

Arctic plant identification

Resources



Projects:

- [Toolik-Arctic Geobotanical Atlas](#)
- [International Arctic Vegetation Database](#)
- [Greening of the Arctic - Press Information](#)
- [North American Arctic Transect](#)
- [Synthesis of Arctic System Science](#)
- [Seasonality of Circumpolar Tundra](#)
- [NASA Yamal LCLUC](#)
- [Biocomplexity of Frost Boil Ecosystems](#)
- [NICOP Field Trip](#)
- [Circumpolar Arctic Vegetation Map](#)
- [Arctic Transitions in the Land-Atmosphere System](#)

Teaching:

- [BIOL 488/688, Arctic Vegetation Ecology: Geobotany Spring 2013](#)
- [BIOL 475/689, Vegetation Description and Analysis Fall 2012](#)

Alaska Geobotany Center

Teaching

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BIOL 488/688, Arctic Vegetation Ecology: Geobotany (3 credits)

[Spring 2013](#) - [Course Information](#) - [Syllabus](#) - [Course schedule](#) - [Reading assignments \(PDFs\)](#) - [Plant List](#) - [Plant Characteristics](#) - [Cantwell field trip](#)

Plant Characteristics

The following documents provide basic family characteristics for most of the families covered in the lab. These pages have been compiled from a combination of sources. Some are from pages developed by Carolyn Parker for the plant systematics course. Others have been compiled from:

Judd, W.S. Campbell, C.S., Kellogg, E.A., and Stevens, P.F. 1999. *Plant Systematics: A Phylogenetic Approach*. Sunderland, MA, Sinauer Associates, Inc.

Supplemental information can be found at:

Watson, L., and Dallwitz, M.J. 1992 onwards. **The families of flowering plants: descriptions, illustrations, identification, and information retrieval**. Version: 23rd October 2005. URL: <http://delta-intkey.com/angio/>. Last Accessed: 2006-Feb-03.

S.G. Aiken, M.J. Dallwitz, L.L. Consaul, C.L. McJannet, L.J. Gillespie, R.L. Boles, G.W. Argus, J.M. Gillett, P.J. Scott, R. Elven, M.C. LeBlanc, A.K. Brysting and H. Solstad (1999 onwards). **Flora of the Canadian Arctic Archipelago: Descriptions, Illustrations, Identification, and Information Retrieval**. Version: 29th April 2003. URL: <http://www.mun.ca/biology/delta/arctic/>. Last Accessed: 2006-Feb-03.

The original source material was scanned and converted to PDF files with the [ABBYY Fine Reader](#) OCR software.


















All of the plant family descriptions are available in the [PlantFamilies.pdf](#) (3,240 kb) document. The following documents contain information on a single plant family.

Literature:

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 [borealforest.org](#) ||  [Flora of the Canadian Arctic Archipelago](#) ||  [Families of Flowering Plants](#)

Plant List: Common plants of the Alaska boreal forest and tundra

Trees: [Needleleaf Trees](#) - [Broadleaf Trees](#)
 Shrubs: [Tall Shrubs](#) - [Low Shrubs](#) - [Erect Dwarf Shrubs](#) - [Prostrate Dwarf Shrubs](#)
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[Forbs](#)
[Clubmosses and Horsetails](#)
[Ferns](#)
 Bryophytes: [Mosses](#) - [Liverworts](#)
 Lichens: [Crustose Lichens](#) - [Foliose Lichens](#) - [Fruticose Lichens](#)

Family	Latin Name	Common Name	links to other websites
Needleleaf trees			
Pinaceae	<i>Larix laricina</i> (Du Roi) K. Koch	tamarack	lala   
Pinaceae	<i>Picea glauca</i> (Moench) Voss	white spruce	pigl   
Pinaceae	<i>Picea mariana</i> (Mill.) Brit. Sterns & Pogg	black spruce	pima   
Broadleaf trees			
Betulaceae	<i>Betula papyrifera</i> Marsh.	paper birch	bepa   
Salicaceae	<i>Populus balsamifera</i> L.	balsam poplar	poba2   
Salicaceae	<i>Populus tremuloides</i> Michx.	quaking aspen	potr5  

Alaska Geobotany Center Photo Library

Photo Library

Alphabetical list of plant species: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

Larix laricina

Family name: *Pinaceae*

Common name: tamarack

Growth form: Tree

Names used on the Toolik-Arctic Geobotanical Atlas maps:
Circumpolar Arctic Vegetation Map: *Larix laricina*

Select image to enlarge



Bark

Image author: **Gary Fewless** ©

Website: [Cofrin Center for Biodiversity](#)

[Source of original image](#)



Needles

Image author: **Gary Fewless** ©

Website: [Cofrin Center for Biodiversity](#)

[Source of original image](#)



Tree

Image author: **Gary Fewless** ©

Website: [Cofrin Center for Biodiversity](#)

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Leaf clusters with prior year cone

Tom S. Cooperrider-Kent Bog, near Kent, Portage County, OH, USA

Image author: **Hugh Wilson** ©

Website: [Vascular Plant Gallery \(Digital Flora of Texas\)](#)

[Source of original image](#)

For more information about this plant:

USDA PLANTS Database: [lala](#)

[Panarctic Flora](#)

[Flora of North America](#)

Photo Library

Select species name for more information and other photos.

Larix laricina



Image author: **Gary Fewless** ©

Bark

[Original image](#)


















Website: [Cofrin Center for Biodiversity](#)

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[Clubmosses and Horsetails](#)
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Broadleaf trees			
Betulaceae	<i>Betula papyrifera</i> Marsh.	paper birch	bepa   
Salicaceae	<i>Populus balsamifera</i> L.	balsam poplar	poba2   
Salicaceae	<i>Populus tremuloides</i> Michx.	quaking aspen	potr5  



[FNA](#) | [Family List](#) | [FNA Vol. 2](#) | [Pinaceae](#) * | [Larix](#) *

1. **Larix laricina** (Du Roi) K. Koch, *Dendrologie*. 2(2): 263. 1873.

Tamarack, mélèze laricin

Pinus laricina DuRoi, *Diss. Observ. Bot.*, 49. 1771; *Larix alaskensis* W.Wight; *L. laricina* var. *alaskensis* (W.Wight) Raup

Trees to 20m; trunk to 0.6m diam.; crown narrow, branches sparse. Bark of young trees gray, smooth, becoming reddish brown and scaly, inner layer red-purple. Branches horizontal or slightly ascending; twigs orange-brown, glabrous. Buds dark red, subtended by ring of hairlike bracts, glabrous. Leaves of short shoots 1–2cm × 0.5–0.8mm, 0.3–0.5mm thick, keeled abaxially, rounded adaxially, pale blue-green; resin canals 10–20µm from margins. Seed cones 1–2 × 0.5–1cm, usually on curved stalks 2–5 × 2–2.5mm, sometimes sessile on long shoots; scales 10–30, margins entire, brown-strigose to -tomentose at base; bracts mucronate or tipped by awn to 1mm, hidden by mature scales, at first dark red to violet, later turning yellow-brown. Pollen 53–65µm diam. Seeds with bodies 2–3mm, wings 4–6mm. 2n = 24.

Boreal forests in wet, poorly drained sphagnum bogs and muskegs, also on moist upland mineral soils; 0–1200m; St. Pierre and Miquelon; Alta., B.C., Man., N.B., Nfld., N.W.T., N.S., Ont., P.E.I., Que., Sask., Yukon; Alaska, Conn., Ill., Ind., Maine, Md., Mass., Mich., Minn., N.H., N.J., N.Y., Ohio, Pa., R.I., Vt., W.Va., Wis.

Disjunct Alaskan populations of *Larix laricina*, originally described as *Larix alaskensis* on the basis of narrower cone scales and bracts, are indistinguishable from other populations of the species.

The wood of tamarack is used for railway ties, pilings, and posts; it formerly was used for boat construction. Slow-growing trees develop wood with high resin content, making it decay resistant but limiting its value for pulpwood. The bark contains a tannin, which has been used for tanning leather. Although tamarack is the most rapidly growing boreal conifer under favorable conditions, it is of little commercial interest because of insect and disease problems and its poor pulping properties. Plants of this species are often stunted in the far north and on mountain slopes.

Related Objects

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- [Distribution Map](#)
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[Map](#)

[Illustration](#)

Related Links (opens in a new window)

Other Databases


















- [W³TROPICOS](#)
- [IPNI](#)

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[BACK](#)

Common Tree
Species of the
Northwest
Forest

[SHRUBS](#)

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[GRAMINOIDS](#)

[FERNS & FERN-
ALLIES](#)

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Larix laricina **Tamarack**

Pinaceae (Pine Family)

The tamarack is also called eastern, American, or Alaska larch, and hackmatack.

Description

General - small to medium-sized, averaging 18 m (60 ft) high, deciduous conifer with a sparse, open, narrow, conical crown. Trunk straight. Bark with small scaly patches, grey to reddish-brown. Twig sender, light brown, numerous short, spur branches.

Leaves - Deciduous, flat needle, light green, appear in spirals on spur shoots after first year, 2 - 3 cm (3/4 - 1 in) long, turn yellow in the fall and fall off.

Flowers - monoecious, males yellowish, small and round in clusters near branch tips; females reddish brown, numerous scales, egg shaped, appearing in May

Fruit - small, 2 - 3 cm (3/4 - 1 in) light brown, egg shaped cone; persist throughout the winter.

Habitat

Found throughout Northwestern Ontario. Tamarack can tolerate a wide range of soil conditions but grows most commonly on wet to moist organic soils (Histosols) such as sphagnum peat and woody peat. The latter is usually better decomposed, has more nitrogen and mineral nutrients, and is less acid than sphagnum peat. Tamarack grows fairly well on extremely dry soils where these are shallow over bedrock or where the water table is low, but it can die from drought on such sites. Often found in mixed stands with black spruce and white cedar.

Tamarack stands cast light shade and so usually have a dense undergrowth of shrubs and herbs. Dominant tall shrubs include speckled alder and red-osier dogwood; low shrubs include Labrador-tea and





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BIOL 488/688, Arctic Vegetation Ecology: Geobotany (3 credits)

Spring 2013 - [Course Information](#) - [Syllabus](#) - [Course schedule](#) - [Reading assignments](#) (PDFs) - [Plant List](#) - [Plant Characteristics](#) - [Cantwell field trip](#)

Course information

Title: Arctic Vegetation Ecology: Geobotany

Number: BIOL 488/688

Credits: 3

Prerequisites: BIOL 115 & 116, Introduction to Plant Biology (BIOL 239) or Principles of Ecology (BIOL 271) or instructor approval

Location: 103 Irving I

Lecture: 2:00 - 3:30 p.m. T/Th

Lab: 3:40 - 5:00 p.m. Th

Instructor:

Prof. D.A. (Skip) Walker

Alaska Geobotany Center, University of Alaska Fairbanks

AHRB 254

474-2460

dawalker@alaska.edu

Office hours: Generally available, call before coming

Students are encouraged to contact the instructor with any questions, or to clarify the lecture or the assignments.

I will be happy to review drafts of assignments and answer questions any time.

Evaluation:

[Vegetation Description and Analysis](#)
Fall 2012

- [BIOL 495/695, Arctic Vegetation Ecology: Excursion](#)
- [BIOL 492/692, Arctic Vegetation Ecology](#)
- [2012-2014 Course Proposals](#)
- [Fulbright Scholar Lectures](#)
- [2010 IARC Field School](#)
- [Arctic Vegetation Ecology, Masaryk University](#)
- [BIOL 474, Plant Ecology](#)
- [BIOL 475, Vegetation Description and Analysis](#)
Fall 2006
- [BIOL 493/693, Arctic Ecosystems](#)

AGC

- [2012 Greenland Calendar](#)
- [2011 Franz Josef Land Calendar](#)
- [2011 Kodiak Calendar](#)
- [2010 Alaska on Ice Calendar](#)
- [Lab Calendar](#)

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- [Asteraceae](#) (Parker, 99 kb, updated 2004-Feb-09)
- [Betulaceae](#) (Parker, 104 kb, updated 2004-Feb-09)
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- [Cyperaceae](#) (Parker, 115 kb, updated 2004-Feb-10)
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- [Elaeagnaceae](#) (233 kb, updated 2004-Feb-09)
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- [Myricaceae](#) (Judd, 65 kb, updated 2004-Feb-10)
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- [Pinaceae](#) (11 kb, updated 2004-Feb-09)
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- Pyrolaceae (see [Watson](#))
- [Ranunculaceae](#) (82 kb, updated 2004-Feb-11)
- [Rosaceae](#) (160 kb, updated 2004-Feb-09)
- [Rubiaceae](#) (74 kb, updated 2004-Feb-11)
- [Salicaceae](#) (Parker, 144 kb, updated 2004-Feb-09)
- [Saxifragaceae](#) (Judd, 72 kb, updated 2004-Feb-11)
- [Miscellaneous Alaskan \(strictly aquatic\) families](#) (6 kb, updated 2004-Feb-11)
 - Callitrichaceae ([Watson](#))

Biol 474, Laboratory

Family characteristics for plant families

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Goto Biology 474 Web

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Callitrichaceae ([Watson](#))

BETULACEAE **Birch Family**
Order Fagales

Trees and shrubs with a primarily northern hemisphere distribution. Form a significant element in boreal and temperate forests; often in the early successional stages after fire or other disturbance.

Simple, serrated, stipulate leaves are alternately arranged and often oval or ovate in outline. Reduced, unisexual flowers are arranged in pistillate and staminate catkins which are found on the same plant (all species are monoecious), and often clustered together. There are no nectaries and pollen is dispersed by wind. Flowering is often precocious. Individual flowers may consist of a few small tepals or bracteoles, or a single subtending bract or scale, and either 2 fused inferior carpels or 1-4 stamens. Infructescence in *Alnus* is a small, woody cone-like structure. Fruit is tiny samaras or nutlets which may persist on the 'cone' into winter.

Both *Alnus* and *Betula* are well-defended chemically against herbivory. Alder is an important N-fixer in early successional stages. Frequent hybridization in birch often confounds determination efforts.

New terms: samara, bracteole, infructescence, 'amentiferae'

Betula (birch), ***Alnus*** (alder)



Flora of Alaska and Neighboring Territories

A MANUAL OF THE VASCULAR PLANTS

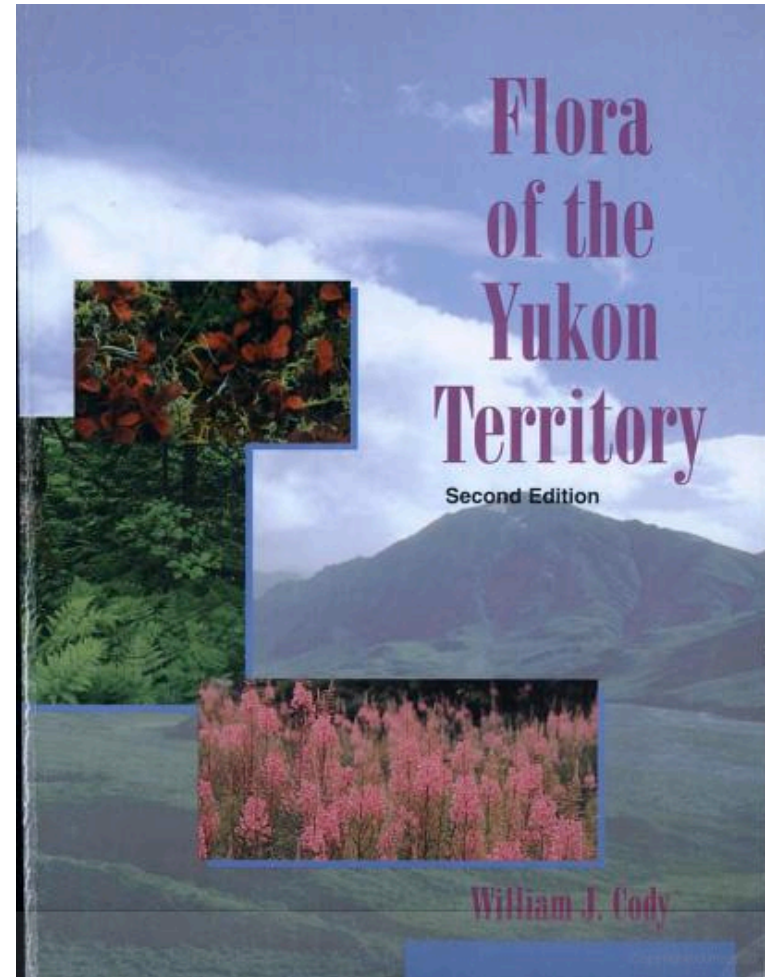
Eric Hultén



Flora of the Yukon Territory

Second Edition

William J. Cody



Common Arctic and Boreal trees and tall shrubs:

Trees:

Pinaceae

Larix laricina

Picea glauca

Picea mariana

Betulaceae

Betula neoalaska (papyrifera)

Salicaceae

Populus balsamifera

P. tremuloides

Tall shrubs:

Betulaceae

Alnus viridis (ssp. fruticosa)

Salicaceae

Salix alaxensis

S. arbusculoides

S. bebbiana

S. interior

Low shrubs:

Betulaceae

Betula glandulosa

B. Nana

Caprifoliaceae

Viburnum edule

Elaeagnaceae

Shepherdia canadensis

Grossulariaceae

Ribes triste

Myricaceae

Myrica gale

Rosaceae

Dasiphora fruticosa

Rosa acicularis

Rubus idaeus

Spiraea beauverdiana

Salicaceae

Salix lanata

S. pulchra

S. glauca

24 species



Pinaceae family characteristics

Trees (occasionally shrubs), often emitting strong fragrances from bark and/or leaves; resin canals present in wood and leaves. Branches whorled or opposite (rarely alternate). Leaves simple, *linear to needlelike* (rarely narrowly ovate), alternate but often appearing 2-ranked by twisting of leaf base to bring most of the leaves into one plane, clustered or fasciated in groups of 2 to 5 in *Pinus*, sessile or short-petioled, on long shoots or tightly clustered on short shoots, persistent (deciduous in *Larix* and *Pseudolarix*). Monoecious. Microsporangiate strobili with spirally arranged, bilaterally symmetrical microsporophylls; microsporangia 2 on the abaxial microsporophyll surface; pollen grains with 2 saccae (saccae absent in *Larix*, *Pseudotsuga*, and all but two species of *Tsuga*) and 2 prothallial cells. *Cones with spirally arranged, flattened bract-scale complexes*; scales persistent (deciduous in *Abies*, *Cedrus*, and *Pseudolarix*), bracts free from the scale, longer than the cone scale to much shorter than the cone scale; maturing in 1-2 years; ovules 2, inverted (microphyte directed toward the cone axis), on the adaxial cone scale surface; archegonia few per ovule, not clustered. Seeds with a long, terminal wing derived from tissue of the cone scale (wing reduced or absent in some species of *Pinus*); embryo straight, cotyledons 2-18 (Figure 7.16).

Distribution and ecology: Pinaceae are almost entirely limited to the Northern Hemisphere. Three or four genera grow only in eastern Asia; one (*Cedrus*) is confined to North Africa, the Near East, Cyprus, and the Himalayas; and the remaining six genera (the major genera) all occur widely in the Northern Hemisphere. The family ranges from warm temperate climates to the limit of tree growth above the Arctic Circle, from permanently water-saturated soils to well-drained soils, and from sea level to alpine habitats up to 4800 m above sea level in eastern Tibet. The seeds of pines are primary components of the diets of many species of birds, squirrels, chipmunks, and other rodents. Members of the family provide cover for many wildlife species and are important in watershed protection.

Genera/species: 10/220. *Major genera:* *Pinus* (100 spp.), *Abies* (40), *Picea* (40), *Larix* (10), *Tsuga* (10), and *Pseudotsuga* (ca. 5).

Economic plants and products: Pinaceae are one of the leading sources of timber in the world. The wood of pines (*Pinus*), Douglas firs (*Pseudotsuga*), spruces (*Picea*), hemlocks (*Tsuga*), larches (*Larix*), and firs (*Abies*) is used extensively for construction, pulp for paper production, fenceposts, telephone poles, furniture, interior trim for houses, musical instruments, woodenware, and numerous other purposes. Pines, spruces, hemlocks, cedars (*Cedrus*), Douglas firs, and firs are used extensively as ornamentals, and hundreds of cultivars have been developed in many of the species of these genera. Pine "nuts," the more or less wingless seeds of piñon pines of southwestern North America, were a staple of native North Americans. These seeds and those of some Old World groups of pines are now a gourmet food. Rosin and turpentine are extracted from various species of pines.

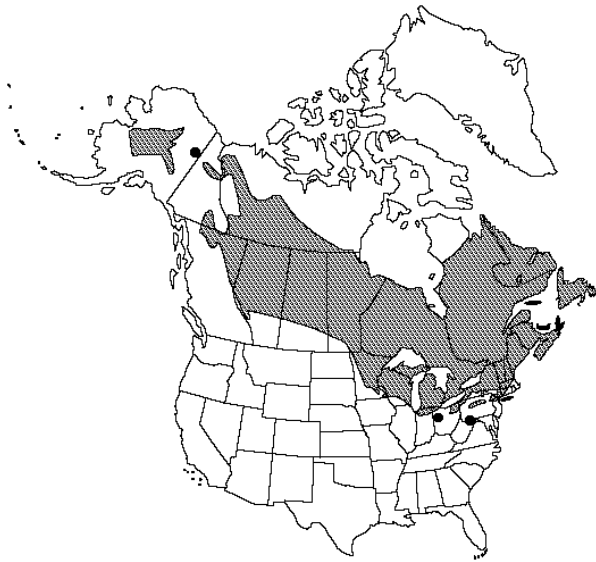
- Trees (except *Juniperus*) .
- Needle-like alternate leaves.
- Cones with spirally arranged, flattened, bract like complexes.
- Seeds with long terminal wing.
- Branches whorled or opposite.

Boreal and Arctic Alaska
genera: *Picea*, *Larix*, *Pinus*,
Juniperus,

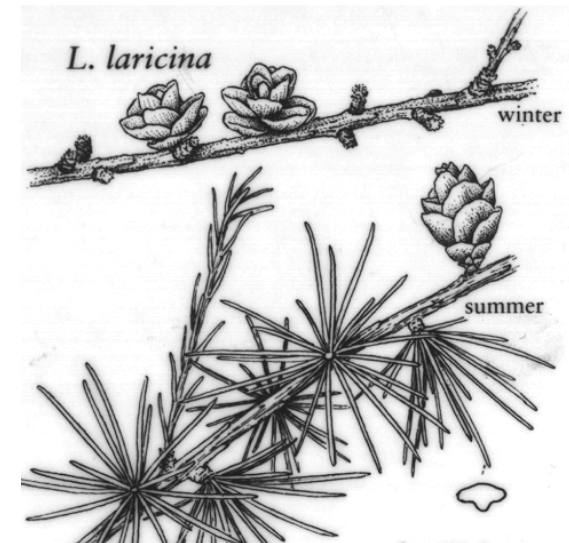
Larix laricina

Family: Pinaceae

Common name:
Tamarack



http://www.canadianbiodiversity.mcgill.ca/english/species/plants/plantpages/lar_lar.htm



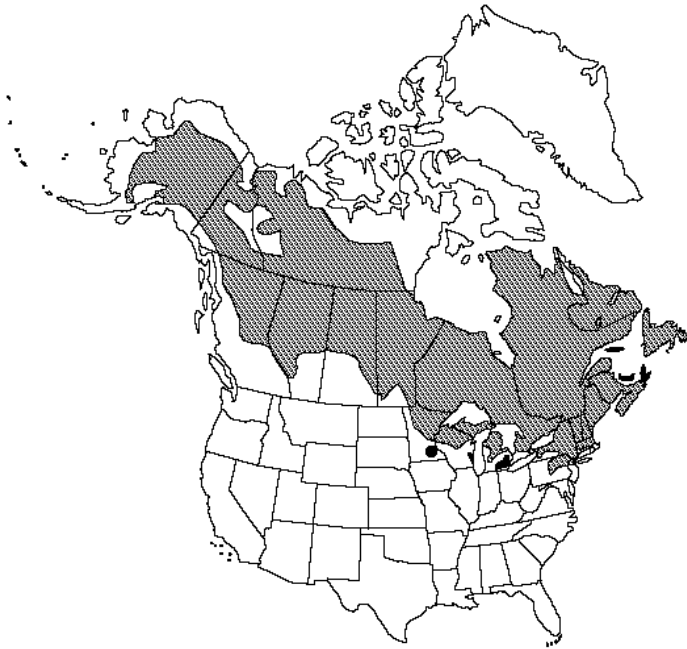
- Deciduous needle leaves.
- Small rounded cones 1-2 cm x 0.5-1.0 cm
- Mostly, wet, poorly drained habitats, but can occur on uplands.

Family: Pinaceae

Common name:

Black Spruce

Picea mariana (slide 1/2)



http://www.canadianbiodiversity.mcgill.ca/english/species/plants/plantpages/pic_mar.htm

- Spire-shaped small trees (sometimes very stunted elfin forests in mires) with little taper to crown.
- Small rounded cones 1.5-3 cm x 0.5-1.0 cm, often clustered in masses near top of crown, persisting for many years.
- Mostly, wet, poorly drained habitats, but can occur on uplands.



<http://www.borealforest.org/trees/tree7.htm>

Picea mariana (slide 2/2)



Evergreen needle leaves, whitish stomates on all surfaces.

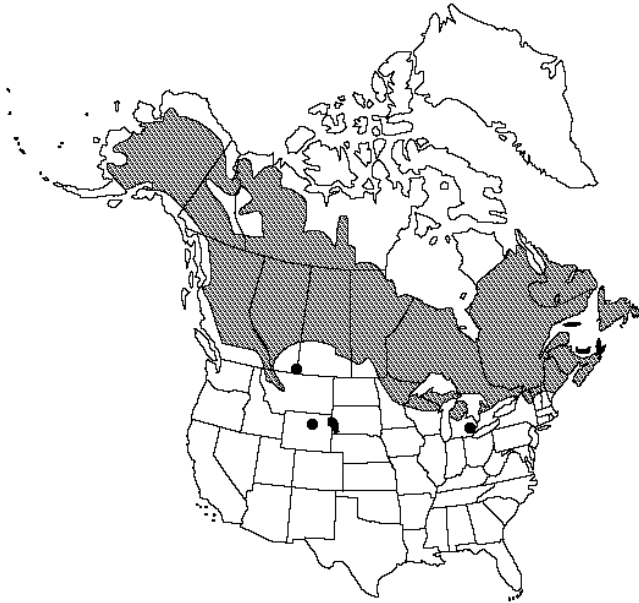
**Reddish to blackish hairs along new stems between needles.



Family: Pinaceae

Common name: White Spruce

Picea glauca (slide 1/2)



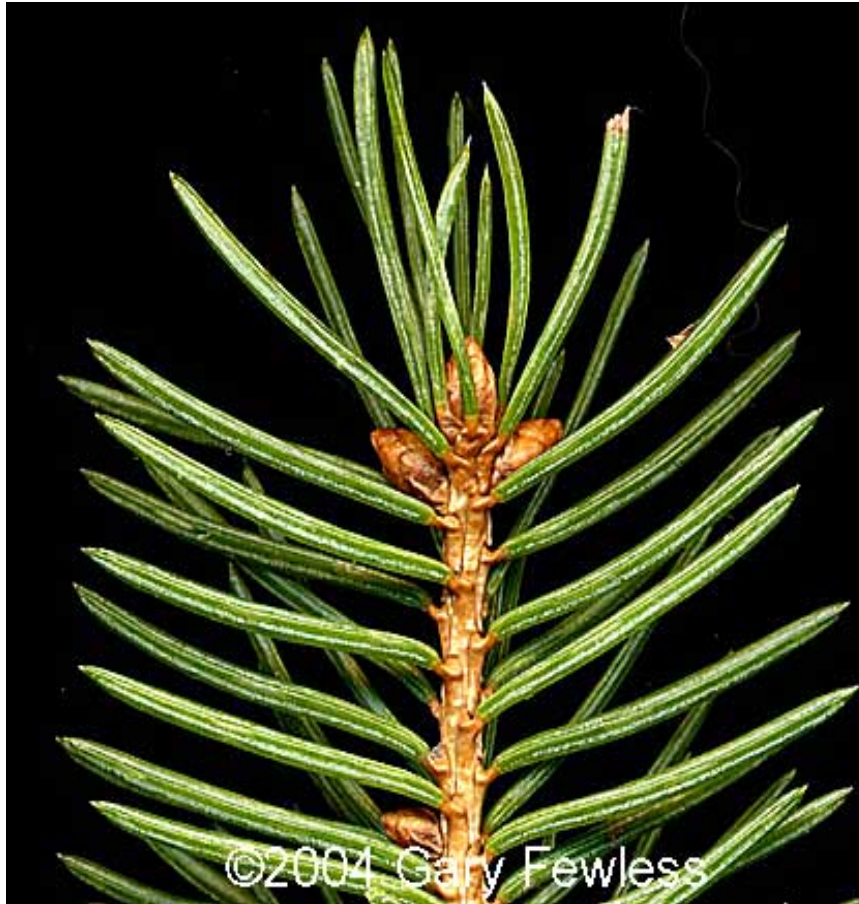
[http://www.efloras.org/
object_page.aspx?
object_id=6604&flora_id=1](http://www.efloras.org/object_page.aspx?object_id=6604&flora_id=1)

- Spire-shaped trees (sometimes very stunted elfin forests in mires) with little taper to crown.
- Cones elliptical, 2.5 to 6 cm long, more papery scales than *P. mariana*.
- Mostly better drained habitats, along streams, and near treeline.

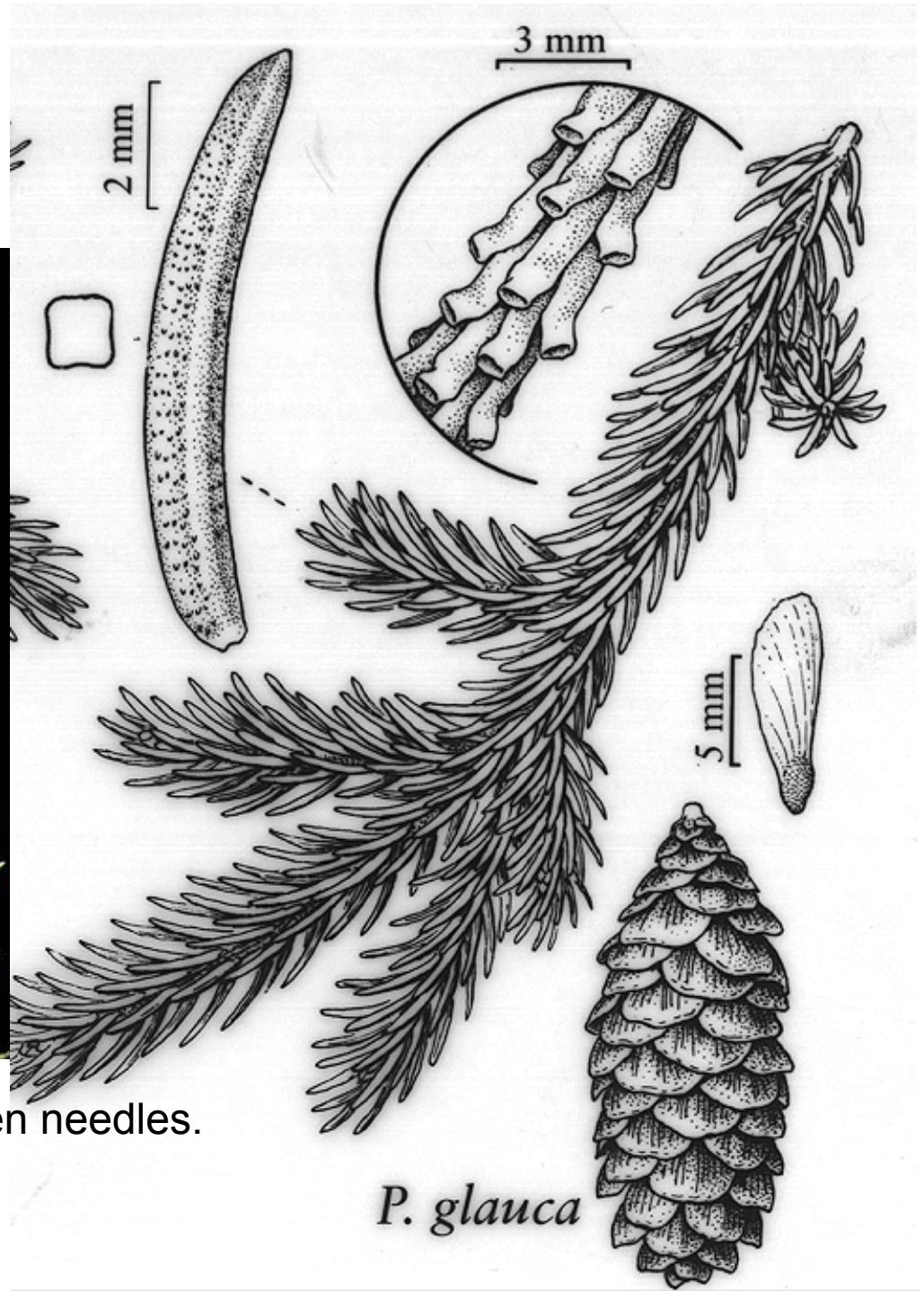


Picea glauca

(slide 2/2)



- Smooth new stems, no hairs between needles.



BETULACEAE Birch Family
Order Fagales

Trees and shrubs with a primarily northern hemisphere distribution. Form a significant element in boreal and temperate forests; often in the early successional stages after fire or other disturbance.

Simple, serrated, stipulate leaves are alternately arranged and often oval or ovate in outline. Reduced, unisexual flowers are arranged in pistillate and staminate catkins which are found on the same plant (all species are monoecious), and often clustered together. There are no nectaries and pollen is dispersed by wind. Flowering is often precocious. Individual flowers may consist of a few small tepals or bracteoles, or a single subtending bract or scale, and either 2 fused inferior carpels or 1-4 stamens. Infructescence in *Alnus* is a small, woody cone-like structure. Fruit is tiny samaras or nutlets which may persist on the 'cone' into winter.

Both *Alnus* and *Betula* are well-defended chemically against herbivory. Alder is an important N-fixer in early successional stages. Frequent hybridization in birch often confounds determination efforts.

New terms: samara, bracteole, infructescence, 'amentiferae'

Betula (birch), *Alnus* (alder)



Betulaceae Family Characteristics

- Trees and shrubs.
- Simple, serrated leaves.
- Unisexual flowers. Both males and females on same plant (monoecious).
- Precocious (early spring) flowering.
- Well-defended chemically against herbivory.
- Genera: *Betula*, *Alnus*

Family: Betulaceae ***Alnus viridis (A. viridis ssp. fruticosa)***

Common name:
Mountain Alder



Tall spreading shrub, 3-8 m tall (less in Arctic),
Bark: Often reddish or greyish.

Flowers; In dense clusters, small pale yellow.

Fruit: Samaras (nut-like cones) 2-3 cm long, with stalks.

Leaves: Opposite, simple, coarsely and irregularly toothed, prominent veins.

Habitat: Well drained, moist soils, along creeks, or dense shrublands near treeline, also alder savannas in areas of frost boils.



Alder savannas and relationship to patterned ground



Colonizing



Mature

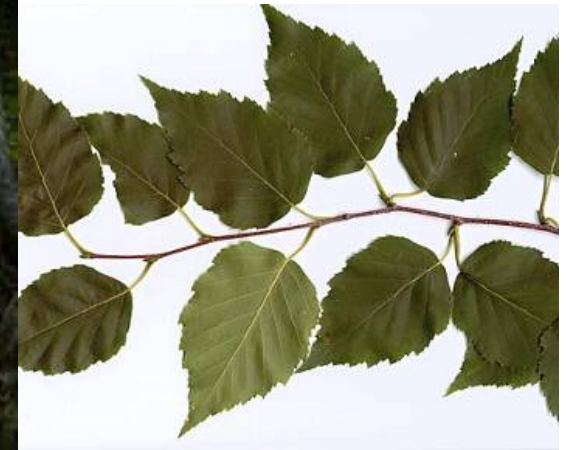


Over mature: Paludified

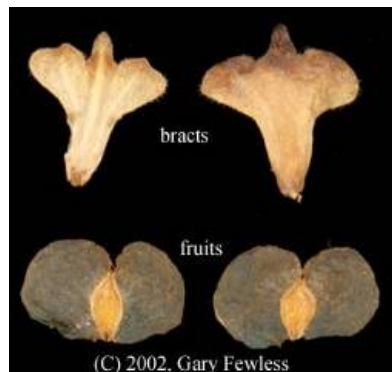
Photos from Kharp, and Obskaya, Polar Urals, Russia. Courtesy of JJ Frost. Submitted 2012 to ERL.

Family: Betulaceae
Common name:
Paper Birch

Betula neoalaskana (= *B. papyrifera* in Hulten 1968)



©2008 Will Cook www.public.iastate.edu/~bot356/species/species/a_eSpecie/BetuPapy.html



- White bark exfoliates into paper-thin sheets. Extremely waterproof (used for canoes).
- Seeds and bracts disperse all winter.

SALICACEAE Willow Family
Order Salicales

Trees and shrubs, predominantly of north temperate areas. Tree and tall shrub species are significant elements in riparian habitats for both succession after natural disturbance and for wildlife habitat and forage. In alpine and arctic habitats, dwarf shrub species are very common.

Simple, stipulate (bearing stipules) leaves alternately arranged on woody stems. Flowers are minute, unisexual, reduced, and arranged in catkins which often emerge before the leaves (our pussy willows!). Flowers consist of either a superior pistil (1-2 carpels), or of 2 or more stamens, and each reduced flower is subtended by a single, small, ciliate and/or pubescent bract. In *Salix* there are one or two nectary glands at the base of each flower which produce nectar and scent to attract insects, facilitating pollination. *Salix* also has a single bud scale; often diagnostic for winter twig identification. *Populus* has no nectaries, has several bud scales, and the buds often exude balsam, a fragrant, sticky substance that is a harbinger for spring in interior Alaska. Capsules open to release numerous tiny seeds having a tuft of hairs for wind dispersal. All species are dioecious, having staminate and pistillate catkins borne on separate plants.

Uses include lumber, ornamentals, revegetation, and medicinal (balsam and salicylic acid). *Salix* is a taxonomically difficult group, having both known and suspected hybridization, and displaying extreme morphological variation in response to habitat, disturbance, and browsing. Collecting pistillate catkins and recording plant height greatly facilitates identification later.

New terms: aments, bracts, precocious.

Salix (willows), *Populus* (cottonwood and aspen).



Salicaceae family characteristics

- Trees and shrubs.
- Male and female flowers on separate plants (dioecious), pedunculate, borne in catkins.
- Fruits: small 2-valved, dry capsule.
- Alternately arranged.
- Alaska genera: *Populus*, *Salix*

Family: Salicaceae

Common name:
Balsam Poplar

Populus balsamifera (1/2)



http://www.cnr.vt.edu/dendro/dendrology/fall/biglist_frame.cfm

- Medium to large deciduous trees.
- Buds resinous with balsam, fragrant (vanilla like) with numerous bud scales.
- Course brown bark near base of tree, smoother toward top.

Populus balsamifera (slide 2/2)



[http://www.essencesonline.com/
Alaskan_flowerkit.htm](http://www.essencesonline.com/Alaskan_flowerkit.htm)

- Male and female catkins on separate trees (dioecious), pedunculate.
- Fruits: small 2-valved dry capsule, with many cottony seeds.
- Leaves finely toothed, deltoid, shiny dark green.

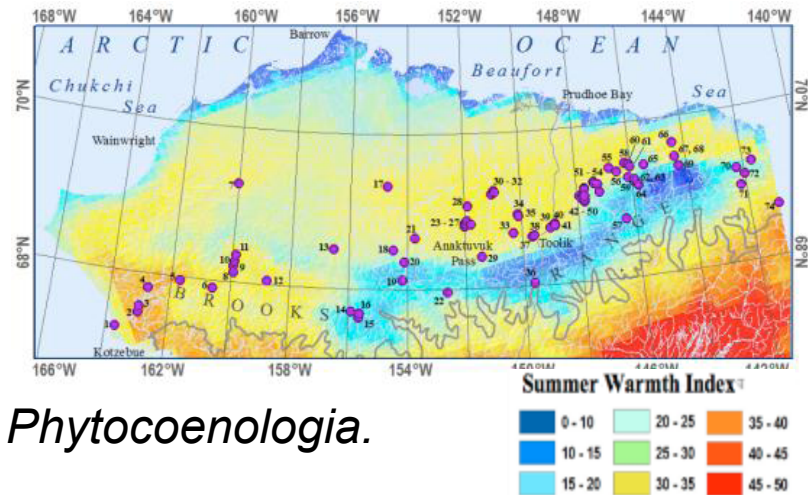


Foto: Anna-Lena Anderberg

Populus balsamifera in the Arctic Alaska



- Distributed mainly near perennial springs, south facing slopes along rivers in warm valleys near the Brooks Range.



Courtesy of Amy Breen, Submitted 2011 to *Phytocoenologia*.

Family: Salicaceae

Common name:

Quaking Aspen

Populus tremuloides (slide1/2)

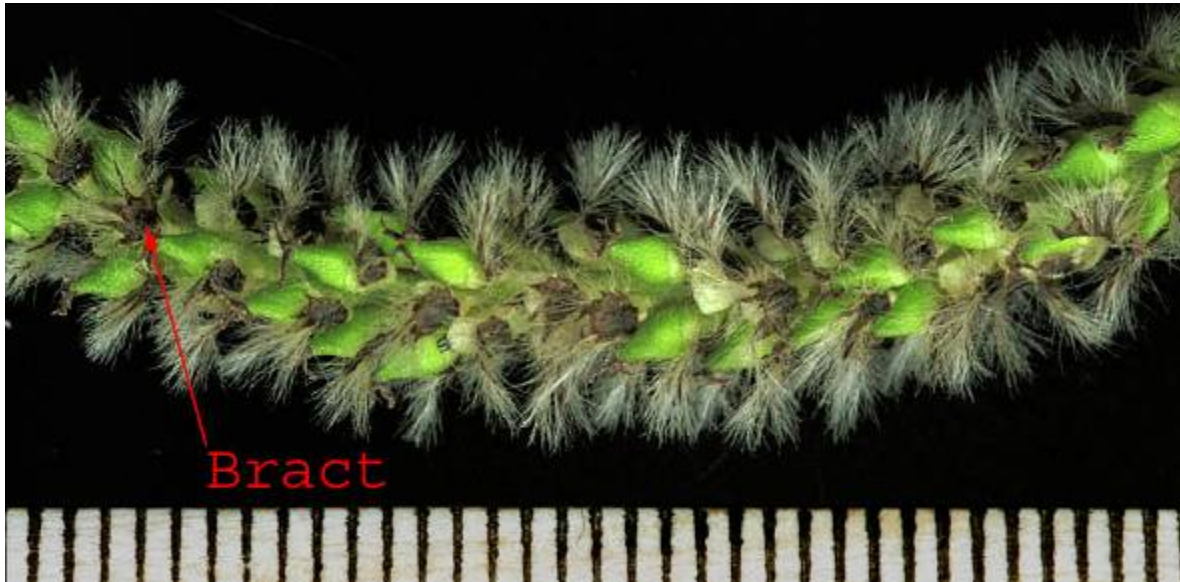


Whitish to gray non papery bark, curved scars, black knots.

Leaves round with short point, with slender flattened petioles, that tremble with slightest breeze. Small rounded teeth,

Habitats: South facing well drained soils with no permafrost, to treeline in the Brooks Range. Often follows fire and persists for 80-100 years. Often propagates from root suckers.

Populus tremuloides (slide 2/2)



http://www.colinherb.com/Salicaceae/Populus/Tremuloides/Populus_tremuloides.htm

Flower cluster in long drooping catkins, flowers before the leaves appear in May.

Fruits are capsules, nearly stalkless, 2 parted, with many tiny cottony seeds.



Family: Salicaceae

Common name:
Feltleaf Willow

Salix alaxensis



<http://nature.ca/aaflora/images/b0651054.jpg>



<http://www.mun.ca/biology/delta/arcticf/sal/www/wlslal.htm>

Tall shrub: 100-400 cm (up to 700 cm), one of the tallest growing willows in the Arctic.

Branches: Dense villous branchlets.

Flowers: Precocious, flowers before leaves form in early spring

Leaves: White very dense hairs (felty) on underside. Blade margins revolute.

Habitat: Streamsides, sand dunes. Very common early colonizer, calcareous soils.

Favorite moose and caribou browse.

Distribution: Broadly amphi-Beringian, from Taimyr in Russia to Hudson Bay Canada.

Salix arbusculoides

Family: Salicaceae

Common name:
Littletree Willow



<http://www.flora.dempstercountry.org/V.A.2.Salicaceae/Salix.arbus/Salix.arbus.pic1.jpg>

Often tall shrub, Up to 8 m.

Reddish stems on older shoots. Yellowish brown when young.

Leaves: Narrow elliptical lanceolate. Short pointed both ends. Shallowly dentate, all around the blade. Margins of leaves glandular.

Flowers: Precocious, before leaves.

Capsules: small, thin silvery, hairy. Ripen early

Habitat: Mostly in the forest and along streams in the Interior of Alaska, to treeline, not a common tundra species, but grows along some streams in the Arctic.

Common successional species following fires in black spruce.

Family: Salicaceae

Common name:
Bebb Willow

Salix bebbiana (slide 1/2)



Tall shrub: Multi-stemmed shrub or small tree 200-600 cm (up to 700 cm)

Flowers: Flowers on short leafy stalks before or with leaves.

Seed capsules: long "beak" very slender.

Leaves: Net of veins usually evident Slightly saw-toothed.

Dull green. Whitish or dull green, hairy beneath.

Habitat: , one of the commonest willows in Fairbanks forests.

Common in black spruce and white spruce forests. Strongly broken ranches by winter snow. Favorite moose and caribou browse.



Salix bebbiana, North Campus Lands, UAF.

D.A. Walker

Salix bebbiana (slide 2/2)



<http://www.cnr.vt.edu/dendro/dendrology/Syllabus2/factsheet.cfm?ID=691>



Salix bebbiana, North Campus Lands, UAF.

D.A. Walker

Salix interior

Family: Salicaceae

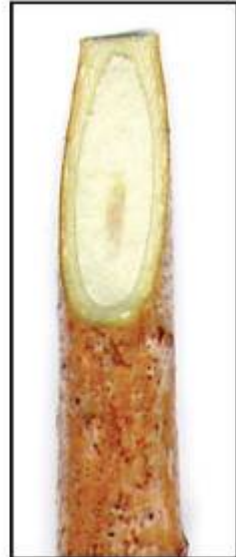
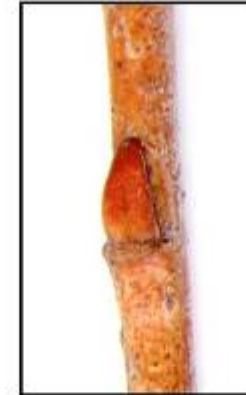
Common name: Sandbar Willow



<http://w3.vhc.edu/external/bio/plantdatabase.html>



http://www.public.iastate.edu/~bot356/species/species/p_tSpecie/SaliInte.html



Tall (up to 6 m) riparian willow.

Stems: Multiple from base, long, erect, often unbranched.

Leaves: Long and narrow, with shallow, widely spaced teeth.

Common colonizer along the Tanana and interior rivers, but uncommon in later stages.

Salix interior



http://www.missouriplants.com/Catkins/Salix_interior_page.html

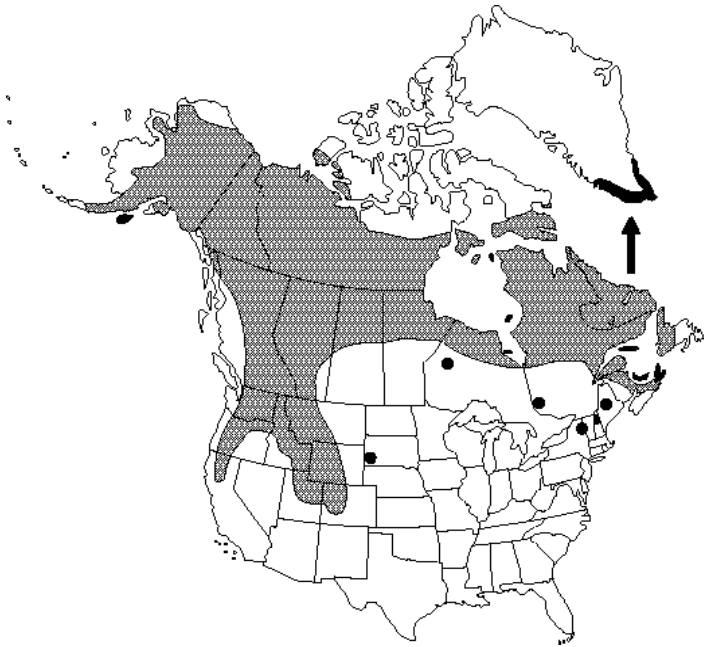
Low Shrubs

40-200cm tall

Betula glandulosa (slide1/2)

Family: Betulaceae

Common name: Shrub Birch



http://www.canadianbiodiversity.mcgill.ca/english/species/plants/plantpages/bet_gla.htm



<http://ww1.clunet.edu/cr/foot/family/fhl-946.htm>

Betula glandulosa (slide 2/2)



http://forestis.rsvs.ulaval.ca/BOIS_HTML_2001_X/%20Labo%20Magnoliophytes%20HTML%20X/Betula%20glandulosa%20HTML%20X/Betula%20glandulosa.html



Graham Stark

Salix lanata (slide 1/2)

Family: Salicaceae

Common name: Richardson willow



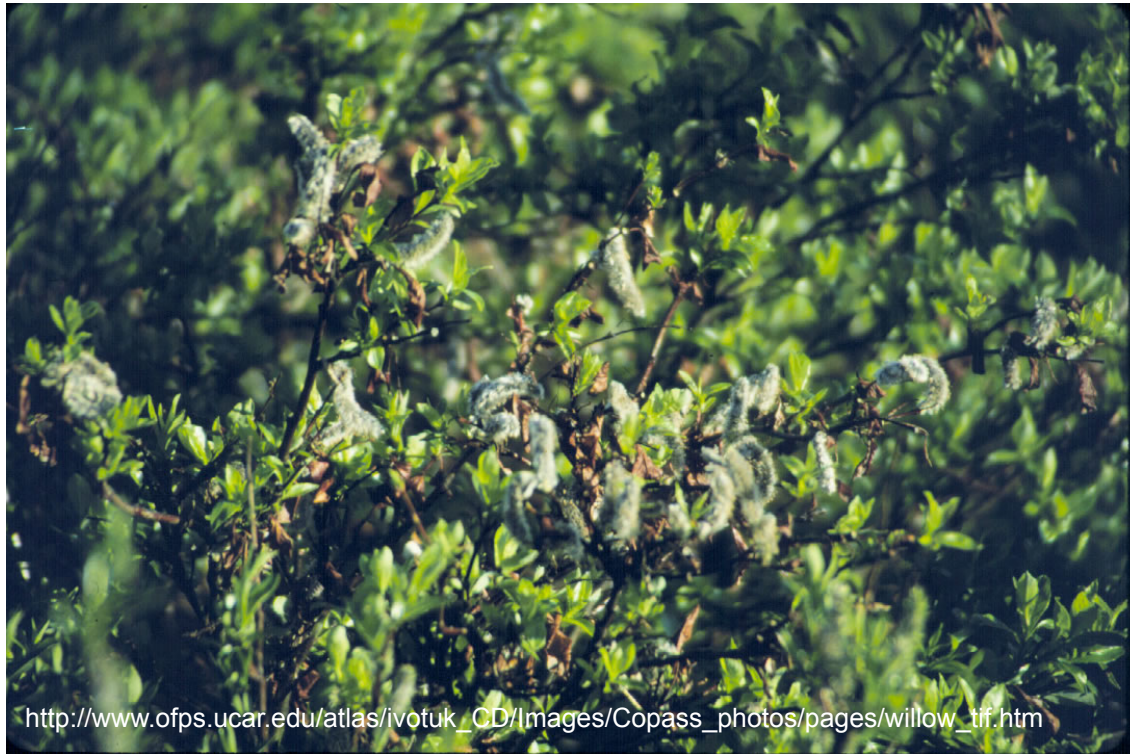
Salix lanata (slide 2/2)



Salix pulchra

Family: Salicaceae

Common name: Diamondleaf Willow



<http://www.mun.ca/biology/delta/arcticf/sal/www/wlsapu.htm>

Salix glauca (slide 1/2)

Family: Salicaceae

Common name: Glaucous Willow



<http://www.finn-j.dk/flora-groenlandica/dicotyledones/salix/glauca-3.html>

Salix glauca (slide 2/2)



Viburnum edule

Family: Caprifoliaceae

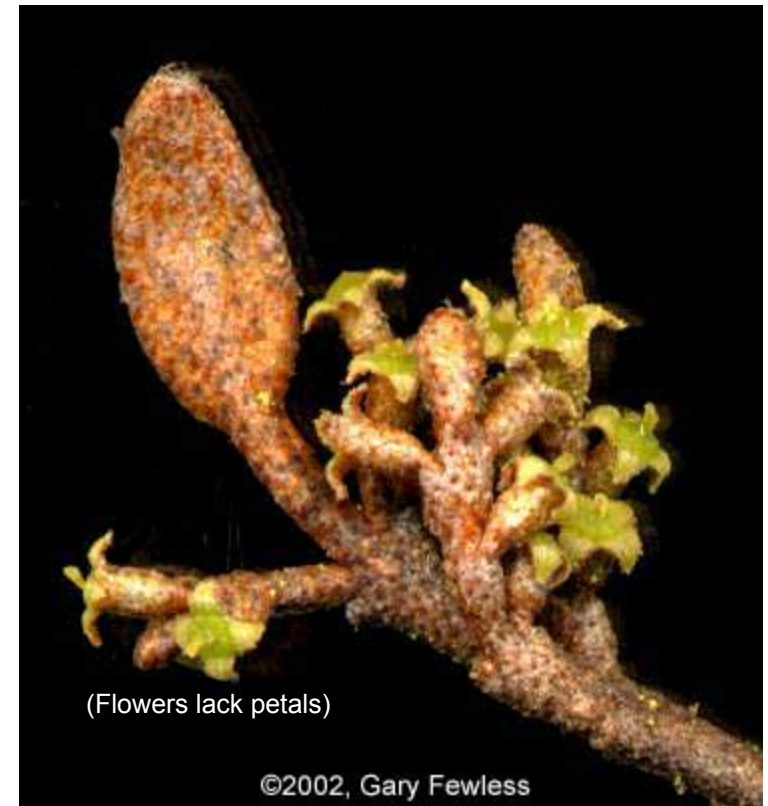
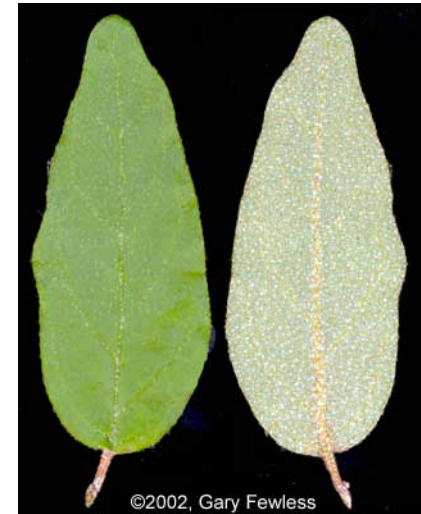
Common name: Highbush Cranberry



Shepherdia canadensis

Family: Elaeagnaceae

Common name: Soapberry, Buffaloberry



Ribes triste (slide 1/2)

Family: Grossulariaceae (Saxifragaceae)
Common name: Northern Red Current



Ribes triste (slide 2/2)



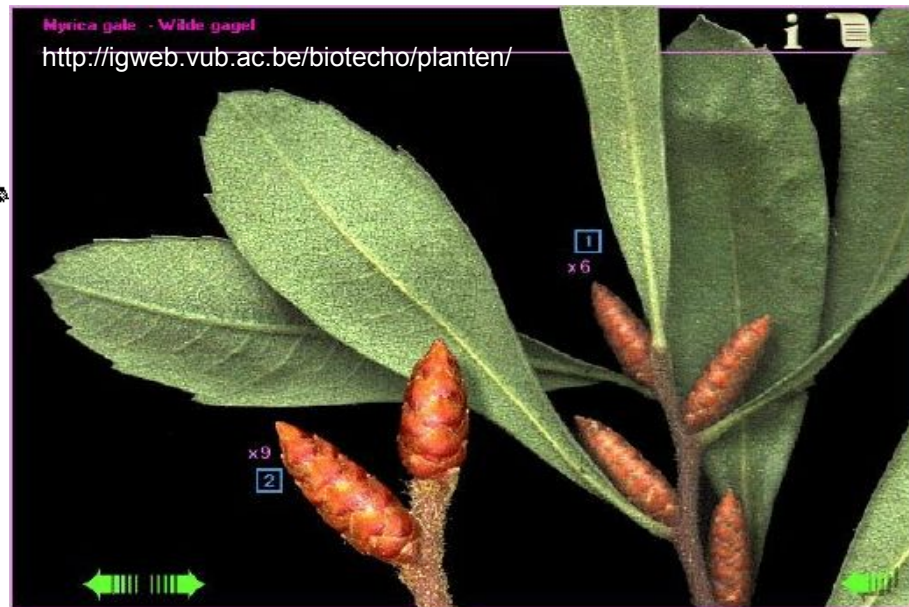
Myrica gale (slide 1/2)

Family: Myricaceae

Common name: Sweet Gale



http://www.canadianbiodiversity.mcgill.ca/english/species/plants/plantpages/myr_gal.htm



Myrica gale (slide 2/2)



<http://www.cnr.vt.edu/dendro/dendrology/syllabus/factsheet.cfm?ID=436>

ROSACEAE (Rose Family)
Order Rosales

Large worldwide family, centered in northern hemisphere. Very diverse and well represented in Alaska. Includes plants of economic value (apples, almonds, etc.) and ornamentals (roses, burnet).

Trees, shrub, and herbs. Leaves are stipulate, alternate, and quite variable in shape and dissection. Flowers are perfect, actinomorphic, and variously arranged. Perianth usually 5-merous; 5 sepals are fused at their base and often subtended by an epicalyx, the 5 or more petals are distinct and may be clawed. Carpels 1 to many and either superior or inferior. Anthers 5 to numerous. All floral parts are attached to a hypanthium which ranges from a flat disk to an urn-shaped container, depending on species, and/or the stage of fruit development. Fruits are also variable, and include achenes, drupes, pomes, and aggregates. Most species are insect pollinated, having showy flowers with nectar and abundant pollen available. Some taxa are selfing, apomictic, or frequently hybridize...causing much taxonomic grief!

Rubus (cloud berry, salmon berry), *Potentilla* (cinquefoils, silver weeds), *Sibbaldia*, *Geum*, *Sanguisorba* (burnet), *Rosa* (wild rose), *Dryas* (mountain avens), *Spiraea*, *Amelanchier*, *Sorbus*, *Luetka*, *Chamaerhodos*, *Aruncus*, *Fragaria*, and a few more.

Terms: drupelet, achene, epicalyx, hypanthium/receptacle, hip.



Rosaceae Family Characteristics

- Very variable family!
- Growth forms: Highly variable, trees, shrubs, herbs.
- Leaves often serrate.
- Flowers: 5-merous, 5 sepals, many spirally arranged stamens.
- All flower parts fused at base into a hypanthium.
- Fruits: Highly variable (achenes, drupes (plums), hips (rose), pomes (apple), nuts (almonds), and aggregates (strawberry, raspberry)).
- Many showy flowers and edible fruits.

Potentilla fruticosa (*Pentaphylloides floribunda*)

Family: Rosaceae

Common name: Shrubby Cinquefoil



<http://www.swcoloradowildflowers.com/Yellow%20Enlarged%20Photo%20Pages/dasiphora%20floribunda.htm>



<http://www.cnr.vt.edu/dendro/dendrology/carddetail.cfm?>

Genus=Dasiphora&Species=floribunda



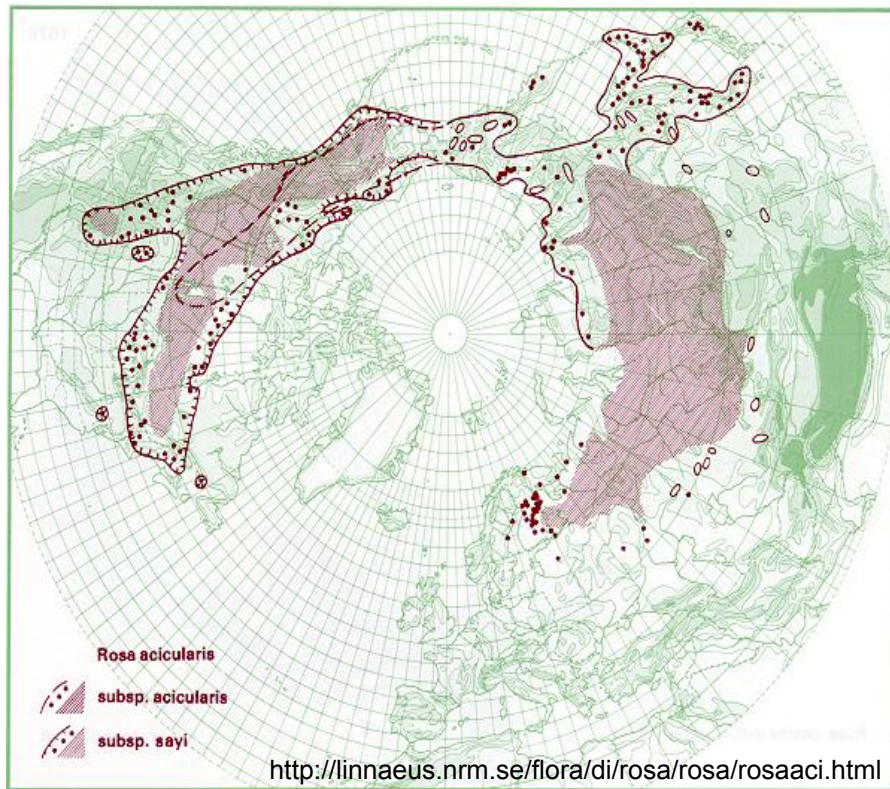
http://www.missouriplants.com/Yellowalt/Potentilla_fruticosa_page.html



Rosa acicularis (slide 1/2)

Family: Rosaceae

Common name: Prickly Rose



Rosa acicularis (slide 2/2)



<http://hortiplex.gardenweb.com/plants/p1/gw1034954.html>



http://www.colinherb.com/Rosaceae/Rosa/Acicularis/Rosa_acicularis.htm

Rubus idaeus

Family: Rosaceae

Common name: American Red Raspberry



<http://www.phytochemicals.info/plants/raspberry.php>



<http://www.uni-graz.at/~oberma/baum-dias/rubus-idaeus.htm>



<http://www.uni-graz.at/~oberma/baum-dias/rubus-idaeus>

Spiraea beauverdiana

Family: Rosaceae

Common name: Beauverd spirea

