

**SHEEP AND THE
ENVIRONMENT**

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SILMILCULTURE**



Domestic sheep have grazed temperate-zone conifer forests in the United States and Canada for centuries. This practice benefits both sheep and forests: it provides sheep with

high-quality forage, and forests with needed underbrush control. Sheep grazing can help prevent wildfires caused by an overabundance of brush and assist in the regeneration of conifer forests lost to fires. As an added benefit, sheep are safer on the environment and far less costly than chemical vegetation-control methods. In the United States and Canada, sheep grazing has helped regenerate ponderosa pine, Douglas fir, radiata pine, sugar pine, spruce, and western hemlock forests.

- In Canada, 60,000 sheep have replaced herbicides on reforestation projects, increasing seedling survival and decreasing seedling costs. In grazed areas, seedling survival rose by nearly 86 percent, from 700 trees per hectare to 1,300. Meanwhile, tree planting costs decreased by \$.05 per seedling. So advantageous is this program that sheep producers in British Columbia have been paid \$35 per sheep per month to graze their ewes in newly planted conifer plantations.
- In California, Oregon, and Washington, the U.S. Forest Service finds sheep an effective replacement for herbicides in the control of brush and weeds that would otherwise crowd out conifer seedlings.
- In Oregon's coastal forests, forest managers have waived fees and paid \$10 per acre in trucking and herding costs to encourage ranchers to graze their sheep in newly planted forests. Over the three-year period needed for the new trees to become fully established, sheep grazing cost \$80 per acre less than the use of herbicides to control brush and other forest undergrowth.

- In California's Tahoe National Forest about 1,000 sheep help promote tree growth in a forest area that burned in 1978.
- Studies show that properly applied livestock grazing can increase conifer growth by reducing competing vegetation. Reported growth increases are as follows:
 - Western white pine, 44% height, 56% diameter
 - Western larch, 38% height, 61% diameter
 - Ponderosa pine, from 13% to 15% height, 9% to 27% diameter
 - High-elevation spruce, 13% height, 12% diameter
 - Low-elevation spruce, 5% height, 13% diameterIn addition, the Washington Department of Natural Resources found that as a direct result of sheep grazing Douglas fir grew 26% in diameter and 18% in height over a 20-year period.
- In public and private forests in California and the Pacific Northwest, sheep help prevent wildfires through the prescribed sheep grazing of overbrush and tall grasses.
- Oregon researchers report increased summer soil moisture and reduced moisture stress in trees in grazed, as opposed to ungrazed, forest tracts. Several researchers also observed increases in beneficial foliage nitrogen levels in trees within areas grazed by sheep, suggesting that sheep may increase soil nutrients. Soil studies appear to back this. Researchers detected 80 pounds of nitrogen per acre in spring, when sheep grazing is heavier, and 50 pounds per acre in the summer, when grazing is lighter.

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Sheep and Silviculture is a publication of the American Sheep Industry Association (ASI), which represents more than 100,000 U.S. sheep and angora goat producers. Sheep are a natural, low-cost means of managing forests and timberlands, even as they produce important resources, such as wool, meat, and lanolin. ASI is committed to proper grazing that benefits the environment, wildlife, the taxpaying public and consumers. For additional copies of this and other ASI pamphlets on sheep and the environment, contact the American Sheep Industry, 6911 S. Yosemite St., Centennial, CO 80112, (303) 771-3500.

