



Hemlock Woolly Adelgids in Georgia

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The hemlock woolly adelgid (HWA) is a serious pest of hemlock trees in Georgia. It is an aphid like insect that feeds on eastern and Carolina hemlock trees. The result of this feeding is eventual tree mortality. The very existence of the eastern and Carolina hemlock species is greatly threatened by HWA.

History of spread: HWA was accidentally introduced into Virginia in the 1950's. The insect is native to Japan. HWA was first discovered in Georgia in 2003 near the Ellicott Rock area of Rabun County. The Georgia Forestry Commission does annual surveys to determine the current infested area. The 2007 survey revealed HWA in Rabun, Habersham, Towns, Union, Stephens, White, Lumpkin and Fannin counties. The adelgid is dispersed by wind, birds and human activity and is spreading at an alarming rate.

Identification: The hemlock woolly adelgid is a tiny insect measuring around 1/16th of an inch long. As the adelgid matures, it produces and covers itself with a white, waxy filament. This waxy covering is used to protect the adelgid and its eggs from drying out and natural enemies. The adelgid is hardest to spot during the summer, as the white filament



Figure 1: Hemlock woolly adelgids feeding at the base of each needle in late March. Photograph by Scott Griffin, GFC.

is not present during this time. Adelgids can be found on the underside of the branch, on the newest growth (Figure 1).

Life cycle in Georgia: The life cycle of HWA consists of 2 female, wingless generations per year. In late winter, each adult from the winter generation lays up to 300 eggs in cottony masses attached to the twig. The eggs hatch in April and crawlers, the mobile nymph stage, move out in search of suitable feeding locations. The crawler inserts a long feeding tube, called a stylet, at the base of a needle. Here the nymph will remain until reaching maturity in late May to early June. A portion of the spring generation will form into winged adults that fly off in search of a spruce tree. No suitable species of spruce is found in North America resulting in the death of



Figure 2: In the summer, HWA nymphs look like tiny watermelon seeds with white halos. These nymphs are best seen with the aid of a 10x hand lens. Photograph by Rusty Rhea, USFS.

the winged adelgids. The spring generation adults that remain on the tree lay 20-75 eggs. These eggs hatch in June and crawlers settle in on the new growth and go dormant for the summer (Figure 2). It is during this time that adelgids are hardest to spot. In late September, feeding resumes and the nymphs mature by late winter/early spring.

Damage caused: HWA causes damage to the tree by feeding on the starch the tree produces. This inhibits the trees ability to produce new growth. All ages and sizes of hemlocks can be attacked. Trees that have been infested for a couple of years will have a declining appearance. The needles of the thinning crown will have a dull green to gray color and lower branches will begin to die. Tree mortality usually occurs after 3-5 years of heavy infestation.