Forest Health UPDATE

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In the spring, there were several reports of sudden defoliation of oak, hickory, and maple trees in north Alabama. The pest causing such destruction on these deciduous trees was the linden looper *(Erannis tiliaria)*. For the third consecutive year, this defoliator has appeared in drastic numbers. This native insect of the *Geometridae* family was identified in Dekalb, Blount, Shelby, and Perry counties.

Linden Looper

Insects from this family are considered the most destructive foliage-feeding pests of North America, devouring leaves from many deciduous trees such as linden, apple, birch, elm, hickory, maple, and oak. Appearing in cycles, the linden looper is generally present in high numbers for two to three consecutive years, and then their numbers suddenly drop. The insect seemingly disappears for five to eight years. During a heightened linden looper infestation, natural predators such as parasitic flies and wasps help decrease the population significantly. Many bird species also prey on the insect.

The eggs of the linden looper hatch in the spring, generally when the hardwood buds begin to open. The caterpillars (larvae) are quite active during this time, feeding on the foliage for approximately one month. During this period, the caterpillars grow, slightly changing in appearance from yellowish-green with thin black stripes to pale yellow with thicker black stripes. Reaching 1.4 inches in length when fully grown, they loop their bodies (hence the name “linden looper”) and stretch forward using their pro-legs to move to an available food source. Around late May, these caterpillars crawl to the ground and tunnel into the soil to pupate. Generally by mid-June, the affected host trees will start to rebound from the attack and grow new foliage.

Emerging from the soil in October to December, the wingless female moths crawl up a host tree to lay their eggs. A female moth may lay three to four eggs in a cluster under loose bark on the trunk and large branches, thus starting a new generation of linden loopers. One generation of this defoliator occurs per year.

Periodical Cicada

For a few weeks now, especially in the southern part of the state, many of you have heard a buzzing, singing noise in the trees. That curious sound that appears to start at dawn is noise created by male cicadas, which have a sound-producing apparatus called tymbals. Thousands of cicadas seem to appear overnight, with the males making this unique singing sound to attract females.

There are two distinct races of periodical cicadas based on the length of their life cycle: a 17-year northern race and a 13-year southern race. For the southern race, there are four distinct species. The species that is most likely present at the moment in Alabama is the *Magicicada tredecim.*

Adult cicadas live for only approximately three weeks and then die. Eventually, the eggs hatch and the nymphs drop to the ground, burrowing into the earth. While in the soil, the nymphs will find a suitable root and suck sap from the xylem. Minimal damage is caused by the nymphs, however, because of this insect's slow development.

Nymphs begin to emerge from the ground in late April to early May, crawling onto nearby vegetation to complete their transformation into adult cicadas. Even though this insect has a life cycle of 13 years does not mean that cicadas will only appear periodically. There are several broods of this insect, each one emerging at different years. Next year, a different brood may appear somewhere else in the state creating its unique sound.

The damage to host trees is not caused by feeding activities of cicadas, but from the females' egg laying habits. The female cicada will cut the bark of twigs and lay 24 to 48 eggs. She may lay a group of eggs 20 times during the mating season to produce up to 600 eggs. Depending on the severity of the cut, the ends of some injured twigs will eventually die from this process, creating a "flagging" appearance on the affected branches. The most common trees to show symptoms from cicada activity are sweetgum, oak, hickory, ash, maple, hawthorn, apple, black locust, birch, and dogwood.

The population of this insect is controlled by many natural enemies. Predatory insects and mites attack the eggs, while birds and small mammals also feed on the nymphs and adult cicadas.

Southern Pine Beetle

Based on the results from a survey completed in May by the AFC, it appears that Alabama will experience a low, declining southern pine beetle (SPB) *(Dendroctonus frontalis)* population for the fourth consecutive year. With an accuracy rate of 75 to 85 percent, this survey is a very good predictor of the year's potential beetle outbreak. Based on a seven to nine-year cycle, the SPB population normally declines for several years then suddenly increases. Environmental factors that stress pines have some influence on the population, but this influence is quite limited.

Because of the storm-damaged pines from the April tornados, there is a legitimate concern about a potential increase in SPB infestation. Although there may be some SPB infestations in these ravaged areas, the Ips engraver beetle and the Hylastes beetle would be the pests to take advantage of this situation. These insects base their level of activity on how stressed pine trees are from adverse environmental conditions. Alabama may, therefore, experience a sudden increase later in the year from Ips engraver beetle attack and pine decline.

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