

## USGS-NPS Vegetation Mapping Program

### Isle Royale National Park

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#### **Pinus banksiana - (Picea mariana, Pinus strobus) / Vaccinium spp. Rocky Woodland**

COMMON NAME	Jack Pine - (Black Spruce, White Pine) / Blueberry species Rocky Woodland
SYNONYM	Boreal Pine Rocky Woodland
PHYSIOGNOMIC CLASS	Woodland (II)
PHYSIOGNOMIC SUBCLASS	Evergreen woodland (II.A)
PHYSIOGNOMIC GROUP	Temperate or subpolar needle-leaved evergreen woodland (II.A.4)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (II.A.4.N)
FORMATION	Rounded-crowned temperate or subpolar needle-leaved evergreen woodland (II.A.4.N.a)
ALLIANCE	PINUS (BANKSIANA, RESINOSA) WOODLAND ALLIANCE
CLASSIFICATION CONFIDENCE LEVEL	2
USFWS WETLAND SYSTEM	TERRESTRIAL

#### RANGE

##### **Isle Royale National Park**

This community is scattered throughout the park on the tops of ridges.

##### **Globally**

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

#### ENVIRONMENTAL DESCRIPTION

##### **Isle Royale National Park**

This community occupies sites on tops of ridges or on steep, usually south- or southeast-facing upper slopes of ridges (occasionally on northwest-facing exposures), mostly on basalt bedrock.

##### **Globally**

Stands typically occur on shallow, sandy or rocky sites. Soils vary from talus slopes and bare bedrock to deep mineral soils of coarse to fine sand (Sims *et al.* 1989, McCarthy *et al.* 1994).

#### MOST ABUNDANT SPECIES

##### **Isle Royale National Park**

###### Stratum

Tree canopy

Short shrub

Nonvascular

###### Species

*Pinus banksiana*, *Pinus strobus*, *Pinus resinosa*

*Juniperus communis*, *Quercus ellipsoidalis*, *Vaccinium angustifolium*

*Cladina* spp.

##### **Globally**

###### Stratum

Tree canopy

Short shrub

Nonvascular

###### Species

*Pinus banksiana*, *Pinus strobus*, *Pinus resinosa*

*Juniperus communis*, *Quercus ellipsoidalis*, *Vaccinium angustifolium*

*Cladina* spp.

#### CHARACTERISTIC SPECIES

##### **Isle Royale National Park**

*Pinus strobus*, *Pinus banksiana*, or *Pinus resinosa*, *Juniperus communis*

##### **Globally**

*Pinus banksiana*, *Pinus strobus*, *Pinus resinosa*, *Juniperus communis*, *Vaccinium angustifolium*, *Cladina* spp.

#### VEGETATION DESCRIPTION

##### **Isle Royale National Park**

This boreal pine rocky woodland is an open canopy, usually evergreen, woodland that occurs mainly on exposed rocky summits. Canopy cover of trees over 5 m tall varies from 10 to 60% cover. The most abundant trees are one of three pines: either *Pinus banksiana*, *Pinus strobus*, or *Pinus resinosa*. Usually one of these species is dominant at a site and others are rare or absent. Other trees commonly present with less than 5% cover include *Picea glauca*, *Abies balsamea*, *Populus tremuloides*, *Thuja occidentalis*, and *Picea mariana*. The tall shrub layer usually has about 5 to 20% cover and includes saplings or browsed scrub of canopy trees, plus *Sorbus decora* and *Amelanchier* sp. (probably *Amelanchier bartramiana*). Short shrubs (including dwarf shrubs) usually have from about 5 to 60% cover; the most abundant low shrubs are *Juniperus communis*,

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*Diervilla lonicera*, *Rosa acicularis*, *Rubus parviflorus*, *Vaccinium angustifolium*, *Vaccinium myrtilloides*, and *Arctostaphylos uva-ursi*. Herbaceous cover varies from about 10 to 70%; the most common herbs are *Aster macrophyllus*, *Danthonia spicata*, *Maianthemum canadense*, *Pteridium aquilinum*, *Deschampsia flexuosa*, and *Oryzopsis asperifolia*. Cover of nonvascular plants varies from 10 to 60%; the most abundant nonvascular plants are crustose and foliose lichens, *Cladina* spp. and *Pleurozium schreberi*. At some sites on southeast slopes of Stanley Ridge there is a narrow zone or open meadow associated with this community, just downhill from the pines. Emmet Judzewicz has observed numerous spring ephemerals (some quite rare on Isle Royale) in these meadows, which may be a type of snowbank community (in microhabitats where deep snow accumulates in winter).

#### **Globally**

The tree canopy is variable, typically open, with stands often being dominated by a single pine species, but the pines could be *Pinus banksiana*, *Pinus resinosa* or *Pinus strobus*. Occasionally *Picea mariana* is present, particularly northward in the range of the type. The understory is quite open, with scattered clumps of shrubby *Picea mariana*. *Abies balsamea*, *Pinus strobus*, and *Quercus ellipsoidalis* constitute the scrub/shrub layer which, when present, comprises 20-30% cover. The dwarf-shrub layer contains *Vaccinium angustifolium* and *Vaccinium myrtilloides*, with occasional *Juniperus communis*, *Cornus canadensis*, *Diervilla lonicera*, *Amelanchier* spp, *Rubus* spp., and *Arctostaphylos uva-ursi*. The herbaceous layer is sparse, containing *Agrostis scabra*, *Danthonia spicata*, *Maianthemum canadense*, and *Melampyrum lineare*. Moss and lichen cover is highly variable, ranging from 20-90%, though most commonly around 30%. Moss species include *Dicranum polysetum* and *Pleurozium schreberi*. Lichens include *Cladina rangifera*, *Cladina mitis*, and *Cladina stellaris* (Sims *et al.* 1989, McCarthy *et al.* 1994, M. Smith personal communication 1999).

#### OTHER NOTEWORTHY SPECIES

##### **Isle Royale National Park**

Information not available.

CONSERVATION RANK G4?

DATABASE CODE CEGLO02483

MAP UNITS 63

#### COMMENTS

##### **Isle Royale National Park**

Many sites with this community have a fire history. Some, if not all, were probably established following a severe burn; in some cases (as at the west end of the Minong Ridge) an accidental fire can consume the canopy trees, leaving little more than bare rock and some herbs, resulting in a Poverty grass barrens. Following a burn the vegetation may or may not succeed back to a pine woodland, depending on available seed sources. In at least one burn site (west end of Minong Ridge) no reproduction of pines was observed in 1998, following a fire just a few years earlier. Jack pine (*Pinus banksiana*) growing on rocky summits may not require fire for reproduction; in some places the heat of the bedrock during warm summer days can be sufficient to open jack pine cones. On Stanley Ridge, some jack pines were observed in 1997 with low branches extending across the rock surface as if they might reproduce by layering (vegetative reproduction). Similar layering in red pine has been observed on rocky ridges near the lakeshore on the Keweenaw Peninsula. A ground fire near pines with low, layering branches would likely cause a crown fire, killing the trees with this unusual growth form.

#### REFERENCES

- McCarthy, T.G., R.W. Arnup, J. Nieppola, B.G. Merchant, K.C. Taylor, and W.J. Parton. 1994. Field Guide to Forest Ecosystems of Northeastern Ontario. NEST Field Guide FG-001, Ontario Ministry of Natural Resources, Northeast Science and Technology, Timmins ON.
- 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.