

# Oregon Legislative Testimony Regarding SB 315<sup>1</sup>

## Status and Trends

### Western Juniper Inventory, Removal, and Commercialization

House Committee on Agriculture and Forestry  
Representative Jeff Kropf, Chair  
April 3, 2001

Testimony Provided by Larry Swan, U.S. Forest Service<sup>2</sup>

#### **Representative Kropf and Members of the Committee:**

Thank you for the opportunity to appear before you today to talk about the status and trends of western juniper woodland inventory, removal, and commercialization. My name is Larry Swan. I am a Forest Products and Economic Development Specialist for the U.S. Forest Service. I have also been the unofficial Forest Service representative and past facilitator of the ad hoc Western Juniper Commercialization Steering Committee. My activities are jointly funded by the U.S. Forest Service, and the Oregon Economic and Community Development Department.

I have been involved with western juniper science and commercialization issues since the early 1990s. In the 1999 legislative session, I provided background testimony to the Senate Agriculture and Natural Resources Committee and House Agriculture and Forestry Committee for SB 1151, which required the Oregon Department of Forestry to examine regulatory issues involving commercial juniper harvest and eliminated western juniper harvest tax. I also assisted the Oregon Department of Forestry in follow-up required by SB 1151, which resulted in the bill before you: SB 315.

#### *Western Juniper Woodland Inventory Background*

The Forest Service has legal responsibility for conducting regular, large-scale inventories of forested lands on a national basis. Pacific Northwest Research Station is responsible for these inventories in Oregon. An early survey was completed of western juniper in the mid-1930s using aerial photography. The first statewide western juniper inventory using aerial photography and “ground-truthing” was completed in the late 1980s, but the results were not published until 1999 due to other agency priorities and funding.

A more accurate inventory was completed by the Pacific Northwest Research Station in 1999 (almost 10-times the number of ground plots than the late 1980s inventory). Preliminary results will not be available until later this year, with publication projected for mid-2002. Data are insufficient for detailed mapping, but could be used to characterize juniper inventory on a county level.

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<sup>1</sup> Revises definitions of forest tree species and operation in Oregon Forest Practices Act.

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### *Western Juniper Woodland Inventory Status*

According to mid-1980s inventory data, there are over 2.2 million acres of western juniper woodlands in Eastern Oregon with 10% crown cover or more. About 58% of this acreage is private. There are another 2.8 million acres with scattered juniper. Other states with significant juniper acreage of 10% crown cover or more are California (1.3 million acres) and Idaho (275,000 acres).<sup>3</sup>

Eleven of 17 Eastern Oregon counties have at least 100,000 acres of juniper (the six which have insignificant amounts are Gilliam, Morrow, Sherman, Umatilla, Union, and Wallowa). Four counties have juniper on over 50% of their non-forested lands (Crook, Grant, Jefferson, and Wheeler).

Western juniper is the least-utilized wood fiber resource in its range. Total volume in woodlands with crown cover over 10% and in mixed conifer forests is estimated to be 467 million cubic feet.<sup>4</sup> Average volume per acre is 198 cu. ft. (ranges between 15 cu. ft. and 700 cu. ft.). About 53% of the total juniper volume and 90% of the volume in mixed conifer forests, which is often considered higher quality by commercial interests, is on private or Indian reservation lands (Gedney et al. 1999).

### *Western Juniper Inventory Trends*

The total number of Eastern Oregon acres with 10% juniper crown cover or more has increased about 500% since the first inventory was completed in the mid-1930s. It is projected that hundreds of thousands more acres will convert to woodlands over the next 20 to 40 years. Over 1,000,000 acres of juniper woodlands already exceed 20% crown cover, which is often an early indicator of loss of vegetative diversity, groundcover, watershed function, and wildlife habitat.

Forest Service inventory scientists estimate that total juniper woodland area (all densities) could increase to 6.0 million acres within the next 50 years. This would represent about 10% of Oregon's total land area and make juniper woodlands the most extensive forest cover type in Eastern Oregon, instead of ponderosa pine (Gedney et al. 1999).

### *Current Western Juniper Removal Activities*

Juniper removal by private landowners and public land managers has been going on since at least the 1950s. An estimated 5,000 to 10,000 juniper woodland acres per year are cleared or thinned by public land managers and private landowners in Eastern Oregon and Northeastern California.<sup>5</sup> Primary reasons for private landowners to thin or clear juniper are to increase forage production, improve watershed functions, and restore deteriorated rangelands. Due to lack of demand and markets, as well as economics, the juniper removed is piled and burnt, left to decompose after being knocked-down, or cut for firewood and fence posts. Government agencies are currently less active

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<sup>3</sup>Crown cover of 10% or more is the arbitrary minimum criteria used by Forest Service inventory scientists to define "forested cover". "Scattered juniper" has less than 10% crown cover.

<sup>4</sup> For comparison purposes, red alder volume is about 7,436 million cubic feet and California laurel (known in Oregon as myrtlewood) is about 297 million cubic feet.

<sup>5</sup> The estimate of 5,000 to 10,000 acres represents between 0.1% to 0.3% of total juniper woodland area in Eastern Oregon and Northeastern California with 10% crown cover or more.

in clearing juniper than private landowners, due to concerns about legal challenges and lack of funding for such projects.

Landowner costs for removing juniper average \$35-\$50 per acre. Treatment methods include cutting trees down with chainsaws or pushing them over with a dozer. Additional treatments may be required to obtain desired results, such as seeding, and lopping and scattering branches. Manual falling, delimiting, and lopping and scattering the limbs can cost as much as \$250 per acre.

### *Western Juniper Removal Trends*

Rangeland restoration efforts involving thinning and clearing of juniper are expected to continue, whether or not a commercial industry develops for juniper. According to Tom Birch, a Forest Service scientist who summarized data from a national study of forested landowners and their harvest plans, there are probably at least 3,000 ranchers in Oregon and California who plan to thin their juniper woodlands within the next 10 years.

### *Western Juniper Utilization and Commercialization: 1940-1990*

The majority of western juniper utilized over the years has been for fence posts and firewood. There are reports going back at least 50 years though, of mills which tried to commercially process the species. The earliest wood products research known to involve western juniper began in 1949, as part of an Oregon State University study of the service life of treated and untreated posts.<sup>6</sup> Research literature also indicates temporary interest in the 1950s for use in composites and extractive oil, and in the late 1970s due to concerns about an energy crisis.

The most successful commercial western juniper operation of any size was a mill owned and operated by Gary Gumpert in Prineville in the mid to late 1970s (five to 10 employees). Primary product emphasis was interior paneling, but other products were made in the course of refining the panel product (such as furniture and mantel pieces). At the time the mill was sold, about one-third of the production was juniper and the remainder incense cedar.

### *Western Juniper Utilization and Commercialization: 1991 to Present*

Efforts to commercialize juniper were revitalized by the Forest Service in the early 1990s. An Industry Focus Group run the by Forest Service identified juniper as a potential source of fiber to partially replace government timber because of the spotted owl issue. Members of the Focus Group also owned ranches and were interested in how juniper harvest might improve grazing conditions.

An ad hoc Western Juniper Commercialization Steering Committee has overseen well over 100 western juniper commercialization projects since 1993, ranging from lumber recovery to management demonstration areas. Much of the work undertaken is considered "ground-breaking". Very little was known about western juniper physical, mechanical, and fiber properties, and oil chemistry prior to beginning the commercialization process.

There have been significant gains in employment related to western juniper harvest and processing over the last 10 years. In 1991, the juniper industry consisted of a few artisans, and seasonal

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<sup>6</sup>According to Miller (1986), western juniper is the most durable heartwood species in the Pacific Northwest. Average service life in western Oregon exceeds 30 years. Other species included in the study were Pacific yew, redwood, various cedar species, and Oregon white oak.

firewood and post cutters. As of 1999, there were at least 35 companies selling juniper products into at least 11 main markets or distribution channels, ranging from animal bedding shavings to doors and flooring. None of the companies have gross sales of juniper exceeding \$250,000. It is estimated over 35 full-time equivalent (FTE) jobs were created in more than 14 Eastern Oregon communities as a result of commercialization projects, and an equivalent number of indirect jobs.

### *Western Juniper Commercialization Trends*

It is clear after over 10 years of public and private commercialization efforts that the juniper industry will remain small in comparison to the forest products industry as a whole. Private industry members of the ad hoc Steering Committee believe that a juniper industry has potential to generate gross sales of over \$20 million per year, and more than 250 direct and indirect jobs in rural Eastern Oregon communities - this will not happen overnight though.

Juniper manufacturers face significant challenges in trying to sustain production levels and markets. These challenges include:

- 1) Harvest costs are two to three times that of other common Eastern Oregon commercial species due to low volume per acre and large, difficult-to-remove limbs;
- 2) Manufacturers are small and do not have sufficient operating capital to carry inventory necessary for larger accounts;
- 3) Most juniper trees have highly-tapered stems and large knots, which greatly reduce lumber and grade recovery if sawn; and
- 4) Fiber markets, such as animal bedding, are difficult to penetrate due to the low cost and availability of other fiber and fiber substitutes;

Unless heavily subsidized, the juniper industry will not make a significant impact on current juniper acreage or juniper encroachment for the foreseeable future. The highest number of commercially harvested acres occurred in the early 1990s, when about 1,000 acres on private lands were harvested in Northeastern California for power generation biomass. This represents less than 0.3% of juniper woodlands in Eastern Oregon and Northeastern California with 20% canopy cover or more. Biomass harvest is again occurring in the same area, but the scale is expected to remain small. Virtually no biomass harvest is occurring in Eastern Oregon unless it is incidental to other harvest and chipping activities.

### **References Cited**

Gedney, D.R., D.L. Azuma, C.L. Bolsinger, and N. McKay  
1999 Western Juniper in Eastern Oregon. General Technical Report PNW-GTR-464. USDA Forest Service, Pacific Northwest Research Station, Portland.