

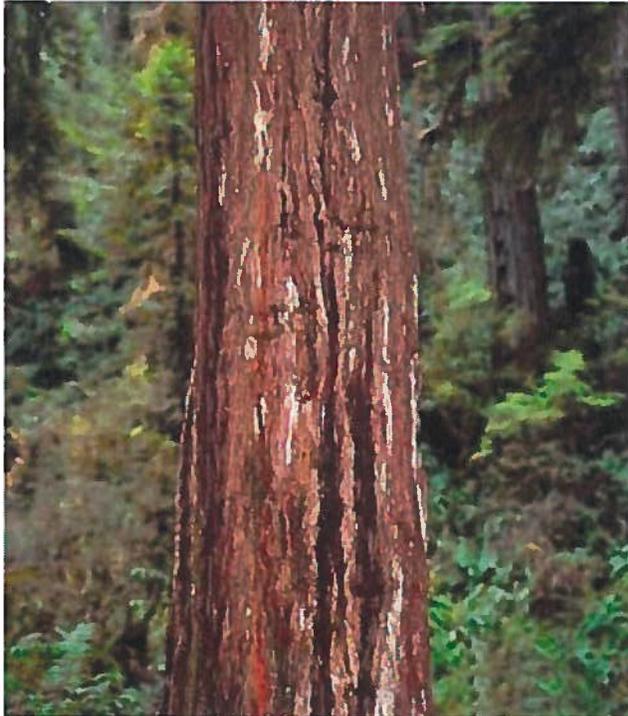
60° San Francisco

Search

[News](#) [Sports](#) [Business](#) [A&E](#) [Food](#) [Living](#) [Travel](#) [Columnr](#)[Home Guides »](#)[Indoors »](#)[Organization »](#)[Redwood Tree Dieback](#)

Redwood Tree Dieback

by Bonnie Singleton, Demand Media



Proper water management can reduce redwood dieback.

The California redwood is among the tallest and oldest tree species in the world, but even such mighty trees can suffer from dieback. Various pathogens are behind the problem, but environmental stress is also frequently a culprit. Prevention techniques and proper management of attacks can help protect a redwood, allowing it to thrive for many decades to come.

Canker

Canker on redwood trees is caused by the fungi strains *Botryosphaeria dothedia*, *Seridium* species and *Cytospora* species. Infestations lead to dieback of sometimes distant twigs, branches and treetops, with symptoms including pitch droplets and reddish-brown wood. Trees planted in unfavorable conditions such as overly dry or compacted soils can contribute to outbreaks, as can rain splashing upon the redwoods or high winds that disperse fungal spores. When outbreaks occur, prune away and dispose of affected tree tissue.

Sudden Oak Death

Despite its name, sudden oak death can affect more than 100 other plant species, including redwoods. The source is *Phytophthora ramorum*, organisms resembling fungi that spread from one infected plant to another via spores in moist or humid environments. On redwoods, the disease commonly affects foliage, with symptoms such as leaf spots or twig dieback, but it won't kill the tree. There is no treatment other than pruning affected limbs. Before planting a redwood sapling, the University of California Statewide Integrated Pest Management Program recommends placing it in a remote, moist corner of your property for up to eight weeks and watching it for symptoms of the disease.



Quicken Loans - America's
#1 Online Lender

www.quickenloans.com



15 Yr. Fixed at 3.125%	3.547% APR	\$1,742/mo
30 Yr. Fixed at 4.125%	4.331% APR	\$1,212/mo

[disclaimer](#)

Stress

When redwoods are chronically water deprived, the resulting stress can cause dieback. To protect redwoods in urban settings, maintain plenty of space around each tree and avoid competing plantings that rob the soil of moisture. It also helps to add a thick mulch layer around the trunk, keep away any foot traffic that could compact the soil and leave lower lateral branches intact to provide shade for roots. Avoid using recycled water, as it may contain chemicals that cause a more alkaline soil pH and lead to dieback.

Animal Damage

Animals can also cause the green tops of redwood trees to die back or turn brown. In the forests, bears are often the culprit, but in urban landscapes, tree squirrels, wood rats and porcupines may damage redwoods. These animals chew down to the layer between bark and wood called the cambium and interrupt the flow of nutrients to branches. Management may include trapping, using metal collars around the trees or applying taste repellants like capsaicin.

References

CalPoly Urban Forest Ecosystems Institute: Redwood Canker (<http://www.ufe.org/files/pubs/Redwoodcanker.pdf>)

University of California Cooperative Extension: What's Up With the Redwoods?

(<http://www.ufe.org/files/pubs/redwoods.pdf>)

Navarro Watershed Working Group: Redwood Top Die-back (<http://www.nwwg.org/treetips/20050717>)

Floridata: Sequoia Sempervirens (http://www.floridata.com/ref/s/sequ_sem.cfm)

University of California Statewide Integrated Pest Management Program: Sudden Oak Death

(<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74151.html>)

Palo Alto Hills Neighborhood Association: Redwood Trees Negatively Impact Palo Alto's Environmental Priorities

(<http://www.pahna.org/Redwood%20Factsheet.pdf>)

University of California Cooperative Extension: Coast Redwoods as Landscape Trees

(<http://ucce.ucdavis.edu/files/datastore/268-209.pdf>)

Internet Center for Wildlife Damage Management: Tree Squirrels

(<http://icwdm.org/handbook/rodents/TreeSquirrels.asp>)

About the Author



Bonnie Singleton has been writing professionally since 1996. She has written for various newspapers and magazines including "The Washington Times" and "Woman's World." She also wrote for the BBC-TV news magazine "From Washington" and worked for Discovery Channel online for more than a decade. Singleton holds a master's degree in musicology from Florida State University and is a member of the American Independent Writers.

Photo Credits

Ryan McVay/Lifesize/Getty Images

[Suggest a Correction](#)

More Like This:



Tri-Valley Redwoods Injured By Drought

Coastal redwood trees, prized in the Tri-Valley for their beauty, majesty and fast growth, are increasingly at risk as Northern California's drought deepens, tree and garden experts say. This is particularly true if homeowners do not recognize the danger and fail to take steps necessary to keep them healthy.

In neighborhoods from Livermore to Sunol, redwoods are turning brown, sometimes from too little water, sometimes from salts in the soil, sometimes from pests and cankers that have taken advantage of weakened trees.

The basic remedy — deep watering plus frequent overhead sprinkling — may be prohibitively expensive as water rates rise, and impossible if serious rationing begins.

The Livermore Valley has already been told that it may not receive any water from the State Water Project this summer.

Coastal redwoods arguably do not belong in the Livermore Valley in the first place, according to a range of authoritative sources. They are native to coastal regions where summers are cooler, rainfall is heavier and fog brings moisture to their needles year-around.

Many thousands of redwood needles on a single tree create a huge surface area for absorbing or losing water. A tall coastal redwood can require up to 500 gallons of water a day through its needles and roots, according to online horticultural resources like the University of California's Division of Agriculture and Natural Resources.

For these reasons, "I would not recommend redwoods in a place like Livermore," said Igor Lacan, environmental horticultural advisor in that UC Division.

Half a century ago, however, they were planted enthusiastically to green up a region whose orchards, native oaks and rose gardens were being cut down to make room for development.

Many long-time Livermore residents recall an agricultural company distributing free redwood seedlings decades ago.

Beyond the simple absence of water, redwoods are sensitive to the build-up of damaging salts in the soil. In a rainy year, this problem is typically seen in late summer or fall, months after the last soaking rains of the past winter have leached the salts to lower levels in the soil.

Similarly, alkaline chemicals from freshly poured concrete can damage redwood tree roots.

Igor Lacan, the University of California environmental horticultural advisor, said that recycled water can carry extra minerals, adding to salt build-up. "Redwoods don't tolerate recycled water," he said.

Greg Dubatowka, a cer-
(See REDWOODS, page 10)

REDWOODS

(continued from page one)

tified arborist who works for Alexander Tree Care in Livermore, recalls discussing the salts problem with professional colleagues around the Tri Valley and concluding that it must be the explanation for the puzzling brown foliage on a grove of well watered redwoods.

Just in the past month, more and more redwoods have been turning brown and "looking poorly" in the Tri-Valley, he said. He recently saw a group of redwoods dying on East Avenue in Livermore, near North Mines Road, and another on Concannon.

Other trees suffer from years of reduced rainfall as well, he said. These are typically non-natives like Monterey pines and birches, which tend to prosper in coastal climates and places with year-around rain. Early this week, he said, he spotted a cluster of dead Monterey pines in Sunol.

At Livermore's Alden Lane Nursery, owner Jacquie Williams believes that some homeowners have not taken sufficient notice of "three years of limited rainfall. They turn off the irrigation" during the winter, which is normally wet, and then "forget about" turning

it on even when there's no rain.

Redwoods are normally resistant to insects and diseases, Williams said. When they have been weakened by drought, however, they can be susceptible to cankers, blights and pests.

She thinks the first step toward saving a redwood is deep watering, 24-48 hours of slow soaking using a soaker hose spiraled out from the trunk or woven in figure eights through a grove of trees. She advises against fertilizer until the soil has been thoroughly soaked.

Surfactants such as the product EZ Wet can help water penetrate heavy soil, Williams says. The deep watering should be repeated every two weeks or so, with frequent overhead sprinkling to keep the soil moist.

Several sources advocated keeping foot traffic away from redwoods to avoid packing the soil down.

Where to obtain the water if it were rationed, or how to afford it as rates rise, remain unanswered questions.

Both UC's Lacan and Alexander Tree's Dubatowka recommend mulch, especially light colored mulch, to keep the soil cool and to slow the drying process during summer heat.

Questions arise about effect of recycled water on trees

By Renee Koury, MEDIANEWS STAFF Inside Bay Area

Posted: Fri Nov 24 03:40:08 MST 2006

InsideBayArea.com

For the past two years, Mountain View officials have been making plans to use recycled water, carried via a multi-million-dollar pipeline, to irrigate the North Bayshore area's burgeoning business parks.

But even as the process moves forward, the city is hearing concerns that treated wastewater might be to blame for damaging and even killing scores of coast redwoods in other parts of the valley. That possibility is a concern for Mountain View, because North Bayshore is studded with redwoods, the grand dames of landscapes.

With California encouraging cities to use more recycled water for landscaping, the Santa Clara Valley Water District has sponsored a \$280,000 study, nearing completion at the University of California, Davis, to answer suspicions that the majestic conifers may eventually die if fed a steady diet of treated wastewater, which typically contains high levels of salt.

"Redwood trees are very important to people in this area," said Melanie Richardson, the district's water supply manager. "And if there is any possibility that the recycled water is responsible for the decline of redwoods, then we want to find out about it and do something."

In one case, the city of Milpitas recently issued permits to remove 160 dead trees, including 105 redwoods, from the Oak Creek Business Park off Interstate 880. Carol Randisi of the city's public works department said the area has been irrigated with treated wastewater, though it's still unclear whether the water was to blame.

Milpitas, Santa Clara and San Jose are served by South Bay Water Recycling, an agency run by the city of San Jose that has delivered reclaimed water from the Santa Clara-San Jose waste treatment plant since 1997. Customers use the recycled water mainly for landscaping, agriculture and industrial cooling towers; it's never used for drinking.

Richardson and others point out that some local redwoods have died even when irrigated with potable water. Other factors, such as soil condition or lack of drainage, also could be to blame, they said.

"I think there's a bias out there against recycled water," said Bob Wilson, acting division manager at South Bay Water Recycling. "We've investigated a lot of complaints, and we find that some redwoods are doing well. The ones that aren't tend to be those in heavily traveled areas with heavy clay," which can prevent drainage and trap salts that leach water from tree roots, causing decay.

Horticulturists and others note that redwoods aren't native to the valley and grow best at higher elevations and cooler temperatures. "They're in a non-native environment so they can do OK, but never as well as they do in the Santa Cruz Mountains," said Wilson.

Tests of some dead trees showed high levels of salt in their needles, he said, while others showed low salt levels. The difficulty in pinpointing a cause led the water district to commission the UC Davis study.

The research, begun in October 2004, involved growing redwood trees from seedlings and feeding them water with varying salt levels. Researchers found trees fared well unless irrigated with fluid far heavier in salts than most recycled water.

However, researchers suspect that salts build up over time in the root systems and soils, and they asked for more time to examine the long-term effects of less-salty water on the young trees. The testing was extended through the end of December, and a report is expected in the spring.

Others are already convinced the recycled water is the culprit. In Santa Clara, for example, the city found eight redwoods dying at Marsalli Park over the past few years and finally replaced them with more resilient species, said Robin Saunders, a utilities director.

Later, when redwood trees began dying at two school sites and along Great America Parkway, the city decided to switch to potable water irrigation in those locations. The trees snapped back to life, Saunders said.

The concerns about recycled water come as the state is trying to ramp up use of treated wastewater to help meet growing demand. Projections of water shortages have agencies working out plans for how to provide for an increasing population.

Mountain View and Palo Alto, meanwhile, will seek bids early next year to replace a nonfunctioning pipeline from the Palo Alto Regional Water Quality Control Plant, a joint agency of the two cities and smaller surrounding towns.

Currently, the plant produces only a small amount of recycled water each year, which tends to be saltier than average because of the facility's bayfront location, Richardson said.

Mountain View officials hope a new, expanded pipeline will carry recycled water to about 120 customers in North Bay shore, including the Shoreline Golf Course and high-tech companies such as Google.

But the city is awaiting results of the UC report before deciding where to use recycled water.

"We didn't want to put in a system that would harm our customers," said Gregg Hosfeldt, Mountain View's public services manager. One possible solution, he said, would be

continuing to use fresh water for redwoods and saltier recycled water for more resilient vegetation.

'We've heard the anecdotes about the decline of redwoods, and they seem well founded. But recycled water is going to have to be more of a resource. We have to figure out how to make it work.'