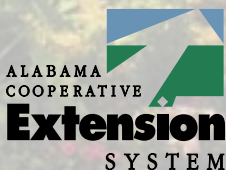


ALABAMA A&M AND AUBURN UNIVERSITIES

# Homeowner's Guide to Safer Trees



*Your Experts for Life*



Paid for in part by funds from the USDA Forest Service

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**This guide will address the following issues:**

**Symptom 1:** Defective Roots

**Symptom 2:** Multiple Trunks

**Symptom 3:** Weak Branch Attachment

**Symptom 4:** Cavities and Decay

**Symptom 5:** Cracks

**Symptom 6:** Hangers and Suspended Branches

**Symptom 7:** Deadwood

**Symptom 8:** Natural Tree Conditions

A lush green landscape with large trees and a stone path leading to a flower bed. The scene is bright and sunny, with a clear sky and dense foliage. A large tree trunk is visible on the right side of the frame. In the foreground, there is a stone path leading to a flower bed filled with various plants and flowers. The overall atmosphere is peaceful and natural.


## **Is This Guide for Me?**

**Yes!**

**...If you own or live in a home with trees in the landscape**

**...If you want your trees to be healthier and to live longer**

**...If you want greater piece of mind about the safety of the trees in your landscape**



Trees help make Alabama's communities better for people.

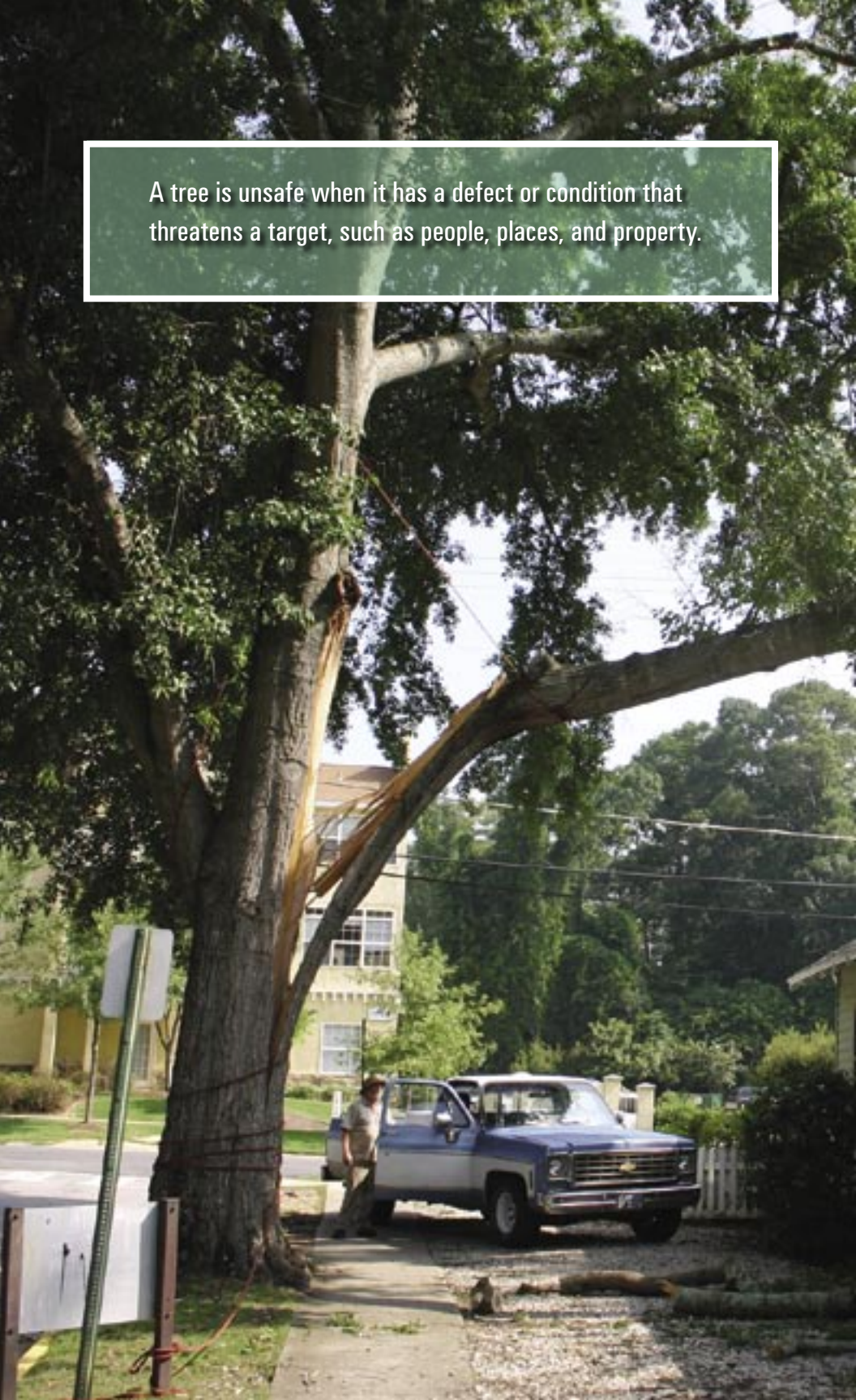
## Our Valuable Urban Forest

Trees are a way of life in Alabama. Without them, our cities, towns, and neighborhoods would be less enjoyable. There are many benefits of having trees where we live, work, and play, especially for homeowners. Urban trees offer the following advantages:

- Increase property values
- Save on energy bills
- Improve soil, air, and water quality
- Help homes sell faster
- Enhance social interaction
- Make people healthier



A tree is unsafe when it has a defect or condition that threatens a target, such as people, places, and property.







## When Trees Become Unsafe

Trees are remarkable in how they are structured and in how they work. Unable to escape from dangers and threats, they literally stand their ground against the many forces of nature, such as weather and pests. In addition, urban trees are under constant assault from human-related pressures. Construction, automobiles, and utility-line clearance are just a few examples.

For the homeowner, it is vital to keep these things in mind because the most important point is this—*all trees will eventually fail and die*. The best we can ever hope is to prolong a tree's health, safety, and useful life. Knowing this will help homeowners make reasonable and effective decisions that result in safer trees for people.

## What Should I Do?

The first step toward safer trees is to take responsibility. Urban trees are like any other valuable asset. Better management increases the returns and minimizes the risks. That means being proactive throughout the life of your tree, or at least as long as you have ownership. There are three simple rules toward having safer trees—systematic inspection, treating problems quickly, and removing a tree when its risks outweigh its value.





Sounding for decays and hollows



Digging to expose roots



Measuring depth of cavity



Getting a closer look at the crown

Tip: Keep a record of your findings as you examine each tree for safety. Jot down observations on a notepad and take pictures with a camera.



## Helpful Tools

It's hard to inspect a tree without the proper tools. Fortunately, everything a homeowner needs is easy to find. Many useful items can be found around the house or be purchased at a low cost.

- A trowel is a handy way to investigate around roots and to pry away loose bark.
- Binoculars make it easier to view elevated portions of the tree.
- A rubber mallet is a nonintrusive way to sound trees for cavities or decayed wood.
- A measured yardstick can help probe cavities or cracks.



Use a notepad to jot down your observations.



Inspecting a tree for safety may seem like a daunting task, but it's really a matter of mastering the basics.

## Examining Your Tree for Safety

Examining a tree for safety should be thorough enough to get the job done. Remember, you are *observing* the tree for unsafe symptoms. Don't make snap judgments; take your time. Try to become familiar with the tree. Stand back and look at it from different angles. The process should be simple but complete and allow the homeowner a systematic look that can be repeated with other trees.

The first step in this process is tree identification. In other words, *what kind of tree is it?* Knowing the answer can provide important clues about a tree's safety, because some species are prone to certain defects.

**Tip:** If you aren't familiar with trees in your area, purchase a good field guide from a local bookstore. Be sure the information is for Alabama or the southeastern region with plenty of images of the trees' features.

"A Key to Common Trees in Alabama (ANR-509)" is available through the Alabama Cooperative Extension System.

**Tip:** When preparing for your assessment, take advantage of weather and sun conditions so that you are comfortable and have an unobstructed view of the entire tree.





**Crown**

**Tip:** Large trees should be inspected once a year or after every major storm.

**Trunk**

**Critical root zone**


Once you have identified your tree, it's time to begin the actual examination. To do this properly, divide your routine into an inspection of three general tree zones. Each of these zones is a distinctive part of the tree. Focus your investigation on each zone, completing one at a time.

## Tree Inspection Zones

- Crown—Tree branches and foliage
- Trunk—Main tree stem between root collar and lowest limb
- Roots—Belowground part of tree extending outward as much as one to two times the tree height

**The primary area for root inspection should be within the tree's critical root zone.**

**Critical Root Zone**—Portion of root system that is critical for the tree's life and stability. The CRZ is measured away from the trunk 1 foot for every inch of trunk diameter.



Mushrooms and conks  
at or near tree roots  
may be a sign of  
root decay.




## Symptom 1: Defective Roots

Roots are to a tree what a foundation is to a house. They keep a tree upright and secure. When roots fail, it can be catastrophic to both trees and people alike. That's why it's important to make sure tree roots are sound and functional. There are two basic kinds of root failure. One occurs when the soil loses its ability to hold the root system in place. Saturated and waterlogged soils combined with high winds can cause this type of **soil failure**.

Another form of defect is **root failure**. Roots that are severed, decayed, or otherwise damaged can lose their grip on the soil under the right (or wrong) conditions. To check for root failure, look for signs where large roots have died, are decayed, have been cut or broken, or are restricted from normal growth.

**Tip:** A leaning tree doesn't necessarily mean it will fall, but it certainly warrants closer examination. If you have a leaning tree, look for signs of decay and root stability. One indicator of a critical root defect is soil mounding on the opposite side of the lean. A tree that has recently shifted from its normal vertical position will require immediate action.



A large tree with two main stems, one of which is significantly larger and has a hollowed-out section, illustrating codominant stems with included bark. The tree is situated on a grassy lawn next to a paved road. A black SUV is parked on the road to the right. The background shows more trees and a clear sky.

Codominant stems with included bark is a common cause of failure, especially during storms.

## Symptom 2: Multiple Trunks

Failure can occur whenever two or more trees or two or more trunks of a tree grow close enough together to form competing stems. Competing stems and trunks usually develop weak unions that over time can cause one or more of the stems or trunks to separate.


An upturned ridge between stems and/or branches indicates a strong union.



### Signs that a multiple trunk is unsafe

- Stem union is cracked
- Stem union has decay
- Stem union has included bark

**Included Bark**—Where two similar-size stems and/or branches grow closely together and bark of each is in contact within the union. As a result, stems and/or branches are prone to splitting.

A close-up photograph of a large tree trunk with several hollowed-out branches. The tree trunk is thick and textured, with several large, circular holes that have been cut out of the wood. The branches are also thick and show signs of decay or damage. The background shows a brick wall and a green bush.

Clustered or multiple branches are prime candidates for breaking apart as they grow larger and heavier.

## Symptom 3: Weak Branch Attachment

Homeowners should make every effort to identify branches that are weakly attached to the stem. It doesn't always take a storm, wind, or other natural event for a weak branch attachment to fail. Sometimes they fail for no apparent reason.

### Signs of weak branch attachment:

- Included bark within union of two branches
- Branches that grew from a topping cut
- Branch with abrupt bend (see photo)
- Species or cultivar with tendency for branch failure
- Branch diameter is almost as large as the stem where it is attached



New limbs that sprout from broken or damaged branches are weakly attached. The odds of failure increase as the new limbs gain weight and the parent branch weakens even more.



Advanced decay and cavities can compromise a tree's stability and structure.

## Symptom 4: Cavities and Decay

Most trees have **decay**. Decay is the breakdown of wood cell walls by fungi. Decay usually results from a past injury to the tree, such as construction damage, storms, insects, and parasites. Trees attempt to contain decay by forming barrier walls within the tree to hamper or resist further spread. **Cavities** are hollows or holes that are the result of advanced decay where there has been complete deterioration of wood fiber.

Size and location will determine if a cavity or decay is an unsafe symptom. The larger the size, the greater the risk. The risk is also increased if the cavity or decay is located near or at an important junction, such as at a branch base or near ground level.

Homeowners should inspect the trunk, stem, and large branches for signs of decay or cavities.



Conks are a good sign of internal tree decay.

### Signs of decay in trees:

- Mushrooms and conks (see photo)
- Loose bark
- Branch stubs
- Cavities
- Carpenter ants or bees
- Nesting holes
- Trunk bulges

**Tree Sounding:** Thump the tree with a rubber mallet to feel and listen for signs of decay, hollows, and loose bark.



Cracks that extend through a tree may indicate imminent failure.



## Symptom 5: Cracks

**Cracks** are splits in the wood. Deep cracks indicate a traumatic separation of the wood fibers. Cracks tend to follow the wood grain along the trunk (up and down) or branch. Homeowners should look carefully when searching for signs of a tree crack. If a crack is discovered, try to measure the length and depth of the wound. As a rule, the deeper and longer the crack, the greater the risk of failure.



A tree crack is an important sign that the tree has failed.

### Signs that a crack needs immediate action:

- Extends deeply or completely through a branch or trunk
- Is opposite or connected to a decayed area or cavity
- Has multiple cracks in same area of tree



Cracks normally result from natural storm events, but may also be caused by a flaw in the tree's structure.



All hangers will  
eventually fail.

## Symptom 6: Hangers and Suspended Branches


**Hangers** are limbs that have broken but remain loosely attached to a portion of the tree. The easiest to see are those that hang vertical to the ground. A **suspended branch** is a limb that broke off completely, but during the fall was caught by another branch before it could reach the ground. Hangers and suspended branches should not be underestimated, especially if there are targets below.

Trees should be inspected carefully for hangers and suspended branches, especially after a storm or high winds.



**Tip:** Some hangers and suspended branches can be hard to see because they can be camouflaged by surrounding foliage. To help locate this hidden symptom, look for breaking points in limbs where the lighter colored wood contrasts with the darker bark and foliage.

Suspended limbs need immediate attention.

A large, mature tree with a thick, textured trunk and a dense canopy of green leaves. A prominent, thick, deadwood branch extends from the trunk towards the upper left. The background shows a grassy area and other trees under a bright sky.

Deadwood will decay  
in time, leading to  
inevitable failure.

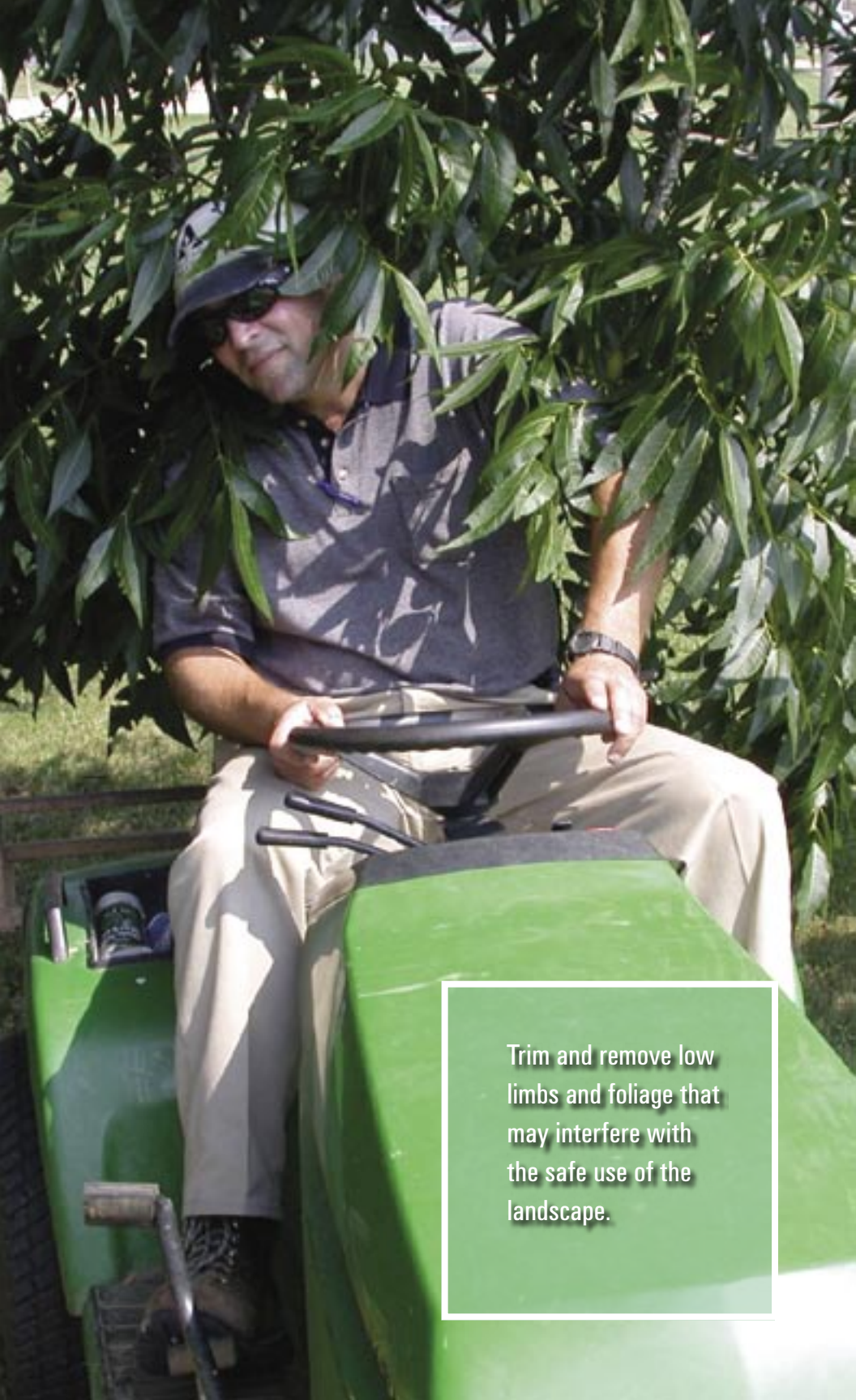
## Symptom 7: Deadwood

Deadwood is a fairly easy symptom to recognize. It can be a single dead limb, dieback of branches and branch tips in the crown, or it may be that the entire tree has died. Any tree can have deadwood.

Common sense says that the larger the size and amount of deadwood, the greater the safety risk. Therefore, if there is a target, the branch, branches, or tree should be removed as soon as possible.



**Dieback in trees may or may not stabilize. Pruning deadwood is essential to clean the crown and eliminate safety risk.**



Trim and remove low limbs and foliage that may interfere with the safe use of the landscape.

## Symptom 8: Natural Tree Conditions

Some trees can be sound and healthy, but still pose a safety concern.

Examples include the following:

- Trees with thorns
- Trees that produce heavy, large, or fleshy fruits (see photo)
- Trees with brittle wood
- Trees that obstruct line of sight
- Trees that interfere with normal use of landscape



**Messy and prolific fruiting can cause slippery situations for people.**



**Conflicts between trees and community safety should be resolved.**






## Evaluate Your Findings

Once you complete your tree assessment, how do you know what it means? Assessing trees for safety is not an exact science. The best you can hope is to uncover signs that may predispose a tree to an unsafe condition. From there, it is important that further evaluation be made before any action is taken. Here are some key questions to help you evaluate your findings.

- What unsafe tree symptoms did I find?
- Why is this a safety concern?
- Do I need more information?
- What actions should I take?
- What plan do I have to carry this out?



**Any tree can be a risk to safety. It's up to the tree's owner to determine how much risk he/she can accept.**

A large, dark brown tree trunk with rough, textured bark is the central focus. The trunk is thick and shows signs of age. At the base, there are several small, green, leafy plants growing out of the soil. The background is slightly out of focus, showing a paved area, a sidewalk, and some greenery. A white text box with a thin black border is overlaid on the right side of the tree trunk.

When you aren't sure if  
a defect is unsafe, get  
an expert opinion.

## Getting a Second Opinion

Now that you've made your evaluation, the next step is to decide what, if any, treatments are needed. *But*, what if you have uncertainties or questions about what you've seen? Well, then you will need to get a qualified second opinion, especially *before* you take any corrective treatments. A good second opinion can do two things. It can help confirm or correct your original assessment *and* it can help determine the proper treatment needed. When seeking a second opinion, always choose a person who has the professional experience and knowledge to assess trees for safety.

**Tip:** If you're having trouble finding someone to give a second opinion, try visiting the International Society of Arboriculture's Web site ([www.isa-arbor.com](http://www.isa-arbor.com)) to find a certified arborist in your area.





When encountering an unsafe tree problem, tackle the small jobs and leave the big ones to the professionals.

## What Problems Can I Fix?

Actually, there aren't many occasions where a homeowner should do the work needed to correct a tree safety problem. In the few cases where they might, the tree symptom would need to be small, easily handled, and within reach of ground level. The majority of tree safety symptoms are simply too large, too awkward, and too dangerous to be attempted by a homeowner.



Avoid unnecessary risks when working on trees.

**Arborist:** A professional with the knowledge, skills, and training to care for individual trees.



Tree work is safest for both people and trees when done by arborists trained and equipped to do the job right.

## Hiring an Arborist

In most cases, it's best to hire a tree care professional who is experienced and qualified to work in trees.

### Questions to ask when selecting an arborist

- What professional organizations related to tree care do you belong to?
- What training related to tree care have you received?
- Do you have proof of insurance (i.e., person and property damage insurance)?
- Do you have government permits and/or a license to work as an arborist?
- Can you give me references and contact information from past jobs?
- Do you give written estimates?

### Other suggestions

- Get more than one estimate
- Beware of unsolicited offers
- Select an arborist based on his or her professionalism, not just on price
- Get a contract

It's never too early to start when making trees safer for people.





## Final Thoughts

Having urban trees that are safer for people is a lifelong pursuit but well worth the rewards. Not only do you reap the benefits of your tree, but you will have the assurance it is being managed responsibly. Every decision we make about our urban trees will have an effect on both today's and tomorrow's generations. Bottom line, homeowners must make every decision about their tree with safety in mind, starting from the moment a tree is selected.

- Select the right tree for the right place
- Choose quality trees
- Plant trees properly
- Maintain trees for a lifetime
- Remove trees when the risks outweigh the benefits
- Start over again





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County Office



## Other Sources of Information

To learn more about how you can have safer trees in the landscape, contact any of these organizations:

- Alabama Cooperative Extension System
- Alabama Forestry Commission
- Alabama Urban Forestry Association
- USDA Forest Service
- International Society of Arboriculture
- National Arbor Day Foundation











*Your Experts for Life*

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