

Case Studies for Managing Invasive Plants

Mechanical Control, Biological Control, and Chemical Control

From: http://www.blm.gov/wo/st/en/prog/more/weeds/case_studies.print.html

Mechanical Control: Volunteers Lend a Hand! Piedras Blancas Light Station



Piedras Blancas Light Station, located on California's central coast, is named for the striking white rock ("piedras blancas") outcropping off its shore and known for its historic lighthouse, but the area offers significant biological resources as well. It provides important habitat for marine mammals and has the potential to be a showcase for central Californian coastal vegetation. Two sensitive plant species are found there in addition to a host of more common native plants.

These plants are threatened by iceplant, an invasive nonnative plant from South Africa introduced in the 1940s for erosion control and beach stabilization. When the BLM took over

management of Piedras Blancas in 2001, a continuous carpet of iceplant dominated much of the site and adjoining property. This plant takes over beach dunes, driving out native dune vegetation. More than 40 additional species of non-native plants were also found at Piedras Blancas.

Hard work by volunteers is slowly restoring the native vegetation. Every Tuesday and Thursday, weather permitting, a group of volunteers meets at the lighthouse; they pull weeds or engage in other restoration activities. Their efforts (over 5,000 person hours to date), have resulted in 2.5 acres cleared of iceplant, restoration is underway.

http://www.blm.gov/ca/st/en/fo/bakersfield/Programs/pbls/plant_restoration.html



Piedras Blancas, named for this white rock outcropping



Sheep on Spotted Knapweed in Montana

Mechanical Control Question: Can Sheep Help Reduce Weed Densities?

To find out, the BLM's Dillon, Montana, Field Office started a project with Montana Fish, Wildlife and Parks; The Montana Sheep Institute; Montana State University and a landowner organization, the Madison Valley Ranchlands Group. They let sheep graze spotted knapweed for 7 miles along the Madison River, using best management practices to protect the river. Utilization cages and vegetation composition transects revealed sheep impact on knapweed densities and vigor - sheep are grazing 70 percent of the knapweed and only 30 percent of the grasses; seed head production on the grazed knapweed is down between 65- 70 percent.



Biological Control: Flea Beetle Used on Leafy Spurge



Leafy spurge is an aggressive, persistent, deep-rooted perennial, growing to a height of 1 meter (3 ft) or taller. Listed as a noxious weed in 35 states, leafy spurge crowds out desirable plants, is toxic to cattle and horses, and costs producers and taxpayers an estimated \$144 million a year in just four states alone (Montana, Wyoming and North and South Dakota).

Using *Aphthona lacertosa*, a brown-legged leafy spurge flea beetle, has proven to be a cost effective and successful approach in controlling leafy spurge in Valley County in north central Montana. In 2009, the BLM – Glasgow Field office, in cooperation with Valley

County employees, collected over one million *A. lacertosa* beetles at Eagles Nest Coulee for redistribution to 16 major leafy spurge infested areas. Today, biological agents are well established on many sites within the infestation.

Biological control is supplemented with other tools to control the large infestations. Infestation boundaries are maintained with helicopter application of herbicides. A multi-species grazing program is also used to control leafy spurge in both the short and long term. However, biological control holds the most promise for long-term, sustainable leafy spurge management when incorporated as part of an integrated pest management plan.

Interns release biological control agents on leafy spurge.



Chemical Control: Bear Trap Wilderness Project

Wilderness Areas pose special management challenges. Weed infestations threaten to damage or degrade native plant communities, altering the wilderness character of an area. BLM treats weeds in Wilderness Areas only if deemed necessary and provided treatment will not cause serious adverse impacts to wilderness values.

The Bear Trap Canyon Wilderness Area, a unit of the Lee Metcalf Wilderness Area in southwest Montana, became BLM's first wilderness area in 1983. The 6,000-acre area encompasses spectacular scenery and offers popular Class IV – V whitewater rafting experiences. Another popular feature is the nine-mile Bear Trap Canyon National Recreation Trail which follows the river along the canyon.

The area has experienced a rapid expansion of noxious weeds, including the hardy and tenacious knapweed, whose seeds and taproot can remain viable deep in the soil for many years. The BLM's Dillon Field Office conducted an integrated weed management program for several years, using the methods that cause minimum impact. The approach includes targeted chemical treatment of trail segments receiving heavy public use. Each spring and summer, BLM staffers and partners hike into the area with backpack sprayers (vehicles are not allowed) to treat small infestations before they become large, and to retreat infestations that may persist. Using GPS, they plot the locations of new weed infestations before eradicating them. This multi-year program has dramatically reduced weed densities but it will take continuous monitoring and quick action to totally rid the Bear Trap Wilderness of noxious weeds. Given successes so far, however, the outlook is good.



Bear Trap Wilderness before treatment.



Bear Trap Wilderness after treatment.

<http://www.blm.gov/mt/st/en/info/newsroom/steward/08summer/beartrap.print.html>