



# Inspect Your Landscape Trees for Hazards

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Each year in California, many trees fall or break apart, causing property damage, personal injuries, and power outages. Although some tree failures are not predictable and cannot be prevented, many failures can be prevented. By inspecting trees for common structural defects, many potential failures can be corrected before they cause damage or injury.

## Guidelines for Inspecting Your Trees

- Trees should be inspected on a regular basis.
- Large trees have a greater hazard potential than small trees. They should be inspected more frequently and in greater detail.
- It is best to make inspections before stormy weather and immediately afterward.
- Make your inspections from the ground. Do not climb the tree or use a ladder to improve your viewing perspective.
- Binoculars may be helpful. If a closer inspection is needed, consult an arborist who has the equipment and training to conduct the inspection safely.
- Be aware of nearby power lines.
- If you determine that a tree is hazardous, keep people, pets, and vehicles out of the area until the hazardous condition has been corrected.

This publication addresses only common defects that may be recognized from a ground inspection by an untrained person. Other defects that could result in tree failure may exist. If you have concerns or questions regarding an inspection, contact an arborist for assistance.

Healthy trees may be structurally unsound or hazardous. And, unhealthy trees may be sound and not hazardous. Tree health refers to the physiological condition of the tree and the presence or absence of disease or other pests. Hazardous trees are structurally unsound; they possess defects that may lead to failure and result in damage or injury. *Recognizing Tree Hazards: A Photographic Guide for Homeowners* (ANR Publication 21584) includes excellent photographs illustrating the seven common structural defects of trees discussed in this publication.

## Inspect healthy and unhealthy trees

Stand back and look at the whole tree. A split is an indicator of a hazard. Thoroughly inspect the tree for defects in the following order:

1. Lean
2. Multiple trunks
3. Weakly attached branches
4. Cavities and decay
5. Cracks in trunks and branches
6. Hanging or broken branches (hangers)
7. Dead branches (deadwood)

Remember, it takes an arborist to correct most of these defects, especially if the tree is large. Some defects may not be correctable and removal of the whole tree may be the best option.

### Lean

Determine whether the vertical axis of the tree has recently changed and check the ground around the base of the tree for uplift or exposed roots. If the tree was vertical but has moved from the vertical position, it is called a *leaner*. These are trees that are in the process of falling and could fall completely at any time. They require immediate attention.

Some trees do not grow vertically. Unless there has been a recent change in the vertical position of the tree's trunk, it is not a leaner.

### Multiple trunks

Some trees develop more than one trunk, which are often weakly attached and prone to splitting apart—especially those with narrow angles of attachment. This condition is a concern in large trees. Inspect the point where the trunks meet.

### Weakly attached branches

Inspect large branches (greater than 3 inches) at the point where they attach to the trunk. (For equivalents between U.S. and metric systems of measurement, a conversion table is provided at the end of this publication.) Trees with many branches arising from the same point on the trunk are weak and potentially hazardous. If one branch breaks, the others are more likely to fail.

### Cavities, large decay pockets, and other evidence of decay

Inspect the trunk and large branches for cavities or large decay pockets. The location and size of these defects is important. If you find cavities or decay at a point where loads are great (where branches meet

or at the base of the trunk), they are a concern. If a cavity or decay pocket is especially large and is at a key structural location, the tree is more likely to fail.

Mushrooms and *conks* (bracket-like growths) growing on the bark of trees or on exposed roots indicate root rot or wood decay. As the decay progresses, the wood is weakened and failure is more likely.

It is very important to have your tree inspected by an arborist if you find cavities or decay. Tree size and weight distribution should be considered when deciding if the tree is a hazard. Do not make hasty decisions based only on the presence of decay or a cavity. Do not attempt to clean out or seal a cavity or decay pocket—you may be doing more harm than good.

### Trunk and branch cracks

Inspect the trunk and large branches for cracks. Cracks may align longitudinally with the grain or across the grain of the wood. If a crack is found, determine if it extends into the wood or is confined to the bark. Insert a pencil or other object into the crack and measure its depth. Look into the crack to see if you can tell the thickness of the bark and whether the crack extends into the wood. Generally, if the crack is more than 3 inches deep, it is likely to extend into the wood. Bark thickness varies. A 2-inch crack could also extend into the wood.

Cracks confined to the bark are not usually a problem, but there is reason for concern when the crack extends into the wood. Deep cracks indicate that a separation of the wood within a trunk or branch has occurred and the tree has become structurally weakened. If you find a crack, it is best to have it inspected by an arborist.

### Hanging or broken branches (hangers)

*Hangers* are branches that are broken but have not fallen from the tree. They may still be partially attached or completely separated and lodged in the canopy. Inspect for branches that are hanging down from a break point and for branches that have broken off completely and are resting on other branches. Hangers should be removed as soon as possible.

### Dead branches (deadwood)

Branches that have died will eventually fall off. Larger dead branches can cause damage when they fall. Inspect trees that lose their leaves in winter (maple, ash, poplar, etc.) when they are in full-leaf (late spring through early fall). Evergreen trees



(pine, cypress, eucalyptus, etc.) can be inspected for deadwood at any time. Inspect near the top of the tree. If you find deadwood, plan to have it removed. This does not have to be done immediately, but should not be ignored.

### Summary

To avoid potential hazards in your landscape trees, these are the most important points to remember:

- Conduct careful, regular inspections of your trees for all seven defects listed in this publication.
- Do not climb the tree. Inspect from the ground or a safe viewing area.
- Look closely for power lines near your tree. If you suspect a hazardous condition, immediately contact your utility company.
- If you determine that a tree is hazardous, look to see if anything would be damaged if the tree fails and decide whether it can be safely moved from the area. Keep people, pets, and vehicles away.
- Do not attempt to remove large branches or trunk sections on your own.
- Consult an arborist when you need advice or work done on your trees.

### Obtaining professional advice and services

The best assurance of getting quality advice or tree work is by hiring an arborist certified by the International Society of Arboriculture (ISA) or a consulting arborist who is a member of the American Society of Consulting Arborists (ASCA). Certification does not guarantee quality performance. It is only a means of helping you select an arborist who has a demonstrated level of knowledge and technical proficiency. Verify that your arborist is insured and check his or her references. Tree care services are usually listed under “Tree” in the Yellow Pages of the phone book.

Please contact your local Master Gardener for more information or go online to <http://camastergardeners.ucdavis.edu>.

We gratefully acknowledge support for this project from the *Elvenia J. Slosson Research Endowment for Ornamental Horticulture*. Content and photographs for this publication were excerpted with permission from *Recognizing Tree Hazards: A Photographic Guide for Homeowners* (ANR Publication 21584), by Lawrence R. Costello, Bruce Hagen, and Katherine S. Jones. Poster design by Will Suckow Illustration.

## RESOURCES ACCESSIBLE ONLINE

### Web Sites

#### California Master Gardeners

<http://camastergardeners.ucdavis.edu/>

### Publications/Brochures

#### California Master Gardener Handbook

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3382>

#### Planting Landscape Trees

ANR Publication 8046

<http://anrcatalog.ucdavis.edu/pdf/8046.pdf>

#### Recognizing Tree Hazards – A Photographic Guide for Homeowners

ANR Publication 21584

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=21584>

#### Tree Care Cards

<http://groups.ucanr.org/ohric/documents/newsletter1329.htm>

#### Tree Evaluation and Casualty Loss: A Homeowner’s Guide

(Dollar values are out of date – use for guiding a process of evaluation)

<http://anrcatalog.ucdavis.edu/TreesandShrubs/21418.aspx>

#### Trees Under Power Lines

ANR Publication 21470

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=21470>



## In Spanish

### *Como reconocer peligros potenciales de los arboles*

ANR Publication 21604

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=21604>

## METRIC CONVERSIONS

| English   | Conversion factor for English to metric | Conversion factor for metric to English | Metric          |
|-----------|---|---|-----------------|
| inch (in) | 2.54                                    | 0.394                                   | centimeter (cm) |
| foot (ft) | 0.3048                                  | 3.28                                    | meter (m)       |

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# Ask a UC Master Gardener



## Inspect Your Landscape Trees for Hazards

### Inspect—

- for the 7 common structural defects
- before stormy weather and immediately afterward
- from the ground. Do not climb trees to inspect. If closer inspection is needed, consult an arborist.

### Be aware—

- of nearby power lines
- that it takes an arborist to correct most hazardous defects, especially if the tree is large

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Please contact your local Master Gardener for more information (<http://camastergardeners.ucdavis.edu>).

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# Inspect Your Landscape Trees *for Hazards*

## Stand back and look at the whole tree.

Thoroughly inspect for structural defects (any split in the wood is hazardous). Check the tree in the following order:



Photo: Bruce Hagen

**1. Lean** - Has the vertical axis of the tree changed?

**2. Multiple trunks** - Inspect where the trunks meet.

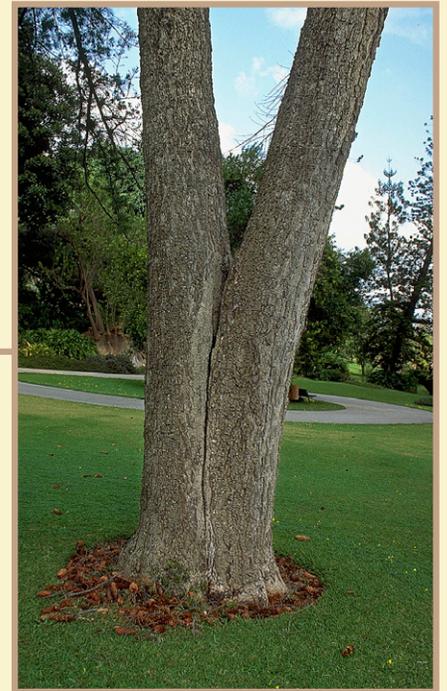


Photo: Bruce Hagen

**3. Weakly attached branches** - Inspect branches larger than 3 inches at the point where they attach to the trunk.

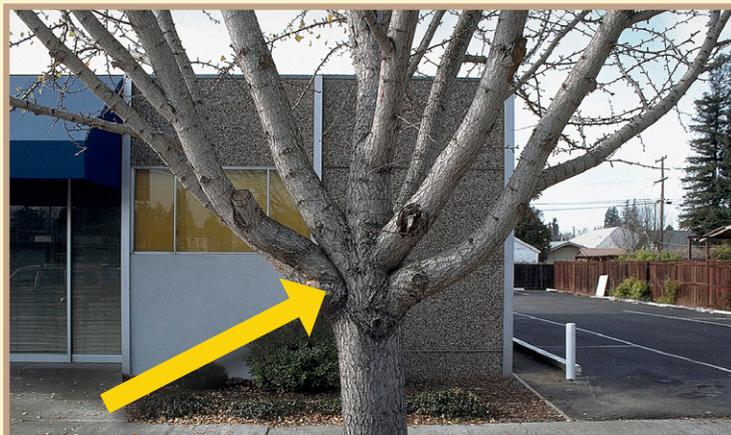


Photo: Bruce Hagen

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Photo: Bruce Hagen

## 4. Cavities and decay -

Location and size determine hazard.

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## 5. Trunk and branch cracks -

Be concerned if the crack extends into the wood.

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Photo: Bruce Hagen



Photo: Laurence Costello

## 6. Hanging or broken branches -

Remove as soon as possible.

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## 7. Dead branches -

Plan to remove.

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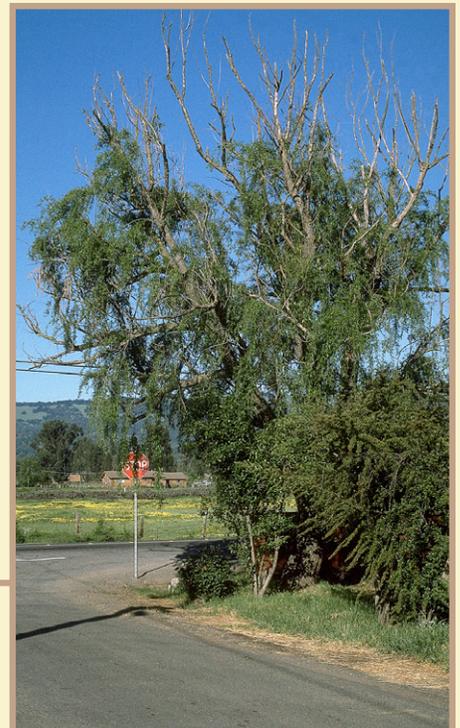


Photo: Bruce Hagen