

3. VEGETATION DESCRIPTIONS FOR MOUNT RUSHMORE NATIONAL MEMORIAL

Quercus macrocarpa / Ostrya virginiana Forest

COMMON NAME	Bur Oak / Eastern Hop-Hornbeam Forest
SYNONYM	Bur Oak - Ironwood 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	<i>Quercus macrocarpa</i> Forest Alliance

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community is found in the Black Hills of South Dakota, at elevations of 1067-1400 m (3500-4600 ft).

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A single stand of this community was found in a tributary drainage in the southeast corner of the study area.

ENVIRONMENTAL DESCRIPTION

Globally

This community has been reported on gentle to moderately steep (14-47%) northerly slopes (Hoffman and Alexander 1987, Johnston 1987). Most occurrences are on upland slopes but some are along streams and gullies. The soils are sandy loams and loams with pH of 5.8-7.4 (Johnston 1987).

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This community was found only in a drainage bottom of a tributary to Iron Creek in the southeast corner of the study area.

MOST ABUNDANT SPECIES

Globally

Stratum

Tree canopy

Subcanopy

Short shrub

Herbaceous

Species

Quercus macrocarpa, *Fraxinus pennsylvanica*

Ostrya virginiana

Prunus virginiana, *Ribes* spp., *Symphoricarpos occidentalis*

Carex foenea, *Carex sprengelii*, *Elymus virginicus*

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<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Ostrya virginiana</i> , <i>Betula papyrifera</i> , <i>Quercus macrocarpa</i>
Subcanopy	<i>Prunus virginiana</i> , <i>Amelanchier alnifolia</i>
Short shrub	<i>Physocarpus monogynus</i> , <i>Toxicodendron rydbergii</i>
Herbaceous	<i>Aralia nudicaulis</i> , <i>Maianthemum stellatum</i>

DIAGNOSTIC SPECIES

Globally

Fraxinus pennsylvanica, *Prunus virginiana*, *Amelanchier alnifolia*, *Symphoricarpos* spp., *Maianthemum stellatum*, *Quercus macrocarpa*, *Ostrya virginiana*

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Ostrya virginiana, *Quercus macrocarpa*

VEGETATION DESCRIPTION

Globally

This community is dominated by closely spaced small trees of *Quercus macrocarpa*, with physiognomic similarity to those of *Q. gambelii* of the central Rocky Mountains. In some areas across the range of this type *Fraxinus pennsylvanica* may be present. *Ostrya virginiana* is present in the tree subcanopy, and *Carex foenea* is found in the herbaceous layer. Other species which may be found in this type include *Carex saximontana*, *Carex sprengei*, *Elymus virginicus*, *Mahonia repens*, *Maianthemum stellatum*, *Phlox gracilis* ssp. *gracilis*, *Prunus virginiana* var. *virginiana*, *Ribes* spp., *Symphoricarpos occidentalis*, *Thalictrum* spp., and *Woodsia* spp. In four stands sampled by Hoffman and Alexander (1987), the shrubs covered an average of 16%, graminoids 17%, and forbs 17%. The basal area in these stands was 26.6 m²/ha.

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A single stand of this vegetation type was found. The canopy was dominated by hardwoods, with several tall pines forming an emergent stratum. Canopy cover was estimated at 25 to 60%, with *Ostrya virginiana* the most abundant species. *Betula papyrifera* and *Quercus macrocarpa* were significant components. Subcanopy coverage was estimated at 10 to 25%; canopy species were present as well as *Prunus virginiana* and *Amelanchier alnifolia*. Short shrub cover was estimated at 25 to 60%, with *Physocarpus monogynus* the most abundant species. Herbaceous cover was in the 10 to 25% range. *Aralia nudicaulis* and *Maianthemum stellatum* were the most abundant components.

OTHER NOTEWORTHY SPECIES Information not available.

CONSERVATION RANK G2

RANK JUSTIFICATION Many

Quercus macrocarpa-dominated stands in the Black Hills are heavily grazed (Hoffman and Alexander 1987).

DATABASE CODE C EGL000555

COMMENTS

Globally

The suppression of fire may negatively impact this community, since disturbances such as fire may be required for the successful regeneration of oaks (Sieg 1991). One method to improve the condition of native woodlands is with proper range management techniques.

The riparian sites of this type may have experienced periodic flooding. The upland portions of this type may have been subject to periodic fire (which led to oak regeneration).

This community has been described only from the Black Hills. The stands used to document this type, as described by Hoffman and Alexander (1987) had high basal area and densities, possibly due to their sampling procedure.

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REFERENCES

Hoffman, G. R. and R. R. Alexander. 1987. Forest vegetation of the Black Hills National Forest of South Dakota and Wyoming: A habitat type classification. Research Paper RM-276. USDA, Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. 48 p.

Johnston, B. C. 1987. Plant associations of region two. Report R2-ECOL-87-2. P. 153, USDA, Forest Service, Rocky Mountain Region, Lakewood, CO. 429 p.

Sieg, C. H. 1991. Ecology of bur oak woodlands in the foothills of the Black Hills, South Dakota. Ph.D. dissertation. Department of Range and Wildlife Management, Texas Tech University. Lubbock, Texas.