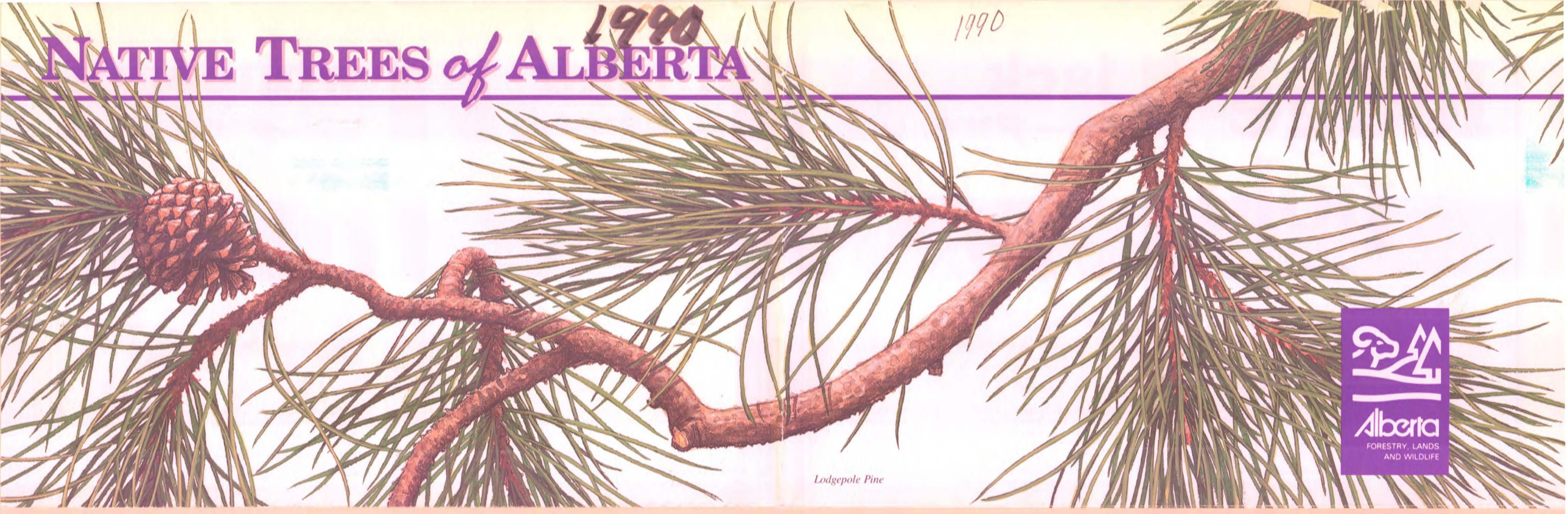
NATIVE TREES of ALBERTA

1990



Lodgepole Pine

Alberta
FORESTRY, LANDS AND WILDLIFE

aspen poplar

(Populus tremuloides)

Up to 30 meters in height, bark at first smooth, greenish-white, becoming rough and dark grey with age, terminal bud sharp pointed, all buds dark brown.

leaves

Alternate, simple, broadly oval, sharp-pointed, fine-rounded teeth, 4.0-7.5 cms long, borne on long, slender stalks, dark green above, pale below; petioles flattened causing fluttering in wind.

flowers

Inconspicuous, small in dense catkins, pistillate and staminate flowers on different trees, formed before leaves develop in spring.

fruit

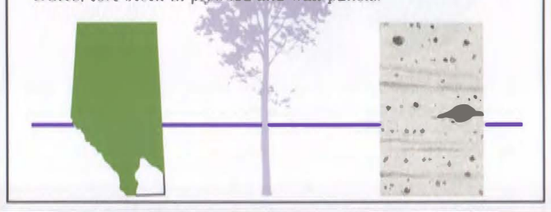
A greenish capsule, containing many small hairy seeds.

distribution

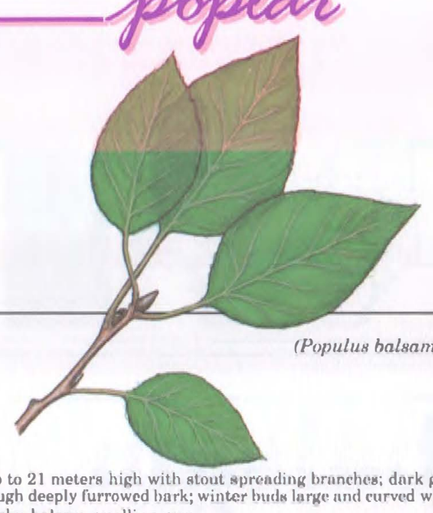
Widespread throughout, it is especially important in the north-central part of the province where it is the dominant species in the "Boreal Mixedwood" forest, being eventually succeeded by white spruce.

wood and uses

Whitish to cream coloured wood which is short fibred, and relatively low in strength. It is used mainly for pulp products, such as book, newsprint and fine printing paper. Aspen is especially good for panel products such as oriented strandboard and waferboard. Lumber is light in weight and is used for furniture, boxes and crates, core stock in plywood and wall panels.



balsam poplar



(Populus balsamifera)

Up to 21 meters high with stout spreading branches; dark grey, rough deeply furrowed bark; winter buds large and curved with a sticky balsam-smelling gum.

leaves

Alternate, simple, oval or heart-shaped, sharp-pointed, rounded teeth, 7.5-15.0 cms long, shiny dark green above and pale green beneath.

flowers

Inconspicuous, small in dense catkins, pistillate and staminate flowers on different trees. Developed before the leaves expand in the spring.

fruit

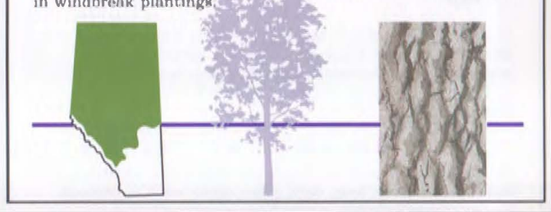
A dry, greenish-brown capsule, opening when mature. The seeds, very small, numerous and hairy.

distribution

Common in forestland, abandoned farmland, burned-over areas, river banks throughout Alberta.

wood and uses

Wood is light, soft, low in strength, greyish white to light greyish brown in colour. Wood is used for pulp. Balsam poplar is also used in windbreak plantings.



white birch

(Betula papyrifera)

6 to 20 meters in height, with whitish or silvery grey bark in thin sheets; winter buds chestnut brown, bud scales slightly downy, no distinct terminal bud.

leaves

Alternate, simple, in slender stalks, oval and tapering to a point, irregularly toothed, 2.5-19 cms long, dark green above, paler and slightly hairy beneath.

flowers

Inconspicuous, small, in staminate and pistillate catkins.

fruit

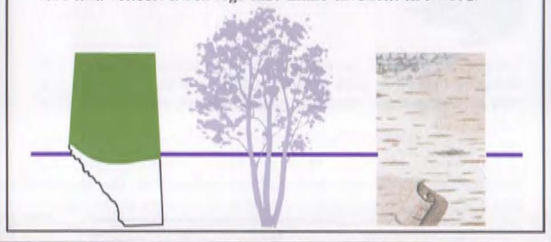
A small, broadly-winged nutlet.

distribution

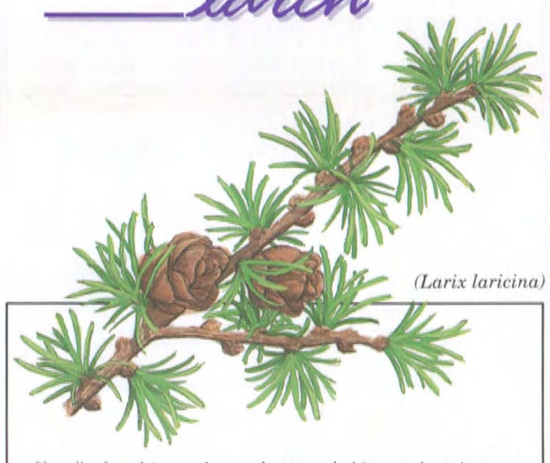
This species and several varieties are widespread and common along river banks and moist wooded areas through the central and northern part of the province.

wood and uses

Wood is moderately heavy, hard, strong, straight-grained and pale brown in colour. It is used for furniture, cabinets, woodenware and veneer. Birch logs also make excellent fire wood.



tamarack larch



(Larix laricina)

Usually found in muskeg and swamp habitats, where it grows slowly and may be only 15-18 meters in height. On moist, well-drained soils however, it can grow to heights of 25 meters. The bark is rough and dark-grey in colour and there are numerous small rounded reddish winter buds.

leaves

Needle-like, 12-20 in feather-like clusters soft and slender, 2-4 cms long, light green turning bright yellow in the autumn when they fall from the tree.

cones

Pollen cones (male) quite small, yellow; seed cones (female) reddish when young, becoming brown and almost spherical when mature; seeds small and winged.

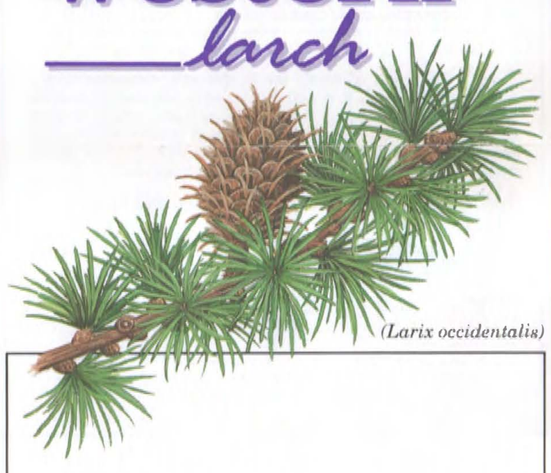
distribution

Occurs throughout central and northern Alberta. Rarely found in pure stands. In muskeg or swamp habitat it typically occurs in mixture with black spruce. On better sites it can form a component of virtually any type of stand.

wood and uses

Wood is moderately hard and heavy, somewhat oily, decay resistant and yellowish brown to reddish brown in colour. It is used for lumber for rough construction, fence posts, poles, railway ties and pulpwood.

western larch



(Larix occidentalis)

Tallest of the larches, up to 40 meters high; crown short and narrow with nearly horizontal branches; bark reddish-brown on young trees, becoming deeply furrowed on mature trees; buds dark brown, hairless.

leaves

Needle-like, 3-sided, soft and flexible, 2.5-4.5 cms long, yellowish-green, borne in clusters of 15-30 on dwarf twigs, turning yellow in autumn when they fall from the tree.

cones

Pollen cones (male) small, oblong and yellow; seed cones (female) 2.5-4.0 cms long when mature, with short curved stalk; cone scales bent slightly downwards on mature open cones, with long pointed bracts; seeds small with long seed wing.

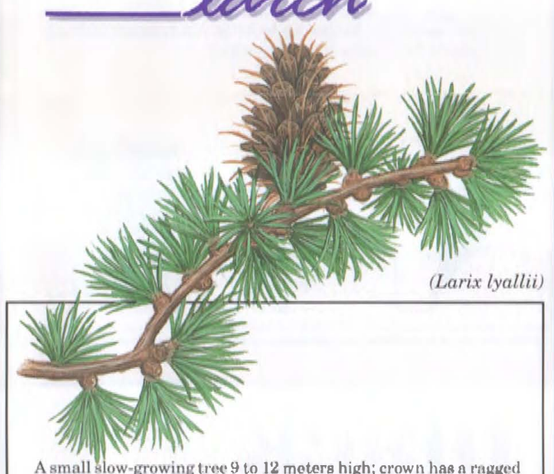
distribution

Moist mountain slopes. Its occurrence in Alberta is limited to the Kananaskis Valley and the Crowsnest Pass.

wood and uses

Wood is hard, moderately heavy, strong, moderately resistant to decay, reddish brown in colour with characteristic oily appearance. It is mainly used for lumber in building construction. Other uses include railway ties, flooring and pulp.

alpine larch



(Larix lyallii)

A small slow-growing tree 9 to 12 meters high; crown has a ragged appearance with irregularly spaced branches; leaves mostly confined to the outer branchlets; bark smooth, thin, greyish on young trees becoming reddish and scaly on older trees; buds often hidden by long white hair.

leaves

Needle-like, 4-sided, soft and flexible, 2.5-4.0 cms long, bluish-green, clusters of 30-40 on dwarf twigs, turning yellow in autumn before falling from the tree.

cones

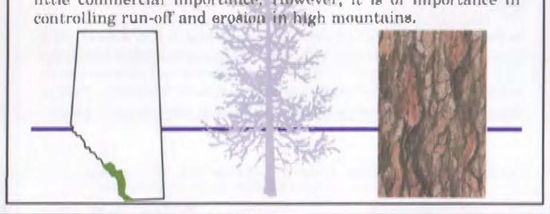
Pollen cones (male) small, yellow; seed cones (female) nearly stalkless, 4-5 cms long, dark brown at maturity; cone scales are covered with whitish hairs and have 3-toothed bracts; seeds are small and winged.

distribution

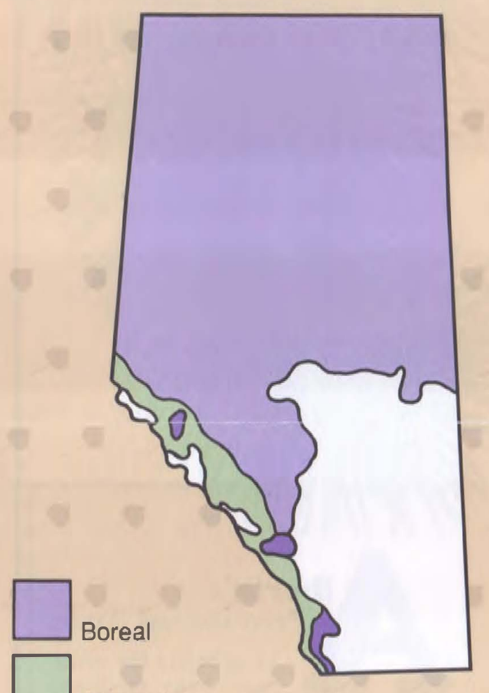
A timberline species on the slopes of the Rocky Mountains in southeastern Alberta.

wood and uses

Wood is heavy, hard and reddish brown in colour. Although it is suitable for both lumber and pulp, because of remote and inaccessible locations where it is generally found, alpine larch is of very little commercial importance. However, it is of importance in controlling run-off and erosion in high mountains.



FOREST REGIONS of ALBERTA



(From Rowe 'Forest Regions of Canada')

Three of the eight major forest regions in Canada are represented in Alberta; Boreal, Subalpine and Montane. Each region has its own typical climate and characteristic species composition.

BOREAL

This is the most extensive forest region in Canada. It comprises the greater part of the forested area of the country, forming a continuous belt from Newfoundland and the Labrador Coast westward to the Rocky Mountains and northward to Alaska. In Alberta it occupies the entire northern half of the province and stretches southwards between the agricultural zone and the Subalpine Forest Region to the Turner Valley area. The climate of the area is characterised by long, very cold winters, short mild summers and wide annual temperature variations. Precipitation is generally low, ranging from approximately 600 mm in the southern extent of the region to 300 mm in the north of the province. The main reason for the extremes of temperature and lack of precipitation is that the size of the land mass restricts the sea's influence. This allows development of large high pressure centres so that during the winter months the region is dominated by very cold, very dry Arctic air masses. Black spruce, white spruce, tamarack and balsam fir are characteristic species through most of the Boreal Region, with black spruce becoming more important in the north of the province. Jack pine is present in north-eastern Alberta and lodgepole pine is an important component in the foothills in the western part of the province. Broad-leaved trees are also represented throughout the region by aspen, balsam poplar and white birch.

SUBALPINE

The major representation of the Subalpine Region in Canada is in British Columbia and Alberta. In Alberta it stretches northward from the United States border to a point just west of Grande Cache. The upper boundary of the Subalpine Region forms the "climatic forest line" i.e. the elevation where continuous forest cover ends and isolated stands of trees begin. The climate of the region is characterised by cold, snowy winters and cool, showery summers, with below freezing temperatures being common in all months except July and August. Approximately 50% of the precipitation occurs during the winter months. Characteristic tree species of the Subalpine Region are Engelmann spruce, alpine fir, alpine larch, lodgepole pine and whitebark pine.

MONTANE

As with the Subalpine Forest Region, the major representation of the Montane Forest Region in Canada is in British Columbia and Alberta. In Alberta its main occurrences are in the vicinity of the Porcupine Hills, Crowsnest Pass, and the foothills north of Waterton Lakes National Park. The Bow, Saskatchewan and Athabasca River valleys also contain Montane vegetation. The most notable feature of the region is its association with major east-west mountain valleys which channel warm Pacific air (chinooks) into Alberta during the winter months, thus lessening the effects of cold Arctic air invading Alberta from the north. Most precipitation occurs as snow in the winter months. Characteristic tree species for the region as a whole are Douglas-fir and limber pine, while moist and cool sites, such as north-facing slopes, are occupied by aspen, lodgepole pine and white spruce.

Boreal

Subalpine

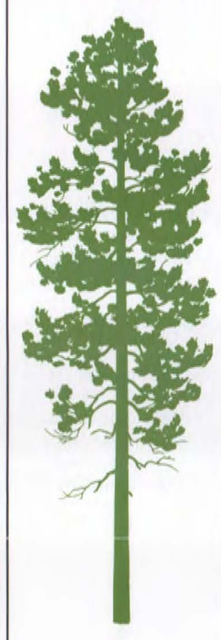
Montane

Pub. No. S/16

lodge-pole pine

(Pinus contorta var. latifolia)

Alberta's Provincial Tree



Long before the white man came to North America, the Western Plains Indians began utilizing the forest wealth of the province. The trees they used were strong, straight and of uniform taper. The regular use of these trees for the construction of their buffalo skin lodges led the famous explorers Lewis and Clark to dub them "lodgepole pine". During the early years of settlement, lodgepole pine was used by pioneers primarily for fenceposts, fuelwood and cabin construction. By 1883, the railway had reached as far west as Calgary and had created an entirely new market for railway ties, telegraph poles and mining timbers. The lodgepole pine continues to be a major contributor to Alberta's forest industry as well as providing protective cover for the vital watersheds of our province's eastern slopes.

Up to 30 meters or more in height; bark thin, yellowish-brown, somewhat scaly.

leaves

Needle-like, in bundles of two, produced in dense clusters towards the ends of the branches, 2.5-7.5 cms long, yellowish-green.

cones

Pollen cones (male) borne in small terminal clusters; seed cones (female) conical-shaped and woody, usually curved backwards towards the base of the branches, yellowish-brown, often borne in clusters, 2.5-5.0 cms long, scales thickened and with a sharp spine at the tip of each scale; seeds winged.

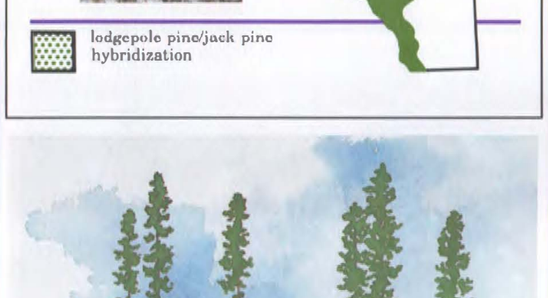
distribution

The most common and abundant tree in the Rocky Mountains and foothill regions. Occurring on the eastern slopes of the Rocky Mountains where it frequently forms dense even-aged stands as the result of fire. In areas adjacent to jack pine, the two species integrate.

wood and uses

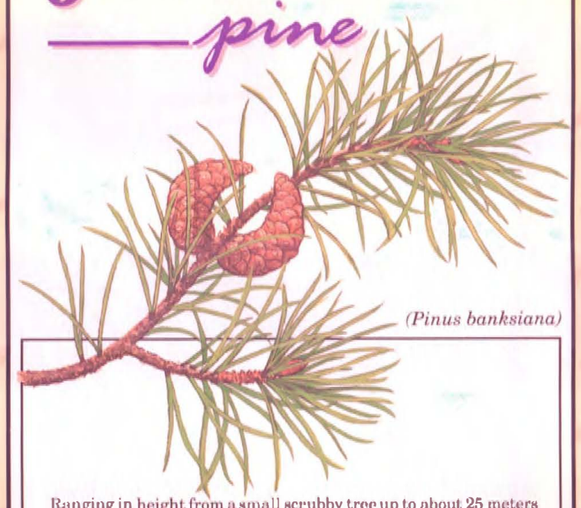
Wood is moderately light, soft to moderately hard and white to yellowish brown in colour. It is used for lumber and plywood as well as pulp. Lumber is used mainly in general construction; other uses include furniture, siding, flooring and panels. After pressure treatment with preservatives, lodgepole pine makes excellent railway ties, utility poles and mine timbers.

lodgepole pine/jack pine hybridization



jack pine

(Pinus banksiana)



Ranging in height from a small scrubby tree up to about 25 meters depending upon growing conditions; bark thin, reddish grey on young trees becoming darker grey, rough and scaly on old trunks.

leaves

Needle-like, stiff, sharp-pointed, in bundles of two, frequently twisted, 2-4 cms long, yellowish-green.

cones

Pollen cones (male) small in close clusters at the ends of young branches; seed cones (female) borne in pairs, usually curved and pointing towards the end of the branches, smooth and exceedingly hard, often remaining unopened on the tree for several years, yellowish-grey when mature, 2.5-5.0 cms long, scales thickened, without prickles; seeds winged.

distribution

Common on sand hills and thin soil in central and northeastern Alberta. It can be distinguished from lodgepole pine mainly by difference in form and shape of the needles and cone characteristics.

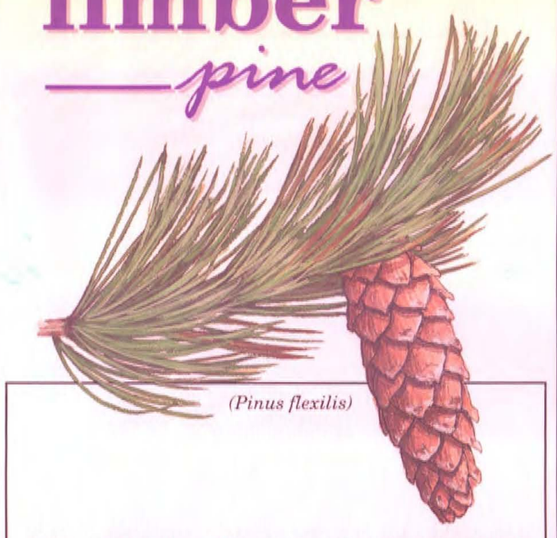
wood and uses

Wood is moderately heavy, soft and nearly white in colour. It is mainly used for pulp. Lumber is generally knotty and considerably less desirable than lodgepole pine; used primarily for boxes, crates and rough construction.

jack pine/ lodgepole pine hybridization

limber pine

(Pinus flexilis)



A small deformed, scrubby mountain tree, with short twisted limbs, usually 5-10 meters in height. Bark is silvery-grey on young trees becoming very rough and almost black at maturity.

leaves

Needle-like, thick, stiff, sharp-pointed, slightly curved, in bundles of 5, tightly clustered at the ends of twigs, 2.5-7.5 cms long, dark green.

cones

Pollen cones (male) small, produced in terminal clusters; seed cones large, cylindrical 7.5-20.0 cms long, yellowish-brown, with scales greatly thickened at the tip; seeds nut-like, practically wingless.

distribution

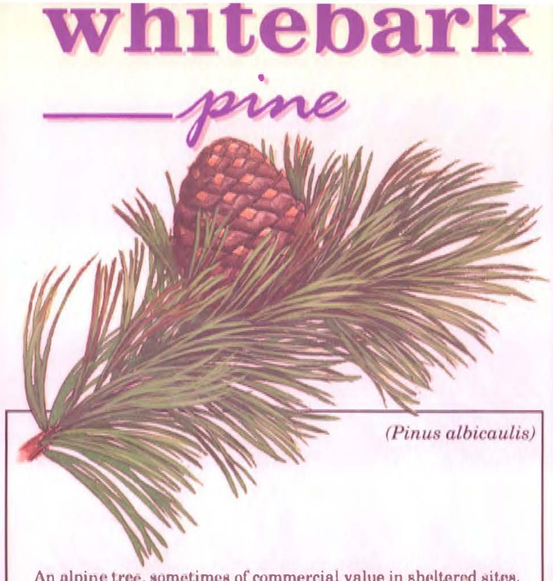
A characteristic alpine tree on high mountain slopes where it is usually much stunted and frequently deformed by strong winds.

wood and uses

Wood is light, close-grained, moderately soft and lemon-yellowish in colour. It has no commercial importance, although it is used locally as fuel wood.

whitebark pine

(Pinus albicaulis)



An alpine tree, sometimes of commercial value in sheltered sites, where it may reach heights of up to 25 meters. On windswept slopes it is usually prostrate and reduced to shrub size, seldom exceeding 10 meters. The trunk is massive and distorted with either smooth or scaly whitish bark; branches usually deformed, bunched in the crown or prostrate on the ground.

leaves

Needle-like in bundles of 5, produced in dense clusters towards the ends of the branches, stiff and somewhat curved, 4.0-7.5 cms long, dark yellow-green.

cones

Pollen cones (male) borne in small terminal clusters; seed cones (female) stout, tough, oval-shaped and purplish, 4.0-7.5 cms long, scales much thickened, sharp-pointed, woody, resinous permanently closed.

distribution

A rare mountain species found scattered along the timber line of the Rocky Mountains.

wood and uses

Wood is light, close-grained, moderately soft and pale brownish in colour. It is of little commercial importance, although wood can be used for lumber and mine timbers.

alpine fir

(Abies lasiocarpa)

Large tree, up to 25 meters high; crown narrow and dense with drooping branches; bark smooth, ash-grey with large resin blisters on young trees, becoming greyish-brown and scaly in older trees.

leaves

Needle-like, 2.5-4.0 cms long, curved upwards on the branch, greyish-green to bluish-green, rounded or notched at the tip.

cones

Pollen cones (male) small, bluish; seed cones (female) 6-10 cms long, dark purple, borne at the top of the tree; cone scales fan-shaped, slightly longer than broad with short spoon-shaped bracts.

distribution

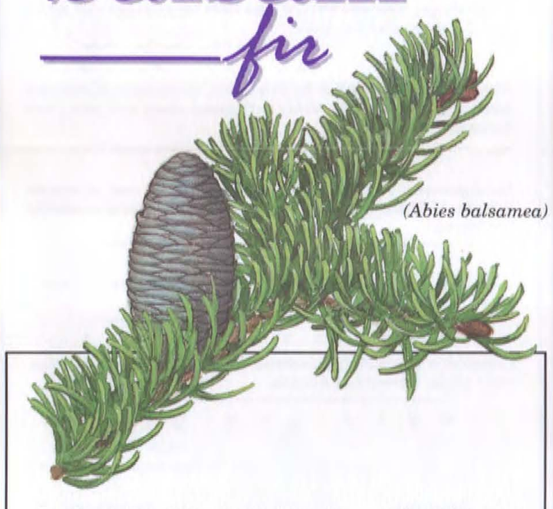
High altitudes, from west-central to southwestern Alberta. Often mixed with Engelmann spruce, lodgepole pine and alpine larch.

wood and uses

Wood is light, soft, relatively low in strength and white in colour. It is used mainly for lumber for building construction and pulp; also suitable for making boxes and crates.

balsam fir

(Abies balsamea)



Usually 15-21 meters in height. The crown is symmetrical with a narrow pyramidal shape and branches extending nearly to the ground. The bark is smooth, pale-grey with large resin blisters on young trees becoming roughened and reddish-brown on mature trees.

leaves

Needle-like, distinctly flattened, rounded at the tip, arranged in two ranks, 2-3 cms long, dark green above, whitish beneath.

cones

Pollen cones (male) small, yellowish-red; seed cones (female) erect, dark purple, 5-10 cms long, scales slightly elongated with short pointed bracts, becoming soft when mature.

distribution

Central and northern Alberta, where it sometimes forms a scattered understorey in old growth stands.

wood and uses

Wood is light, soft, relatively low in strength, somewhat brittle, and white in colour. It is suitable for pulp and can be used for making boxes and crates. Bark on young trees contains blisters filled with a resin (Canada balsam) which is used in cementing lenses and mounting specimens for observation with a microscope. Balsam fir also makes a good Christmas tree.

rocky mountain douglas fir

(Pseudotsuga menziesii)
(until recently - P. taxifolia)

A large tree up to 25 meters high with a massive trunk and somewhat drooping branches; bark on young trees smooth and reddish brown becoming 10-15 cms thick and deeply fissured on old trees.

leaves

Needle-like, somewhat flattened, tapering at the base to a very short stalk, 2-3 cms long, bright blue green above, pale beneath.

cones

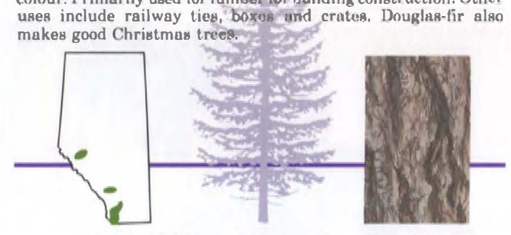
Pollen cones (male) bright red; seed cones (female) drooping, reddish brown, 5-9 cms long, the 3-forked bracts projecting beyond the broad-rounded, stiff scales; seeds broadly winged.

distribution

Along the east slopes of the Rocky Mountains from Jasper Park to Waterton and widespread in the Porcupine Hills.

wood and uses

Moderately heavy, hard and strong wood with reddish brown colour. Primarily used for lumber for building construction. Other uses include railway ties, boxes and crates. Douglas-fir also makes good Christmas trees.



black spruce

(Picea mariana)

In the muskeg habitat, where it is usually found, it is a small slow growing tree, 9-15 meters high, with the lower branches festooned with "old-man's beard" lichen. On well-drained mineral soils however, it can attain heights of 25-30 meters. Typically, bark is thin, scaly and greyish with the inner bark usually olive green.

leaves

Needle-like, short, thick, 4-sided, 1-2 cms long, blue green.

cones

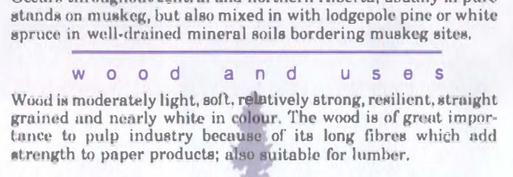
Pollen cones (male) small, dark red; seed cones (female) purplish-green, 1-4 cms long at maturity, brown to purplish green and almost spherical, remaining on the tree for several years, scales stiff and rounded; seeds small, winged.

distribution

Occurs throughout central and northern Alberta, usually in pure stands on muskeg, but also mixed in with lodgepole pine or white spruce in well-drained mineral soils bordering muskeg sites.

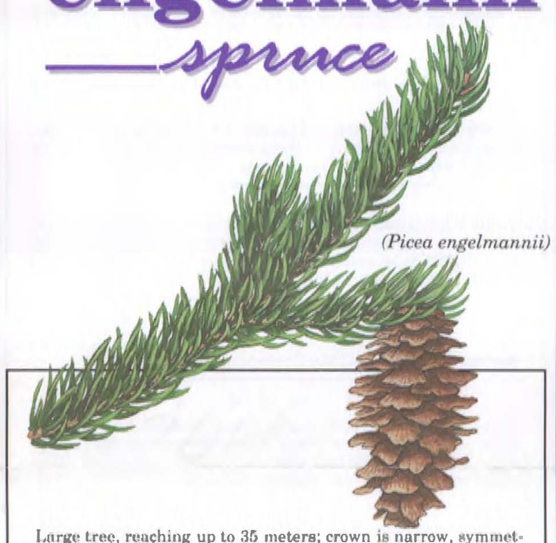
wood and uses

Wood is moderately light, soft, relatively strong, resilient, straight grained and nearly white in colour. The wood is of great importance to pulp industry because of its long fibres which add strength to paper products; also suitable for lumber.



engelmann spruce

(Picea engelmannii)



Large tree, reaching up to 35 meters; crown is narrow, symmetrical, lower branches usually drooping; bark thin, scaly, reddish-brown.

leaves

Needle-like, 4-sided, stiff, 2.0-2.5 cms long, bluish-green.

cones

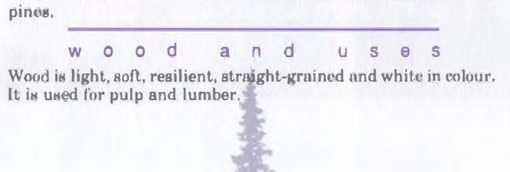
Pollen cones (male) dark purple, 1.2-1.6 cms long; seed cones (female) brown to yellowish-brown at maturity, 2.5-7.5 cms long; cone scales broadest near the middle, irregularly toothed on outer edge with prominent bracts; seeds small with wedge-shaped wings.

distribution

Higher altitudes, in high valleys and on slopes of Rocky Mountains in southwestern Alberta. Often mixed with firs, larches and pines.

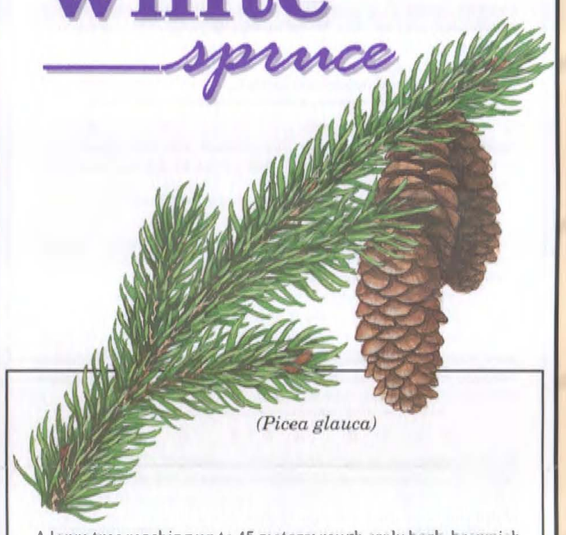
wood and uses

Wood is light, soft, resilient, straight-grained and white in colour. It is used for pulp and lumber.



white spruce

(Picea glauca)



A large tree reaching up to 45 meters; rough scaly bark, brownish to silvery grey.

leaves

Needle-like, 4-sided, stiff, sharp-pointed, 2.5-3.0 cms long, bright green.

cones

Pollen cones (male) small, yellow; seed cones (female) usually at the ends of young twigs, drooping and turning brown at maturity, 4-5 cms long, scales thin, somewhat rounded with smooth margins; seeds with thin wings.

distribution

Widespread throughout south-central and northern Alberta, succeeding poplar and pine in burned over areas.

wood and uses

Wood is light, soft, resilient, straight-grained and white in colour. It is used for lumber, plywood and pulp.