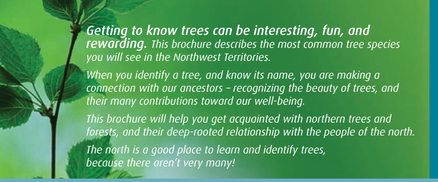


Getting to know trees can be interesting, fun, and rewarding. *This brochure describes the most common tree species you will see in the Northwest Territories.*

When you identify a tree, and know its name, you are making a connection with our ancestors – recognizing the beauty of trees, and their many contributions toward our well-being.

This brochure will help you get acquainted with northern trees and forests, and their deep-rooted relationship with the people of the north.

The north is a good place to learn and identify trees, because there aren't very many!

TAMARACK – *Larix laricina*

Have you met the Official Tree of the Northwest Territories? It shows up best in late autumn, when its feathery needles turn golden, and it stands out as the only bright tree in a forest of dark evergreens and deciduous trees that have already lost their leaves. This is the tamarack, the only conifer that sheds its needles in winter, after they turn yellow, and stands bare when spruce and pine trees stay green. The tamarack is a tree of cool, wet places. The next time you are out exploring muskeg or sphagnum bogs, look for our Official Tree.

WHITE SPRUCE – *Picea glauca*

You won't find a better symbol of our untamed northern forest than the silhouette of spruce spires against a bright blue sky. White spruce trees were among the first plant colonizers after the last glacial age and have dominated our landscape ever since.

Why are spruce so at home in our chilly northern climate? Needles! By hanging onto these cold-hardy food factories all year they get a headstart on spring. The instant things warm up, spruce can begin photosynthesis thanks to their ever-present needles loaded with chlorophyll. Needles also help trap solar energy and dampen the chilling effects of wind. These adaptations to exploit the meager energy trickling down to them help spruce trees assert their dominance in the boreal forest.

BLACK SPRUCE – *Picea mariana*

If you're looking for a Christmas tree, this species might not be first on your list. The black spruce is narrower than its white spruce cousin and looks more like an overgrown pipe-cleaner than a Christmas tree. But, looks aside, this tree has got what it takes to grow just about anywhere – from the wettest bogs to the driest slopes.

When its droopy lower branches touch the ground, they put down roots which send up bunches of new stems. One black spruce in northern Quebec sprouted thirty seven stems from one tree! This trick, called layering, allows the black spruce to reproduce in challenging habitats where other trees can't survive.

JACK PINE – *Pinus banksiana*

In an exposed, rocky area, you come across a twisted, gnarled tree loaded with knobby grey cones. You have found a jack pine, the most northerly of Canadian pines. These cones have a unique property that allows them to stay on the tree and accumulate for years. They are serotinous: unless they are heated to a high temperature, they stay tightly closed, protecting the seeds inside.

Fire renews the boreal forest, and jack pines are the first trees to take hold after a burn. Their resin-sealed cones protect the seeds from flames, then open after the fire passes. Seeds that have been stored for years fall on a sunny, fertile bed of ash: perfect conditions for the growth of new saplings.

SUBALPINE FIR – *Abies lasiocarpa*

If you like cool summers, cold winters, and lots of snow, you should get to know the subalpine fir. It grows best in this climate of high elevations. A slow-growing tree, it is adapted to the poor, rocky soils of mountains. In protected places, this fir is straight and narrow with a pointed top. But at treeline, you will see it growing stunted and contorted, pruned by sharp, windswept snow into a dense evergreen mat.

In the Northwest Territories, you'll find the subalpine fir only in a small area of the southwestern Mackenzie Mountains. It is much more common in the Yukon, where it is the official Territorial Tree.

Getting Started – The trees described here belong to two different groups:

Deciduous trees drop all their leaves at the end of the growing season, and grow new leaves the next spring.

Deciduous trees produce their seeds in **flowers** instead of in cones. You may not recognize them as such, but the tassel-like, hanging catkins you'll find on northern deciduous trees are actually clusters of tiny, greenish flowers without petals. Catkins are either male or female flowers, not both. You'll know the male catkins in the spring when their tips turn yellow with pollen. The female catkins produce the seeds, which often have long silky hairs or tiny wing-like casings that help them disperse on the wind.

In some areas of the Northwest Territories, you might find a tree that has a puzzling combination of features of more than one species. This is possible because several species of northern trees form hybrids where they occur together. Hybrids are the offspring of two different species, and are common among closely related trees. They usually have a mix of features from both parent trees.

Evergreens keep their needles year-round, so they are always green. Most evergreens are also conifers, trees that have cones.

Cones are the reproductive parts of the tree. Conifers have two types of cones:

- **Seed cones** (or female cones) are the most noticeable type. When fertilized by pollen, they develop seeds at the base of each scale. In the spring, when seeds are developing, you'll usually find these small cones of various colours near the tips of new growth. They turn green or purple as they grow, brown when they are mature, and eventually, if they remain on the tree, grey.
- **Pollen cones** (or male cones) are small cones that appear at the base of new growth in the spring, turn yellow as they produce pollen, then fall shortly afterwards. You will only find them in the spring.

HUMAN USES

Traditional

- Preparations from inner bark used to treat deep cuts, open sores, burns, boils, frostbite, itching, bleeding, earaches, inflamed eyes
- Tea from needles, bark, and/or roots used to treat sore muscles, arthritis, diabetes, upset stomach, general health (high vitamin C)
- Preparations from needles used for aches, colds, difficulty breathing
- Wood used for canoe paddles, drum frames, toboggans, snowshoes
- Rotted wood and bark burned to smoke fish and hides
- Roots used for stitching, baskets

Commercial

- Hard, heavy wood with high resin content good for fence posts, rail ties, utility poles
- Wood produces high heat when burned
- Tannins from bark used for leather tanning

WILDLIFE USES

- Seeds eaten by red squirrels, and mice and other rodents
- Seeds important for birds, such as red crossbills
- Important habitat for great grey owls
- Porcupines strip outer bark to eat inner bark, killing trees

FIELD NOTES

- Found throughout most of the forested areas of the NWT, though in low numbers and patchy distribution
- A tree of cold, wet places, occurring in muskeg and sphagnum bogs
- Grows with black spruce in open muskeg, and aspen and birch in better drained areas

FROM A DISTANCE

- A straight, slender conifer, 6-15 m tall, with a delicate, "feathery" appearance
- Crown narrows at top, pyramid-shaped
- Branches long, graceful, sparse; without needles, branches are "knobby"

UP CLOSE

Needles

- Short (1-2cm long), soft and flexible
- Grow in brushy clusters of 10-20 from woody knobs
- Pale green when new in spring, blue-green in summer, yellow in fall, shed in winter

Cones

- Small (1-2 cm long), oval-round, with 4-5 rows of scales
- Grow upright on branches
- Dark red in spring, turning leathery and brown as they age
- May stay on the tree for several years

Bark

- Thin, scaly, no ridges
- Grey to reddish-brown

HUMAN USES

Traditional

- Needles and young twigs make a zesty tea high in vitamin C
- Spruce gum chewed like regular gum
- Inner bark and young shoots an emergency food source
- Outer bark used to build canoes when birch not available
- Spruce boughs used for tipi or tent flooring
- Peeled and split roots used as cord for canoe seams, baskets, fish nets
- Spruce beer made from growing tips prevented scurvy in early Europeans

Commercial

- Light, tough, straight-grained wood easily worked into specialty items like guitar sound boards, paddles, fine cabinets
- Common choice for pulpwood and lumber

WILDLIFE USES

- Seeds a primary food of red squirrels
- Chickadees, nuthatches and crossbills extract seeds from cones
- Snowshoe hare, mice and voles feed on seedlings
- Spruce grouse depend heavily on needles

FIELD NOTES

- Prefers sites with well-drained, mineral soils
- Thin bark and shallow roots offer little fire protection
- Shade-tolerant seedlings can take over deciduous stands

FROM A DISTANCE

- In open grows conical, spire-like crown
- In dense stands branches are self-pruning
- Long straight trunk up to 10 m or more

UP CLOSE

Needles

- Short, stiff, 4-sided needles point in every direction
- Waxy white layer on lower side give species its name

Cones

- Cylindrical seed cones hang from upper branches
- Longer than black spruce cones with more even cone scales
- Male pollen cones pale red

Bark

- Thin, scaly, light grey or brown
- Young twigs smooth and shiny, not hairy like black spruce

HUMAN USES

Traditional

- Spruce boughs used for tipi or tent floor
- Mouth wash from boiled cones to treat toothache and sore throat
- Rotted wood pounded in caribou hide used for baby powder and deodorant

Commercial

- Too small, twisted or knotty for timber
- Long wood fibres make good paper

WILDLIFE USES

- Snow-covered branches provide thermal cover
- Seeds a main food for red squirrels, chickadees, nuthatches, crossbills
- Snowshoe hare, mice and voles eat seedlings
- Spruce grouse eat needles
- Nest tree for ruby-crowned kinglets, palm warblers

FIELD NOTES

- Cold, soggy, nutrient-poor sites
- More tolerant of wet, muskeg habitats than white spruce
- Seeds usually not destroyed by fire because concentrated in crown
- Postfire release of many seeds promotes rapid colonization

FROM A DISTANCE

- Often shrubby with narrow, knobby crown
- Short, droopy branches

UP CLOSE

Needles

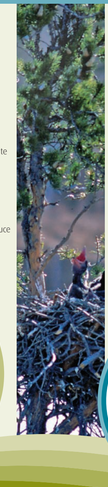
- Short, stiff, 4-sided needles
- Generally blunter than white spruce

Cones

- Seed cones rounder, smaller than white spruce
- Fringed scales
- Pollen cones dark red in spring

Bark

- Thin, dark grey
- Scales bigger, rougher than white spruce
- Fine reddish hairs on young twigs



HUMAN USES

Traditional

- Pine needle tea, high in vitamin C
- Pine needle powder treats frostbite, burns, blisters
- Pine gum good for colds
- Crumbly, rotted wood used as baby powder
- Cabin logs, planks for toboggans and boats

Commercial

- Lumber, pulpwood, furniture, doors
- Oils for antiseptic, disinfectants, insecticides
- Decorations and crafts (wreaths, potpourri)

WILDLIFE USES

- Squirrels, mice, many birds eat seeds
- Porcupines eat bark
- Pine needles favoured by spruce grouse
- Snowshoe hares eat young seedlings

FIELD NOTES

- Rocky, exposed or recently burned sites
- Grow best on open, sandy soils
- Hybridizes with close cousin Lodgepole Pine

FROM A DISTANCE

- Medium evergreen, often ragged-looking
- Commonly full of grey, weathered cones

UP CLOSE

Needles

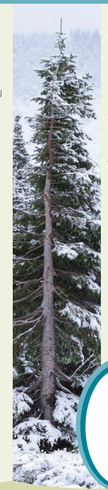
- Short, stiff, sharp, twisted, yellow-green
- Paired, joined at base

Cones

- Curved inwards, point to end of twig
- Usually in pairs
- Most closed until opened by fire
- Knobby scales with tipped spine

Bark

- Dark grey to reddish-brown
- Flat scales
- Older bark deeply grooved



HUMAN USES

Traditional

- Baskets made from sheets of bark
- Boughs for bedding
- Wood for roofing shingles
- Needle tea a cold remedy
- Sap from bark blisters for lung ailments

Commercial

- Not important in the NWT
- Pulp, veneer, crates, boxes, and timber

WILDLIFE USES

- Red squirrels eat seeds
- Spruce and ruffed grouse eat needles and buds
- Mountain caribou eat lichens off branches

FIELD NOTES

- Grows in mountains from 600 to 2,250 metres
- The NWT's only true fir

FROM A DISTANCE

- Medium evergreen usually 20 to 35 metres
- Narrow, tapering at the top into spire
- Short sweeping branches easily shed snow
- Often has branches nearly to the ground

UP CLOSE

Needles

- Flat, blunt-ended, often notched at tip
- Blue-green, single white band on top, two below
- Most turn upwards

Cones

- Cone scales fan-shaped with irregular teeth; drop in autumn leaving a bare central spike
- Seed (female) cones deep purple growing upright
- Pollen (male) cones smaller, bluish

Bark

- Smooth, grey
- Covered with resin blisters when young, later becoming scaly

PAPER BIRCH – *Betula papyrifera*

Birchbark is amazing stuff – light, flexible, strong, waterproof, easily peeled. For early peoples of the boreal forest, it was a main building block of their culture. They ate off birchbark plates, stored supplies in birchbark baskets, rolled it into tubes and called moose to their death. They travelled the north's many waterways in birchbark canoes.

Ramble through a birch stand any time of year and enjoy its many personalities. In springtime, birches add a glistening, lime-green thatch to the forest. In summer their leaves offer shade and an inviting bed to sleep on. In fall, they erupt into rivers of gold. And in winter, their supple, creamy columns help dispel the season's harshness.

TREMBLING ASPEN – *Populus tremuloides*

If you walked from Mexico to the Beaufort Sea, chances are you'd spot a trembling aspen along most of your journey. What makes this tree so wide-ranging is its adaptability.

One of the aspen's handiest adaptations is its ability to reproduce without putting a lot of energy into making seeds. They do this by growing a spreading mat of roots that send up lots of stems or "suckers". With good sunlight, a few trees can grow enough suckers to populate an area the size of a football field. The resulting stand is not really a group of individual trees but a colony of clones, all exact genetic replicas of each other.

BALSAM POPLAR – *Populus balsamifera*

You'd know the balsam poplar for sure if you lived back in early Roman days when this tree ornamented public squares reserved for the masses. Hence the name, Populus, a tree of the people. In the Northwest Territories stands of balsam poplar line the sunny shores of our many lakes and rivers.

Its other name, balsamifera, refers to the tree's sweet-smelling resin or "balm" given off by its leaves. Its buds too are fragrant. Squeeze one after the leaves drop in autumn, during a winter snowstorm, or in springtime as it is about to unfold. You'll smell that lovely perfume. Mixed in breathable pouches with rose petals and fragrant herbs, balsam poplar buds are sold commercially to add an exotic scent to drawers full of clothing or keepsakes.

WILLOWS – *Salix* species

No matter where you are in the Northwest Territories, chances are you'll find at least one kind of willow growing nearby. Nearly 50 different species grow across the NWT, from the wettest bog, to the driest pine forest, to the coldest windswept tundra. Willows are very hardy, very diverse, and very hard to tell apart. With careful observation and study, expert botanists may be able to distinguish different species; for the rest of us, they are all "willow".

Try this: Pick some willow leaf buds in the spring, just when they start to turn green. Serve with milk and sugar, like cereal. You'll have a healthy breakfast that is 7 – 10 times richer in vitamin C than an orange!

DWARF BIRCH – *Betula glandulosa*

If you compare this birch to its relative, the more stately Paper Birch, you'll see where it gets the name "dwarf". This birch is a bushy shrub, not a tree, and rarely reaches two metres in height. It is most often only ankle-high to shoulder-high in the low arctic tundra and boreal peat bogs where you'll usually find it. In these places, nutrients and summer warmth are in short supply. The Dwarf Birch has adapted to these conditions by putting all its annual growth into the essentials for life: leaves and roots. Producing the wood that would allow it to grow tall is a luxury it can't afford.

MOUNTAIN ALDER – *Alnus crispa*

Alders always give back to the soil more than they take. They do this through an amazing relationship with special bacteria that live on its roots and can pump nitrogen out of the air and into the alder plant. Alders, in turn, provide the bacteria with starches which they make through photosynthesis. Through this mutually-beneficial relationship, each year mountain alders can add as much as over 60 kilograms of nitrogen per hectare to the soil. By literally pumping nitrogen out of thin air, this aggressive pioneer species improves the fertility of our northern soils, which benefits the entire forest.

HUMAN USES

Traditional

- Bark for baskets, storage containers, mats, baby carriers, moose and bird calls, torches, household utensils and of course, canoes
- Strong and flexible wood for spears, bows, arrows, snowshoes, sled runners
- Sap made into syrup and medicinal tonics
- Inuit traded with Dene for birch bark as tinder to start fires

Commercial

- Veneer, plywood, pulpwood
- Firewood
- Furniture, cabinetry
- Popular landscaping tree

WILDLIFE USES

- Twigs and saplings browsed by moose, snowshoe hare
- Porcupine and beaver eat bark
- Many small mammals and birds eat seeds, buds, catkins
- Seeds especially important for redpolls and chickadees
- Cavity-nesting birds like woodpeckers, chickadees, swallows, boreal owls
- Yellow-bellied sapsuckers drill rows of holes to feed on birch sap and inner bark

FIELD NOTES

- Re-seeds aggressively after wildfire
- Lasts only one generation – about as long as a human life span – before being replaced by shade-tolerant conifers
- Hybridizes with many birch varieties, even shrubs

FROM A DISTANCE

- Medium-sized deciduous tree
- Often multi-stemmed
- Slender trunk with narrow crown in forests; wider spreading crowns in openings

UP CLOSE

Leaves

- Alternate, ovate, glossy, double-toothed margins, strong veins, short stems

Catkins

- Spiky catkins appear before leaves
- Change from green to brown by fall, releasing tiny oval seeds encased in bird-shaped wings

Bark

- Saplings and twigs reddish-brown
- Mature trees creamy white, smooth, with horizontal papery strips often curled at ends
- Easily peeled in sheets

HUMAN USES

Traditional

- Tea from inner bark treats coughs
- White powder from bark stops bleeding
- Chewed leaves draw sting out of insect bites
- Wood carved into canoe paddles; large knots into bowls
- Ash from green wood mixed with caribou fat to make lye soap
- Inner bark eaten as survival food (tastes like honeydew)

Commercial

- Wood ignored by forestry industry until recently
- Now used to make pulp, fibreboard, and chopsticks

WILDLIFE USES

- Preferred food for beavers
- Common browse for moose and snowshoe hare

FIELD NOTES

- Spirings up quickly after fire
- Without fire, crowded out by more shade-tolerant conifers
- Maze-like patterns on leaves from insect pest, the aspen serpentine leafminer
- Green chlorophyll in bark allows photosynthesis before leaves
- Cankers form dark, open wounds on trunks weakening or killing tree

FROM A DISTANCE

- Small to medium deciduous tree up to 20 m high
- Spreading branches form a rounded crown
- Trunk relatively bare due to self-pruning twigs which drop in the fall

UP CLOSE

Leaves

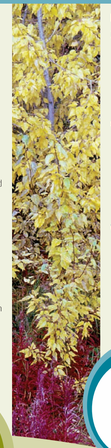
- Oval shaped, square at base with pointed tip
- Edges finely round-toothed
- Leaves appear to "tremble" in the slightest breeze due to flattened leaf stalk
- Turn bright yellow-orange, gold, or reddish after the first frost

Catkins

- Drooping catkins appear before leaves
- Produce small silk-tufted seeds carried on the wind for up to 30 km

Bark

- On young trees, smooth, greenish-white with a waxy appearance
- Becomes rough and furrowed with age



HUMAN USES

Traditional

- Ashes used as cleanser for hair and hide clothing
- Aromatic buds mixed with other ingredients to make animal traps
- Bud resin for sore throats, coughs, congestion, lung pain, rheumatism

Commercial

- Veneer, plywood, lumber, pulpwood
- Boxes, crates, shipping pallets
- Firewood
- Short, fine fibres good for tissues and other fine paper products
- Disinfectant properties of buds still used in health products to relieve congestion

WILDLIFE USES

- Young bark and twigs eaten by moose, beaver, snowshoe hare, porcupine
- Buds eaten by small mammals, grouse, ptarmigan

FIELD NOTES

- Fast-growing, short-lived tree
- Quickly shaded out by other trees
- Grows best in moist, rich, low-lying ground river valleys and flood plains
- Fire stimulates production of extensive root suckers allowing rapid colonization
- Bark of older trees up to 10 cm thick at the base which improves fire protection
- Largest balsam poplars in NWT found along the Liard River south of Nahanni Butte

FROM A DISTANCE

- Straight, cylindrical trunk
- Sparse, stout branches rise to form an open crown

UP CLOSE

Leaves

- Alternate, oval or broadly lance-shaped with finely toothed edges and pointy tip
- Shiny green above and pale below

Catkins

- Drooping catkins hang from branches in the spring
- Later burst into cottony parachutes bearing small, tan seeds

Bark

- Young bark is thin, smooth, grayish
- Grows thick, dark, and furrowed with age

HUMAN USES

Traditional

- Twigs used for baskets, bows, looms for bead-weaving, sticks for roasting meat, frames for drying pelts, pipes, whistles, canoe ribs, emergency snowshoes, and hoops for Dene ring-toss game
- Bark strips twisted to make cord for fish net, rope, snares and dog collars
- Rotted wood burned for smoking hides; green branches burned for smoking meat
- Burned, powdered bark treats infected wounds and ulcers
- Bark and/or roots treat stomach problems, relieve pain, promote healing, reduce fever
- Tender inner bark is a traditional food

Commercial

- Woven baskets and garden structures
- Planted as a soil stabilizer for erosion control

WILDLIFE USES

- Essential food for moose, ptarmigan, caribou, snowshoe hare, small rodents, beaver, and bear
- Moose depend on willow shrublands for winter food and shelter
- Thickets provide bedding and cover for many species of wildlife

FROM A DISTANCE

- Grow along streams, or where soil is moist
- One of the few woody plants to survive in tundra
- Range from ground-hugging mats, to dense knee-high thickets, to tall spindly trees
- Shrubs have multiple tall, straight, flexible stems that sprout from the base

UP CLOSE

Leaves

- Long and narrow (vary in width), pointed at both ends
- Arranged alternately on the branch
- Leaf buds covered by a single smooth scale

Catkins

- Individual trees have either male or female catkins
- Appear in spring before the leaves
- Male catkins often "furry" "pussy willows" that open to show stamens covered with red or yellow pollen

Bark

- Dark brown, red, orange, green, yellow

HUMAN USES

Traditional

- Used by the Inuit for firewood on the tundra
- Just-unfolded dwarf birch leaves are sticky on the underside, and Inuit children have been known to stick them on their ears to make "earrings"

Commercial

- No commercial uses

WILDLIFE USES

- Ptarmigan eat buds and catkins
- Small songbirds feed on insects attracted to the catkins

FIELD NOTES

- Found across most of the NWT in low-arctic tundra and boreal forest
- A plant of spruce bogs and acidic rocks
- Typical plant of the spruce forest floor
- Often found growing with willow and other shrubs
- In exposed areas, forms dense thickets pruned and molded by wind-driven snow

FROM A DISTANCE

- Bushy shrub with many woody branches, densely covered with leaves
- Low-growing, often ground-hugging, especially on exposed sites where it may form dense thickets

UP CLOSE

Leaves

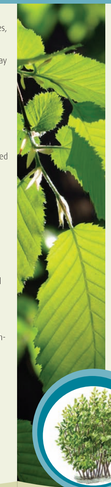
- Dark green above, somewhat paler below
- Firm and leathery, with a shiny surface
- Small (1-4 cm long), round, with rounded teeth on margins
- Alternate
- Bright red and orange in autumn

Catkins

- Female catkins short (12-25 mm long) and plump, soft-textured, slightly hairy, erect on branch
- Seeds are small, winged, nearly flat nutlets
- Male catkins hang from branch, and fall quickly after shedding pollen

Bark

- New twigs have fine hairs
- Older woody stems dark grey to reddish-brown, "warty", without hairs



HUMAN USES

Traditional

- Wood used to smoke fish and meat because of pleasant flavour it adds
- Bark contains anti-inflammatory salicin
- Hard but flexible wood good for hunting bows and snowshoes
- Bark used to make red-brown dye for caribou hides, snowshoes, and fish nets (fish have trouble seeing dark nets)
- Young catkins high in protein but not very tasty; good survival food

Commercial

- Little commercial value
- Wood from larger species of alder a favourite choice for electric guitar bodies

WILDLIFE USES

- Snow-covered branches provide thermal cover for snowshoe hare

FIELD NOTES

- Grows best in moist, nutrient-rich forests and beside streams and bogs
- Often occurs in dense clumps with willows

FROM A DISTANCE

- Tall to medium shrub with spreading, crooked stems and clumped crown

UP CLOSE

Leaves

- Oval, relatively large leaf, shiny green above, slightly hairy below
- Edges finely double-toothed, less taper-pointed than paper birch

Catkins

- Clusters of cone-like catkins develop in fall, hanging on long stalks
- Green, turning brown and woody at maturity
- Contain tiny reddish seeds with a narrow wing

Bark

- Smooth, reddish-brown or grey
- Marked with distinctive orange lenticels (horizontal pores for gas exchange)