

## Betulaceae

### Birch Family

Betulaceae is a family of trees and shrubs included in six genera; four of which contain species native to Nova Scotia. Mostly ranging throughout the northern hemisphere, 120 species are found worldwide, generally in temperate climates. Flowers are unisexual; species are monoecious. Staminate catkins are pendulous; pistillate catkins are erect or pendulous, usually firm and often woody. Petals are lacking; sepals tend to be tiny. Fruit is a samara or a nut with a single seed. Leaves are simple, alternate and mostly serrate. Venation is straight and pinnate.

#### Key to species

- A. Bark of older twigs and trunk without lenticels; fruit not winged, enclosed in an involucre. B
- B. Shrub, wiry with creeping stems; mature fruits 1–2 nuts, 1cm thick, the involucre long-beaked, bristly when immature; leaves with 5–8 pairs of veins, doubly serrate; winter buds velutinous, ovate. *Corylus*
  - bb. Small tree; nutlets enclosed in a loose sac; leaves with 9 or more pairs of veins, merely serrate; winter buds dark brown. *Ostrya*
- aa. Bark of twigs with elongated lenticels; fruit small, exposed in the axils of the scales, winged. C
- C. Scales of pistillate catkins, thin and papery, deciduous, usually 3 lobed; bark of mature specimens white to yellowish, often peeling; stamens 2; fruit a tiny samara, with thin wings. *Betula*
  - cc. Scales of pistillate catkins woody, 3–5 lobed at the tip, persistent; bark not white nor yellowish, never peeling; stamens 4; tiny nuts with thick wings. *Alnus*

### ***Alnus* Miller**

#### **alder**

Three of 30 species of alders are found in NS. They are very common shrubs especially in wet fertile zones, where drainage is imperfect. As pioneer species, they colonize fallow fields during early succession.

Pendulous, staminate catkins flower in early spring. Pistillate cones are erect, becoming woody and persisting, unlike the birch catkins.

Key to species

- A. Buds sessile; leaves with 6–8 pairs of main veins; pistillate catkins enclosed in the bud during the winter, opening the following summer. *Alnus viridis*
- aa. Buds stalked; leaves with 8–11 pairs of veins; pistillate catkins exposed over winter, opening on old growth later. B
- B. Leaves round or cordate at the base, doubly serrate; mature leaves glaucous below and with prominent cross-veins between the main veins. *A. incana*
- bb. Leaves wedge-shaped at the base, or only slightly rounded, almost evenly serrate, greenish below at maturity and finely reticulated with only weak cross-veins. *A. serrulata*

*Alnus glutinosa* (L.) Gaertn. has been introduced in Yarmouth. It is reported to be escaping around Dennis Pond there, and in the gardens at Acadia University. To date no further records have been received of this European species in NS. The leaves of this species are fan-shaped in outline, each vein ends in a tooth. The apices are retuse.

***Alnus incana* (L.) Moench**  
**Speckled Alder; aulne rugueux**



Photo by David Mazerolle (staminate)

Highly variable in terms of pubescence, make it easier to use flower and bud characters to separate it from Downy Alder. Both new buds and the staminate catkins are pedicellate in this species. Additionally the leaf venation is more profuse here than in the other species. Our subspecies is separated from the typical subspecies which is strictly European, as ssp. *rugosa* (DuRoi) Clausen. Var. *americana* (Regel) Fern. is no longer recognized.

Staminate catkins flower from March until May, earlier than in the Downy Alder.

On low-lying ground in alluvial soils.

Common throughout NS.

NS to MB, south to IL and PA.

***Alnus serrulata* (Ait.) Willd.**

**aulne tendre**



Photo by David Mazerolle

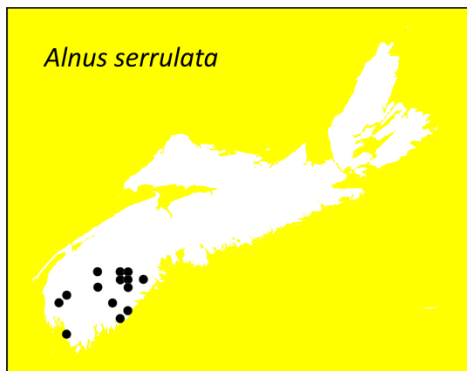


Photo by Sean Blaney

Leaves are obovate, unlike the other two common species. The buds are on short petioles.

Flowers appear from February to May throughout its range. No phenology data exists for NS material.

Lakeshores. Uncommon and local in southwestern NS from Lunenburg Co.

NS to QC, south to FL and TX.

STATUS: YELLOW-listed in NS.

Forms hybrids in the southwest with *A. incana*. These have intermediate abaxial venation of the leaves, to the parent species.

***Alnus viridis* (Villars) Lam.**

**Downy Alder; aulne crispé**



Tall shrubs, they have ovate to elliptic leaves which are finely serrate on the margins. New buds in the leaf axils are sessile. Catkins are carried on the terminal ends of the branches. Staminate catkins are long and pendulous while the pistillate catkins are ovate or globose, remaining enclosed until spring. Ours are placed in the ssp. *crispa* (Ait.) Turrill separate from the European ssp. *viridis*.

Flowers from June to August.

Grows best on imperfectly drained soils of coastal headlands, seashores and barrens. On heavier soils in abandoned pastures.

Common throughout.

NF to AK, south to BC, WI and PA; disjunct in NC and TN; Eurasia.

## ***Betula* L.**

### **Birches**

Extensive hybridization amongst these north-temperate species makes it difficult to assign an exact number of species. There are approximately 50 species; seven species in three groupings extend their range to NS. We have Yellow Birch, White Birch and its relatives and the shrubby dwarf birches.

The trees are marked by long horizontal lenticels, noticeably different in colour from the bark. Birch bark is thin and papery becoming rough and leathery with age. Young branches are marked by spurs; the terminal bud is absent. Leaves are alternate and simple, with serrate margins. Staminate catkins are tassel-like appearing with the pistillate flowers in spring. Fruits are conelike with trilobed scales enclosing the tiny samaras, which are released later in spring.

#### Key to species

- A. Leaves with 9–11 pairs of veins; pistillate catkins ovate and sessile; bracts persistent; bark yellowish. *Betula alleghaniensis*
- aa. Leaves with 7 or fewer pairs of veins; pistillate catkins cylindrical, stalked; bracts quickly deciduous; bark not yellow. B
- B. Erect trees; leaves mostly > 5 cm, acuminate. C
  - C. Bark chalky, ashy or grey, not flaking off in layers; twigs slender and wiry; staminate catkins carried singly; pistillate catkins 1.3–3cm; leaves long-acuminate. *B. populifolia*
  - cc. Bark silky or lustrous, white to cream to pinkish, flaking in layers; staminate catkins >1 per cluster; pistillate catkins 3–6.5cm long; leaves acuminate. *B. papyrifera*
- bb. Shrubs, dwarfed; bark dark and tight; leaves round or ovate, < 3cm long. D

D. Leaves fan-shaped, sessile; nutlets wingless; shrubs < 1m tall.

*B. michauxii*

dd. Leaves globose or elliptical on sort petioles; nutlets winged; 1–4m tall.

E

E. Twigs and young leaves with resin glands; leaves green upper and lower surfaces.

*B. glandulosa*

ee. Twigs and young leaves without resin glands; leaves whitish on the lower surfaces.

*B. pumila*

***Betula alleghaniensis* Britt.**

**Yellow Birch; bouleau jaune; mnoqon**



Photo by Sean Blaney

Leaves are ovate or oblong, sharply pointed at the summit and with serrate margins. Petiolate, the petioles are puberulent. Pistillate catkins are ovate, 2–3cm in length. Twigs are shiny brown, and have a wintergreen scent when broken.

Flowers in May and June.

Often dominant in riparian areas, but tolerant of a variety of soils, from moist lowlands to dryer slopes.



Photo by Alain Belliveau

Scattered throughout southwestern counties. Common to prevalent in the deciduous forests eastward. In Cape Breton, found at higher elevations (330m) than Sugar Maple.

Elsewhere ranges from NF to ON south to GA.



Photo by Sean Blaney

***Betula glandulosa* Michx.**

**Dwarf Birch; bouleau glanduleux**



Photo by Sean Blaney



A dwarf species, it is larger than the following species, but less than 4m in height. Petiolate leaves are a shiny green. Twigs are covered by sessile glands.

Flowers from June to August.

Favours acidic soils in arctic conditions.

Higher elevations in northern Cape Breton. So far known only from the margin of Twin Island Lake (Two Island Lake) in the Ingonish Barrens, at 500m.

Ranges across the continent south to the mountains of CA, CO and NY.

STATUS: ORANGE-listed for NS.

***Betula michauxii* Spach**

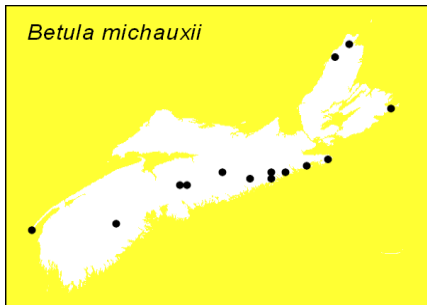
**Dwarf Birch; bouleaux de Michaux**



*Photo by Sean Blaney*



*Photo by Sean Blaney*



A dwarf species, it has small sessile leaves clustered on the stems. Leaves are fan-shaped and scalloped at the summit, rarely exceeding 1cm in length. Plants form neat rounded colonies where competition from taller shrubs is low.

Later flowering than many, in July and August.

Limited to peat bogs.

Scattered localities from Brier Island, Digby Co., east to Guysborough, Cape Breton and Inverness counties.

NF, NS and QC.

STATUS: YELLOW-listed. Of conservation concern.

***Betula papyrifera* Marshall****Paper Birch; bouleau à papier; masgwi***Photo by Sean Blaney*

Easy to identify on the basis of its peeling white papery bark when mature, but with variable leaves, bark and catkins. Generally the serrate leaves are ovate, tapering to a petiole. Historically three varieties were recognized as present in NS, var. *pensilis* Fern., var. *macrostachya* and var. *commutata* (Regel) Fern. These are now included in the typical variety.

*Betula cordifolia* is now considered to be a variety, as var. *cordifolia* (Regel.) Fern. The leaves are heart-shaped in outline abruptly tapering to a point.

Successional forests, especially on slopes. Frequent after fires and other disturbances, but a pretty short-lived tree.

Common throughout NS.

NL to AK, south to OR, CO and NC.

***Betula populifolia* Marshall****Wire Birch; Gray Birch; bouleau gris***Photo by Marian Munro*

A small tree, it has doubly serrate leaves, tapering to a long, narrow point. Generally it is smaller than *B. papyrifera*. Its bark does not peel nor flake. Catkins are short, erect, ovate or cylindrical and borne on short pedicels. Staminate catkins are carried singly.

Flowers mid-April and May.

Found on light soils as in pastures and barrens. Considered to be an early-successional species, especially after fires.

Very common in western and central NS, less frequent eastward. Only a few Cape Breton collections.

NS to ON, south to IL and NC.



***Betula pumila* L.****Bog Birch**

Photo by David Mazerolle

A shrub its small, alternate leaves are borne on very short petioles. Nearly ovate or round and serrate, they may even be clustered. Pistillate catkins are 1–2cm long.

Other than the typical variety, two varieties are retained. Var. *renifolia* Fern., unlike the typical variety, is prostrate with round leaves, subtended by persistent white pubescence. It is found at higher altitudes than var. *pumila*. Also, var. *glandulifera* Regel is a form with larger villous leaves and is known from similar habitats.

Flowers in May and June.

Bogs and meadows amongst alders.

In NS limited to the northern plateau of Inverness and Victoria Counties. Recently found at Black River, Inverness Co., its southernmost locality in NS.

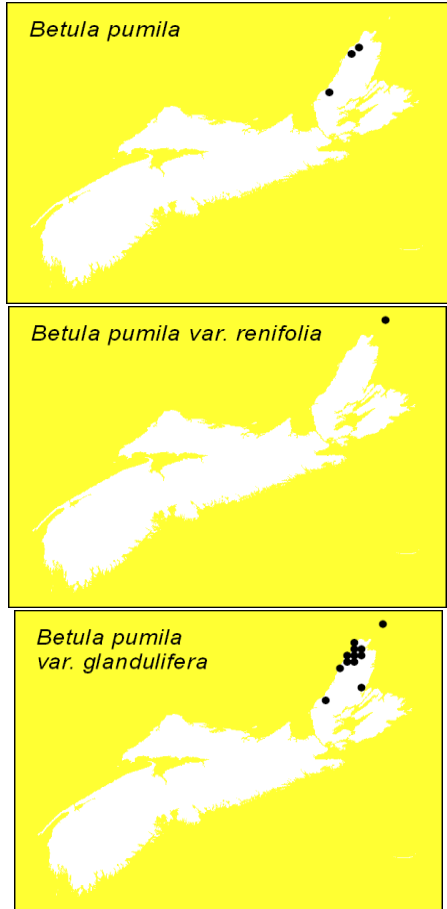
NL to AK, south to CA, KS, IL and NJ.

Several European species have been collected or reported from the province. These are probably not persisting in the wild so are not at this time considered introductions.

Hybrid birches reported from NS include *B X minor* (*B. glandulosa X papyrifera*) and *B. X dutillyi* Lepage *B. glandulosa X saxophila*). The latter has been collected from Twin Island Lake. Little study has been conducted on our birches in recent years.



Photo by Sean Blaney



## ***Corylus* L**

### **Hazelnut**

At least 10 species comprise this genus; only one is native to Nova Scotia. A tall shrub, its wiry branches bear distinctive green bristly fruits, often basally joined in pairs. Staminate catkins emerge in fall although anthesis is delayed until spring. Nuts are edible, but covered in a hard shell. Several European species are grown commercially.

***Corylus cornuta* Marshall**  
**Hazelnut; Beaked Hazelnut**



*Photo by Marian Munro*

Leaves are ovate or oblong, slightly cordate or round at the base and short-petiolate. Margins are doubly serrate, short-acuminate. Nut is ovate, bearing a long-beaked involucre, that is lobed at the tip.

Flowers early, in April and May.

Understory shrub of dry forests with open canopies, or successional or climax forests.

Found throughout the province, except in southwestern counties.

NF to BC, south to CA, WY, AL and GA.



*Photo by Sean Blaney*

***Ostrya* Scop.**  
**Ironwood**

Ten species comprise the genus; a single tree species reaches NS. Notably tough and wiry, the young twigs are reddish brown, often shiny. Serrate leaves are velutinous on the undersurface, easily distinguishing them from the birches. Staminate catkins appear in autumn, anthesis is delayed until spring. Pistillate catkins appear with the leaves. Fruit matures in fall, enclosed in a brittle papery sac, borne in pendulous clusters.

***Ostrya virginiana* (Miller) K. Koch**

**Ironwood; Hop-hornbeam; ostryer de Virginie**



*Photo by Sean Blaney*



*Photo by Martin Thomas*

Mature height approaches 20m. Its leaves are ovate, finely serrate on the margins and slightly cordate at the base. The pistillate catkins are several cm long, made up of numerous papery sacs containing the seeds. They are densely villous at the bases.

Early flowering, April to May.

In rich alluvial soils on intervals from the basaltic scree of the North Mountain to deciduous intervals.

Scattered from Annapolis County to Cape Breton. Generally uncommon in acidic regions of the Atlantic coast and southwestern parts of the province.

NS to MB, south to WY, TX and FL