

# TACF Fact Sheet

## American Chestnut: Identification and Use

*Help TACF Programs with Proper Identification Practices*

### Identifying American Chestnut

American chestnut, *Castanea dentata*, is a simple and alternate-leaved deciduous tree in the beech family. In North America they share a genus with both Allegheny and Ozark chinquapin, and are close relatives of both American beech and native oaks. American chestnuts produce three nuts per burr, distinguishing them from the one nut per burr chinquapins. In addition, many exotic and hybrid chestnuts may be found in the US, including Chinese, Japanese, and European chestnuts, as well as many named cultivars and hybrid varieties.



**Figure 1.** Typical American chestnut leaf found in the wild. Photo courtesy of Kendra Gurney.

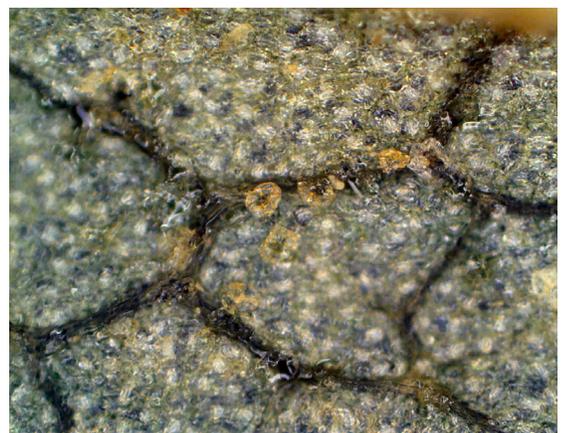
American chestnut can be identified using a range of traits. The leaves are long and canoe-shaped, with equal taper at both tips. They exhibit distinct toothy dentations along the leaf margin that hook over, like a breaking ocean wave (**Figure 1**). The leaf surface is generally dull, though may become somewhat waxy or glossy when grown in full sun. The underside surface of the leaf is hairless, with only a few long hairs on the mid-rib and other leaf veins.

In addition, there are microscopic glandular hairs, or trichomes (**Figure 2**), that are distinct to the American species and can be used for identification. American chestnut trichomes are 4-celled and shaped like a hot-cross bun or donut.

The buds of the American chestnut are small, with just a few scales, and stick out from the stem at about a 45° angle. They are usually pointed, or pyramid-shaped, and may be red, orange or yellow, depending on the time of year. The buds are hairless. The stem, or twig, is also hairless and often reddish-brown in color, with small white lenticels or speckles.

### Species Identification is Not an Exact Science

As with any biological system, especially one based on morphology, these traits are guidelines. Not every specimen is going to follow the rules! It's important to remember that the presence or absence of any one trait does not always dictate the species identification, rather it's a matter of looking at several traits and coming up with the best fit. This means that morphologic species identification, like many of aspects of biology, is not always an exact science and can require some practice.



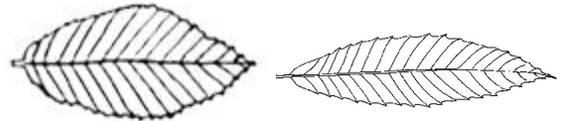
**Figure 2.** Characteristic American chestnut glandular hair, called trichomes. Photo courtesy of Stephen Baumann.

# American Chestnut: Identification

## Help TACF Programs with Proper Identification Practices

A good example is to look at sun leaves vs. shade leaves. Many of the traits we look for with chestnut species identification are much more obvious on sun leaves than shade leaves. For example, sun leaves tend to be narrower, because they don't need to try too hard to get enough sun to make food. A shaded American chestnut leaf may look a little "fatter" than the canoe shape we are looking for, so we would take that into consideration when determining the species. The hairs and trichomes on the underside of the leaf also tend to form more on sun leaves than shade leaves.

Each species of chestnut has a different characteristic trichome, as well as different types of hairs we might expect to see. If there are going to be indications that the tree is a species other than American chestnut, or might be a hybrid, we have the best shot of making that determination with a sample collected from a sunlit part of the tree.



### Major Trait Differences Between Two Species of Chestnut

There are about seven species of chestnut, but in the eastern US, you will most commonly run into two species, the American and Chinese chestnuts. The chart on the right shows the major trait differences on sun leaves found between the two.

Trait	Chinese	American
Leaf Shape	Oval	Canoe
Color on top	Shiny	Dull
Dentation	Wedge	Breaking Ocean Wave
Lenticels	Large	Small
Twigs	Green / tan & hairy	Red, not hairy
Underside of Leaf	Hairy	Not hairy
Bud	Yellowish, round/oval	Reddish, conical

### Use of American Chestnuts in TACF's Programs

Reporting American chestnut trees to TACF can help us advance our program in several ways. First, locating American chestnuts helps us expand our ever-growing inventory of known trees. This inventory allows us to better characterize the existing population of American chestnuts on the landscape. Wild American chestnuts may also be used in our breeding program, in an effort to increase the overall diversity and regional adaptability of our trees. American chestnuts may also be sources of open-pollinated nuts, or other germplasm, that can be used to help expand species conservation efforts. TACF often works with researchers to help supply them with appropriate material for various chestnut-related projects.



Flowering American chestnut on the Appalachian Trail.

Knowing what trees are out there can help us better facilitate making those connections. Of course, the location or presence of your tree will never be shared with anyone outside of TACF without your permission, and you are not committing to using your tree in our program by submitting a sample or making a report.

For more information about submitting a leaf sample and Tree Locator report, please visit: [www.acf.org/find\\_a\\_tree](http://www.acf.org/find_a_tree).