

Branch and Canopy Dieback of Ficus Trees in Culver City

What is the disease that is affecting Ficus trees in the City?

Individual Ficus trees (*Ficus microcarpa*, syn. *Ficus retusa* var. *nitida*) lining many of the streets in Culver City are losing their leaves and undergoing canopy dieback. On a few streets, most of the Ficus trees have had major dieback and consequently have been removed. This problem is being observed in coastal cities in our region, including Long Beach, Santa Monica, Beverly Hills, and Los Angeles. In recent years, a fungal disease called *Nattrassia mangiferae* (synonym: *Neofusicoccum mangiferae*¹) has been identified as the culprit responsible for dying Ficus trees in southern California.

Nattrassia is not the only disease that causes canopy dieback in Ficus trees. However, it is believed to be responsible for the sudden increase in dying Ficus trees across coastal communities we are observing in the last few years.

What will happen to the Ficus trees that are infected?

Infected trees generally go through a progression of leaf color change (fading or yellowing), leaf loss, canopy thinning, and branch death. Often, healthy branches are interspersed with diseased or dead branches. A diseased Ficus tree might grow new sprouts on the limb or trunk below the dead branches. Usually, the whole tree eventually dies (this may take two to three years or more).

Are healthy Ficus trees at risk of becoming diseased?

New inoculum spreads from diseased trees and enters uninfected trees through wounds of all kinds, including pruning cuts, bark damaged by sunburn or freezing temperatures, and insect damage. Trees that are weaker are more likely to become infected with *Nattrassia*. Trees might be compromised by any combination of the following factors:

- Unfavorable growing conditions such as poor soil, incompatible climate (inappropriate precipitation or temperatures), or having a major portion root zone covered with pavement
- Cultural practices impacting tree health such as inadequate irrigation, frequent canopy pruning, or root pruning to repair pavement
- Advanced age which reduces overall vigor
- Presence of other pre-existing conditions (an infection with a different disease, for example)

¹ This fungus has been renamed *Neofusicoccum mangiferae* but it is still more commonly known as *Nattrassia mangiferae*. (Crous, P.W. and Slippers, B. et al. "Phylogenetic lineages in the *Botryosphaeriaceae*", 2006. Studies in Mycology. 55: 235–253.)

Most of the City's Ficus trees are growing in constrained locations with little or no supplemental water. Many of them also have been root pruned. Therefore most of the City's Ficus trees are at some risk of becoming infected.

Can other types of trees become infected?

Numerous fungal pathogens other than *Nattrassia* can be found causing diseases in a wide variety of trees in Culver City. These pathogens also cause the leaf loss, branch dieback, and tree decline that are characteristic of *Nattrassia*. The key to minimizing the risk of trees becoming infected is to plant a wide variety of different tree species (thus avoiding a concentration of trees that might become infected together), and to maintain the trees in healthy condition.

At the same time, it has been generally believed that *Nattrassia mangiferae* is a form of another common pathogen called *Hendersonula toruloidea* (syn. *Neoscytalidium dimidiatum*), which causes a disease known as sooty canker. *Hendersonula* has been present in the region for a long time and causes dieback in numerous thin-skinned trees including acacia, almond, apple, Arbutus, ash, birches, citrus, eucalyptus, magnolias, mulberry, sycamores, cottonwoods, stone fruit, and walnut^{2,3}.

On the other hand, recent studies also suggest that the two pathogens may not be related⁴. It is unclear at this time whether *Nattrassia* will be affecting other types of trees. Whether or not they are related, *Nattrassia* and *Hendersonula* both are fungal pathogens affecting trees in Culver City and causing a similar type of dieback in trees. Management of the disease also is the same for both diseases, and the City is actively working to control the problem and keep the public informed.

What is the City doing to control the disease?

As with fungal diseases of trees in general, control can be challenging and costly. With the discovery of a potentially widespread problem, the City has taken the following steps:

- Efforts were made to save some of the diseased Ficus trees via fertilization and pruning out diseased portions of the trees' canopies. The trees continued to die back and eventually were removed.
- To-date, sixty of the seventy Ficus trees on Schaefer Street, plus two each on Lincoln and Ocean Avenues, have been removed.

² Hodel, D.R., A. J. Downer and D.M. Mathews, "Sooty canker, a devastating disease of Indian laurel-leaf fig trees," 2009. Western Arborist. 35/4: 28-32.

³ Sinclair, W.A., H.H. Lyon and W.T. Johnson. Diseases of Trees and Shrubs. (Cornell University Press, 1987), p.168.

⁴ Crous, Slippers et al, 2006. Studies in Mycology, 55: 235-253 (p.244).

- Contracted a consulting arborist to survey of the City's entire population of *Ficus microcarpa* trees (over 9% of the City's 16,000 trees) to determine the extent of the disease; to survey other local municipalities regarding their management of the disease; and to develop a management protocol for Culver City.

Once the arborist study is complete, the City will be able to review more detailed options for controlling the disease and develop an approach that protects as many of the City's Ficus trees as possible.

What can residents do to help?

The best way residents can help to reduce the risk of their Ficus trees becoming infected is by keeping their trees in top health. The following are a few ways residents can help protect Ficus trees from becoming diseased.

- Provide your Ficus trees with periodic deep irrigation. Water all areas within five feet of the Ficus tree's dripline (edge of the canopy) that are free of pavement. Avoid frequent, shallow watering. Instead, saturate the soil to a depth of two to three feet or more, watering again only when the soil has had a chance to dry out. (This may take two weeks to one month depending on rain and temperature.)
- When doing construction, avoid damaging the tree. Increase the rooting area unaffected by construction to the extent possible, by meandering sidewalks around roots, by running pipes beneath roots, etc. Fence off a tree's root zone during construction to prevent soil compaction and root damage. Fence off the tree to protect the trunk and branches from equipment damage. For more information, go to http://www.treesaregood.com/treecare/avoiding_construction.aspx
- Avoid unnecessary or aggressive pruning of branches. Restrict pruning to winter months when the weather is dry. Only hire a qualified arborist who is properly trained in proper tool sanitation methods and wound treatment.
- If you believe your Ficus tree may be unhealthy or diseased, contact a qualified arborist for further assistance.
- In addition to the above recommendations, diseased Ficus trees may benefit from chemical control treatments. If you would like to provide more extensive treatment to the Ficus tree adjacent to your property, you may seek the services of a licensed pest control specialist. Please be advised that you will need to obtain a permit from the Culver City Public Works Department before performing any work on city-owned trees. For more information, please contact the Public Works Department at (310) 253-6440.

This suggestion should not be construed as an endorsement of chemical control to treat Ficus branch wilt. There is no specific research on the efficacy of chemicals

for this disease under these specific conditions, and there is a significant possibility that treatment may result in no improvements

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