Pinaceae
pine family

Most of the pine family are evergreen, our notable exception is larch, whose soft needles turn golden yellow before dropping late fall. Each needle contains a resinous sap, giving a strong odour to the trees. Flowers are unisexual, in the form of catkins (or aments). Catkins are simply aggregations of scales enclosing the stamens or ovules. Pistillate catkins have two ovules at the base of each scale. After pollination, cones or fleshy fruit are formed.

Key to genera

A. Leaves in bundles.	B
B. Leaves deciduous, many per bundle.	*Larix*
bb. Leaves evergreen, in bundles of 2 or 5 in our species.	*Pinus*
aa. Leaves not in bundles, alternate.	C
C. Cones erect, scales deciduous; needles attached directly to twigs, not on pegs; leaf scars smooth.	*Abies*
cc. Cones pendulous, scales persistent; needles attached to pegs, which are persistent	D
D. Leaves quadrangular in cross-section.	*Picea*
dd. Leaves flat in cross-section.	*Tsuga*

Abies Mill.
Fir

Firs number about 40 species of the boreal regions. Of the nine North American species, a single fir reaches NS. Balsam-fir is a sweetly-fragrant species, with the bark marked by blisters filled with resin. In outline this species is strongly pyramidal, with rigid horizontal branches. The sessile needles lie flat in two ranks one on each side of the twig. They are glaucous beneath; the midrib is prominent.

Staminate flowers are pendulous, from the axils of the previous year's needles. Pistillate cones stand erect, like candles.

Abies balsamea (L.) Mill
Balsam-fir; sapin; sapin baumier; stoqon

Staminate cones, photo by Reg Newell

Photo by Reg Newell

Photo by David Mazerolle

Twigs pale, needle scars smooth and round. Bark is reddish marked by resinous blisters but not scaly. Needles are notched distally. Purplish-brown cones turn brown at maturity.

Var. *phanerolepis* Fern. is recognizably distinct. Cones are bristly, giving the appearance of a white bloom, and smaller than those of the typical variety. This coastal form is scattered along the Atlantic, to eastern and northern Cape Breton, and reaching the Bay of Fundy.

The typical variety is our most common conifer, gradually replacing others. The interior Cape Breton plateau is mostly fir. Replaces the Acadian forest as it is opened up.

Common throughout.

NL to AB, south IA and VA.

Larix Mill

The larches comprise a small genus of only 10 species. A single native larch reaches Nova Scotia, although European Larch is commonly planted as an ornamental. Larch is our only deciduous conifer, a character it shares with Dawn Redwood and Swamp Cypress. Leaves are carried in rosettes on short spur shoots arising from short scaly buds. The pistillate cones are crimson,(rarely green) in flower becoming woody as they develop.

***Larix laricina* (DuRoi) K. Koch**
Eastern larch, Tamarack, Hackmatack, erroneously 'Juniper'; mélèze laricin

Photo by David Mazerolle

Photo by Ross Hall

Soft sage green needles are twice-grooved along their length. The small oval cones are reddish while developing. Scales are smooth. Bark is gray. Leaves turn brilliant golden in fall before dropping, in stark contrast to the russets and grays of the shrubs with which it grows.

Frequents bogs, poorly-drained soil in ditches and tolerates full sunlight.

Common throughout.

NL to AK south to BC, IL and MD.

Picea Dietr.
spruce

Another boreal genus, spruce is represented here by three native species and an introduction from Europe, amongst our tree flora. Spruce defines the boreal forest across North America and is the primary pulpwood source. Cultivars are popular ornamentals. Natural hybrids also occur and here it is difficult to separate them.

Trees in outline are not symmetric as is Balsam-fir. Bark is scaly and thin. Twigs are brittle and rough. Aging trees exhibit sparse unthrifty branches. Cones mature the first year and become pendulous with maturity. Acute needles are brittle, borne on spurs and keeled above and below, encircling the twigs. In cross-section they are quadrangular.

Spruce trees are called *gawatgw* in the Mi'kmaq language, with no different names for the different spruces.

Key to the spruces

A. Branches noticeably weeping or drooping; cones huge, 10–15cm long; introduced and escaping in a few locations.	*Picea abies*
aa. Cones to 5cm; branches spreading; native and common tree.	B
B. Twigs and bud scales smooth; cones cylindrical, with 60–90 scales, flexible with smooth margins.	*P. glauca*
bb. Twigs finely pubescent; cones oval or round, scales 30, with irregular margins.	C
C. Needles yellowish green, shiny; cones deciduous; bark reddish; well-drained sites.	*P. rubens*
cc. Leaves grayish or bluish green; cones persisting 2–5 years; bark dark, not reddish; wetlands.	*P. mariana*

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

Norway Spruce; épinette de Norvège

Photo by David Mazerolle

Long needles and gracefully weeping branches separate this species from other spruces. Often asymmetric in outline, the canopy is distinctive. The cones are long and pendulous.

Planted as an ornamental and in the past for potential harvest, it is now escaping.

Planted in Wolfville and at Indian Man Lake, Guysborough

Photo by Martin Thomas

County. May be expected to increase over time.

Throughout North America; native to Europe.

***Picea glauca* (Moench) Voss**
White Spruce, Cat Spruce; épinette blanche

Photo by David Mazerolle

One of our most common trees, particularly along the coast. Smooth pale twigs bear bluish green acute needles, spiraling the twigs. Ovoid cones are pendulous, distally positioned on branches, tan-coloured.

Grows in drier soil than our other native spruces. May form nearly pure stands after cultivated land returns fallow. Dominant conifer on the headlands where wind limits deciduous trees. Commonly forms krummholz or wind-sculpted growth.

Common throughout the province.

From NL to AK south to MD and WY

Photo by Alain Belliveau

***Picea mariana* (Mill.) BSP**
Black Spruce; épinette noire

Photo by Martin Thomas

This species bears very dark bark and scaly twigs. The minute pubescence on the twigs requires a hand lens to see. Needles are gray-green and not acute. Cones have ruffled edges on the scales, persisting beyond the first year.

Black spruce is found on poorly drained soils as in swamps and bogs.

Common throughout.

NF to AK, south to BC, IL and NJ.

Hybrids with *Picea rubens* are common, where sympatric.

***Picea rubens* Sarg.**
Red spruce; épinette rouge

Photo by Martin Thomas

Needles are shorter than those of white spruce and acute. Twigs are red, covered in minute pubescence. Terminal cones are smooth on the margins. The bark is reddish and scaly.

Usually limited to well-drained fertile soils.

Most common on the mainland, infrequent in Cape Breton.

Hybrids are frequent with this and *P. mariana*.

In 1987, Red spruce became our Provincial arboreal Emblem.

NS to ON, south to TN and NC.

Photo by Martin Thomas

Photo by Martin Thomas

Pinus L.
pines

Circumboreal, the pine diversity is greatest in Mexico. Of the 100 species, a mere three are native to NS; a fourth is commonly found as an escape in some counties. Most distinctive are the long stiff needles, borne in bundles of 2–5, sheathed at the bases. The general word for pine in the Mi'kmaq language is g*uow*.

Key to the pines.

A. Needles in bundles of 5; cones much longer than wide (2–3 times).	*Pinus strobus*
aa. Needles 2 per bundle; cones nearly round when mature.	B
B. Needles 9–16cm long, stiff; stout tree, bark reddish.	*P. resinosa*
bb. Needles < 8cm long; bark not reddish.	C
C. Needles 4–6cm long, not widely divergent; resin ducts many per needle; bark yellowish of upper trunk and branches; introduced tree.	*P. sylvestris*
cc. Needles 1–4cm long, widely divergent; resin ducts 2, deeply embedded; bark of upper trunk and branches dark; native.	*P. banksiana*

Pinus banksiana Lamb.
(*P. divaricata* (Ait.) Dumort)
Jack Pine; pin gris; guow

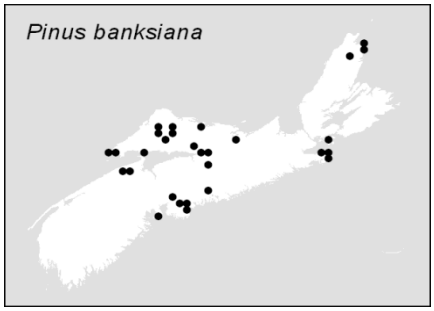
Fertile cones
Photo by Beth Cameron

Needles are borne in pairs, deeply convex on the upper surface and widely divergent. Bark is gray to black at least on the twigs. Cones are round. Populations are not as well developed in NS as in truly boreal regions, widely scattered in infertile, usually cooler regions of the province. This is a fire-adapted pine and the different populations seem to differ in the level of serotiny of the cones.

Generally grows in acidic stony shallow soils, sand plains.

Annapolis Valley, east and north to Cape Breton.

NS west to AK south to BC, MO and WVA.



Note: Serotinous individuals form cones that require exposure to fire to open, while most nonserotinous individuals have cones that open without fire exposure.

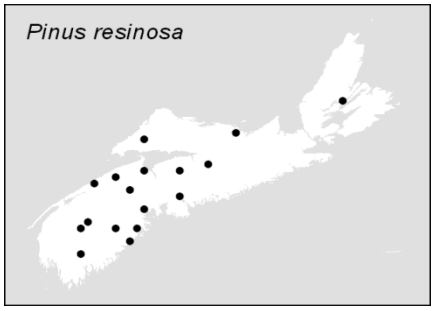
***Pinus resinosa* Ait.**
Red Pine; pin rouge

Photo by Ross Hall

Resembles white pine, but with the very long needles in pairs. Basal sheaths are nearly 1cm long. Bark is reddish and scaly, especially at maturity. A robust species, it retains the rounded crown, at maturity.

Grows in lowlands and like other pines, sandy soils.

Photo by Ross Hall



Common in the Annapolis Valley, Cumberland and Colchester counties; scattered elsewhere.

NF to MB, variously south to MO and VA.

***Pinus strobus* L.**
White Pine; pin blanc

Photo by Sean Blaney

Photo by Sean Blaney

Our most common pine has long soft needles arranged in bundles of fives. They are glaucous beneath. Cones are nearly cylindrical, several times longer than wide. Due to fungal disease and insect pests, our trees tend to develop an asymmetry in the crown.

Like others of the genus, it is usually found on sandy soils, especially the glacial till on granitic bedrock.

Common in Shelburne County and north-central NS. Scattered elsewhere and becoming less-frequent eastward to Cape Breton.

NF to MB and south to AR and GA.

***Pinus sylvestris* L.**
Scots Pine; pin sylvestre

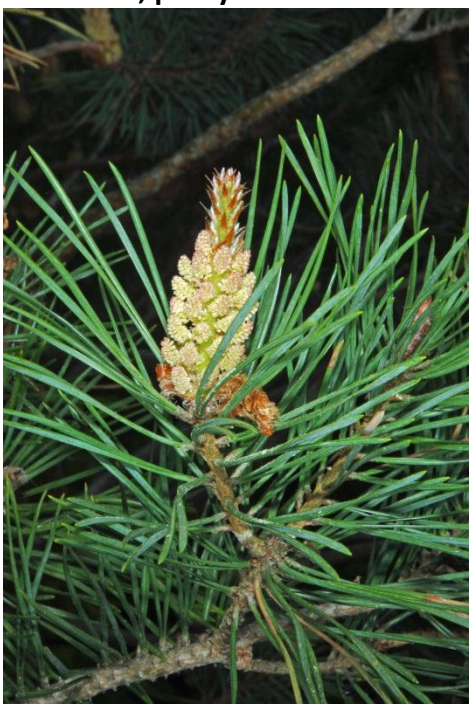
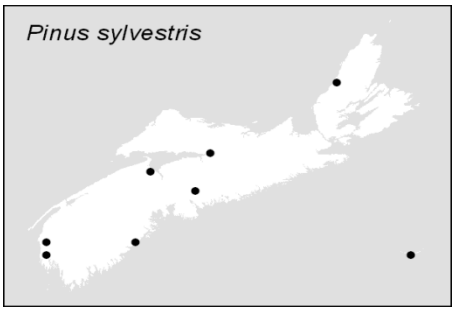


Photo by Martin Thomas

Photo by David Mazerolle



It has stiff, prickly needles similar to those of Jack Pine, but not divergent. Bark is yellow, especially towards the top and on the trunk.

Often used in reforestation projects and occasionally as an ornamental, it is ranked as invasive in sand barren habitat. (Hill and Blaney, 2010).

Introduced from NS to BC south to IL and MD. European.

Other pines have appeared in collections. Pitch Pine *Pinus rigida*, was collected during the early 1990s from Flintstone Rock, Shelburne Co. Apparently the Department of Forestry aerial seeded this NJ Pine Barren species in selected areas.

Austrian Pine *Pinus nigra,* is planted as a specimen tree. It is a massive tree with long (15cm) needles and occurs in several urban areas.

Tsuga
Hemlock

A single species of the four North American hemlocks reaches Nova Scotia. Closely allied with spruces, their broad flat needles resemble those of yew, but smaller. They are green above and white-tomentose below. Cones are pendulous with persistent scales. They are borne terminally on previous year's growth. Hemlock is deltoid in outline, gently curving rather than stiffly straight.

Tsuga canadensis (L.) Carr.
Eastern Hemlock; *gastug*

Photo by David Mazerolle

Photo by Megan Crowley

Slender twigs are villous (with long soft hairs). Needle scars are narrow spurs. The needles are narrowly ovate in outline alternating along the twigs in two sparse rows. They are not pointed as in spruce and are white beneath, dark green above. Cones are small, ovate and with smooth-edged scales.

Hemlock grows to maturity only in shade, as in north-facing slopes, ravines, often on sandy soil.

Most common in southwestern NS, replaced by spruce and fir eastward.

NS to ON, variously south to AL and GA.