

USGS-NPS Vegetation Mapping Program

Isle Royale National Park

Picea glauca - Abies balsamea / Pleurozium schreberi Forest

COMMON NAME White Spruce - Balsam Fir / Feathermoss Forest
SYNONYM Spruce - Fir / Feathermoss Forest
PHYSIOGNOMIC CLASS Forest (I)
PHYSIOGNOMIC SUBCLASS Evergreen forest (I.A)
PHYSIOGNOMIC GROUP Temperate or subpolar needle-leaved evergreen forest (I.A.8)
PHYSIOGNOMIC SUBGROUP Natural/Semi-natural (I.A.8.N)
FORMATION Conical-crowned temperate or subpolar needle-leaved evergreen forest (I.A.8.N.c)
ALLIANCE PICEA GLAUCA - ABIES BALSAMEA FOREST ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Isle Royale National Park

This community occurs throughout the park, most often at low elevations near the Lake Superior shore.

Globally

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

ENVIRONMENTAL DESCRIPTION

Isle Royale National Park

This community occupies upland slopes and flats, often on low slopes near Lake Superior, but also on middle slopes of ridges; elevations range from 604 to 870 feet. Soils are often sandy loam or loam.

Globally

Stands occur on fresh, well-drained upland mineral soils (Sims *et al.* 1989). In the U.S., they may be restricted to the coldest, north-facing slopes, such as those found on north slopes of islands in Lake Superior (Suzie Islands, Isle Royale).

MOST ABUNDANT SPECIES

Isle Royale National Park

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Abies balsamea</i> , <i>Picea glauca</i>
Short shrub	<i>Abies balsamea</i> , <i>Rubus parviflorus</i>
Forb	<i>Cornus canadensis</i> , <i>Aralia nudicaulis</i>
Nonvascular	<i>Pleurozium schreberi</i>

Globally

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CHARACTERISTIC SPECIES

Isle Royale National Park

Picea glauca, *Abies balsamea*, *Pleurozium schreberi*

Globally

Picea glauca, *Abies balsamea*, *Pleurozium schreberi*

VEGETATION DESCRIPTION

Isle Royale National Park

This spruce - fir / feathermoss forest has a variable physiognomy, ranging from open canopy evergreen woodlands to closed canopy evergreen forests. The most abundant canopy trees are either *Abies balsamea* (typically 3 to 38% cover) or *Picea glauca* (typically 15 to 38% cover). In areas heavily browsed by moose, such as at the west end near Windigo, *Abies* may be completely absent from the canopy, and only present in the shrub layer as browsed scrub (typically with 1 to 7% cover). *Betula papyrifera* is often present, with a low cover (typically 3 to 15% cover). Other trees infrequent in the canopy include *Picea mariana* and *Thuja occidentalis*. This forest community usually has 60 to 80% canopy cover, but on Isle Royale in areas with heavy moose browse, the canopy can be much more open, with as little as 30% cover. The

USGS-NPS Vegetation Mapping Program

Isle Royale National Park

more open stands usually have a higher cover of short or browsed *Abies* (1 to 5 m tall). The cover of shrubs is quite variable, from few shrubs to over 50% cover. The most abundant shrubs are *Abies balsamea*, *Rubus parviflorus*, *Viburnum edule*, and at the extreme northeast end of Isle Royale NP, *Oplopanax horridus*. The most abundant herbs are *Cornus canadensis*, *Aralia nudicaulis*, *Aster macrophyllus*, *Clintonia borealis*, *Gymnocarpium dryopteris*, *Linnaea borealis*, and *Mitella nuda*. Feathermosses such as *Pleurozium schreberi* and *Hylocomium splendens* are common in the groundlayer. Tree branches are often draped with beard lichens such as *Usnea* spp.

There is an uncommon variant of this association found mostly on the northeast end of the park, the *Abies balsamea* / *Taxus canadensis* – *Oplopanax horridus* variant, which has a tree canopy with 70 to 90% cover. *Abies balsamea* is the single most abundant canopy tree. Cover of short shrubs varies from 40 to 80%. *Taxus canadensis* and *Oplopanax horridus* are the most abundant shrubs. Herbaceous cover varies from 20 to 70%. The most abundant herbs are *Clintonia borealis*, *Dryopteris expansa*, *Linnaea borealis*, *Maianthemum canadense*, and *Mitella nuda*. Cover of nonvascular plants varies from 30 to 80%; the feathermoss *Pleurozium schreberi* is abundant in the groundlayer.

Globally

Stands are dominated by *Picea glauca* and *Abies balsamea*. Associates can include *Picea mariana*. The shrub and herb layer are species poor or of low cover. Shrubs include *Abies balsamea*, *Amelanchier* spp., *Diervilla lonicera*, *Linnaea borealis*, and *Rubus pubescens*. Herbs include *Aralia nudicaulis*, *Clintonia borealis*, *Coptis trifolia*, *Cornus canadensis*, *Mitella nuda*, *Streptopus roseus*, *Trientalis borealis*, and *Viola renifolia*. Mosses dominate the ground layer, including extensive mats of feathermosses, such as *Pleurozium schreberi*, *Ptilium crista-castrensis*, *Hylocomium splendens*, and *Rhytidiadelphus triquetrus* (Sims *et al.* 1989).

OTHER NOTEWORTHY SPECIES

Isle Royale National Park

CONSERVATION RANK G?

DATABASE CODE C EGL002509

MAP UNITS 01, 02

COMMENTS

REFERENCES

Sims, R. A., W. D. Towill, K. A. Baldwin, and G. M. Wickware. 1989. Field guide to the forest ecosystem classification for northwestern Ontario. Ontario Ministry of Natural Resources.