



Environment  
Canada

Environnement  
Canada

Forestry  
Service

Service  
des Forêts

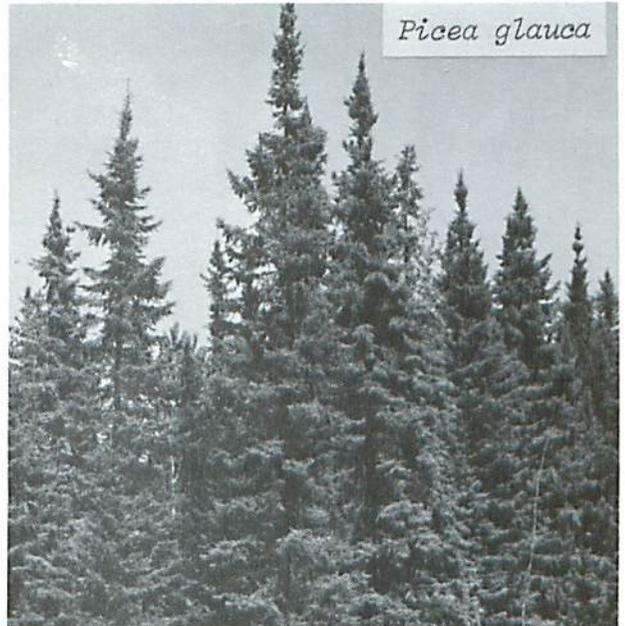
GREAT LAKES FOREST RESEARCH CENTRE  
P.O. BOX 490  
SAULT STE. MARIE, ONTARIO  
P6A 5M7

## Trees of Ontario: the Spruces

Spruces were probably among the first trees to establish themselves after the retreat of the glaciers at the end of the last ice age.

Of the nearly 40 species of spruce that are found in the northern hemisphere, only three are native to Ontario: black spruce, white spruce and red spruce. In addition, Colorado spruce, with either a blue or a green cast, has been introduced as an ornamental from the Rocky Mountain area of the United States, and Norway spruce is found in plantations in the province.

The spruces have long, straight trunks with scaly bark, and dense, narrow crowns with numerous pliable branches that often extend to the ground. Their leaves are evergreen and remain on the tree for five years or more. Most are less than 2 1/2 cm long, narrow and needle-shaped, and tipped with pungent prickles. Borne separately on the twig, and spirally arranged, they bristle out in all directions.



*Picea glauca*

Black spruce (*Picea mariana* [Mill.] B.S.P.) is the mainstay of Canada's pulp and paper industry, and therefore of vital economic importance. A slow-growing, long-lived tree, it can reach heights of up to 30 m, but 10-15 m is more common, and in the far north or in bogs where drainage is poor, it may be no more than a twisted, trunkless shrub. Its cones are about 2 1/2 cm long and egg-shaped when closed. They are not shed from the tree but open at intervals, releasing seed gradually over a long period.

Black spruce can reproduce itself by two distinct methods: by seed or by "layering". In layering, some of the living lower branches that touch moist ground or are covered by moss or litter develop roots and eventually become new trees.

The wood of black spruce is soft and light; its pale color, low resin content and long, strong fibres make it a favorite pulpwood for facial tissues as well as newsprint. It is also used in siding for houses, and in boxes and other containers. Since spruce wood transmits sound vibrations better than other material it is used for the sounding boards of various musical instruments.

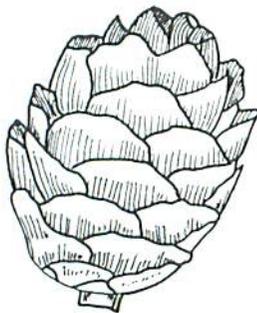
White spruce (*Picea glauca* [Moench] Voss) is one of the most magnificent evergreens native to Canada. When growing in the open it is symmetrical and thickly clothed with branches; in dense stands, however, where there is little light, it gradually sheds its lower branches.

The geographical range of white spruce is similar to that of black spruce, but the former tree can be distinguished by its 5 cm long slender cones, which open in autumn and are shed in winter or spring, and by the pungent odor its needles emit when crushed. White spruce sometimes reaches a height of 50 m, but most of the trees you'll see in Ontario are more modest in their aspirations, and measure between 25 and 30 m at maturity.

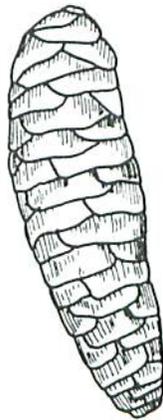
The wood of white spruce is moderately light and soft like that of black spruce. For centuries the Indians made a strong cord out of spruce fibres and used it to sew birch bark for their canoes. They worked spruce gum into the seams to make the canoes waterproof, and as they worked, they may have chewed spruce resin. Pioneer settlers brewed a drink made of spruce foliage that cured and prevented scurvy in a country where fresh fruit and vegetables were unobtainable during the winters. Today white spruce is used primarily for pulpwood and lumber, but specialized uses include the manufacture of veneer for plywood, canoe paddles, and ladders.

Red spruce (*Picea rubens* Sarg.) is found in a few scattered areas of south-eastern Ontario, generally in association with balsam fir. Averaging 20-25 m at maturity, it is distinguished by its light red-brown bark and orange-brown twigs. If you crush the needles between your fingers you will find that they give off an orange-rind aroma. The wood is similar to that of white spruce, and is marketed with it and black spruce under the common name "spruce".

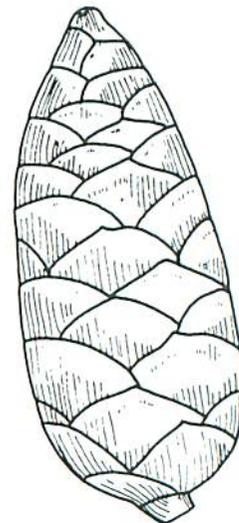
Red spruce has one quality for which it is especially prized, and that is its resonance. The wood used in musical instruments is chosen with great care: it must have a uniform texture and be free of all grain defects and irregularities. Red spruce, like its western relative, Sitka spruce, measures up to these standards in the highest degree.



*Black Spruce*



*White Spruce*



*Red Spruce*

---

Interpretation: C.A. Plexman

Sketches: P. Jakibchuk

Copies of this leaflet can be obtained from the Centre's Information Office.

July 1980