

## VEGETATION DESCRIPTION FOR JEWEL CAVE NATIONAL MONUMENT

NOTE: "\*" Indicates a new formation to the National Vegetation Classification System

### *Pinus ponderosa* / *Physocarpus monogynus* Forest

COMMON NAME	Ponderosa Pine / Mountain Ninebark Forest
SYNONYM	Ponderosa Pine / Mountain Ninebark 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	Rounded-crowned temperate or subpolar needle-leaved evergreen forest (I.A.8.N.b.)
ALLIANCE	<i>Pinus ponderosa</i> Forest Alliance

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM Upland

#### RANGE

##### *Globally*

This community is found in the Black Hills of South Dakota and Wyoming and in other areas of northeastern Wyoming. It has also been reported in northeastern Colorado (Johnston 1987), but this has not been well documented.

##### *Jewel Cave National Monument*

This community occurs throughout the Jewel Cave area. It is best developed on the south sides of drainages such as Lithograph Canyon and the drainage traversed by Highway 16 west of the park entrance.

#### ENVIRONMENTAL DESCRIPTION

##### *Globally*

This community is one of the more mesic of the ponderosa pine forests. It is found on north facing slopes (Johnston 1987). On three stands in eastern Wyoming the slopes ranged from 27-46% (Hoffman and Alexander 1976, 1987). It has been observed at elevations of 1400-1800 m (4300-5900 ft, Jones 1992) but may occur elsewhere. The soils are loam.

##### *Jewel Cave National Monument*

This community was found on slopes ranging from 10 to 20 degrees. Aspect usually is northerly.

#### MOST ABUNDANT SPECIES

##### *Globally*

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Pinus ponderosa</i>
Short shrub	<i>Physocarpus monogynus</i>
Herbaceous	<i>Galium boreale</i> , <i>Pulsatilla patens</i>

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*Jewel Cave National Monument*

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Pinus ponderosa</i>
Subcanopy	<i>Pinus ponderosa</i>
Short shrub	<i>Physocarpus monogynous</i>

DIAGNOSTIC SPECIES

*Globally*

*Pinus ponderosa, Physocarpus monogynous*

*Jewel Cave National Monument*

*Pinus ponderosa, Physocarpus monogynous*

VEGETATION DESCRIPTION

*Globally*

The overstory of this forest community is usually exclusively *Pinus ponderosa*. The canopy can be moderately closed to closed. Sufficient light penetrates the canopy to allow the growth of a vigorous shrub layer. *Physocarpus monogynous*, which grows to approximately 1 meter, is the dominant shrub. In three stands in the Black Hills of Wyoming this species had an average cover of 42% (Hoffman and Alexander 1987). Other shrubs that occur in this community are *Mahonia repens*, *Arctostaphylos uva-ursi*, and *Symphoricarpos albus*. The herbaceous layer is dominated by forbs and non-vascular plants. *Antennaria rosea*, *Cerastium arvense*, *Galium boreale*, *Pulsatilla patens*, and mosses and lichens are typically found in this community.

*Jewel Cave National Monument*

This community is dominated by *Pinus ponderosa* in both the canopy and subcanopy. Coverage in each stratum typically ranges from 10 to 25%. Short shrub coverage typically is between 10 and 50%. *Physocarpus monogynous* consistently dominates the short shrub stratum, with other species often present, including *Shepherdia canadensis*, *Juniperus communis*, *Arctostaphylos uva-ursi*, *Symphoricarpos albus*, and *Amelanchier alnifolia*.

OTHER NOTEWORTHY SPECIES Information not available.

CONSERVATION RANK G3

RANK JUSTIFICATION

DATABASE CODE CEGL000190

COMMENTS

*Globally*

Lack of natural disturbance (e.g., fire) over the last 100 years has led to increased densities and coverage in the subcanopy.

The stands used to document the *Pinus ponderosa / Physocarpus monogynous* Habitat Type described by Hoffman and Alexander (1976, 1987) had very high basal area and densities, possibly due to their sampling procedure. The dense structure may have affected the floristic makeup of the stands. Additionally, there is some ambiguity between this type as a forest or woodland; in increasingly dense stands, this type has >60% canopy closure.

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.

Hoffman, G. R. and R. R. Alexander. 1976. Forest vegetation of the Bighorn Mountains, Wyoming: A habitat type classification. Research Paper RM-170. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO. 38 p.

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

Jones, G. 1992. Wyoming plant community classification. Wyoming Natural Diversity Database, The Nature Conservancy, Laramie, WY. 183 p.

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.