

NTFPs from Trees: Nontimber Forest Products that Support our Society and Economy

PAPER BIRCH

Product: Containers, canoes, drinks, and medicine

Plant parts used: Bark and sap



Paper birch (*Betula papyrifera* M.) is a fast-growing, shade-intolerant, medium-sized tree that can grow for 100 years. Trees can reach diameters of 20 cm within 30 years. The species grows on well-drained, sandy loam soils on cool, moist sites. Paper birch prefers climatic conditions of long winters with extended periods of snow-covered ground. The species is distributed across southern and eastern Alaska, the northern Great Lake States, New England, and the northern Midwest, and across most of Canada (shown in green on the map below), except in the extreme northern region.



Key Points

- Paper birch is used for a variety of products, including canoes and containers from bark, and drinks and condiments from sap. The live tree is a host for a popular medicinal mushroom.
- Contemporary uses are based on a recognition of and respect for traditional uses.
- Perceived decline in availability of bark led to a partnership between the Forest Service and Tribes in the Great Lakes region to improve inventory for trees with characteristics needed by traditional artisans.
- Due to the cultural status of paper birch, traditional ecological knowledge is critical to its inventory and sustainable management.

Nontimber Uses

- Native peoples used paper birch bark for construction, containers, medicine, tools, and trinkets.
- Traditionally, paper birch trees were tapped in the spring for the sap, which was used for syrup and libations. This practice is increasing today as interest in sap products is growing.
- Contemporary artisans use the bark for canoes, baskets, and other fine arts and crafts.
- Paper birch is host to chaga (*Inonotus obliquus*), a mushroom with medicinal qualities.

Markets

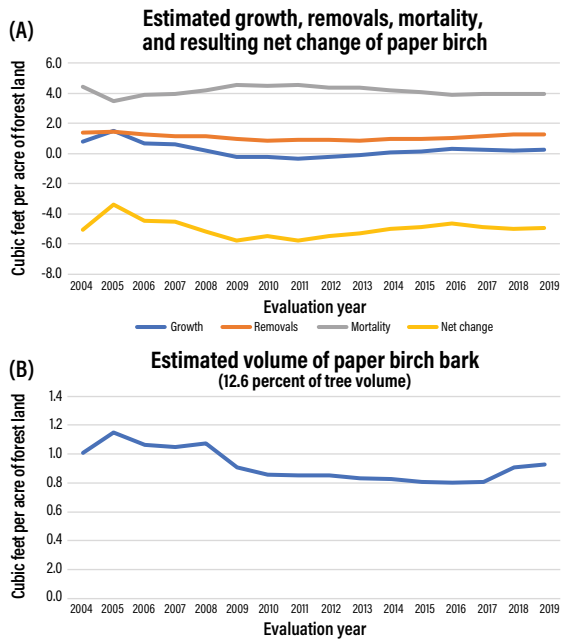
- Paper birch products serve special niche markets with direct sales through retail outlets, markets, festivals, and internet-based operations.
- Birch sap 'water' from Ukraine and other central European countries serves regional markets, suggesting there are similar opportunities for birch 'water' from North America.
- Small-diameter birch stems and branches are marketed through "big box" stores during holiday seasons.
- There is a major gap in knowledge about the volumes and values of birch product markets.

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Status^a

- Paper birch is found on Forest Inventory and Analysis (FIA) plots in 22 States, with an average of 98 live trees per acre of forest land.^b
- In the latest evaluation year, Wyoming exhibited the most live trees per acre of forest land (~214^c), with Alaska (~167^d) and South Dakota (~156^e) following.
- Ohio had the fewest paper birch trees per acre, although the State exhibited the highest estimated growth.
- Across all States from 2004 to 2019, estimated net change in paper birch volume (i.e., difference between growth and sum of mortality and removals) was negative. Growth decreased about 70 percent, while removals and mortality decreased about 12 and 11 percent, respectively (see chart [A]).
- From 2004 through 2019, the number of paper birch trees per acre declined about 3 percent, while estimated bark volume declined about 8 percent (see chart [B]).

^a Estimates are based on observations of at least one specimen of the species in an inventory plot (representing about 6,000 acres of forest land). They are not based on all forest land for the State.

^b At 68-percent confidence interval, standard error is ± 2.24 percent of estimate

^c At 68-percent confidence interval, standard error is ± 33.98 percent of estimate.

^d At 68-percent confidence interval, standard error is ± 11.79 percent of estimate.

^e At 68-percent confidence interval, standard error is ± 20.27 percent of estimate.

Management and Implications

- Paper birch is a cultural keystone species for Tribal people in the upper Midwest of the United States.
- The species is vulnerable to changes in climate, with northern Wisconsin at greater risk of losing substantial habitat, compared to New York or Maine.
- Native American Tribes and the Forest Service used traditional ecological knowledge to inventory paper birch with characteristics desirable for cultural bark products and found a significant decline in volume.
- Management practices that increase the number, size, and age of paper birch trees will improve supplies for traditional harvesters.
- Paper birch bark may be harvested sustainably by leaving the canopy layer intact.

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The U.S. Department of Agriculture Forest Service **Forest Inventory and Analysis (FIA)** program tracks growth, mortality, and removals of forest trees and more. For additional information: <https://www.fia.fs.fed.us/>

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