

## Pinaceae (Pine Family) Key

### Key to species in Newfoundland and Labrador

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- 1a. Needles deciduous, spirally arranged on dwarf woody shoots of 15–60 needles (*Larix*). .. **2**
- 1b. Needles evergreen, arranged in fascicles of 2–5 needles, with several translucent scales forming a cylindrical sheath around the base of each fascicle or attached individually to the stem. .... **4**
- 2a. Needles 1–2 cm long, in tufts of 15–60 on dwarf shoots; cones 1–2 cm long, cone scales glabrous, margins entire, straight to slightly incurved; trees native. .... **Larix laricina** (tamarack, larch)
- 2b. Needles 2–4+ cm long, in tufts of 25–40 on dwarf shoots; cones 2–4 cm long, cone scales pubescent, margins incurved or strongly recurved; trees growing in plantations. .... **3**
- 3a. Needles in tuft of 30–40, cones ovoid, distinctly longer than broad; cone scales 25–35, spreading; scale margins curved inward. .... **Larix decidua** (European larch)
- 3b. Needles in tuft of 20–35, cones broadly ovoid to globose, nearly as broad as long; cone scales 30–40; scale margins strongly reflexed outward. ... **Larix kaempferi** (Japanese larch)
- 4a. Needles 2–16 cm long, arranged in fascicles of 2–5 needles; mature cones woody, maturing at the end of the second growing season. (*Pinus*). .... **5**
- 4b. Needles 0.6–3 cm long, attached individually to the stem, 2-ranked or spirally arranged; mature cones somewhat woody, maturing at the end of one growing season. .... **8**
- 5a. Needles arranged in fascicles of 5 needles, needles soft and flexible; cones pendant, narrowly cylindrical, 8–20 cm long, pointed at the apex. .... **Pinus strobus** (white pine)
- 5b. Needles arranged in fascicles of 2 needles; cones ovoid, 2.5–7 cm long. .... **6**
- 6a. Needles 10–16 cm long, brittle, straight; cones straight. .... **Pinus resinosa** (red pine)
- 6b. Needles 2–8 cm long, stiff, straight or twisted; cones often curved to one side. .... **7**
- 7a. Needles 2–4 cm long, divergent; native to Labrador, grown in plantations in insular Newfoundland. .... **Pinus banksiana** (jack pine)
- 7b. Needles 4–8 cm long, not divergent; native to Eurasia, grown in plantations in insular Newfoundland or as an ornamental in urban areas. .... **Pinus sylvestris** (Scots pine)

- 8a. Needles 2-ranked, flat, attached to the stem by a flat, rounded, pad-like base, leaving a round scar after falling; seed cones erect on upper branches, cone scales shed annually with the seeds, leaving behind persistent naked cone axes. ....  
.....***Abies balsamea*** (balsam fir)
- 8b. Needles spirally arranged, 3–4-angled in cross section, attached to the stem by abruptly narrowed needle bases, which persist as woody pegs (sterigmata) after needles are shed; seed cones growing at branch ends, cone scales not separating from the cones at maturity (*Picea*). ..... **9**
- 9a. Twigs pubescent; needles 0.6–2.5 cm long; cones 1.5–4.5 cm long. .... **10**
- 9b. Twigs glabrous; needles 1–2.5 cm long; cones 2.5–16 cm long. .... **11**
- 10a. Needles 0.6–1.5 cm long, blue-green, glaucous, 4-angled, but wider than tall; twigs brown pubescent, with simple and glandular hairs; cones broadly elliptic, 1.5–2.5 cm long. ....***Picea mariana*** (black spruce)
- 10b. Needles 0.8–2.5 cm long, green; twigs pubescent, with simple, non-glandular hairs, about equally 4-angled; cones ovoid, 2.3–4.5 cm long. ....***Picea rubens*** (red spruce)
- 11a. Cones 2.5–6 cm long, cone scales tight until seeds are shed; plants native. ....  
..... ***Picea glauca*** (white spruce)
- 11b. Cones 5–16 cm long, cone scales loose; plants introduced, grown in plantations or as ornamentals in urban areas. .... **12**
- 12a. Cones 12–16 cm long; needles 1–2.5 cm long, 4-angled, taller than wide, apex obtuse. ....***Picea abies*** (Norway spruce)
- 12b. Cones 5–10 cm long; needles 1.5–2.5 cm long, 3-angled, flat to low-triangular, keeled beneath, apex sharply pointed. ....***Picea sitchensis*** (Sitka spruce)

## Pinaceae Comparison Chart

Genera:	<i>Larix</i>	<i>Abies</i>	<i>Picea</i>	<i>Pinus</i>
	tamarack, larch	balsam fir	spruce	pine
<b>Needle Persistence</b>	deciduous, turning yellow and dropping each autumn	evergreen, remaining on tree 5–20 yrs.	evergreen, remaining on tree 7–10 yrs.	evergreen, remaining on tree 1–4/20+ yrs.
<b>Needle Attachment</b>	tufts of 15–60 needles spirally arranged on dwarf shoots	attached individually, base of needles flat, rounded, pad-like, leaving a round needle scar	attached individually, base of needles narrowed, with persistent woody pegs (sterigmata)	2–5 needles in fascicles, surrounded at the base by a scaly sheath
<b>Needle Arrangement</b>	spirally arranged, soft, flat, apices blunt	2-ranked, soft, flat, apices blunt	spirally arranged, stiff, 4-angled, apices sharp	in fascicles, soft to stiff, semi-circular or triangular, apices blunt to acute
<b>Needle Length</b>	1.5–2.5 cm long	1.5–2.5 cm long	0.6–3 cm long	2–16 cm long
<b>Cone Shape</b>	ovoid to globose, maturing in 1 season, cones persistent after seed dispersal	erect, oblong, maturing in 1 season, scales shed with seed in fall, leaving persistent cone axes on branches	ovoid to cylindrical, maturing in 1 season, cones persistent after seed dispersal, or persistent for several years in fire-adapted species	ovoid to cylindrical, maturing in 2 full years, cones falling after seed dispersal, or persistent for several years in fire-adapted species
<b>Cone Size</b>	1–2 cm long (native sp.); 2–5 cm long (introduced spp.)	4–10 cm long	2–6 cm long (native spp.); 5–18 cm long (introduced spp.)	3–20 cm long

## **Larix (Pinaceae) Comparison Chart**

<i>Species:</i>	<b><i>Larix laricina</i></b>	<b><i>Larix decidua</i></b>	<b><i>Larix kaempferi</i></b>
	tamarack, larch	European larch	Japanese larch
<b>Tree Height; Trunk Width</b>	20–25 m tall; to 60 cm d.b.h.	30–46 m tall; 100–180 cm d.b.h.	25–40 m tall; 100–130 cm d.b.h.
<b>Short Shoot Length, # of Needles</b>	3–10 mm long with 15–60 needles	3–10 mm long with 30–40 needles	2–7 mm long with 20–35 needles; <b>young shoots glaucous</b>
<b>Needle Size on Short Shoots</b>	1–2.5 cm long x 0.5–0.8 mm wide	2–4 cm long x 0.5–1 mm wide	1.5–3.5 cm long x 0.7–1 mm wide
<b>Seed Cone Length and Shape</b>	<b>1–2 cm long x wide;</b> <b>broadly ovoid to ±</b> <b>globose as seeds shed</b>	<b>2.5–4 cm long;</b> <b>ovoid, blunt</b>	1.5–3.5 cm long; broadly ovoid; <b>rosette-like</b> <b>from above</b>
<b>Cone Scales</b>	<b>10–30,</b> margins flat, entire; scales glabrous	35–50, <b>margins curved slightly</b> <b>inward; scales downy</b> <b>on both surfaces</b>	30–40, <b>margins strongly recurved</b> <b>outward; scales downy on</b> <b>outer surface</b>
<b>Seed Size</b>	<b>2–3 mm long;</b> <b>wing 4–6 mm long</b>	3–4 mm long; wing 5–10 mm long	3–4 mm long; wing 7–11 mm long
<b>Range</b>	native to Nfld. & Lab.	in plantations, native to Japan	in plantations, native to southwestern Europe

## *Picea* (Pinaceae) Comparison Charts

<b><i>Picea</i> Chart 1 (of 2): Native Species</b>			
Species:	<b><i>Picea glauca</i></b>	<b><i>Picea mariana</i></b>	<b><i>Picea rubens</i></b>
	white spruce	black spruce	red spruce
Height, Trunk Width	to 25 m tall; to 60 cm d.b.h	to 20 m tall; 30 cm d.b.h.	to 25 m tall; 60 cm d.b.h.
Twigs	<b>glabrous, often glaucous</b>	<b>densely hairy with short brown glandular and non-glandular hairs</b>	emerging shoots often densely hairy with non- glandular white hairs; <b>older stems glabrate, shiny</b>
Needles	<b>1.5–2.5 cm long, 4-angled and quadrate in x.s.; unpleasant odour when crushed</b>	<b>0.6–1.5 cm long, 4-angled and quadrate in x.s.</b>	0.8–2.5 cm long, 4-angled and quadrate in x.s.
Seed Cones	<b>2.5–6+ cm long, cylindrical; pendant at branch tips; cones fall after seeds are shed</b>	<b>2–3 cm long; ovoid, blunt; borne along upper branches; semi- serotinous, remaining on tree for many years</b>	<b>3–5 cm long; narrowly ovoid, acute; pendant at branch tips; cones fall after seeds are shed</b>
Seeds	2–4 mm long; wing 4–8 mm long	2 mm long; wing 2–4 mm long	2 mm long; wing 3–4 mm long

***Picea* Chart 2 (of 2): Plantation Species**

Species:	<b><i>Picea abies</i></b>	<b><i>Picea sitchensis</i></b>
	Norway spruce	Sitka spruce
<b>Height, Trunk Width</b>	to 30 m tall; to 200 cm d.b.h	to 80 m tall; 500 cm d.b.h.
<b>Twigs</b>	<b>glabrous</b> , reddish-brown	<b>glabrous</b> , pinkish-brown
<b>Needles</b>	<b>1–2.5 cm long</b> , 4-angled and somewhat flattened in x.s.; <b>apex blunt-tipped</b>	<b>1.5–2.5 cm long, flattened to broadly triangular in x.s., rigid, extremely sharp</b>
<b>Seed Cones</b>	<b>9–18 cm long, cylindrical, acute;</b> pendant at branch tips; cones fall after seeds are shed	<b>5–10 cm long;</b> <b>oblong, blunt;</b> pendant at branch tips; cones fall after seeds are shed
<b>Seeds</b>	4–5 mm long; wing to 15 mm long	3 mm long; wing 7–9 mm long

## ***Pinus* (Pinaceae) Comparison Chart**

<b><i>Pinus</i> species:</b>	<b><i>P. banksiana</i></b>	<b><i>P. resinosa</i></b>	<b><i>P. strobus</i></b>	<b><i>P. sylvestris</i></b>
	jack pine	red pine	white pine	Scots pine
<b>Height, Trunk Width</b>	20–27 m tall; 30–60 cm d.b.h.	18–25 m tall; 40–75 cm d.b.h.	30–60 m tall; 100 cm d.b.h.	25–40 m tall; 50–120 cm d.b.h.
<b># of Needles in Fascicle</b>	<b>2 short needles</b>	<b>2 long needles</b>	<b>5 long needles</b>	<b>2 needles</b>
<b>Needles</b>	<b>2–5 cm long, stiff, divergent,</b> straight to slightly twisted	<b>7–17 cm long, brittle,</b> straight	<b>5–15 cm long, flexible,</b> straight to slightly twisted	<b>4–6 cm long,</b> longer on young shoots; usually slightly twisted
<b>Seed Cones</b>	<b>3–5.5 cm long; narrow-conical, often curved to one side; semi-serotinous</b>	<b>4–7 cm long; ovoid,</b> cones fall after seeds are shed	<b>8–20 cm long; cylindrical; cones fall after seeds are shed</b>	<b>3–6 cm long, conical, straight;</b> cones fall after seeds are shed
<b>Seeds</b>	4–5 mm long; wing 10–12 mm long	5 mm long; wing to 15 mm long	5–6 mm long; wing 18–25 mm long	4–5 mm long, wing 12–20 mm long
<b>Range</b>	<b>native to sw Lab.;</b> planted in Nfld.	<b>native to Nfld.,</b> uncommon	<b>native to Nfld.,</b> formerly common	<b>introduced from Europe;</b> planted in Nfld.