

Pinus ponderosa / Quercus macrocarpa Woodland

COMMON NAME	Ponderosa Pine / Bur Oak Woodland
SYNONYM	Ponderosa Pine / Bur Oak 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	<i>Pinus ponderosa</i> Woodland Alliance

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community is found in northeastern Wyoming and in parts of southeastern Montana and western South Dakota.

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This community commonly is found in the bottoms of draws throughout the park. *Quercus macrocarpa* also occurs in other *Pinus ponderosa* stands in the park, but is not present consistently in these situations. On the floodplain, *Q. macrocarpa* forms stands with *Fraxinus pennsylvanica*. These are treated as the *Fraxinus pennsylvanica* - (*Ulmus americana*) / *Symphoricarpos occidentalis* Woodland type.

ENVIRONMENTAL DESCRIPTION

Globally

This community is found on rolling hills and ridgetops on calcareous substrates (Hoffman and Alexander 1987, Johnston 1987). Hoffman and Alexander report that it may also occur on soils derived from igneous substrates. The soils are sandy loams to clayey loams with a pH of 5.3-6.0.

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This community occurs on the lowermost slopes and in drainage bottoms. *Quercus macrocarpa* may be a significant component in *Pinus ponderosa* stands in more mesic situations -- for example on northerly slopes. However, it is not present consistently in these situations.

MOST ABUNDANT SPECIES

Globally

Strata

Tree canopy

Species

Pinus ponderosa

Subcanopy

Quercus macrocarpa

Short shrub

Amelanchier alnifolia, *Mahonia repens*, *Prunus virginiana*

Herbaceous

Carex foenea, *Galium boreale*, *Maianthemum stellatum*, *Oryzopsis asperifolia*, *Vicia americana*

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<u>Strata</u>	<u>Species</u>
Tree canopy	<i>Pinus ponderosa</i>
Subcanopy	<i>Quercus macrocarpa</i>
Short shrub	<i>Mahonia repens</i>
Herbaceous	<i>Carex sprengelii</i> , <i>Poa pratensis</i>

DIAGNOSTIC SPECIES

Globally

Pinus ponderosa, *Quercus macrocarpa*

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Quercus macrocarpa, *Pinus ponderosa*

VEGETATION DESCRIPTION

Globally

Pinus ponderosa is the only species found in the canopy in most stands of this community. Hoffman and Alexander (1987) sampled 4 stands of this type and found an average basal area of 36.2 m²/ ha and an average density of 587 trees/ ha. *Quercus macrocarpa* forms a discontinuous subcanopy with an average cover of 18%. Common shrubs are *Amelanchier alnifolia*, *Mahonia repens*, *Prunus virginiana*, and *Spiraea betulifolia*. Typical herbaceous species are *Carex foenea*, *Apocynum androsaemifolium*, *Galium boreale*, *Maianthemum stellatum*, *Oryzopsis asperifolia*, *Lupinus argenteus*, and *Vicia americana*. Hoffman and Alexander (1987) found the cover by strata was shrubs - 60%, and herbaceous - 18%.

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This community is dominated by *Quercus macrocarpa* in the subcanopy. Subcanopy coverage typically ranges from 25 to 75%, with *Q. macrocarpa* most abundant. *Fraxinus pennsylvanica* is often present. Scattered *Pinus ponderosa* trees form a sparse canopy. The tall shrub stratum, when present, is sparse and is composed of saplings of species such as *Quercus macrocarpa*, *Pinus ponderosa* and *Prunus virginiana*. *Mahonia repens* is common in the short shrub stratum, often with seedlings of the species mentioned above. The herbaceous canopy cover typically approaches 100%, with *Carex sprengelii* and *Poa pratensis* contributing most of the cover. The understory is often weedy with *Cynoglossum officinale* and *Bromus inermis*.

OTHER NOTEWORTHY SPECIES Information not available.

CONSERVATION RANK G3

RANK JUSTIFICATION

DATABASE CODE C EGL000873

COMMENTS

Globally

Periodic fires are probably important in maintaining the grassland groundlayer and promoting oak regeneration.

The stands used to document the *Pinus ponderosa* / *Quercus macrocarpa* Habitat Type described by Hoffman and Alexander (1987) had very high basal area and densities for a woodland, possibly due to their sampling procedure. The dense structure may have affected the floristic makeup of the stands.

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. 1987. Plant associations of region two. R2-ECOL-87-2. USDA Forest Service, Rocky Mountain Region, Lakewood, CO. 429 p.

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McAdams, A. G., D. A. Stutzman, and D. Faber-Langendoen. 1998. Black Hills Community Inventory, unpublished data. The Nature Conservancy, Midwest Regional Office, Minneapolis, MN.

Thilenius, J. F. 1972. Classification of deer habitat in the ponderosa pine forest of the Black Hills, South Dakota. USDA Forest Service Research Paper RM-1, Fort Collins, CO. 28 p.