



Coastal Plant Care

The Importance of a Plant's Root Collar

A plant's root collar is the area where the trunk or stems join its root system. This critical portion of a plant is denoted by a flare leading to the plant's structural root system. In many nursery and landscape plants, the root flare zone is often covered by excessive soil, mulch, or potting materials. This condition, if left to persist, can lead to several unwanted consequences.

The root collar, unlike its adjoining root system, is not designed to resist moisture. Therefore, any material that may retain moisture such as soil or mulch, can degrade the bark of the root collar. This is problematic for the plant as the resulting degradation can lead to reduced water and nutrient flow between root and stem, leading to root loss or decline in the plant's foliage. In addition, root collars with compromised vascular tissue are particularly prone to infection and disease.

Should the root flare remain beneath grade, the plant's original root system will begin to die off. This is due to the reduced oxygen found in lower portions of the soil profile. In response, a secondary root system will begin to develop along the trunk of the plant near the soil surface. Although a testament to the plant's resourcefulness, this condition can often lead to devastating consequences. This secondary root system is comprised of rapidly growing fibrous roots responsible for water and nutrient uptake. Although these roots are adept at providing the tree with water and nutrients, they are particular poor at providing the needed structural support for the plant's trunk, branches, and foliage. As the original structural root system degrades, the secondary root system is unable to provide the structural support the plant needs. I cannot count how many times I have arrived at a new client's garden only to find a tree uprooted on a perfectly calm Spring or Summer day. The tree was perfectly healthy, how did this happen? Nearly without exception, the condition that caused these trees to uproot was directly related to a buried or compromised root collar.

Another often fatal yet common result of a buried root collar are girdling roots. Imagine taking a plant out of a pot and noting how the roots are circling around the exterior of the potting soil. This is due to the roots contacting the planting pot and diverting along the adjacent soil. Now imagine the plant's root flare is located 4" below the top of the soil in the pot. If you were to install this plant into the ground and leave the circling roots and soil in place, the clock is ticking until you have a problem. As the trunk diameter grows, so does root diameter. At some point, the circling roots become in contact with the trunk. These roots will girdle or choke the tree, restricting the free flow of water and nutrients between root and foliage. The end result is often decline, death, or total tree failure during storm events.

The symptoms of these root collar disorders can vary. They include yellowing leaves, early leaf-drop in the late Summer, dieback or dead branches in the upper crown, or bleeding wounds along the lower trunk or stems. Due to the stress this condition causes, these plants become prone to insect pests and disease. In addition, dieback due to winter injury is common and only becomes apparent during the next growing season. Although these secondary conditions may be treated, you must address the underlying cause of the problem by excavating the excess soil and mulch to expose the original root flare. At that time, you can eliminate any girdling roots or other problematic conditions that may exist. A

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buried root collar not an acute problem for plants. It's a chronic issue and the longer this condition is left to persist, the more difficult the remediation and the greater the consequences for the plant.

When evaluating the structural stability of a tree or shrub, one must begin by inspecting the root collar. If your tree or shrubs stem does not have a flare at the base near the soil line, you likely have a buried root collar. Therefore, you can conclude either the original root system is not there or it is intact but in a state of decline. In both scenarios, the concern about tree stability will need to be evaluated by excavation of the root collar. Due to the sensitivity and importance of this plant zone, it is critical to proceed with extreme care and caution when excavating your plant's root collar. Hand tools and soft-bristled brushes are my preferred method. Should you have a large tree or many trees with this condition, you may wish to utilize an air tool to blow away the soil without damaging the plant's roots or stem. This is a preferred method for professionals.

The cause of buried root collars varies. Soil settling after planting, fill soil addition during construction or landscaping, excessive mulching, soil erosion down a slope, or plants arriving from the nursery with excess soil against the root collar are common. In any case, the first step to mitigating this condition is to identify the problem. I always tell my clients to take a walk in the woods and attempt to find a tree where you are unable to see the root flare. This is nearly impossible as naturally occurring plants grown from seed will never have buried root collars. In addition, trees and shrubs planted bare root will rarely experience this condition. The issue of buried root collars is ubiquitous in our landscapes today and encourage everyone to inspect their plant material. Happy gardening!



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