



SHEEP AND THE ENVIRONMENT

The Facts

On Sheep

Ecology



Sheep are a natural, low-cost means of managing our federal, state and private lands, even as they produce other resources, such as wool, meat, and lanolin. Proper grazing can benefit the environment, wildlife, the tax-paying public, and consumers. Here are some examples of the ways in which sheep protect and enhance our natural resources.

SHEEP AND SILVICULTURE

Sheep grazing can be an effective biological control program to increase conifer growth. Furthermore, sheep are far less costly than chemicals or mechanical vegetation-control measures. 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 hosts. So valuable is the service, that Canadian sheep producers are paid an average \$5 per sheep per month to graze their animals in the newly planted forests.
- In California's Tahoe National Forest about 1,000 sheep help promote tree growth in a forest area that burned in 1978.
- 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. The Washington Department of Natural Resources found that Douglas fir growth increased 26% as measured in diameter and 18% as measured in height over a 20-year period as a direct result of livestock grazing.

SHEEP AND RIPARIAN MANAGEMENT

In shrub dominated watersheds and riparian areas, sheep grazing can be used to manage vegetation and decrease soil erosion. The animals' pointed hooves puncture the soil pan and increase the ability of seeds to germinate and grow, ultimately establishing a beneficial vegetation root base for better water penetration.

- In Idaho, the Fish & Wildlife Service rated herded sheep grazing as nine on a scale of one to 10, with 10 rated as "non-use."
- In Utah, the U.S. Forest Service effectively uses sheep grazing for riparian restoration and watershed recovery. By clearing brush, sheep grazing at low to moderate intensities promotes the growth of the perennial grasses that enhance watersheds.



SHEEP AND WASTE MANAGEMENT

- Wool is being turned into oil-thirsty pads, mats, booms and mitts that can cleanup major oil spills quickly, cheaply, and without additional environmental damage. The products can be squeezed clean and reused up to eight times, and are then biodegradable in landfills.
- The Minnesota Department of Transportation uses sheep manure to treat petroleum contaminated soils. After such treatment, the soils are highly organic, while costs are reduced to an average \$13 per yard of soil versus \$40-\$60 per yard to incinerate the soil.

SHEEP AND WILDLIFE HABITAT ENHANCEMENT

Sheep grazing is a promising tool for enhancing wildlife habitats. Sheep foraging habits help create and maintain biological diversity. The key is for wildlife biologists, rangeland managers and sheep producers to devise grazing a formula that achieves the best outcome for a specific ecosystem.

- In western Oregon, early summer grazing provides black-tailed deer with higher protein vegetation during the critical winter months. The black-tail deer sharing these sheep-grazing habitats have heavier average body weights, are in better physical condition, and breed earlier than deer feeding in ungrazed areas.
- Canada uses sheep on Provincial lands to manage elk and deer habitat.
- Idaho uses sheep to manage and enhance mule deer and upland bird habitats.
- Improved rangeland conditions contributed to a significant increase in U.S. wildlife. Since 1960, elk populations have increased by nearly 800%, moose by 500%, bighorn sheep by 435%, and antelope by 112%.

“FIREFIGHTING” SHEEP AND BRUSH MANAGEMENT

Sheep eat woody and broadleaf plants as well as tall weeds and grasses. As a result, sheep are an ideal tool for controlling undergrowth in forests and other wooded areas. The U.S. Forest Service uses “firefighting” sheep as a low-tech, low-cost approach to undergrowth control on national forests. This approach benefits the forest environment by eliminating the need for herbicides, it benefits the Forest Service by reducing the need for costly manual clearing, and it benefits communities at risk of wildfires in neighboring forests.

- In California’s Angeles National Forest, northeast of Los Angeles, a herd of 6,000 sheep keep 13,000 acres of ridge top firebreaks free from flammable chaparral and other brush.
- Sheep act as brush-control on private lands in northern and southern California, as well as the Pacific Northwest.
- In Vermont and Alberta, Canada, sheep are used to control brush invasion on ski slopes.
- In Virginia, the National Parks Service uses sheep to control brush intrusion on Civil War battlefields.

SHEEP AND NOXIOUS WEED CONTROL

Noxious weeds are a major threat to both public and agricultural lands, killing surrounding vegetation and triggering soil erosion. The weeds not only make the land unfit for agriculture and cattle, they threaten to drive out native plant species and destroy wildlife habitat. Sheep are unique in that they readily consume plants other animals avoid or find toxic. As a result, sheep are used extensively to control noxious plants.

- Leafy spurge (*Euphorbia esula*) is an invasive, indestructible weed that infests an estimated 3 million acres of farm and public lands in 26 northern states. The problem is particularly severe in the Dakotas, Montana, and Wyoming. While leafy spurge is toxic to most animals, sheep thrive on the weed.
- In Montana, the Bureau of Land Management (BLM) found that proper sheep grazing resulted in up to 90% control of leafy spurge, greatly reducing the need for costly herbicides.
- In Oregon's Baker County, the first-ever spurge outbreak has been controlled for four seasons by sheep. An estimated 1,000 sheep trucked in from California graze the county's 80 spurge-infested acres at a cost of \$4,000, far less than herbicides.
- In eastern Colorado, Colorado State University researchers are combining sheep grazing with other methods — such as flea beetles, whose larvae dehydrate leafy spurge — to control the weed.
- In the West, sheep provide 85% control of spotted knapweed (*Centaurea maculosa*), another invasive and poisonous plant species. In Montana, alone, spotted knapweed has infested 810,000 acres, including parts of Glacier National Park.
- Montana State University researchers report that sheep successfully graze a variety of other noxious weeds. These include: fringed sagewort (*Artemisia frigida*), a western rangeland pest; kudzu (*Pueraria lobata*), a perennial vine that infests southeastern states; oxeye daisy (*Chrysanthemum leucanthemum*), a rangeland perennial herb; and tall larkspur (*Delphinium* spp.) a native herbaceous forb that is the leading cause of cattle deaths on mountain rangeland.



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