RESEARCH LABORATORY TECHNICAL REPORT

BARTLETT TREE EXPERTS
SCIENTIFIC TREE CARE SINCE 1907

Emerging Pests of Arbutus

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Strawberry trees, or ornamental varieties in the genus Arbutus (*A. unedo* and *Arbutus* x 'Marina'), are increasingly common in planted landscapes throughout western North America. Landscapers and designers value these shrubs or small to medium trees for their prolific flowering, interesting and colorful fruit, evergreen foliage, attractive red bark, and tolerance of urban conditions. Unfortunately, these desirable characteristics have led to widespread planting (or overplanting) of Arbutus species, and two newly recognized problems are negatively impacting health and appearance of these trees throughout the western United States.

Leaf and Twig Blight

Research conducted at Bartlett Tree Research Labs western location in conjunction with the California Department of Food and Agriculture has helped to identify the previously undescribed leaf and twig miner that is causing dieback of shoots, and work is currently underway to identify the cause of a lethal canker disease that is causing widespread mortality of these plants. In 2014, Bartlett plant pathologist Dr. Drew Zwart discovered the cause of tip dieback of *Arbutus* x 'Marina' and *Arbutus unedo* to be leaf and twig mining larvae of a Lepidopteran (moths and butterflies) pest. Further study by entomologists with the state of California revealed this pest to be a previously unknown species in a family of moths known as the Nepticulidae or 'pygmy moths'. This pest is unlikely to kill a plant outright, but can dramatically reduce aesthetic value and overall vigor, and lead to secondary problems.

Symptoms

Symptoms of infestation begin as small brown leaf spots, which are actually mines created by moth larvae. These mines eventually join the leaf mid-vein, and progress down the mid-vein, through the leaf petiole (leaf stalk), and into twigs (Figure 1). The

Figure 1: Mines created by larva from leaves into twigs

Figure 2: Twig dieback

tunnels in the twigs eventually cause disruption of the vascular tissue and lead to twig death. Twigs killed by this pest typically turn dark brown or black and dead leaves remain attached (Figure 2).

Control

Control options for this pest are highly effective. Systemic materials applied to soil or the lower stems have been effective in eliminating the pest with single annual treatments. Foliar treatments with organic or naturally derived options are also available and effective, but are not quite as effective as the systemic treatments.

Stem Canker

For at least 6 years, Bartlett arborists in western regions have reported a dark gray or black canker disease of Arbutus species that progresses slowly, but eventually leads to plant death. While the exact causal agent is unknown and currently under investigation, it is known that the culprit is not the same pathogen that causes a similar looking canker on native madrone trees (*Arbutus menziesii*).

Symptoms

Symptoms of this disease begin as a dark sunken canker, typically appearing at or near the soil line of infected plants. The cankers slowly grow over the course of multiple years, and eventually kill the branches or stems. Cankers often desiccate (dry out), leading to splitting of the branch or trunk wood beyond the cankered area (Figure 3).

Control

No direct treatments are known at this time, however it is likely that improvement and maintenance of overall plant vigor will help infected plants slow or stop the advancing canker pathogen. Management options include ensuring adequate soil moisture while avoiding saturated soils, keeping the root collar area clear of soil or mulch, fertilizing according to soil nutrient analyses, and application of a material known to improve overall disease resistance in plants (potassium phosphite). These treatments will not eradicate or 'cure' the disease, but will help extend the life span of infected trees.

Figure 3: Split trunk resulting from canker

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.