



# RARE PLANTS OF NEW HAMPSHIRE

## River Birch

*Betula nigra* L.    **Synonyms:** red birch, water birch, black birch

**Birch family (Betulaceae)**

### What Does It Look Like?

A deciduous tree that in New Hampshire grows to about 15 m (50 ft.) in height. The mature bark, typical of a birch, has papery and coarse scales that peel away when the trees are mature, and large horizontal marks called lenticels that become much more prominent on older bark. The color of the bark, vaguely reminiscent of paper birch, varies widely. Various authors have described river birch bark as creamy-brown, orange-brown, salmon, rust, cinnamon-red, purplish, gray, and black, as well as many other color combinations.

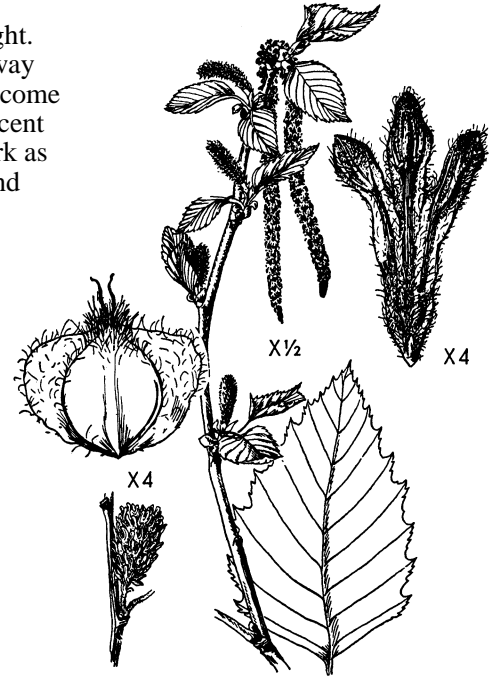
**Leaves:** Shiny green above, paler and fuzzy below, simple, alternate, and about 3.75-7.5 cm (1.5-3 in.) long. They are doubly serrate along most of the edge except for the wedge-shaped base of the leaf which is entire (not toothed).

**Flowers:** The inflorescence, called a catkin, is either a narrow dangling spike of male flowers or a conelike spike of female flowers. Male catkins are formed in the fall and mature the following April or May when they sprout and dangle from the tips of the twigs. The conelike female catkins appear with the leaves and open in early spring.

**Fruit:** The mature female catkin is about 2.5-3.75 cm (1-1.5 in.) long, bearing many hairy scales and 3-winged single-seeded fruit. Seeds of river birch are the largest of all the birches native to the United States and are about 4 mm (0.15 in.) long by 3 mm (0.12 in.) wide, excluding the wings.

**Key features:** The shape of the leaf base is distinctive among birches. River birch is the only birch that flowers in the spring instead of the fall.

**Similar species:** Paper birch (*Betula papyrifera*) leaves are toothed or doubly toothed all the way down to the petiole or leaf stem and also have a more rounded base. Gray birch (*B. populifolia*) has leaves that taper to a long pointed tip. Yellow and black birch (*B. alleghaniensis* and *B. lenta*) have the fragrance of wintergreen when the bark of the twigs is bruised and also have a more rounded and toothed leaf base.



### Where Is It Found?

Primarily a riparian species, river birch is well adapted to life along the river and is most common on floodplains, riverbanks, and a few pond shores. Scattered individuals sometimes are found beyond the riparian habitat. This species is an early colonizer of flood-scoured banks and floodplains and is an important contributor to riverbank stabilization. New Hampshire is the northernmost location for river birch in the east and it grows primarily in the southeastern part of the state.

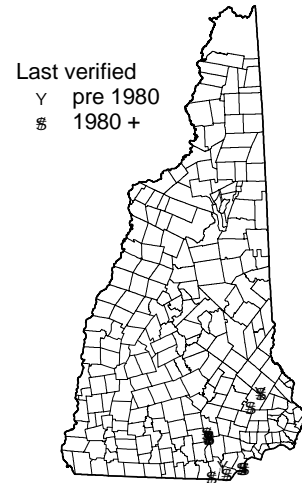
The seeds, produced in the spring, are washed downstream in annual spring floods. Upon reaching suitable habitat they sprout quickly and usually in large numbers. River birch does not tolerate shade. Seeds require newly disturbed soils in areas of full sun where the soil remains moist long enough for germination to occur and seedlings to establish themselves. The seeds must find suitable conditions quickly to survive since they do not remain viable in the soil for very long. In general, soils supporting river birch are acidic and are found close to the water table year round. In southern states, river birch is more common and grows up to 27 m (90 ft.) tall. River birch is known to be more disease-resistant and heat tolerant than other birches.



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**Conservation status:** River birch is threatened in New Hampshire. Of 12 known locations, 10 have been verified since 1980. Populations range from a single individual to a few stands several acres in size. Single trees and sapling populations are extremely vulnerable and may not by themselves constitute viable populations. However, they may be essential to the survival of the species.

**Range:** Populations in New Hampshire and in Massachusetts are disjunct (isolated) from the main area of distribution that occurs from New York to northern Florida, and west to parts of Ontario, Michigan, Minnesota, Kansas, and Texas.



## Why Is It Rare?

Limited habitat occurs in New Hampshire, especially for seed dispersal and recruitment opportunity.

## Conservation Considerations:

Since river birch is adapted to natural patterns of disturbance along floodplains and riverbanks, it relies on natural river processes including periodic flooding and riverbank scour. If river flow is restricted, populations may be threatened by succession and by reduced dispersal opportunities. River birch is an early- to mid-successional species that is eventually outcompeted by taller tree species when disturbance does not happen frequently enough.

River birch is well-adapted to periodic flood damage and is able to regrow from root sprouts, but it does not reproduce vegetatively. It relies on the establishment of new populations from seeds to perpetuate itself. The seeds are short-lived and therefore do not establish a long-term seedbank. Mature seed-producing trees and adequate dispersal locations are necessary for continued survival of this species. Opportunities for seeds to find newly disturbed soils that stay moist even in full sun are not usually found beyond the riverine environment. This may help explain why river birch is primarily restricted to riparian habitats where these conditions are naturally created by spring floods.

Even though this species is adapted to periodic flooding, it is not tolerant to long-term flooding. Three months is about the maximum amount of time river birch has been known to withstand prolonged high water. While not a commercially valuable species, populations could also be threatened by logging and development.

The information in this fact sheet is current as of December 2002. It is based on a database maintained by the NH Natural Heritage Program, a bureau in the Division of Forests & Lands in the Department of Resources and Economic Development. NH Natural Heritage is a member of NatureServe, which represents an international network of Heritage programs. Illustration by Mary Content Easton. Reprinted with permission from The New York Botanical Garden Press. Originally published in H. A. Gleason, The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada, Vol. II, p. 35, copyright 1952, The New York Botanical Garden.

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