

Forested Vegetation - Juniper

Utah juniper (*Juniperous osteosperma*) occurs on approximately 326,000 acres in the ecological section south of the Bighorn Mountains and in the Owl Creek Mountains. Utah Juniper in the Bighorn Mountains is found on the lower western slopes between 1,520 and 2,140 meters on coarse textured soil (Despain 1973). Rocky Mountain juniper (*Juniperous scopulorum*) is a minor component in the moister portions of drainages. Less than 600 acres of the Bighorn National Forest is classified as Juniper Woodland.

COMPOSITION

Utah juniper is commonly associated with *Artemisia tridentata*, *Chrysothamnus spp.*, *Quercus gambelii*, *Gutierrezia sarothrae*, *Purshia tridentata*, *Amelanchier alnifolia*, *Opuntia spp.*, *Cordylanthus wrightii*, *Poa spp.*, *Aristida spp.*, *Bromus tectorum*, *Stipa spp.*, *Oryzopsis hymenoides*, *Aster spp.*, and Crypto-gramic crust (Utah State University Remote Sensing website December 31, 2001).

Utah juniper is heavily branched, typically achieving 15 feet in height and 12 inches in diameter (School of Forestry, Northern Arizona University website January 17, 2002).

DISTURBANCE AND FUNCTION

The Worland District of the Bureau of Land Management (BLM), Worland currently has approximately 200,000 acres of pinyon-juniper woodland. Based on historic 1930 photos, they estimate the juniper's historic range was half the size of its current range. Juniper encroachment has occurred primarily in the grasslands and shrublands. Today's stands are denser than the historic stands except along rocky ridges. Changes from the historic condition for the majority of the Utah juniper is similar to other western juniper species (Steve Christie, personal communication).

The stands in rocky areas have not changed much recently because fuels are not contiguous and therefore there has been little change in the fire regime (Steve Christie, personal communication).

Utah juniper in the Bighorn Mountain ecological section has responded similar to other western juniper species where livestock grazing and altered fire regimes are probably responsible for juniper woodland expansion in the past century.

“Utah juniper is usually killed by fire, especially when trees are small. However, Utah juniper habitat types rarely have sufficient fine fuels to produce severe or continuous fires. Fuel loads probably rarely exceed 1 to 3 tons per acre. Phenolic compounds produced by the trees reduce ground cover and therefore further decrease fuel loading around the tree. Sites that are most likely to burn are those with small, scattered trees with sufficient herbaceous understory, or those with large, decadent trees able to

sustain a crown fire under windy conditions. Juniper stands are seldom dense enough to carry a crown fire from one tree to the next, so even if one tree is struck by lightning, a fire that burns throughout the stand may not result. One difficulty in estimating fire histories in juniper habitat types is that junipers don't usually form fire scars. If a fire is severe enough to form a fire scar, it probably will kill the cambium. Ten to 30 years is an estimated mean fire interval for Utah juniper in Arizona, and from 11 to 23 years in southwestern Idaho. Fires were probably more common on slightly more mesic sites than on xeric sites." (US Forest Service's Fire Effects Information website January 17, 2002).

FINDINGS

Juniper's range has approximately doubled in the past century with juniper encroachment occurring primarily in the grasslands and shrublands.

Phenolic compounds produced by junipers reduce grass and shrub cover around the tree.