

Pittosporum Decline

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For several years, arborists and homeowners throughout California have observed symptoms of general decline in hedges, screens, and specimen plantings of *Pittosporum undulatum*, or Victorian box. Many potential causes or combinations of factors have been suggested, but a specific pathogen, insect pest, or environmental factor has not been proven [1]. Recently, extensive sampling and analysis of declining and healthy plants has led to theorizing that a scale insect and a canker-causing fungus are playing a significant role in the decline.

Symptoms

The main symptoms of ‘Pittosporum decline’ are yellowing and thinning of foliage (Figure 1) followed by small branch dieback. Typically, the interior canopy is affected first. Leaves turn yellow, petioles turn brown, and leaves fall prematurely. A thin crust of black sooty mold often develops in twig unions and on the upper surfaces of affected branches. The thinning canopy is particularly problematic because this species is often used as a border planting or privacy screen.

Potential Causes

Many causes of ‘Pittosporum decline’ have been suggested including drought, root disease caused by *Phytophthora* or *Armillaria* pathogens, and/or poor cultural care. While these factors have been confirmed in some cases of declining Victorian box, none has been consistently linked to this decline, nor have any been proven as the definitive cause through controlled studies.

Recently, researchers from Bartlett Tree Research Laboratories, working with members of UC-Cooperative Extension and a graduate student at Cal Poly-Pomona, found two factors consistently associated with declining plants. One factor is an armored scale insect (Figure 2), tentatively identified

Figure 1: Yellowing and thinning of foliage in declining *P. undulatum*



as greedy scale (*Hemiberlesia rapax*), and the other is a group of canker-causing, fungal pathogens in the family *Botryosphaeriaceae*. In 2018, all symptomatic branches collected from declining *P. undulatum* in the San Francisco Bay Area exhibited both the aforementioned scale insect and fungal canker [2], [3].

Figure 2: Multiple, overlapping generations of armored scale form crusts on heavily infested twigs and branches



Another sampling analysis in Southern California reported the same scale insect infesting declining *P. undulatum* as well as a strong correlation between higher scale populations and lower plant condition ratings [3]. *Botryosphaeria* pathogens typically cause disease in plants suffering physiological stress (possibly caused by the scale insect), and feeding sites of scales may serve as infection sites for the fungus.

Management

Early trial results to mitigate ‘Pittosporum decline’ conducted by Bartlett Tree Research Laboratories staff suggest that managing the scale insect and improving overall growing conditions through prescription fertilization and moisture management can arrest the decline and improve canopy color and density. Treating the scale insect and improving overall vigor often reduces the plant susceptibility to canker-causing fungi, but direct treatments for managing the fungus are rarely effective. Management of the scale insect requires repeated foliar-applied treatments, as the insect has multiple overlapping generations each year, and systemic treatment options have not been effective.

On sites where scale management and soil care have been applied over the past 18 months, plant condition is noticeably improved compared to non-treated plants in similar conditions. While these results are preliminary, they are promising and further research is ongoing. Please contact your Bartlett Arborist Representative to learn about management strategies.



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.

References

- [1] D. R. Hodel and D. Pittenger, "Victorian Box Decline," 21 January 2015. [Online]. Available: <https://ucanr.edu/b/~KI4>. [Accessed 2020].
- [2] D. Vega, personal communication, 2018.
- [3] D. Zwart, unpublished data, 2018.