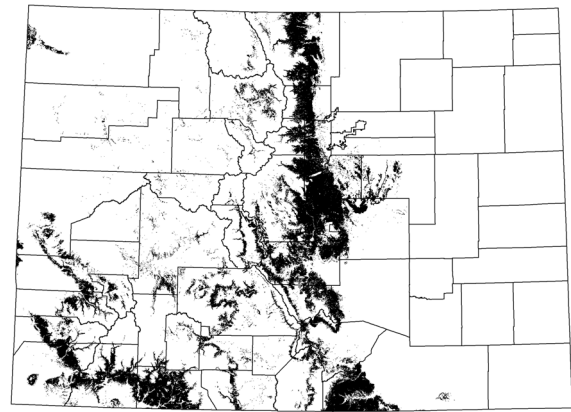


SOUTHERN ROCKY MOUNTAIN PONDEROSA PINE WOODLAND



extent exaggerated for display

PINUS PONDEROSA FOREST ALLIANCE

- Pinus ponderosa* / *Carex rossii* Forest
- Pinus ponderosa* / *Physocarpus monogynus* Forest
- Pinus ponderosa* / *Ribes cereum* Forest

PINUS PONDEROSA WOODLAND ALLIANCE

- Pinus ponderosa* / *Arctostaphylos patula* Woodland
- Pinus ponderosa* / *Arctostaphylos uva-ursi* Woodland
- Pinus ponderosa* / *Artemisia arbuscula* Woodland
- Pinus ponderosa* / *Artemisia tridentata* - *Purshia tridentata* Woodland
- Pinus ponderosa* / *Bouteloua gracilis* Woodland
- Pinus ponderosa* / *Bromus inermis* Semi-natural Woodland
- Pinus ponderosa* / *Carex geyeri* Woodland
- Pinus ponderosa* / *Carex inops* ssp. *heliophila* Woodland
- Pinus ponderosa* / *Festuca arizonica* Woodland
- Pinus ponderosa* / *Festuca idahoensis* Woodland
- Pinus ponderosa* / *Juniperus communis* Woodland
- Pinus ponderosa* / *Juniperus scopulorum* Woodland
- Pinus ponderosa* / *Leucopoa kingii* Woodland
- Pinus ponderosa* / *Muhlenbergia montana* Woodland
- Pinus ponderosa* / *Purshia stansburiana* Woodland
- Pinus ponderosa* / *Purshia tridentata* Woodland
- Pinus ponderosa* / *Quercus gambelii* Woodland
- Pinus ponderosa* / *Quercus* X *pauciloba* Woodland
- Pinus ponderosa* / Rockland Woodland
- Pinus ponderosa* / *Schizachyrium scoparium* Woodland

Overview: This widespread ecological system is most common throughout the cordillera of the Rocky Mountains, but is also found in the Colorado Plateau region, west into scattered locations in the Great Basin, and north into southern British Columbia. These matrix-forming woodlands occur at the lower treeline/ecotone between grassland or shrubland and more mesic coniferous forests typically in warm, dry, exposed sites.

Characteristic species: *Pinus ponderosa* is the predominant conifer; *Pseudotsuga menziesii*, *Pinus edulis*, and *Juniperus* spp. may be present in the tree canopy. The understory is usually shrubby, with *Artemisia nova*, *Artemisia tridentata*, *Arctostaphylos patula*, *Arctostaphylos uva-ursi*, *Cercocarpus montanus*, *Cercocarpus ledifolius*, *Purshia stansburiana*, *Purshia tridentata*, *Quercus gambelii*, *Symphoricarpos oreophilus*, *Prunus virginiana*, *Amelanchier alnifolia*, and *Rosa* spp. being common species. *Pseudoroegneria spicata* and species of *Hesperostipa*, *Achnatherum*, *Festuca*, *Muhlenbergia*, and *Bouteloua* are some of the common grasses.

Grace's warbler, Pygmy nuthatch, and flammulated owl are indicators of a healthy ponderosa pine woodland.

Environment: This ecological system occurs at the lower treeline/ecotone between grassland or shrubland and more mesic coniferous forests typically in warm, dry, exposed sites at elevations ranging from 6,500-9,200 ft (1,980-2,800 m). It can occur on all slopes and aspects, however, it commonly occurs on moderately steep to very steep slopes or ridgetops. This ecological system generally occurs on igneous, metamorphic, and sedimentary material derived soils, including basalt, basaltic, andesitic flows, intrusive granitoids and porphyrites, and tuffs (Youngblood and Mauk 1985). Characteristic soil features include good aeration and drainage, coarse textures, circumneutral to slightly acid pH, an abundance of mineral material, and periods of drought during the growing season. Surface textures are highly variable in this ecological system ranging from sand to loam and silt loam. Exposed rock and bare soil consistently occur to some degree in all the associations. Annual precipitation is 8-24 in (25-60 cm), mostly through winter storms and some monsoonal summer rains. Typically a seasonal drought period occurs throughout this system as well.

Dynamics: *Pinus ponderosa* is a drought-resistant, shade-intolerant conifer which usually occurs at lower treeline in the major ranges of the western United States. Historically, ground fires and drought were influential in maintaining open-canopy conditions in these woodlands. With settlement and subsequent fire suppression, occurrences have become denser. Presently, many occurrences contain understories of more shade-tolerant species, such as *Pseudotsuga menziesii* and/or *Abies* spp., as well as younger cohorts of *Pinus ponderosa*. These altered occurrence structures have affected fuel loads and alter fire regimes. Presettlement fire regimes were primarily frequent (5-15 year return intervals), low-intensity ground fires triggered by lightning strikes or deliberately set fires by Native Americans. With fire suppression and increased fuel loads, fire regimes are now less frequent and often become intense crown fires, which can kill mature *Pinus ponderosa* (Reid et al. 1999).

Variation: This system intergrades with Rocky Mountain Ponderosa Pine Savanna. The two are distinguished by the high frequency, surface-fire regime, less steep or rocky environmental setting, and more open grassy understory structure of the savanna system.

Reid, M. S., K. A. Schulz, P. J. Comer, M. H. Schindel, D. R. Culver, D. A. Sarr, and M. C. Damm. 1999. An alliance level classification of vegetation of the coterminous western United States. Unpublished final report to the University of Idaho Cooperative Fish and Wildlife Research Unit and National Gap Analysis Program, in fulfillment of Cooperative Agreement 1434-HQ-97-AG-01779. The Nature Conservancy, Western Conservation Science Department, Boulder, CO.

Youngblood, A. P., and R. L. Mauk. 1985. Coniferous forest habitat types of central and southern Utah. USDA Forest Service, Intermountain Research Station. General Technical Report INT-187. Ogden, UT. 89 pp.



S. Spackman

Rank:	A	B	C	D
① SIZE				
Acres	>90,000	50,000-90,000	30,000-50,000	< 30,000
② CONDITION				
Community structure Note: A variety of seral stages have been recognized in this system. Because the old-growth late seral stages are typically the most altered, ranking criteria are focused on these later seral stages as indicators of quality.	A mature stand of ponderosa pine consists of approximately 10 trees per acre that have a minimum DBH of 18" and the minimum age of ~160 years. Usually this is a multi-aged stand with approximately two dead standing trees per acre with a minimum DBH of 10". Downed trees are none to few. An old-growth ponderosa pine stand would consist of an overstory of trees that are predominately or entirely ponderosa pine. On the cooler more moist, north facing slopes it may be growing in association with Douglas-fir.	Majority of stand is >100 years old, may show evidence of selective logging that has altered the structure.	Stands regenerated naturally after logging or young to mature stands with significant history of selective logging disturbance that altered composition or structure.	Immature stand of ponderosa pine, often high density of trees, low shrub and herbaceous cover, and very low species diversity.
Fire regime	Frequent low intensity fires are still part of this system.	Fire frequency may be lower or more intense than expected.		
Non-native species	Absent.	May be present with low to moderate frequency in the understory, but have low percent cover.	May be uncommon to frequent but do not dominate or co-dominate understory (<10-20% cover).	May dominate understory.
Disturbance	Roads or other development are mostly non-existent.	Little to no evidence of past logging disturbance over a major proportion of the occurrence. Roads or other development may be present but these occupy less than 3% of the occurrence.	If roads or other development are present they occupy less than 5% of the occurrence.	Roads or other development occupy more than 5% of the occurrence.
③ LANDSCAPE CONTEXT				
Surrounding land	Occurrence surrounded by at least 2000 acres of natural vegetation. None to a few small roads in the surrounding landscape.	Landscape composed of at least 90% natural or semi-natural vegetation; or landscape has very little development or agriculture but has major components of non-native vegetation in at least one physiognomic layer or is composed primarily of young tree plantations.	Landscape is a mosaic of agricultural or semi-developed areas and natural or semi-natural vegetation, the latter composing 25-90% of the landscape, or landscape is dominated by very young tree plantations (cut within last 20 years).	Occurrence surrounded primarily by urban or agricultural landscape, with <25% landscape cover of natural or semi-natural vegetation.