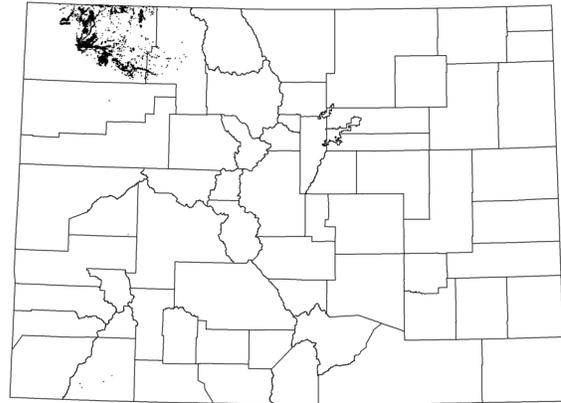


## INTER-MOUNTAIN BASINS JUNIPER SAVANNA



CNHP files



extent exaggerated for display

### JUNIPERUS OSTEOSPERMA WOODDED HERBACEOUS ALLIANCE

*Juniperus osteosperma* / *Hesperostipa comata* Wooded Herbaceous Vegetation

*Juniperus osteosperma* / *Leymus salinus* Wooded Herbaceous Vegetation

### JUNIPERUS OSTEOSPERMA WOODLAND ALLIANCE

*Juniperus osteosperma* / *Pseudoroegneria spicata* Woodland

*Juniperus osteosperma* / *Symphoricarpos oreophilus* Woodland

### JUNIPERUS SCOPULORUM WOODLAND ALLIANCE

*Juniperus scopulorum* / *Pseudoroegneria spicata* Woodland

*Juniperus scopulorum* / *Schizachyrium scoparium* Woodland

**Overview:** This widespread ecological system occupies dry foothills and sandsheets of northwestern Colorado, central Utah, west into the Great Basin of Nevada and southern Idaho. In Colorado these juniper savannas are restricted to the northwestern corner of the state, beyond the range of pinyon pine. This system is characterized by open tree canopies of *Juniperus osteosperma* associated with shrubs and perennial grasses.

**Characteristic species:** The vegetation is typically open savanna, although there may be inclusions of more dense juniper woodlands. This savanna is dominated by *Juniperus osteosperma* with high cover of perennial bunch grasses and forbs, with *Bouteloua gracilis* and *Pleuraphis jamesii* being most common. Species of *Artemisia* are also commonly present. Pinyon trees are typically not present because sites are outside the ecological or geographic range of *Pinus edulis*.

**Environment:** This system is typically found at elevations ranging from 4,900-7,550 ft (1,500-2,300 m). These stands occur on lower mountain slopes and plateaus, often on dry, rocky areas. Inter-Mountain Basins Juniper Savanna is generally found at lower elevations and more xeric sites than Great Basin Pinyon-Juniper Woodland.

This system occurs in a semi-arid climate where droughts are not uncommon. Hot, dry summers and cold, wet winters are typical. Periods of cold temperatures with occasional snow to extended periods of freezing temperatures may occur depending on elevational variations. Annual precipitation is usually from 10-14 in (25-35 cm), but the seasonal distribution varies across the range of this ecological system. Generally, winter precipitation in the form of westerly storms is maximal along the northwest edge of the range and summer moisture increases to the east and south.

Stands occur on a variety of aspects and slopes. The aspect does not appear to be important except in cases of elevational extremes. The slope may vary but typically is fairly steep and rocky. Soils are typically poorly developed, thin and rocky. Soil textures vary, but often range from gravelly loams to gravelly clay loams. Parent materials are limestone or sandstone.

**Dynamics:** Numerous processes influence juniper savannas including climate, grazing, fires, tree harvest, and insect-pathogen outbreaks (West 1999, Eager 1999). Due to alteration of fire intensity and frequency, grazing, and changes in climate we now see various densities of younger trees occurring on sites that were once shrublands or grasslands (West 1999, Commons et al. 1999). Many of these communities within this system have been impacted by past range practices of chaining, tilling, and reseeding with exotic forage grasses. Although the dominant trees appear to regenerate after such disturbances, the effects on understory species are poorly known.

Within a given region, the density of trees, both historically and currently, is strongly related to topoedaphic gradients. Less steep sites, especially those with finer textured soils are where savannas, grasslands, and shrub steppes have occurred in the past. Juniper stands on these gentler slopes may have been large, but more savanna-like with very open upper canopy and high grass production.



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- Commons M. L., R. K. Baydack and C. E. Braun. 1999. Sage grouse response to pinyon-juniper management. Pages 238-239 in S. B. Monsen and R. Stevens, eds., Proceedings: ecology and management of pinyon-juniper communities within the Interior West. U.S. Dept. Agric., Forest Service, Rocky Mountain Research Station, Proc. RMRS-P-9 Ogden, UT . 411 pp.
- Eager, T. J. 1999. Factors affecting the health of pinyon pine trees (*Pinus edulis*) in the pinyon-juniper woodlands of western Colorado. Page 397 in S. B. Monsen and R. Stevens, eds., Proceedings: ecology and management of pinyon-juniper communities within the Interior West. U.S. Dept. Agric., Forest Service, Rocky Mountain Research Station, Proc.
- West, N. E. 1999. Distribution, composition, and classification of current Juniper-Pinyon woodlands and savannas across western North America. Pages 20-23 in S. B. Monsen and R. Stevens, eds., Proceedings: ecology and management of pinyon-juniper communities within the Interior West. U.S. Dept. Agric., Forest Service, Rocky Mountain Research Station, Proc. RMRS-P-9 Ogden, UT . 411.

| Rank:  | A  | B  | C   | D   |
|--|--|--|---|---|
| <b>① SIZE</b>  |  |  |   |   |
| <b>Acres</b>   | > 5,000  | 2,000-5,000  | 1,000-5,000   | < 1,000   |
| <b>② CONDITION</b>   |  |  |   |   |
| <b>Community structure</b>   | Tree density is <30 per ha on favorable sites, and up to 200 trees per ha on rocky, less favorable sites. Native dominated herbaceous cover between trees is heavy enough to carry regular fires (less important on steep, rocky sites).   | Tree density is <40 per ha on favorable sites, but not more than 600 trees per ha on rocky, less favorable sites. Community dominated by natives, herbaceous undergrowth is present but may be declining.  | Tree density is >40 trees per ha on favorable sites, >600 per ha on rocky, less favorable sites. Community dominated by native species; herbaceous undergrowth is sparse and not sufficient to carry fire.          | Tree density is very high (>800 ha) on both favorable and poor sites.   |
| <b>Non-native spp.</b><br>(annual grasses, e.g. Bromus tectorum)   | Absent or incidental.  | May be present in disturbed areas only.  | Can be abundant in both small and large patches.  | Present and abundant.   |
| <b>Native increaser spp.</b>   | < 5% cover.  | May be present and even dominant in spots, but not throughout the occurrence.  |   |   |
| <b>Disturbance</b><br>(e.g. ranch activities and buildings; mines, energy development; off-road vehicle use) | No surficial disturbance is evident, the stand has never been "chained" and re-seeded. Some disturbance may be evident in small, isolated areas (<1%). Few to no roads.  | No surficial disturbance is evident, the stand has never been "chained" and re-seeded. If some disturbance is evident it is limited to less than 20% of the occurrence area. No to only a few roads.   | Surficial disturbances occur on more than 20% of the area. Up to 50% of the stand may have been "chained" and re-seeded. There are more than a few roads found within the occurrence.                               | Surficial disturbances occur on more than 50% of the area (e.g. mines or ranch activities and buildings; off-road vehicle use). Up to 50% of the stand may have been "chained" and re-seeded. |
| <b>Ground cover</b>  | Microbiotic crusts are intact. Natural microrelief is undisturbed. Soil erosion is not accelerated by anthropogenic activities. Accelerated soil erosion had not occurred, or if in the past, the herbaceous cover has increased sufficiently to check this problem.                               | Microbiotic crusts are intact in at least 80% of the occurrence. Soil erosion may be accelerated in small patches, or lightly so throughout the occurrence. Erosion easily reversed by relatively simple, straightforward, and inexpensive changes in management.  | Microbiotic crusts are removed from more than 25% of the area, or are in various stages of degradation throughout the occurrence. Soil erosion and gullyng may be observed in patches (up to 30%) within the stand. | Microbiotic crusts are >75% removed, occurring only in small pockets naturally protected from livestock and off-road vehicle use. Soil erosion may be severe in places.                       |
| <b>③ LANDSCAPE CONTEXT</b>   |  |  |   |   |
| <b>Connectivity</b>  | Highly connected; surrounding landscape has been little altered, captures characteristic ecological gradients (including adjacent large patch and surrounding matrix communities) and geomorphic processes, and the occurrences is completely surrounded by other high quality ecological systems. | Moderately connected; surrounded by moderate-low quality sagebrush or other montane scrub. Juniper may be invading the neighboring shrubland due to a lack of fire. Or the stand may be surrounded by an expansive semi-natural landscape that has been used extensively for grazing or military training. | Moderately fragmented and isolated.   | Highly fragmented and isolated.   |
| <b>Surrounding land</b>  | Occurrence surrounded by a large area (>2000 ac/800 ha) of natural vegetation. Few small roads in the surrounding landscape.   | Landscape composed of at least 80% natural or semi-natural vegetation.   | Landscape is a mosaic of agricultural or semi-developed areas and natural or semi-natural vegetation, the latter composing 25-80% of the landscape.   | Occurrence surrounded primarily by urban or agricultural landscape, with <25% landscape cover of natural or semi-natural vegetation.  |