



## "NH Big Tree of the Month – December 2006" White Spruce – *Picea Glauca*

*By Anne Krantz, NH Big Tree Team  
UNH Cooperative Extension*

The conifers that grow in the northern cold climates of the New Hampshire forests are dramatic in winter. When covered with snow they brighten up the dark forests and they add winter beauty to the home landscape.

The conical shaped white spruce trees impart the dark blue-green hue and spiky outline to the northern boreal forest. Their natural distribution extends from the northern Canada tree line south to the White Mountains. Today they are planted successfully throughout New Hampshire as ornamental, often as dense windbreaks.

Since they withstand wind, heat, cold, drought and crowding, the conditions found on mountaintops and rocky crevices, they grow in climates where no others survive. At the top of high mountain ski trails, snow and ice turn them into beautiful sculptures with thick blankets of snow and ice mounded like icing around the barely visible trees.

Distinguishing spruces from fir trees is easy if you grab a twig. Spruces have square four-sided, stiff needles that grow all around the fat twigs that are distinctly sharp and prickly. Firs have flat, two-sided needles that feel softer. However, distinguishing the three native spruce species apart requires more expertise.

Noted naturalist Virginia Barlow said the following in an article in [Northern Woodlands Magazine](http://www.northernwoodlands.org/), Winter 2001, page 35. (<http://www.northernwoodlands.org/>)

"Our three common native spruces can be easily identified by smelling a handful of the crushed needles. Red spruce will remind you of orange rind; white spruce smells of polecat or skunk; and black spruce has a medicinal, menthol smell. Another way to tell them apart is to compare the lengths of the needles and cones, which increase in alphabetical order: black spruce is the shortest, red spruce intermediate and white spruce the longest."

But the cones grow at the treetops so they aren't always handy for identification. Nor do the trees grow next to each other for easy comparison. White spruce (*picea glauca*) is found on the better soils. Red Spruce (*picea rubens*) is more associated with the mountain tops and is the one growing in southern New Hampshire on Mt. Monadnock and as scattered individuals in the local woods. Black spruce (*picea mariana*) is also called "bog spruce" for its usual wet soils habitat.

The cones develop from the female catkins or flowers that grow at the treetops in April. Male cones also grow on the same tree. The pollen released from the male cones floats to the female cones to pollinate them. The seed from the female cones is dispersed in the fall. Abundant cone production occurs only every four to five years.

Spruce trees have been put to many diverse uses throughout history. Native Americans cleverly used two tree species to make their famous canoes, not only birch bark, but spruce trees for two key materials. Long pliable spruce roots were dug and made into laces for sewing the bark together, and spruce gum or pitch was used to make the canoes watertight. Native Americans figured out how to dig for the roots and strip off the root bark to make the strong, yet supple laces. The gum collected from wounds in the trees was combined with grease or fat to give it the proper consistency at the water temperature, sealing the laced seams. Chewing gum or spruce gum comes from the same tree goo.

The symmetrical cone-shape of the white spruce made them a popular Christmas tree. Extension Educator, Forest Resources, Jon Nute of Hillsborough County explained that white spruce “is now not as popular because of its relatively early needle loss and other species now available as Christmas trees. But when the industry began in the 1960's it was the number two Christmas tree planted in New Hampshire, with Balsam being number one.”

Nute also noted that “mature trees are harvested at 16-inch trunk diameter for lumber (mostly 2x4s), and for wood chips to make paper.” The soft, straight-grained wood is strong but relatively light, perfect for canoe paddles, boxes and crates. These same properties make it uniquely suited for both violins and bridges. Spruce wood was discovered by the great violin masters like Antonio Stradivari (1644–1737) to be perfect for the carved violin tops that create the beautiful sound. At the same time the top must be strong enough to hold the vibrating bridge.

At the other extreme, strong yet light spruce wood was also perfect for bridges. The first bridges across the Connecticut River to Vermont were constructed from huge virgin spruce trees. The massive logs were floated down the river from the North Country to the bridge sites - a simple transportation solution. The sturdy bridges survived until just a few years ago.

No trees of the size used for the bridges remain. The current NH Big Spruce Tree grows in Merrimack County and is 93 feet tall and 109 inches in circumference, or about a yard in diameter. The second place tree in Coos County is 84 feet tall and the same diameter. No others are listed, so county champions need to be located in all the other counties. Winter is the perfect time to find them.

So when enjoying the outdoors this winter, whether skiing in the northern mountains, snow shoeing in local forests, or walking about your neighborhood, be on the lookout for white spruce trees. Stop for a closer look - crush needles to feel whether they are sharp and prickly and smell the fragrance or odor of the needles. If you find a very tall tree, the needles may be out of reach. Then look for the cones at the treetop to see if they hang down as spruce cones do or sit up as the fir trees do. The bark may be the only clue you can really see - if it is ash gray and breaks into rounded flakes it may be a white spruce tree.

If you find a sizeable one, contact the NH Big Tree State Coordinator, Carolyn Page, [carolyn\\_page@hotmail.com](mailto:carolyn_page@hotmail.com), or call 664-2934. She will pass the information on to the

appropriate county coordinator. Also visit the NH Big Tree web site at: [www.nhbigtrees.org](http://www.nhbigtrees.org) for the complete list champion Big Trees. The 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.

If you wish to plant white spruce seedlings in your own landscape, contact the NH Forest Nursery at Boscawen. In March they dig and sell many native tree species including spruces at a very reasonable price: 10 seedlings for \$15. See their catalogue at [www.nhnursery.com](http://www.nhnursery.com) for photos and more information.

Got questions? UNH Cooperative Extension's Family, Home & Garden Education Center Info Line offers practical help finding answers for your lawn and garden questions. Call toll free at 1-877-398-4769, M-F, 9:00 a.m.-2:00 p.m., or e-mail us at [answers@unh.edu](mailto:answers@unh.edu)

The University of New Hampshire Cooperative Extension programs and policies are consistent with pertinent Federal and State laws and regulations on non-discrimination regarding race, color, religion, gender, age, national origin, sexual orientation, disability, veteran status, or marital status. UNH, U.S. Dept. of Agriculture, and New Hampshire counties cooperating.