shade and landscape trees.

Trees most commonly listed as hosts include arborvitae, junipers, cedars, cypress, pines, spruce, black locust, honeylocust, maple, boxelder, willow, elm, sycamore, apple, basswood, wild cherry, and various oaks. Conifers are generally favored; however, host preference varies within the range, and the hardwood hosts also are readily attacked.

¹*Thyridopteryx ephemeraeformis* (Haworth). Order, Lepidoptera; Family, Psychidae.

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The bagworm is present throughout Alabama. It is most commonly encountered as a pest of arborvitae and similar trees or shrubs planted and maintained as ornamentals in yards, parks, around public buildings, and along streets and other thoroughfares. However, bagworm activity is not confined to urban ornamentals; infestations have been recorded on eastern red cedar and black locust growing naturally in forest-type situations. Other trees from which bagworms have been collected in Alabama are Arizona cypress, Virginia pine, white pine, sweetgum, maple, chinese chestnut, black walnut, and sawtooth, red, white, water, laurel, and chestnut oaks.

Records³ and data on occurrence and seasonal activity of the bagworm have been accumulated over several years. The following is a description of the insect, damage caused, and its seasonal cycle as it usually occurs in Alabama.

DESCRIPTION

Bagworm adults are moths, but do not resemble typical moths. The male (Photo 2) is black; the body is clothed with fine black hairs, and the antennae are black and feathery. Wings of newly emerged males are thinly clothed with fine, black scales. These scales brush off easily; consequently, wings of bagworm males, unlike those of typical moths, usually appear clear and membraneous. Wingspan is about 25 mm.⁴ The female (Photo 3) looks nothing like the typical moth. She is wingless, eyeless, and without antennae or functional legs. The body is soft, yellowish white to cream in color, 19-23 mm long, and devoid of hairs except for tufts near the end of the abdomen.

Eggs (Photos 4, 10) are whitish to cream, almost spherical, and about 0.75 mm in diameter. They are found in the female pupal case inside the completed larval bag.

The larval bag is a tough, silk case covered with bits of needles, leaves, twigs or other parts of the host plant (Photos 1, 5, 9). The completed case of the full-grown larva is 40-60 mm long and 12-17 mm in diameter at the thickest point; bags of females are larger than those of males. There is an opening at the anterior end through which the head and legs of the larva protrude as it feeds or moves about (Photos 1,6), and a smaller one at the pos-

³Personal records and records from Alabama Cooperative Extension Service Insect Survey Reports.

⁴One inch equals 25.4 mm.

terior end through which waste is ejected. The full-grown larva (Photo 7) is 24-32 mm long. The head and thoracic plates are yellowish white with black spots. The abdomen is brown and tapers to the rear.

Larvae pupate inside the larval bag. The female pupa (Photo 8, left) is dark brown and 24-27 mm long. The male pupa (Photo 8, right) is shiny brown and 16-17 mm long.

HABITS AND SEASONAL CYCLE

The bagworm overwinters in the egg stage inside larval bags attached to twigs of host trees (Photo 9). Eggs are contained in the pupal case left in the bag by the female (Photos 4, 10). Time of egg hatch varies somewhat by year and location. Generally, hatch occurs in the southern half of Alabama sometime during the first three weeks of April and in the northern half during mid-April to mid-May. Newly hatched larvae move from old bags to foliage and promptly begin to feed and construct new, individual bags. Bags of early stage larvae are small, conical, and inconspicuous.

On hardwood trees, early stage larvae skeletonize the surface of the leaf. During this period, the bag is usually held upright (Photo 11). Thereafter, late-stage larvae consume whole leaves, and the larger, heavier bags suspend from twigs and foliage (Photos 5, 9). The larva never leaves the bag, but carries it along as it feeds (Photos 1, 6). Molting takes place within the bag, and bags are enlarged as larvae grow.

Larvae become fully grown by about August. The full-grown larva ceases feeding, fastens the bag securely to a twig with silk (Photo 9), and pupates inside (Photo 8). The pupal period lasts about three weeks, and adults are generally present by the end of August or early September. Females emerge from the pupal case but remain in the larval bag. Male pupae wiggle part way out of the bag through the lower opening. Adult males then emerge, leaving the pupal case partially exposed through the lower end of the bag (Photo 12) and fly to bags containing the wingless females. Mating with the female inside the larval bag is accomplished through the opening at the lower end of the case.

Oviposition generally occurs in September. The female oviposits into the pupal case from which she emerged (Photo 10). The number of eggs per female varies, but most lay 400-1000 eggs. Following oviposition, the female drops from the bag and dies. Eggs remain in the old bags through winter and hatch the following spring. Only one generation occurs each year.

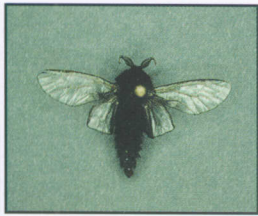
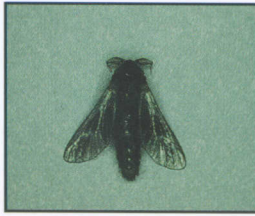


Photo 1 , left- A typical bagworm larva and bag on an evergreen.

Photo 2, above - Male bagworm moths. Specimens measure 15-18 mm from front of head to tip of abdomen. At left, a newly emerged moth with black scales still present on the wings; at right, most of the wing scales have been lost and wings of the moth appear clear. Wingspan is about 25 mm.

Photo 3, right - The wingless, grub-like female moth. Actual length, 23 mm.



Photo 4, above - Bagworm eggs in the vacated pupal case following oviposition (left); in the reproductive tract of the female moth (inset).

Photo 5, below - Bags covered with bits of foliage and/or twigs from the host tree. Bag at left is on sawtooth oak, at right on sweetgum.





Photo 6, left - Bagworm larva feeding on evergreen needles.
Photo 7, right - Full-grown bagworm larva. Note the silk lining in the opened bag.



Photo 8 - Female (left) and male (right) pupae inside larval bags.



Photo 9 - Typical bags containing overwintering eggs. Note that each bag is attached securely to the twig by a band of silk. Bag at left on arborvitae was photographed in early September just after eggs were laid; bag at right on Virginia pine was photographed in April prior to egg hatch—note sign of weathering on the overwintered bag.

DAMAGE, IMPORTANCE, AND CONTROL

Bagworm larvae cause damage to host trees by consuming foliage. How severely the tree is injured depends on the amount of foliage lost and the type of tree — evergreen vs. deciduous. A single complete defoliation of an evergreen usually kills the tree; partial defoliation often causes dieback in the crown which results in a poorly formed tree. Deciduous trees, if healthy, usually put on new foliage and survive; however, loss of foliage destroys the aesthetic value, retards growth, and weakens trees making them vulnerable to invasion by secondary pests.

Bagworm infestations are most serious on high-value ornamental trees and shrubs growing in urban/suburban landscapes. In such situations, control may be desirable, even necessary. For recommendations for control of bagworm, contact county Extension personnel, or the Extension Entomology Office, 201 Extension Hall, Auburn University, AL 36849. Telephone (334)844-4940.

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Photo 10 - Eggs in the pupal case vacated by the female. Eggs laid in September remain unhatched in the bag through winter.



Photo 11 - Bags of early stage larvae on red oak (upper) and sawtooth oak (lower).

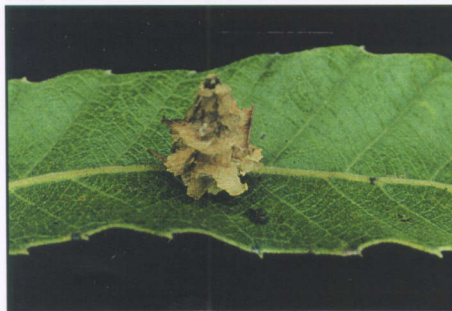


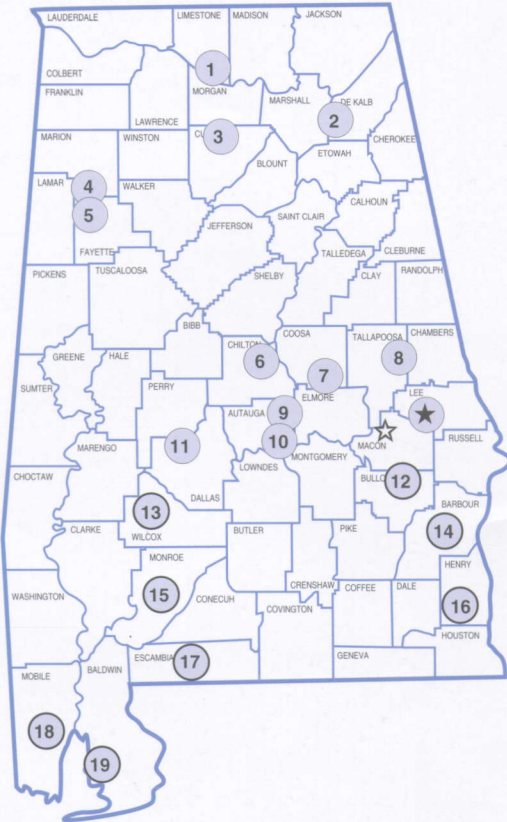
Photo 12 - Pupal case of the male moth protruding from the lower end of the bag.



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Research Unit Identification

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3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
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8. Piedmont Substation, Camp Hill.
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16. Wiregrass Substation, Headland.
17. Brewton Experiment Field, Brewton.
18. Ornamental Horticulture Substation, Spring Hill.
19. Gulf Coast Substation, Fairhope.