

A Conservation Plant Released by the Natural Resources Conservation Service
Lockeford Plant Materials Center, Lockeford, CA

'Lassen'

antelope bitterbrush

Purshia tridentata (Pursh) DC



Figure 1: 'Lassen' Antelope bitterbrush (*Purshia tridentata* (Pursh) DC.) is a cultivar released in 1984 in cooperation with the USDA-FS, Shrub Sciences Laboratory, Natural Resources Conservation Service, and the Utah Division of Wildlife Resources. Seven other agencies in California, Idaho, Nevada, and Oregon cooperated.

Description

Antelope bitterbrush is a native, slow growing shrub with moderate to very deep roots. Mature plants are large, leafy shrubs with few basal stems. Leaves are wedge shaped and three lobed and tend to be persistent in winter. Leaves can vary in color from grey green to bright green. The plants have spreading crowns, heavy lateral spur production, and long ascending leaders. The average height at maturity is 8ft with a 10ft crown. Flowers are small, varying from white to yellow, and are produced profusely along each leader. Seeds are about 1/4 in long

and obovate. Seeds, stems, and leaves are nontoxic.

'Lassen's' uniform, erect growth habit contrasts with more decumbent, layering forms of bitterbrush.

Source

'Lassen' originates from seed collected from native stands near Janesville in Lassen County, CA. Since 1954, seed collected from this area was planted in selection trials and field plantings in northeastern California, western Nevada, Utah, Idaho, and eastern Oregon. Released in 1984, Lassen was extensively planted and studied over the 40 years prior to its release as an ecotype. It was selected for seedling vigor, productivity, upright growth habit, palatability, forage availability, seed production, and retention of overwintering leaves.

Conservation Uses

'Lassen' bitterbrush is recommended for restoring depleted rangelands, burned areas, mined lands, and other disturbed sites in the Intermountain west.

Soil stabilization: Antelope bitterbrush has been used extensively in land reclamation. It is a pioneer species on some harsh sites. Antelope bitterbrush enhances succession by retaining soil and depositing organic material. 'Lassen' has been used for reclamation and erosion control of mined areas and has the potential for use as a living snow fence.

Forage: 'Lassen' is valuable for improving forage quantity and quality for big game on fall and winter ranges. Cattle prefer antelope bitterbrush from mid-May through June and again in September and October. Winter crude protein content averages 8 percent, with 30 percent digestibility.

Wildlife: Antelope bitterbrush is browse for wildlife. Mule deer use of antelope bitterbrush peaks in September, when antelope bitterbrush may compose 91 percent of the diet. In northwestern Nevada and northeastern California, antelope bitterbrush is a critical winter food for mule deer although mature plants have antiherbivory adaptations and are considered of low nutritional value. Domestic livestock and mule deer may compete for antelope bitterbrush. Antelope bitterbrush seed is a large part of the diets of rodents, especially deer mice and kangaroo rats. It is considered medium quality cover for sage-grouse, who prefer lower growing cover.

Area of Adaptation and Use

Antelope bitterbrush occurs from New Mexico north to Colorado, Wyoming, Montana, and British Columbia, west to Idaho, and Washington, south to Oregon, California, and Nevada. 'Lassen' is a representative ecotype with a distribution in a narrow, 50-mile strip at the base of the eastern side of the Sierra Nevada Mountains from Susanville to Doyle growing in MLRA 22A and 22B. It occurs on dry lake beds, alluvial fans or

terraces, and low foothills. The soils are deep, gravelly, loamy coarse sands derived from granite.

'Lassen' has high potential for establishment on sites from 3,000 to 6,000 ft that receive 12 to 24 in of annual precipitation and that support, or once supported, antelope bitterbrush. It has performed well on sites with deep, coarse, well-drained, neutral to slightly acidic soils, but is not well adapted to basic, fine-textured, or poorly drained soils.

Establishment and Management for Conservation Plantings

On rangeland sites; 'Lassen' antelope bitterbrush should be seeded in late fall to permit field stratification. Seedbed preparations are required for successful establishment. Recommended seeding rates are 1 to 3 pounds of pure live seed per acre. Good weed control is important for the first 2 years, particularly when cheatgrass is present. Fencing out grazers for the first 3-5 years after planting is essential for good establishment.

Antelope bitterbrush seedlings are often transplanted on critical sites. In such cases, moisture must be adequate to ensure survival in the first year. One-year-old bareroot or containerized seedling stock, 6 to 24 inches tall, is recommended.

'Lassen' remains productive despite heavy browsing. However, stand conditions deteriorate, when annual use exceeds 60 percent of the annual growth. 'Lassen' is not fire-tolerant and resprouts infrequently following burning.



Figure 2. Shoot of 'Lassen' Antelope bitterbrush,

Ecological Considerations

Several insects and diseases are known to damage the foliage, seed, and seedlings of antelope bitterbrush, and 'Lassen' is no more or less susceptible than other species. High-density grasshopper populations can destroy 'Lassen' seedlings.

Seed and Plant Production

The area where 'Lassen' originates contains large, dense populations of this ecotype, as many as 200 plants per acre covering hundreds of acres.

Plants in wild-land stands reach full production in 8 to 20 years, but this period may be reduced to about 5 years for seed orchards. Seed matures evenly and is harvested by hand in early July. Mature seed must be harvested within 3 to 10 days of ripening, as it is quickly dispersed from the shrub. Seed collection and orchard maintenance are simplified by the upright growth habit. Experience has shown dryland seed orchards produce as much as 200 pounds per acre. Seeds are easily cleaned to 95 percent purity, using a two-screen fanning mill and barley debearder. Germination usually exceeds 80 percent and seeds remain viable for several years under good storage conditions. The seeds are large for the species 15,500 per pound.

Availability

For conservation use: 'Lassen' seed continues to be collected from the Janesville area and is available for sale from specialized commercial seed companies.

For seed or plant increase: Plantings of 'Lassen' ecotype are maintained by the USDA-NRCS Lockeford Plant Materials Center in Lockeford, CA. Cuttings in limited amounts can be provided upon request.

For more information, contact:

USDA-NRCS

Lockeford Plant Materials Center
21001 N. Elliott Road, P. O. Box 68
Lockeford, CA. 92537

Tel: (209) 727-5319 Fax: (209) 727-5923

<http://plant-materials.nrcs.usda.gov/capmc>

Citation

Release Brochure for 'Lassen', Antelope bitterbrush, *Purshia tridentata* (Pursh) DC. USDA-Natural Resources Conservation Service, Lockeford Plant Materials Center, Lockeford, CA 95237. Published February 2014

For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov>>.

Helping People Help the Land

USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER