

Thuja occidentalis - *Fraxinus nigra* Forest (White Cedar - Black Ash Swamp)

COMMON NAME Northern White-cedar - Black Ash Forest
SYNONYM White Cedar - Black Ash Swamp
PHYSIOGNOMIC CLASS Forest (I)
PHYSIOGNOMIC SUBCLASS Mixed evergreen-deciduous forest (I.C)
PHYSIOGNOMIC GROUP Mixed needle-leaved evergreen - cold-deciduous forest (I.C.3)
PHYSIOGNOMIC SUBGROUP Natural/Semi-natural (I.C.3.N)
FORMATION Saturated mixed needle-leaved evergreen - cold-deciduous forest (I.C.3.N.d)
ALLIANCE THUJA OCCIDENTALIS - ACER RUBRUM SATURATED FOREST ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 3

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Voyageurs National Park

This type is found in pockets throughout the park, but also occurs as large stands in the environs west of park, and in the Rat Root peatlands.

Globally

This association is found in northern Minnesota, Michigan, and Ontario.

ENVIRONMENTAL DESCRIPTION

Voyageurs National Park

This type is found in confined basins surrounded by upland or as part of large wetland complexes. If associated with peatlands, it is usually found on the upland border where wetter, more minerotrophic conditions exist. Soils are either deep, well decomposed peats or shallow, well decomposed peats over clay. Microtopography of hummocks and hollows may be well developed or absent. Standing water is often present. The water regime is seasonally flooded to saturated.

Globally

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MOST ABUNDANT SPECIES

Voyageurs National Park

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Thuja occidentalis</i> , <i>Fraxinus nigra</i>
Tree sub-canopy	<i>Thuja occidentalis</i>
Tall shrub	<i>Acer spicatum</i> , <i>Alnus incana</i> , <i>Abies balsamea</i>
Short shrub	<i>Rubus pubescens</i>
Forb	<i>Coptis groenlandica</i>
Fern	<i>Equisetum sylvaticum</i>
Graminoid	<i>Carex intumescens</i> , <i>Carex</i> spp., <i>Calamagrostis canadensis</i>
Nonvascular	<i>Rhytidadelphus triquetrus</i> , <i>Calliergon</i> spp., <i>Mniaceae</i>

Globally

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Thuja occidentalis</i> , <i>Fraxinus nigra</i>
Tall shrub	<i>Alnus incana</i>

CHARACTERISTIC SPECIES

Voyageurs National Park

Thuja occidentalis, *Fraxinus nigra*, *Alnus incana*

Globally

Thuja occidentalis, *Fraxinus nigra*, *Alnus incana*

VEGETATION DESCRIPTION

Voyageurs National Park

The White Cedar-Black Ash Swamp consists of a mixed canopy of *Fraxinus nigra* and *Thuja occidentalis* each comprising at least 25% relative cover. It is also found with a canopy solely of *Fraxinus nigra* (usually 80-100% cover) and a sub-canopy of *Thuja occidentalis* (40- 90% cover). The shrub layer, with 20-40% cover, is dominated by *Acer spicatum*, *Alnus incana*, *Abies balsamea*, *Fraxinus nigra*, *Rubus pubescens*, with some *Acer rubrum*. *Alnus incana* alone may occasionally occupy the shrub layer at 70-90% cover. The herbaceous layer usually covers 80-100% of the forest floor and is very diverse. The most common herbs are *Equisetum sylvaticum*, *Carex intumescens*, *Carex gracillima*, *Calamagrostis canadensis*, and *Coptis groenlandica*. Moss cover is highly variable ranging from 30-90%. *Rhytidiadelphus triquetrus*, *Calliergon cordifolium*, *Calliergon giganteum*, *Mniaceae*, *Thuidium* spp., *Sphagnum warnstorffii*, and *Sphagnum squarrosum* are the most abundant mosses.

Globally

Canopy cover is variable, sometimes fairly open. *Thuja occidentalis* and *Fraxinus nigra* dominate the canopy, but some stands may have *Fraxinus nigra* in the upper canopy and *Thuja occidentalis* in the lower canopy. *Thuja occidentalis* also tends to occur on the hummocks and *Fraxinus nigra* in the hollows. *Populus tremuloides* can be a major component, but this may be caused by logging of *Thuja occidentalis*. *Acer rubrum*, *Betula alleghaniensis*, and *Picea glauca* may also be present. Shrubs include *Acer spicatum*, *Alnus incana*, *Cornus alternifolia*, *Lonicera canadensis*, *Ribes* spp., and *Rubus pubescens*. The herb rich layer includes *Aralia nudicaulis*, *Arisaema triphyllum*, *Carex gracillima*, *Carex intumescens*, *Clintonia borealis*, *Cornus canadensis*, *Dryopteris carthusiana*, *Galium triflorum*, *Maianthemum canadense*, *Tiarella cordifolia* and *Trientalis borealis* (Chambers *et al.* 1997). In northern Minnesota, moss cover is highly variable, ranging from 30-90%. The most abundant mosses are *Rhytidiadelphus triquetrus*, *Calliergon cordifolium*, *Calliergon giganteum*, *Mniaceae*, *Thuidium* spp., *Sphagnum warnstorffii*, and *Sphagnum squarrosum* (M. Smith personal communication 1999).

CONSERVATION RANK G?

DATABASE CODE CEGLO05165

COMMENTS

Voyageurs National Park

Diagnostic features of the type include the canopy of *Thuja occidentalis* and *Fraxinus nigra*, both comprising at least 25% cover. Stands may also have a canopy of *Fraxinus nigra* with at least 25% cover of *Thuja occidentalis* in the subcanopy. This type can be similar to the White Cedar-Boreal Conifer Forest (CEGL002449), though it is usually wetter and more minerotrophic. It is perhaps intermediate between that type and the Black Ash-Mixed Hardwood Swamp (CEGL002105) in terms of moisture and mineral status. When the cover of *Fraxinus nigra* in the canopy is less than 25%, the stand becomes a White Cedar-Boreal Conifer Forest.

This type, like the Black Ash-Mixed Hardwood Swamp, is occasionally subject to beaver floodings.

REFERENCES

- 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.
- Harris, A. G., S. C. McMurray, P. W. C. Uhlig, J. K. Jeglum, R. F. Foster, and G. D. Racey. 1996. Field guide to the wetland ecosystem classification for northwestern Ontario. Ont. Minist. Nat. Resour., Northwest Sci. Tech. Field Guide FG-01. Thunder Bay, Ont. 74 p.