

“New Hampshire Scarlet Red Oak, *Quercus Coccinea*”
By Anne Krantz, NH Big Tree Team

The grand finale of the fall foliage season in New Hampshire occurs in November when the leaves of the scarlet red oak turn the brilliant hue of its name. The entire leaf uniformly turns scarlet, and all the leaves on the tree turn the same pretty red in unison, creating a spectacular splash of color against the bronze, rust and brown colors of the other oaks.

Many species of oaks thrive here in New Hampshire, each adapted to different sites and growing conditions and each exhibiting different routines for getting ready for winter. Some begin to drop their leaves at the end of October while others hang on to their leaves until November, or through the winter.

As a child I read a legend about oak trees that held their leaves all winter. It baffled me because I lived where there were few oaks, and I couldn't imagine a tree with leaves in the winter. But the story fascinated me; I saved the storybook and it miraculously survived many moves. I just located it and discovered the story is rather gruesome, but now that I live in New Hampshire, the story makes more sense. An interesting variety of oaks grow on our own property. And some do hold a few lower leaves all winter. I watched maples leaf out last spring while a nearby white oak sapling tenaciously held on to last year's withered leaves – I worried that the tree was dead.

The acorns of each species also differ as do the buds and twigs and bark. Using these clues, foresters can actually distinguish different oak tree species in winter. These clues are helpful in summer, too, as leaves may not be that helpful in identification. The leaves on tall mature trees with no lower limbs are out of reach, so little help. Also, the leaves of oak trees can vary greatly on a single tree; the lower, 'sun' leaves may be distorted, huge and

fat, while the very top leaves may be small and lacey permitting sun to penetrate to the lower layers of leaves. Oak leaves are most helpful in distinguishing the white



oak species with rounded lobes from the red oak group that have sharp pointed leaves with a bristle or bur at the tips.

The New Hampshire red oak group includes Northern red oak, black oak, pin oak and the magnificent scarlet red oak. The glossy leaves of the scarlet red oak are very deeply cut, especially the leaves from the very top of the tree.

Red oak acorns require two growing seasons to mature on the tree and after they fall they need the cold

dormancy period of winter before they will sprout in the spring. The acorns of white oaks, chestnut and white, are different. They mature in one growing season, and germinate in the fall to anchor themselves to the earth with a root shooting down to secure the embryo before the snow and later spring floods. Generally the red oaks produce far more acorns than the white oaks.

The scarlet red oak acorns have a 'hat' that covers more than half of the oval nut, while the northern red oak has the typical acorn form, with a beret-like hat on the top of the nut. Black oak acorns are much like those of scarlet red oak, as are pin oak acorns. The scarlet red oak is a fast growing tree with a strong central leader with a high rounded crown.

Scarlet oak grows naturally throughout the southern part of New Hampshire, while its confusing cousin the pin oak is most often a nursery planted tree found in landscaped settings. Pin oak is not native to New Hampshire, although grows well when planted in flat

moist sites it favors. It transplants well. The native scarlet red oak is found growing along the edges of woods where it gets the full sun it needs to develop into a tall mature tree. It doesn't transplant well because its deep tap root is difficult to dig and it's rarely sold in nurseries. But this feature enables it to survive drought and it grows on drier sites in poorer sandy soils, on ridges and in upland forests often with chestnut oak.

A few weeks ago when I noticed fresh acorns under the State Champion Scarlet Red Oak tree that towers over the road in my neighborhood, I gathered up a basket for the NH State Forest Nursery in Boscawen so they could raise seedlings. Growing trees from acorns is very tricky because the nutrient-rich nut is a treat for so many animals and even insects. As soon as they fall, weevils and worms attack, along with industrious squirrels, chipmunks, turkeys, blue jays and other hungry critters.

Acorn production is cyclical and bountiful production happens on a rotation of 3 -10 years. Some theorize this is an adaptation to outwit insect predators – that the attacking pests will die off in the low production phase and thus the tree will have the advantage when they produce a bumper crop of acorns. However, this theory seems suspect in this low-production year in my area.

When the acorns were tested by dumping them in a bucket of water, all the acorns I gathered were bad. The good nuts sink and the 'floaters' are no good. Once I got this sad report from the State Nursery, I tried the test myself and got the same results – all floaters. But also I saw the weevil larvae emerge – small white grubs appeared from my fresh, healthy-looking acorns!

Howard Lewis from the NH State Forest Nursery suggested the following fact sheet to learn more about acorn pests: <http://insects.ummz.lsa.umich.edu/MES/notes/entnote20.html> I think the larvae I saw were the long-snouted weevil that actually attacks in the adult stage acorns on the tree. They lay eggs inside the acorn where the larvae have a perfect food supply as they emerge.

Squirrels have also been busy feasting of the fat and protein-rich acorns. For the first time, my own young (20-25 years) scarlet red oak tree produced big fat acorns. I would have missed this phenomenon entirely except that I noticed piles of tree tips on the ground. Thinking it was the oak leaf pruner insect, I inspected and saw some twigs had acorns attached. I checked with Hillsborough County Extension Forest Resources Educator Jon Nute, who confirmed the culprits were actually squirrels harvesting food for winter.

Squirrels tend to hoard the red acorns rather than gobbling them up because they have more tannin and are bitter. But they chomp down the white acorns immediately. New York Times garden columnist Ann Raver wrote a fascinating article in the Dec 11, 1994 paper about squirrel behavior. After she watched with total amazement as a squirrel carefully buried an acorn in a deep hole, filled the hole, stomped down the replaced soil, and then covered the spot with leaves, she was bursting with questions about this meticulous routine and squirrels capacity to remember where they buried their treats.

She tracked down a biologist named Peter Smallwood who had actually researched this incredible phenomenon. He discovered that about 74 percent of the time they don't find their buried treasure, but they do a very neat job of planting acorns and aiding in reforestation. Dr. Smallwood, an animal behaviorist, concludes from his research that there is "an emerging argument that tree squirrels show specific behavioral adaptations to the oaks."

With the help of lingering leaves and binoculars, it's possible for an amateur naturalist to identify oaks in winter. Certainly it is easier to see their strong form, husky horizontal limbs, and high crown. If you spot a HUGE oak tree on your fall rambles, check its size against the NH Champion Big Trees. Visit the NH Big Tree web site at www.nhbigtrees.org for the complete list champion Big Trees.

If your tree seems bigger around or taller than those listed, contact the NH Big Tree State Coordinator, Carolyn Page, carolyn_page@hotmail.com, 603-664-2934, who will pass the information on to the appropriate county coordinator. UNH Cooperative Extension and the NH Division of Forests and Lands sponsor the NH Big Tree program in cooperation with the National Register of Big Trees through American Forests.

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