

USGS-NPS Vegetation Mapping Program

Isle Royale National Park

Populus tremuloides - Betula papyrifera / Acer saccharum - Mixed Hardwoods Forest

COMMON NAME Trembling Aspen - Paper Birch / Sugar Maple - Mixed Hardwoods Forest
SYNONYM Aspen - Birch / Sugar Maple - Mixed Hardwoods Forest
PHYSIOGNOMIC CLASS Forest (I)
PHYSIOGNOMIC SUBCLASS Deciduous forest (I.B)
PHYSIOGNOMIC GROUP Cold-deciduous forest (I.B.2)
PHYSIOGNOMIC SUBGROUP Natural/Semi-natural (I.B.2.N)
FORMATION Montane or boreal cold-deciduous forest (I.B.2.N.b)
ALLIANCE POPULUS TREMULOIDES - BETULA PAPYRIFERA FOREST ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

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This community is common, occurring primarily in the central and southwestern portions of the park.

Globally

This community is found in northwestern Ontario, northern Minnesota, northern Wisconsin, and western upper Michigan.

ENVIRONMENTAL DESCRIPTION

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This community occupies moderate to somewhat steep slopes at elevations ranging from 660 to 1260 feet. Soils are usually sandy loams that are well drained to rapidly drained.

Globally

This community is found on a variety of rich mesic sites over clay or silt loam soils. Alban *et al.* (1991) identified two examples of this community in Minnesota and upper Michigan. Both sites had 6 cm of organic material over the mineral soil. One site was on clay soil and the other on silt loam.

MOST ABUNDANT SPECIES

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<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Betula papyrifera</i> , <i>Populus tremuloides</i>
Short shrub	<i>Rubus parviflorus</i> , <i>Acer saccharum</i>
Forb	<i>Aster macrophyllus</i> , <i>Aralia nudicaulis</i>

Globally

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Betula papyrifera</i> , <i>Populus tremuloides</i>
Tall shrub	<i>Acer saccharum</i>
Forb	<i>Aster macrophyllus</i> , <i>Aralia nudicaulis</i>

CHARACTERISTIC SPECIES

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Betula papyrifera, *Populus tremuloides*, *Acer saccharum* (understory)

Globally

Betula papyrifera, *Populus tremuloides*, *Acer saccharum* (understory)

VEGETATION DESCRIPTION

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The aspen - birch / sugar maple - mixed hardwoods forest is a successional, deciduous forest with a variable physiognomy ranging from open canopy woodlands to closed canopy forests. Canopy cover varies from 50 to 80%; *Betula papyrifera* (25 to 75% cover) and *Populus tremuloides* (25 to 50% cover) are the most abundant canopy trees. *Acer saccharum*, *Betula alleghaniensis*, or *Quercus rubra* are present as subcanopy trees, saplings, or seedlings. This is a successional forest that seems most likely to be developing into a deciduous forest type in which sugar maple will be dominant. *Acer saccharum* sometimes occurs as a subcanopy tree. Cover of tall shrubs varies from 5 to 30%; *Acer saccharum* and *Corylus*

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cornuta are the most common tall shrubs or saplings. Cover of short shrubs varies from 10 to 60%; the most common shrubs or small saplings are *Rubus parviflorus*, *Acer saccharum*, and *Populus tremuloides*. Herb cover varies from 10 to 70%; the most abundant herbs are *Aster macrophyllus* and *Aralia nudicaulis* (each usually 5 to 25%).

Globally

Deciduous trees dominate the canopy and tree reproduction layers of this community. Conifers, when present, are widely scattered. Tree density is moderate to high but substantial light penetrates the canopy due to the growth form of the two dominant species, *Betula papyrifera* and *Populus tremuloides*. Other northern hardwoods may be found in the canopy but are more common in the sapling layer. These include *Acer rubrum*, *Acer saccharum*, *Betula alleghaniensis*, *Fraxinus pennsylvanica*, *Ostrya virginiana*, *Tilia americana*, and *Ulmus americana* (in more mesic sites). The shrub stratum is usually not well developed due to shading from the canopy and sub-canopy trees. Scattered *Acer spicatum*, *Corylus cornuta*, *Diervilla lonicera* and *Rubus pubescens* are typical shrubs. *Taxus canadensis* and *Acer pensylvanicum* are present on some sites. For example, Hansen *et al.* (1973) found *Taxus canadensis* to be one of the more abundant shrubs on Isle Royale in Lake Superior. They also found this type to have the most diverse herbaceous layer of their sites. The herbaceous layer contains species such as *Aralia nudicaulis*, *Aster macrophyllus*, *Clintonia borealis*, *Maianthemum canadense*, *Oryzopsis asperifolia*, and *Streptopus roseus*. Mosses include *Dicranum flagellare*, *Dicranum montanum*, and others (Chambers *et al.* 1997).

OTHER NOTEWORTHY SPECIES

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Information not available.

CONSERVATION RANK G5.

DATABASE CODE CEGL002468

MAP UNITS 54b

COMMENTS

REFERENCES

- Alban, D. H., D. A. Perala, M. F. Jurgensen, M. E. Ostry, and J. R. Probst. 1991. Aspen ecosystem properties in the Upper Great Lakes. Res. Pap. NC-300. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 47 p.
- Chambers, B.A., B.J. Naylor, J. Nieppola, B. Merchant, P. Uhlig. Field Guide to Forest Ecosystems of Central Ontario. Southcentral Science Section (SCSS) Field Guide FG-01, Ontario Ministry of Natural Resources, North Bay, Ontario, Canada. 200 pp.
- Hansen, H. L., L. W. Krefting, and V. Kurmis. 1974. The forest of Isle Royale in relation to fire history and wildlife. University of Minnesota, Agricultural Exper. Station, Tech. Bull. 294, Forestry Series 13.