



TEXAS A&M FOREST SERVICE

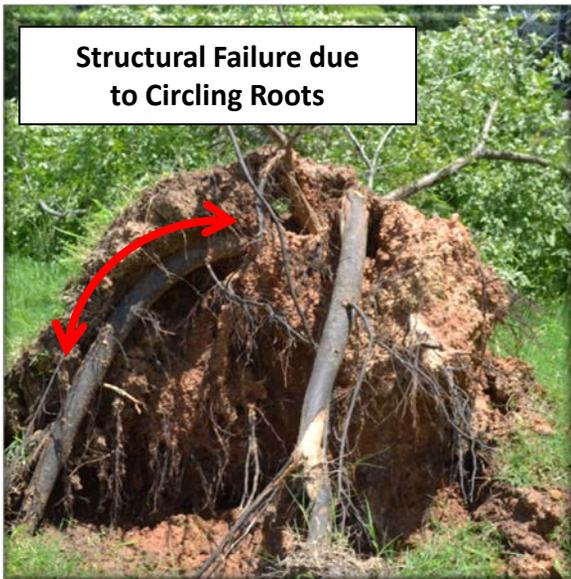
Technical Tree Solutions: **Correcting Circling or Girdling Tree Roots**

Trees growing in confined spaces, such as pots, containerized planters, or small concrete soil cutouts located in parking lots or sidewalks; trees forced into small planting holes where the roots are twisted as planted; & trees planted in compact soil can form circling root systems.



Sidewalk Cutout

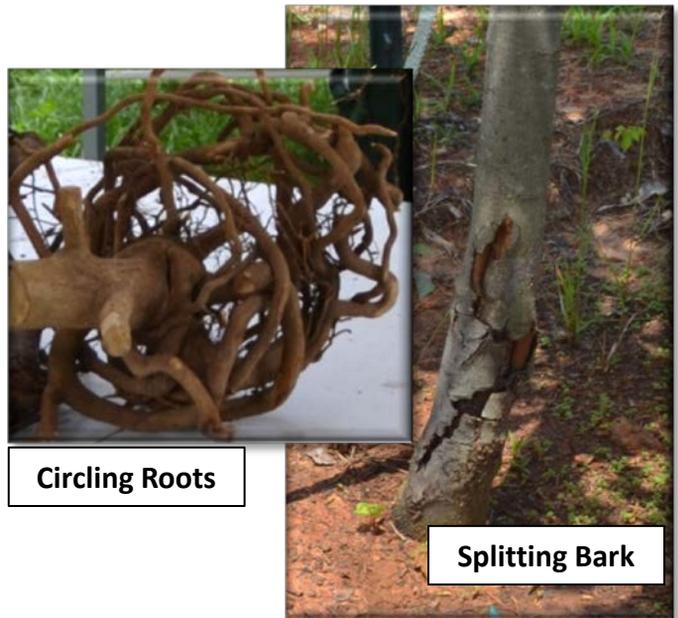
Once a tree's roots hit the edge of a container, they turn and grow along the container wall. If the tree replanted in a larger soil space, the roots will continue to grow in a circling pattern if not corrected. Tree's with circling root systems will be more likely to fail during a storm event due to a lack of structural stability in the soil.



Structural Failure due to Circling Roots

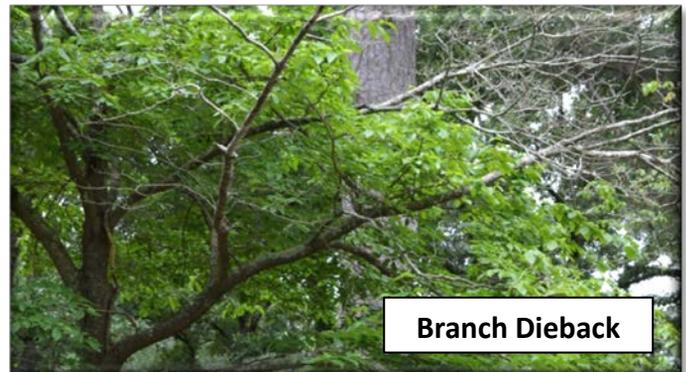
As the circling roots enlarge they begin to girdle and strangle the tree trunk and other roots. Girdling roots cut off a tree's ability to transport water and nutrients as they put pressure on the trunk. A tree trunk that is being girdled by a large root will appear flattened or depressed at the trunk base.

Trees with girdling roots will show signs of stress such as reduced growth, early season leaf defoliation, branch dieback, & splitting bark. Possibly only on the side of the tree where the root is growing.



Circling Roots

Splitting Bark



Branch Dieback

Correcting Circling Roots *prior* to Planting

To prevent circling roots from becoming girdling roots, correct the problem at planting using the root washing method followed by root pruning. Conduct this in the winter when the tree is dormant. You will need a water holding container larger than the tree's root ball, a water hose with attached pressure spray nozzle, & small & large bypass pruning shears.

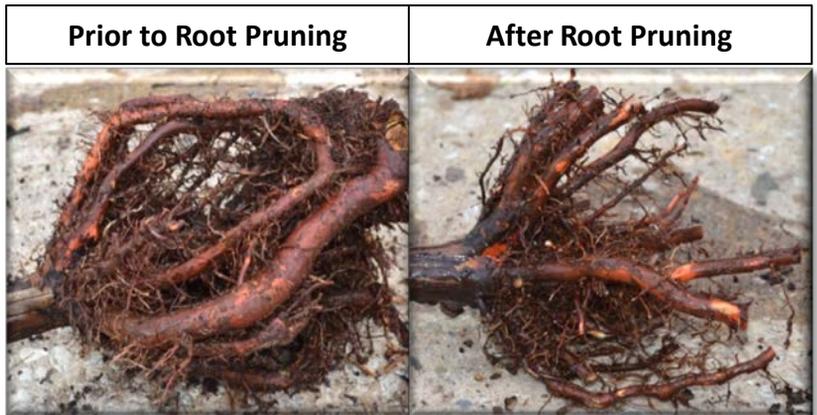
Root Washing:

Remove the tree from its container 24 hours prior to planting, & soak the root ball in the water filled container. Just before planting, hold the tree's trunk and agitate the root ball in the water to loosen the soil from the roots. If the tree is too large to fit in a container, or the root ball has a mass of fine roots holding the soil tightly, you will need to remove the soil by washing it away with the pressure spray nozzle. Continue washing until you can see the root system well. Gently straighten out the pliable circling roots. Keep the root system moist during the process by periodically dipping it in water. Allowing the roots to dry out will result in tree death.



Root pruning:

The large mass of fine roots covering the main roots will need to be pruned away to reveal the main root system & correct the circling roots. Large circling roots will not be pliable & will have to be pruned. Prune the large circling roots at the point where they turn. Once all circling roots have been pruned, the root ball should resemble a bicycle spoke. Pruning roots reduces the stability of newly planted trees, so staking may be necessary for the first year.



Correcting Circling/Girdling Roots *after* Planting

If a tree was planted without correcting for circling roots, it often dies from the problem within 2 years. Trees that become established may grow 5-7 years or longer before showing stress signs.

Newly Planted Trees:

Newly planted trees that have been in the ground for at least one year and are showing stress signs, can be tested above ground to determine if circling or girdling roots are the cause. Grasp the tree trunk a few feet from the ground, gently rock the tree back & forth. If the ground around the root ball moves or lifts the soil, the tree has circling roots & has not become established. To correct, wait until winter when the tree goes into dormancy, dig it up, prune the circling roots & replant the tree.

Established Trees:

Trees with circling/girdling roots that become established & show stress signs will need to be corrected to ensure the tree survives to mature size. This can be done in the winter by removing the soil with an air spade and pruning the roots. Pruning large roots can reduce a tree's structural stability & reduce water & nutrient uptake. For that reason, root pruning on established trees should be conducted by a certified arborist that can evaluate whether or not the circling/girdling roots can be removed or if the tree should be removed entirely.