

Mill Creek Germplasm silver buffaloberry

Shepherdia argentea (Pursh) Nutt.

A Conservation Plant Release by the USDA-NRCS Bridger Plant Materials Center, Bridger, MT



Mill Creek Germplasm silver buffaloberry in a test plot near Anaconda, Montana

Mill Creek Germplasm silver buffaloberry *Shepherdia argentea* (Pursh) Nutt. (accession number 9081334) is a Selected class release made in 2010 by the USDA-NRCS Bridger Plant Materials Center (BPMC), in cooperation with the Deer Lodge Valley Conservation District, Deer Lodge, Montana, and the Montana and Wyoming Agricultural Experiment Stations.

Description

Mill Creek silver buffaloberry is a native, thicket-forming shrub to small tree growing to a mature height ranging from 3 to 20 feet and a crown width of 8 to 14 feet. The branches often terminate in thorns. The winter deciduous leaves are simple, oblong-elliptical 1 to 2 inches long (2 to 5 centimeters) with entire margins and silvery-grey on both surfaces. The yellowish male and female flowers grow from leaf axils on separate plants (dioecious). Fruits are reddish, globe-shaped (drupes) 1/8 to 1/4 inch across. The seed is a small, very-hard shiny-brown achene. This accession is red-fruited, although silver buffaloberry can produce orange to yellow berries.

Origin

Mill Creek seed was originally collected in 1995 on the east side of "B" Hill near Radio Hill Road, south of Anaconda, Montana, as part of the Development of Acid Tolerant Cultivars (DATC) project. Seeds of several individual plants were bulked to create the accession. The site was severely wind and water eroded. The soil surface pH in the collection area ranged from 4.5 to 6.0.

Conservation Uses

Mill Creek silver buffaloberry was specifically selected for reclamation of sites contaminated by acid and heavy metal deposition from smelting in the Anaconda, Montana area. Mill Creek, like the species, can be used in a wide variety of other conservation applications including soil building and stabilization, windbreaks, shelterbelts, riparian restoration, wildlife plantings, living snowfences, low maintenance landscapes, and wildlife enhancement projects.

Area of Adaptation

Silver buffaloberry grows from Kansas, New Mexico, Nevada, and Utah in the south, and north into the Canadian western plains. Typically found on sandy soils, it is adapted to medium- to fine-textured soils with high water holding capacity, but can tolerate a wide range of soil conditions including moderate salinity. Nitrogen fixing bacteria on its roots facilitates growth in low fertility soils. It is adapted to areas with 15 to 20 inches average annual precipitation and up to 7,500 feet

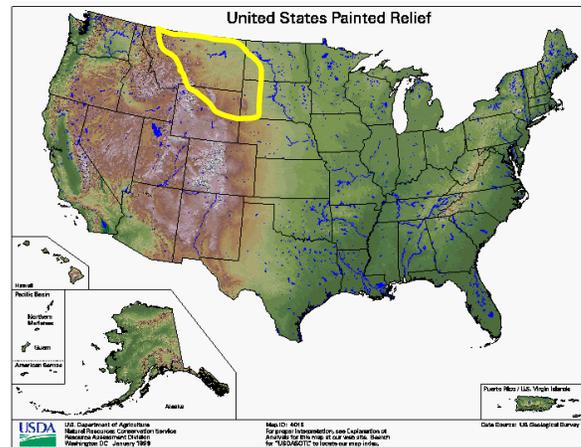


Figure 1. Area of adaptation for Mill Creek Germplasm silver buffaloberry

elevation. Mill Creek has performed well in climatic conditions typical of the northern Great Plains, as well as western Montana in locations where elevations exceed 5,000 feet. Planted as 6- to 12-inch nursery stock, it reached a mean plant height of 34 inches on a tilled and fertilized test site in a 14-inch annual precipitation zone eight years after planting without supplemental irrigation. Plant height in the BPMC orchard averaged 7 to 10 feet nine years after planting where it has shown excellent survival and fruit production under irrigation on dense, clayey soils. It is assumed Mill Creek's establishment and growth traits are heritable and the progeny's appearance

and performance will be similar. Mill Creek's general botanical attributes are similar to 'Sakakawea', a Bismarck Plant Materials Center release of silver buffaloberry (seed source with Canadian origin).

Field testing of Mill Creek has been limited to the immediate area of its origin and the BPMC in south-central Montana where it has performed well. It appears best adapted to low- to mid-elevations ranging from 3,000 to 7,500 feet (see Figure 1). This selection should prove well adapted for use on many drastically disturbed acidic and heavy metal impacted areas of low- to mid-mountain elevations in the northern Rocky Mountain region, given other favorable environmental conditions.

Establishment and Management for Conservation Plantings

Dormant bareroot or container nursery stock, planted in the spring, is the preferred planting method for Mill Creek silver buffaloberry. A small to modest percentage of Mill Creek seeds germinate without pre-treatment, although moist:chilling improves both total germination and germination rate. Mill Creek averages 40,000 seeds per pound. Mill Creek can be established by direct seeding in the early spring or by dormant sowing in late fall or early winter.

The recommended seeding rate for silver buffaloberry for a full stand is 0.5 to 1.0 pounds of pure live seed (PLS) per acre, although less seed is used when combined with other species in a mix. A seeding depth of ½- to ¾-inch is recommended.

Ecological Considerations

No serious insect or disease problems have been observed on Mill Creek silver buffaloberry. Wildlife browsing of young silver buffaloberry plants by deer has been reported as a problem limiting stand establishment.

Seed Production and Propagation

Mill Creek begins seed production at approximately eight to nine years of age under fallow; dryland conditions at Bridger, Montana, with substantial production at 10 years of age (see Figure 2). Seed production varies from year-to-year, although most plants produce some fruit and seed every year. Because it is dioecious and the sex of seedlings cannot be determined until reproductive maturity is reached, seed orchards should be planned large enough to assume at least 50% of seedlings will be male. Peak production and ripeness normally occurs around mid-September into October. Seeds are expected to remain viable for at least five years when stored in a dry location.



Figure 2. Mill Creek seed orchard at the BPMC

Availability

Commercial seedlings are available from state and private conservation seedling nurseries. Seed of Mill Creek silver buffaloberry for commercial seedling production is available by contacting the Foundation Seed Stocks Program, Department of Plant Sciences and Plant Pathology, Montana State University, Bozeman, Montana 59717-3150 or Wyoming Seed Certification Service, Powell Research and Extension Center, University of Wyoming, P.O. Box 983, Powell, Wyoming 82435-9135.

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References for this brochure available upon request.

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://plant-materials.nrcs.usda.gov>>

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