~ Highway 205 Juniper Removal Project ~

Why have all the trees been cut down?

Western juniper along the west side on Highway 205 has been cut to reduce the fire danger around the community of Frenchglen and as a secondary benefit the cutting will improve wildlife habitat in the sagebrush steppe (grasslands with few or no trees).

Public scoping meetings were held in 2001 by the Harney County Court as part of the Community Wildfire Protection Planning process to receive comments from residents about fire danger. After evaluation the Frenchglen Community was identified as having a "High Hazard" rating. Contributing factors included fuels in close proximity to structures, lack of defensible space around the community, limited ingress and egress, combustible roof or siding material on some homes, and a lack of structural fire protection. The area was then identified as a priority by the County for the removal of juniper to decrease the threat of wildfire around Frenchglen.

Malheur National Wildlife Refuge and the Burns District Bureau of Land Management have been using the County's recommendations to plan Wildland Urban Interface (WUI) projects on federal lands. This year both agencies received funding to conduct a fuels reduction project around the community of Frenchglen.

~ Where Western Juniper Should Be ~

Old-growth western juniper (over 130 years old) is commonly found on relatively fire-safe sites (i.e., rocky surfaces, shallow soils, areas of limited effective moisture) characterized by low production of fine fuels (grasses and forbs). Sites supporting old-growth trees usually will not support large fires. Trees on these sites may survive for hundreds of years. Most old growth juniper trees have specific characteristics.

- Rounded, spreading canopies
- Yellow lichen on lower branches
- Cavities in main stem
- Dead portions of canopy
- Large lower limbs
- Deeply furrowed bark

~ The Invasion of Western Juniper ~

Eastern Oregon Agricultural Research Center in Burns, Oregon has been conducting research on the invasion of western juniper into sagebrush steppe habitat. Tree-ring data was used to determine the age and establishment of woodlands over time and show a rapid increase in juniper since the 1870's. In much of its range, western juniper has increased in area by an estimated 10-fold in the past 130 years and has the potential to occupy far more area than it now does.

Factors most frequently attributed to the increase in both density and area of juniper are climate, introduction of livestock, industrial increases in atmospheric carbon dioxide and the reduced role of fire. Fire occurrence and fire size declined dramatically in the late 1880's. A large decrease in fire occurrence in southeastern Oregon occurred shortly after large numbers of livestock were introduced in the late 1860's. The lack of fire and decreased competition from grasses and forbs probably contributed to an increase in shrub density and cover, thus providing a greater number of safe sites for small junipers to become established.

~ Fire & Sagebrush ~

Sagebrush plant communities developed with periodic fires. These fires help to limit juniper establishment in the historic sagebrush plant communities. Most plants in sagebrush plant communities are adapted to periodic burning and are not harmed, and even favored by fire. Grass and forb cover may increase 3 to 4 times from the pre-burn levels following a fire. In many instances, in the first few years following a fire there is a dramatic increase in wildflowers in the plant community.

Once juniper establishes in the plant community, the character of fire will change. Juniper increases the fuel loading and the intensity of the fire. Flame lengths will increase 2 to 3 fold. The increase in flame length and fire intensity increases the difficulty or the resistance to control of the fires. A fire in juniper woodlands presents a greater risk to firefighters and the public.

~ The Impacts of Juniper Invasion ~

The rapid expansion of western juniper into neighboring plant communities during the past 130 years has caused considerable concern because of increased soil erosion, reduced stream flows; reduced forage for wildlife and livestock; altered wildlife habitat; changes in plant community composition, structure and biodiversity; and the replacement of sagebrush steppe communities with woodlands.

The Impact on the Sagebrush Plant Community

As western juniper begins to dominate an area, sagebrush and other shrubs begin to decrease. Continued increases in western juniper will result in reductions in grass and forb species. The reductions in associated woody and herbaceous plants will be more severe on shallower soils. Shrub and herbaceous understory plant cover may be reduced to less than 1% of the total cover on these shallow soils. On deeper soils, western juniper will eventually eliminate sagebrush and other shrubs, but understory grasses and forbs may still remain.

The Impact on Wildlife

Over 350 species of birds, mammals and plants depend on the sagebrush plant communities for survival. These sagebrush obligate species include sage grouse, pygmy rabbits, Brewer's Sparrow, sage thrasher, sagebrush lizard, sagebrush vole, and pronghorn antelope. Mountain lions, mule deer and bighorn sheep also use sagebrush steppe communities.

Low levels of western juniper can be beneficial for many wildlife species, but increasing dominance results in a general decline in landscape and plant community diversity, resulting in a decline in wildlife abundance and diversity.

Western juniper growing around springs, seeps or creeks consume between 10 and 30 gallons of water per day when water is available during the growing season. In some instances this can result in the total absence of surface water for wildlife and other plants.

~ The Benefits of Controlling Juniper ~

~ The primary purpose of this project was to reduce Wildfire threats to the Frenchglen community. This was accomplished through the removal of juniper.

~ Thinning or removing western juniper improves food and cover for birds and small mammals by increasing shrubs and grasses, and improving seed production.

~ Cutting results in increased soil water content and plant water availability the first two growing seasons after cutting. Retaining juniper debris on site reduces evaporative loss of soil water.

~ Runoff, sediment yields, and rill erosion formation are significantly reduced 10 years following cutting when compared to adjacent uncut woodlands.

~ Season of available green forage for wildlife can increase 4-8 weeks for at least the first several years following western juniper control.

~ Springs and seeps previously surrounded by juniper begin to show surface water just weeks after trees are cut.

The data used in this flyer is from "*Biology, Ecology and Management of Western Juniper.*" Technical Bulletin 152, Oregon State University/Agricultural Experiment Station, June 2005. http://extension.oregonstate.edu/catalog/html/tb/tb152/

Malheur National Wildlife Refuge
US Fish and Wildlife Service
36391 Sodhouse Lane
Princeton, Oregon 97721
541-493-2612

Burns District Office,
Bureau of Land Management
28910 Hwy 20 West
Hines, OR 97738
541-573-4400