

## TO UNDERSTAND YOUR REDWOOD TAKE A LOOK AT ITS ROOTS



An average 200-foot coast redwood has surface feeder roots that extend outward 100-200 feet in every direction, intertwining with the roots of neighboring trees. Some of the smallest roots are only inches underground. They may even stick up into the forest duff. There is no tap root; the root pad goes down only 4-6 feet.

Besides anchoring the tree during storms, the root pad acts like a giant sponge, enabling the redwood to absorb and store thousands of gallons of surface rainfall. The average 200-foot redwood can store 4,700 gallons of water in its trunk. Water and oxygen flow upward from its roots to the trunk, crown and branches; evaporation takes place through the needles.

A young redwood can adapt to the available supply of water and nutrients, but an older tree cannot. Changes of any kind—compaction, trenching, grading, fill, or pavement—can cause stress, dieback and even death. The extent and pace of death depends on the extent of the root damage.

To understand why the redwood is so sensitive to human invasion, it is necessary to examine its roots.

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## HELPING YOU PROTECT YOUR REDWOODS

My commitment to helping you protect your redwoods starts with a thorough consultation. Together we will discuss objectives—your need for sunlight, safety, and privacy and your trees' need for a healthy, stable environment—and we will carefully consider the long and short-term effects of the work. Selective, symmetrical trimming is best, allowing no more than 25% of the live wood to be removed during a seasonal growing cycle.

### THE TREE CLIMBER COMPLETE TREE SERVICE

- Consultations
- Hazardous Removal
- View Clearance
- Deadwooding
- Shaping
- Cabling
- Crown Reduction
- Stump Removal
- Insurance PL & PD



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## THE TREE CLIMBER CLIENT EDUCATION SERIES

### COAST REDWOOD

The magnificent coast redwoods (*Sequoia sempervirens*) are the world's tallest living trees, some growing to more than 360 feet. Once widespread throughout the world, they now thrive only in the narrow 30-mile-wide, 500-mile-long strip of coast from central California to southern Oregon. Recently threatened due to their commercial value, they are in need of our respect, care and protection.

Coast redwoods were named for Chief Sequoia, the half-white, half-Cherokee creator of the Cherokee alphabet. Like Sequoia, the trees are a combination of two colors—white sapwood and red in the bark and heartwood.

The coast redwood's high tannin content gives them remarkable resistance to insects and disease. Most redwood problems result from construction damage, growing conditions, and/or drought.

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## COMMON CAUSES OF COAST REDWOOD DIEBACK

- **Compaction**  
Foot or vehicular traffic within the dripline of a redwood changes the soil composition and crushes the roots.
- **Trenching**  
Trenching severs roots so the tree cannot supply itself with proper moisture and nutrients.
- **Grading**  
Any change in soil level can alter the drainage patterns as well as damage shallow roots.
- **Fill, asphalt, paving**  
Any sealed soil surface (fill, asphalt, paving, plastic tarping, etc.) reduces the amount of water and air available to the tree from its roots.
- **Broken underground gas lines**  
Underground filtration from propane, butane and natural gas leaks will rapidly kill your trees.
- **Competition**  
Grass, flowers and especially ivy within the dripline can limit the water and minerals available to the tree, as well as alter soil conditions.
- **Removal of outer, stronger trees**  
A natural coast redwood forest is an interlocking system of roots. Removal of even one tree will affect all the others around it. Removal of many trees may cause wind tunnels and fall downs.
- **Squirrels**

Although lovable, these European intruders can cause irreparable damage to treetops by constantly shredding the bark for use in making their nests.



GRAY SQUIRREL.

## SYMPTOMS OF DAMAGE AND SHOCK



HEALTHY TREE      STRESSED TREE

- Rounded or flat crown indicates growth has been inhibited

- Brown needle tips
- Drooping branches
- Full sucker growth at the base



- Thick needle growth on interior branches



- Ivy growing up trunk is both a cause and a symptom of dieback in coast redwoods.

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## SPECIAL SITUATIONS



"DOUBLE SPAR" TREE WITH CABLING

"Double spar" and "split top" redwood trees present special problems. Their heartwood is split and, therefore, less strong and resistant to wind shear damage. They often need to be cabled or have the weaker spar removed.



REDWOOD ANATOMY

BARK  
SAPWOOD  
HEARTWOOD

Heartwood of a "double spar" or a "split-top" is not as strong as a normal tree.

REMOVAL ALTERNATIVE OF WEAKER SPAR



"SPLIT TOP" TREE DIVIDES AT A WEAK OR DAMAGED POINT



SEEN FROM ABOVE, A "FAIRY RING" GROWS FROM AND SURROUNDS AN OLD STUMP.

A "fairy ring" is a circle of second-growth redwood trees supported only by an outer perimeter of enmeshed feeder roots. Special care must be taken to avoid root damage.

## HOW TO SAVE A TREE

- **Avoid compaction**  
Keep vehicles, roads and footpaths out from under the dripline of the redwood tree, the area between its base and the tips of its longest branches.
- **Plan trenches carefully**  
Keep trenches as far away from the dripline as possible. Consider tunneling under the root zone as an alternative to deep trenching which will sever roots.
- **Avoid grading and soil level changes**  
If grading must be done, preserve natural soil levels by building retaining walls around the trees.
- **Avoid fill, asphalt or paving**  
Remember most roots are within 2-4 feet of the surface. Burying them under fill, asphalt, paving or any other sealed soil surface will cut off the tree's air and water supply.
- **Repair all gas leaks quickly**
- **Remove competition plants from within the dripline**
- **Apply mulch under your trees**  
It is good practice to place 2-3" of organic mulch such as shredded bark or chipped tree material under your redwood trees to reduce water loss and help insulate the soil.
- **Watering**  
Your redwoods may need monthly deep watering during the hot summer months. You can apply water to a large area with a sprinkler. Let it run in one spot for several hours and continue moving until most of the soil within the drip zone is moistened to a depth of 12".