

6.12 Northern Hardwood Forests

Quercus macrocarpa / (*Amelanchier alnifolia*, *Cornus drummondii*) / *Aralia nudicaulis* Forest (Northern Bur Oak Mesic Forest)

COMMON NAME Bur Oak / (Saskatoon Serviceberry, Roughleaf Dogwood) / Wild Sarsaparilla Forest
SYNONYM Northern Bur Oak Mesic 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 Lowland or submontane cold-deciduous forest (I.B.2.N.a)
ALLIANCE QUERCUS MACROCARPA FOREST ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 3

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Voyageurs National Park

This type is most common on islands or peninsulas on Lake Kabetogama.

Globally

This community occurs in the northern tallgrass region of western Minnesota (with isolated stands in the western Border Lakes region in Voyageurs National Park), eastern Dakotas, western Iowa, and northeastern Nebraska.

ENVIRONMENTAL DESCRIPTION

Voyageurs National Park

This community type occurs on level to gently sloping terrain with variable aspects. It is most common on dry-mesic to mesic sites on islands or peninsulas. Soils are loams or sandy loams and can be shallow (3-7 cm) or relatively deep (20-35+ cm). In stands with shallower soils, patches of exposed bedrock may exist.

Globally

Stands This community typically occur on gentle to steep slopes of draws and bluffs, historically where fire breaks occurred. Soils in the northern part of the range include well-drained sandy loams to loams formed in glacial till, and in the southern part include silty to sand loams formed primarily in loess and glacial till (Minnesota NHP 1993, Rosburg and Glenn-Lewin 1996, Steinauer and Rolfsmeier 1997).

MOST ABUNDANT SPECIES

Voyageurs National Park

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Quercus macrocarpa</i> , <i>Fraxinus pennsylvanica</i> , <i>Tilia americana</i>
Tall shrub	<i>Amelanchier</i> spp., <i>Corylus cornuta</i> , <i>Fraxinus pennsylvanica</i> , <i>Tilia americana</i>
Forb	<i>Aster macrophyllus</i> , <i>Aralia nudicaulis</i> , <i>Osmorhiza longistylis</i>

Globally

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Quercus macrocarpa</i> , <i>Fraxinus pennsylvanica</i> , <i>Tilia americana</i> , <i>Celtis occidentalis</i>
Tall shrub	<i>Amelanchier</i> spp., <i>Corylus cornuta</i> , <i>Cornus drummondii</i>
Forb	<i>Aralia nudicaulis</i>

CHARACTERISTIC SPECIES

Voyageurs National Park

Quercus macrocarpa, *Fraxinus pennsylvanica*, *Tilia americana*

Globally

Quercus macrocarpa, *Fraxinus pennsylvanica*, *Celtis occidentalis*, *Corylus cornuta*, *Cornus drummondii*, *Aralia nudicaulis*

VEGETATION DESCRIPTION

Voyageurs National Park

The canopy in this community is typically dominated by *Quercus macrocarpa* with *Fraxinus pennsylvanica* or *Tilia americana* present at low cover or absent. In some circumstances, *Fraxinus pennsylvanica* or *Tilia americana* may dominate the canopy to the near exclusion of *Quercus macrocarpa*. *Populus tremuloides* and *Acer saccharinum* may also be present in the canopy at low cover. A shrub layer of 20-80% cover is almost always present and may consist of the following species: *Fraxinus pennsylvanica*, *Tilia americana*, *Amelanchier* spp., *Corylus cornuta*, *Ostrya virginiana*, and/or *Viburnum rafinesquianum*. The herbaceous strata is usually well developed and comprises 80-90% cover. *Aster macrophyllus*, *Aralia nudicaulis*, *Osmorhiza longistylis*, and *Pteridium aquilinum* usually comprise the majority of the cover in this community. The herbs *Circaea lutetiana*, *Carex arctata*, *Carex gracillima*, and *Impatiens capensis* are also common.

Globally

The tree layer is a closed canopy dominated by *Quercus macrocarpa* with a mixture of shade-tolerant trees, such as *Celtis occidentalis*, *Fraxinus pennsylvanica*, *Ulmus americana*, and *Ulmus rubra*, and further north *Populus tremuloides*. Occasionally *Ostrya virginiana*, *Tilia americana*, or *Quercus rubra* are present. The shrub layer is often prominent, dominated by *Amelanchier alnifolia* and *Corylus cornuta* in the north and *Cornus drummondii* in the south. Other species shared across the range include *Prunus virginiana*, *Ribes missouriense*, *Rubus occidentalis*, *Symphoricarpos occidentalis*, *Symphoricarpos orbiculatus*, and *Zanthoxylum americanum*. Vines include *Celastrus scandens*, *Parthenocissus quinquefolia*, and *Toxicodendron radicans*. The herbaceous layer can be quite sparse. Common species include *Aralia nudicaulis*, *Carex assiniboinensis*, *Carex blanda*, *Elymus villosus*, *Galium boreale*, *Geum canadense*, *Maianthemum stellatum*, *Osmorhiza longistylis*, *Poa pratensis*, *Polygonatum biflorum*, and *Viola sororia*. At Voyageurs NP, the understory is dominated by *Aster macrophyllus*, *Aralia nudicaulis*, *Osmorhiza longistylis*, and *Pteridium aquilinum* (Minnesota NHP 1993, Rosburg and Glenn-Lewin 1996, Steinauer and Rolfsmeier 1997).

CONSERVATION RANK G4.

DATABASE CODE C EGL002072

COMMENTS

Voyageurs National Park

Diagnostic features of the type include the canopy of *Quercus macrocarpa*, *Fraxinus pennsylvanica*, or *Tilia americana*. In sites with shallow soils and exposed bedrock, some sites may approach woodland physiognomy and grade into the Northern Pin Oak-Bur Oak Rocky Woodland. If the total canopy cover is <60% and canopy closure is prevented by the presence of exposed bedrock, the site is considered a Northern Pin Oak-Bur Oak Rocky Woodland.

The more mesic versions of this type have fairly diverse herbaceous stratas and can contain species that are found in few other communities in the park. Some of these species are *Uvularia grandiflora*, *Uvularia sessiliflora*, *Trillium* spp., and *Smilax herbacea*.

Evidence of logging and past human habitation are frequently present in these stands, especially those on islands in Lake Kabetogama.

Globally

There may be a shift in composition between the Iowa -Nebraska stands and the stands to the north. The more characteristic set of northern U.S. species include *Amelanchier alnifolia*, *Carex assiniboinensis*, and *Aralia nudicaulis*, and the more central U.S. species include *Cornus drummondii*. *Poa pratensis*, generally considered an exotic, can dominate the ground layer across the range of the type.

REFERENCES

- Minnesota Natural Heritage Program. 1993. Minnesota's native vegetation: A key to natural communities. Ver. 1.5. Minn. Dep. Nat. Resour., Nat. Heritage Prog. St. Paul, Minn. 110 p.
- Rosburg, T. R. and D. C. Glenn-Lewin. 1996. Species composition and environmental characteristics of grassland and ecotonal plant communities in the Loess Hills of western Iowa (USA). *Natural Areas Journal* 16:318-334.
- Steinauer, G. and S. Rolfsmeier. 1997. Terrestrial natural communities of Nebraska. Draft - October 28, 1997. Nebraska Game and Parks Commission, Lincoln, NE. 117 p.