

Pittsboro, NC - I recently received an inquiry about some sort of cocoon. I thought the description helpful since it avoids the “science-speak” that Extension Agents sometimes use to cloud issues: “I have found this little nest that looks like it's made out of little twigs hanging in several trees and shrubs, and even one hanging on the siding on my house! It doesn't seem to bother the trees/shrubs either but I am curious as to what it is...didn't want to break it open to find out.”



As it turns out, her description was consistent with bagworm, a fairly destructive insect pest that spends all or most of its life in the cocoon. As part of its shtick, it festoons the cocoon with parts of the host plant, a bit of disguise.

I had never seen them on the plant this writer had them on. I’m usually more concerned about them on things like leyland cypress, arbor vitae, and junipers – the “needle evergreens.” Since the bagworm has one generation per year, it is highly predictable. At this time of year, cocoons that held males last year will be empty. They are about 2 inches long, slightly pointed on both ends, and widest in the middle. Cocoons that held females will also be empty now. And my friend was correct that they were not doing much damage – at least not then. But the 100 to 200 eggs that were there have hatched and are feeding on your plants. So if you think you’ve seen a cocoon “that looks like it's made out of little twigs,” now would be a good time to examine the plant more carefully.

The juveniles that are now feeding have a small cocoon, perhaps less than one inch long. As they feed, they grow and enlarge their cocoon. If there was only one

on a plant last year, it probably didn't do much damage. But if it was a female and 100 of her offspring are feeding now, they can do a lot of damage this year. And by next year you probably won't have that plant to worry about any more.

Bagworms are 1/8 to almost 2 inches long depending on age. The head and forward parts are dark and hardened and the rest is paler and soft. Each bagworm is covered by a bag made of white silk with bits of the host plant spun onto the outer surface. The pupae are dark brown. Male pupae are slender and female pupae are fatter. The pupal stage occurs inside the bag. Female bagworms are wingless, legless and grub-like (they never leave the bag). Males are small, brown hairy moths with dark wings that clear with age. Eggs are spherical or oblong and about 0.8 mm by 1.0 mm. Eggs are found in the mother's bag inside her pupal cast skins.

Bagworms occur throughout North Carolina. Bagworms have a very wide host range but are usually associated with arborvitae or juniper. A single bagworm does relatively little harm as it feeds on leaves. Excessive defoliation may kill conifers within one or two seasons. Damage is most noticeable in landscapes rather than woodlands. Occasionally, the silk band with which the bagworms attach themselves to a twig before they pupate girdles the twig as the twig enlarges. Winter is spent as eggs (500 to 1000) in the mother's bag.

They hatch in May and June. The newly hatched larvae spin down on silken threads and are blown about by the early spring breezes. Most of the larvae land on the original host plant but some small worms may be "ballooned" for some distance on the silk thread. Upon reaching a suitable host, the worm begins to spin its bag and as it grows, it incorporates some of the host plant foliage into the bag for camouflage. As the bagworms grows, it enlarges the bag and adds fresh plant material to the outside. In August the worms mature and molt into the pupal stage. The bag is firmly attached by a sturdy silk band which the bagworms usually wrap around a twig. During August and September, male moths emerge from their bags to mate. After mating, females lay their eggs inside the pupal cast skins and die.

Apparently when the newly hatched larvae reach a plant which is different from its parents' host plant, these insects often have difficulty in adapting to it and may die or may produce only a few offspring. After several years of struggling to keep from going extinct, the population may hit on the right combination of genes for the "new" plant and "suddenly" the new plant is covered with bagworms.

While they are young, bagworms can be fairly easy to control. Handpicking can be tedious, but it is also effective to the extent you can reach. If you can't reach them all and if you don't object to insecticides (there are organic options), then now is a good time to spray. The organic *Bacillus thuringiensis* (B.t. – marketed as Biobit, Dipel, Foray, and other brands) is effective but only on young caterpillars that are feeding. They have to eat it. As they get bigger, they eat less; and it takes more to kill them. So the sooner you treat, the more likely you are to be effective.

Once they get a little larger, they are more difficult to kill. Then you'll have to go to things like Sevin or malathion.

The end of this story is that right now they are not hard to control and they haven't done much damage. If they are present, by next month they will have done more damage and will be harder to control. Should you go out and look around?