

SPRUCE *The Important Distinctions*



	Black Spruce <i>Picea mariana</i>	Red Spruce <i>Picea rubens</i>	White Spruce <i>Picea glauca</i>	Norway Spruce <i>Picea abies</i>
NEEDLES				
COLOR	Blue-green	Dark yellow-green	Blue-green to dark green	Dark green
LENGTH	1/4–1/2 inches	1/2–5/8 inches	1/2–3/4 inches	1/2–1 inch
DESCRIPTION	Dull with waxy bloom	Very shiny	Dull with waxy bloom, strong, unpleasant odor when crushed	Shiny, sharp pointed
CONES				
LENGTH	1/2–1 1/2 inches	1 1/4–2 inches	2 inches	4–7 inches
RETENTION	Remain on tree for many years	Fall first year	Fall first year	Falls first year
SHAPE	Spherical	Wide in middle	Cylindrical	Cylindrical
SCALES	Stiff and rigid when ripe; margin irregularly notched	Stiff, with margin entirely or slightly notched	Flexible at maturity, margin entire	Stiff, irregularly notched
TWIGS				
COLOR	Yellow-brown to brown	Reddish to orange-brown	Light gray to yellow-brown	Orangish-brown
HAIRS	Short, rusty to black hairs; some hairs tipped with globose glands	Short, rusty to black hairs; tips lack glands	Without hairs	Without hairs (twigs droop from main branch)

Seed of all spruce is winged; cones are pendant; bare twigs are roughened by persistent leaf bases





BLACK SPRUCE *Picea mariana* (P. Mill.) B. S. P.



In the past, spruce beer was made by boiling the branches of the black spruce.

Black spruce occurs statewide; it grows on cool upland soils, but is more commonly found along streams, on the borders of swamps and in sphagnum bogs. It is also often found on the sandy soils of eastern Maine. It can grow to a height of 50–70 feet and a diameter of 6–12 inches, but is normally smaller than the maximum size. On a good site, it will grow rapidly. In sphagnum bogs, trees 50–80 years old may be only 6–8 feet tall and about one inch in diameter. The branches are short, pendulous and have a tendency to curve up at the ends. It forms an open, irregular crown. The lower branches often touch the ground, and root to form new trees. This method of reproduction is known as “layering.”

The **bark** on the trunk is grayish-brown and the surface is broken into thin scales. The **leaves** are $\frac{1}{4}$ – $\frac{1}{2}$ inches long, dull blue-green, blunt-pointed, flexible and soft to the touch.





The **cones**, which usually stay on the trees for many years, are ½–1½ inches long, ovoid, and become nearly spherical when open. The cone scales are stiff and have toothed margins.

The **twigs** have many hairs, some of which are tipped with glands. The inner bark is olive-green.

The **wood** is soft and light, but strong. It is used for pulp, framing and construction lumber, and planking. Historically, spruce beer was made by boiling the branches.



Black spruce cones persist on the tree for many years. Look for clumps of old, gray, weathered cones high in the tree.



MAINE REGISTER OF BIG TREES 2008
Black Spruce Circumference: 47" Height: 66' Crown Spread: 20' Location: Camden





RED SPRUCE *Picea rubens* Sarg.



Red spruce is one of our most valuable trees for the production of building lumber.

Red spruce is commonly found throughout the state. It grows on well-drained, rocky upland soils, and particularly on the north side of mountain slopes where it may be the major species present. The spreading branches form a somewhat conical, narrow head in young trees. The trunk is long, with a slight taper. It grows to considerable size, and is capable of attaining a height of 60–80 feet and a diameter of 1–2 feet, but occasionally exceeds these measurements. Red spruce is shade-tolerant and will become established in the understory of mixed stands.

The **bark** on mature trees is thick and is broken into thin, reddish-brown scales of irregular shape. The **leaves** are dark green, often with a yellow tinge, and are very shiny. They are about $\frac{1}{2}$ inch long, sharp-pointed, stiff, prickly to the touch, and point toward the tip of the branch. The **cones** are oblong and usually $1\frac{1}{2}$ –2 inches long. When ripe, they are reddish-brown and quite shiny. The cone scales are stiff like the





black spruce, but the margins are generally without conspicuous notches. The cones begin to drop in autumn or early winter, and are all gone from the branches by the next summer.

The **twigs** have hairs, none of which have a gland at the tip. The inner bark is reddish-brown. The **wood** is fairly soft, light, close-grained and strong, but is not as durable as pine when exposed to the weather.

Red spruce is one of our most valuable trees for the production of building lumber. It is used for joists, sills, rafters, pilings, weir poles and heavy construction timbers. It is a principal wood used in the manufacture of paper pulp, and is valuable for the sounding boards of musical instruments. Pitch for spruce gum is obtained largely from this tree.



Red spruce is the characteristic tree of the "Acadian forest" of northern New England and the Canadian Maritimes.



MAINE REGISTER OF BIG TREES 2008
Red Spruce Circumference: 103" Height: 87' Crown Spread: 35' Location: T15 R9 WELS





WHITE SPRUCE *Picea glauca* (Moench) Voss



The wood of the white spruce is used for pulp, paddles, oars, piano sounding boards and dimension lumber, while its cones are used to make decorative wreaths.

White or cat spruce occurs statewide except in York county. It is widely distributed, but not as abundant as red spruce. It grows on shallow, rocky sites from the coast to the tree line in the mountains, and is also commonly found in old pastures and on cleared land. It does not tolerate shade and does not grow as an understory tree. The long and rather thick branches, densely clothed with stout, rigid lateral branches, are curved upward and form a somewhat open, irregular head with a broad base. It commonly grows to a height of 60–90 feet and to a diameter of 2 feet.

The **bark** on old trees has light gray, plate-like scales, which are thin and irregular, with a somewhat brownish surface. Younger trees have smooth, light gray bark.

The **leaves** point straight out from the branch. On the lower half of the twig the leaves are often bent upward in such a manner as to bring them all on the upper side. They are pale blue-





green at first, later becoming a dark blue-green. The foliage emits a peculiar and characteristic odor, which is a ready means of distinguishing it from the other spruce species and is the reason for the alternate name.

The **cones** are slender, cylindrical, pale brown and shiny when ripe, and usually about 2 inches long. They ripen in August and September, and may be collected for seed until October. Cones usually fall off the first year. The cone scales are thin and flexible, so that they give easily when the cone is clasped in the hand. The **twigs** are without hairs. The inner bark is silvery and glistens.

The **wood** is fairly light, soft, finishes well and is moderately strong. It is used for pulp, paddles, oars, piano sounding boards and dimension lumber, while its cones are used to make decorative wreaths. It shouldn't, however, be used as a Christmas tree; when it is brought indoors, the reason for its nicknames—cat spruce and skunk

White spruce cones are cylindrical and the scales can be easily broken apart. This distinguishes it from red and black spruce, which have globe or egg-shaped cones with stiff scales.

spruce—become evident. White and black spruce produce long, tough, pliable roots which were used by American Indians to tie together pieces of birch bark for canoes and other purposes.





NORWAY SPRUCE *Picea abies* (L.) Karst.

A native of Europe, Norway spruce is of great economic importance in its natural range. In Maine it is commonly planted both in forest plantations and as an ornamental tree. It rarely reproduces in the wild.

It is very symmetrical and graceful in its growth habit; open-grown trees often carry branches clear to the ground. The tips of branches on larger trees have an upward sweep; and lateral branchlets are long and pendent. Norway spruce grows more rapidly than any of our native species of spruce, and has been frequently planted for pulpwood, particularly in old fields in Aroostook County. It is very susceptible to attack by the white pine weevil.

The **bark** of younger trees is reddish-brown; older trees have grayish bark with flaking scales. The **cones** are large, 4–7 inches long, and cylindrical with stiff, notched scales. The **leaves**

are ½–1 inch long, deep shiny green, four-sided in cross section and slightly flattened. The needles lack the tendency to bend upward on the twigs as in white spruce. **Twigs** are orangish-brown and without hairs.

In its native Europe, Norway spruce is a very important lumber and pulpwood species. In Maine, the **wood** is primarily used for pulp and occasionally for lumber.



As its name implies, Norway spruce is not native to Maine.

MAINE REGISTER OF BIG TREES 2008

Norway Spruce Circumference: 143" Height: 116' Crown Spread: 68' Location: Freeport





BLUE SPRUCE *Picea pungens* Engelm.

A native of the Rocky Mountain region, blue spruce will grow on a variety of sites and tolerate a wide range of growing conditions. These factors, plus the striking color of its foliage, contribute to its popularity as an ornamental species, particularly in the East where it is planted as a decorative tree. It does not readily become naturalized in Maine, and therefore is not likely to be found growing in forest settings. It can grow to be a large tree 1–2 feet in diameter and to about 80 feet in height. It is pyramidal in shape.

Foliage coloration varies from silvery-blue to blue-green; the intensity of blue varies between individual specimens. The **bark** is gray to red-brown and scaly. The **leaves** are ½–1½ inches long, stiff, very sharp-pointed, and strongly incurved and covered with a waxy coating that gives the blue color.

Blue spruce is not native to Maine and is not likely to be found growing in forest settings.

Cones are light brown, oblong, 2½–4 inches long, with thin, flexible, notched scales. The twigs are stouter than the other spruces, hairless and tan.

Wild trees growing in the Rocky Mountains seldom have the intense coloration of the cultivated varieties planted here. Even in its native range, the wood is not often used commercially because of its limited availability and its tendency to be brittle and full of knots.

MAINE REGISTER OF
BIG TREES 2008
Blue Spruce
Circumference: 100"
Height: 91'
Crown Spread: 27'
Location: Auburn

