

Arborvitae Leafminer

Chris B. Riley, PhD, Entomologist

Arborvitae leafminer (*Argyresthia thuiella* Packard) is one of four eastern species of leafminers whose preferred hosts are plants in the genus *Thuja*. While the insect is commonly found throughout the Northeastern United States and adjacent portions of Canada, its range includes parts of the mid-Atlantic and Midwest. Arborvitae leafminer is a moth (order Lepidoptera) in the family Argyresthiidae, a group described as “shiny head-standing moths” because the adults will often rest with their head against a surface and their body angled upward. As the name suggests, caterpillars of this species create mines within arborvitae branchlets which can result in local plant tissue discoloration and crown dieback.

Description

Arborvitae leafminer eggs can generally be found along the tips of leaves and resemble pinkish-colored scale. Caterpillars are small, ranging from 3 to 6 mm in length. Their bodies can vary in color from light brown with a reddish tinge to green (Figure 1), although a consistent feature is a brownish-black head. Pupae turn brownish-red inside of mined leaves as the insect matures. Adults emerge as small white or gray moths with dark spots and are about 3 mm in length (Figure 2).

Figure 1: Underside of an arborvitae leafminer caterpillar removed from its mine and damaged foliage

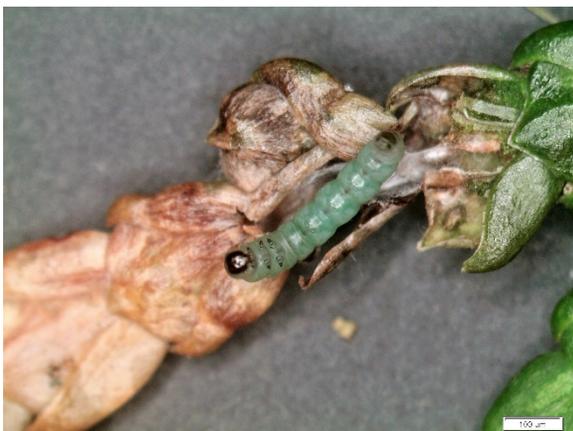


Figure 2: Lateral view of arborvitae leafminer adult



Lifecycle

After hatching on the surface of arborvitae foliage, larvae will enter the plants via leaf tips and mine the tissue as they progress towards the base. This feeding begins in the summer months and peaks during the fall. Larvae then overwinter in the mined leaves before briefly resuming feeding in the spring. Pupation generally occurs in late spring depending on environmental conditions. After three to five weeks, adult moths emerge. Adults are generally most active in May and June and their congregation on arborvitae

during this period may result in a local infestation. One generation per year is standard for this species.

Damage

Arborvitae leafminer feeding can result in discolored arborvitae foliage and the death of mined branchlets. Feeding often begins on exterior branchlets with the mines progressing inward through adjacent branchlets (Figure 3). The act of mining turns healthy, green foliage yellow and then eventually brown as the branchlets die. Intense feeding pressure can kill twigs or branches resulting in unsightly landscape plants (Figure 4).

Figure 3: Arborvitae damage due to caterpillar feeding



Management

In natural settings, arborvitae leafminer populations are usually effectively regulated by natural enemies such as parasitoid wasps. When possible, preventative measures such as increasing local plant community density, diversity, or structural complexity may serve to create habitats more conducive to pest control by natural enemies. In managed landscapes, arborvitae should be inspected regularly to identify when leafminers are present and to prevent the buildup of large populations of the insect. If brown tips are observed among green foliage they can be examined for the presence of mines, exit holes, caterpillars, or frass. Light damage can be managed through pruning

and removal of discolored foliage. However, when heavily infested, arborvitae leafminer may need to be controlled with foliar applied products or systemic, soil applied treatments.

Figure 4: Canopy symptoms of arborvitae heavily infested with arborvitae leafminer



Founded in 1926, The Bartlett Tree Research Laboratories is the research wing of Bartlett Tree Experts. Scientists here develop guidelines for all of the Company's services. The Lab also houses a state-of-the-art plant diagnostic clinic and provides vital technical support to Bartlett arborists and field staff for the benefit of our clients.