Plant Data Sheet: Antelope bitterbrush (*Purshia tridentata*)

Range

Bitterbrush is found from British Columbia south along the east Cascades and Columbia Gorge. It is found as far south as California and east to Wyoming, western Montana, Colorado, and New Mexico [1,2].

Climate, elevation

Bitterbrush prefers a semi-arid, inland climate. It is found from 60-3000 meters in elevation [2].

Local occurrence

Bitterbrush is common in the sagebrush steppe of eastern Washington and is often a dominant shrub in ponderosa pine forests.

Habitat preferences

Bitterbrush is typically found on open, well-drained flats, slopes, and valleys with deep gravel or rocky soils [2].

Plant strategy type/successional stage

Antelope bitterbrush is shade intolerant. It is an early colonizer on disturbed sites, perhaps due to its nitrogen-fixing ability. In areas where bitterbrush dominates and natural regeneration is not occurring, old and large individuals may be the climax community. It is likely that overgrazing has changed the natural succession and role of bitterbrush in some communities [1].

Associated species

Bitterbrush is often found in the following communities: Antelope bitterbrush-bluebunch wheatgrass (*Pseudoroegneria spicata*), antelope bitterbrush-Idaho fescue (*Festuca idahoensis*), other steppe vegetation, and tree-dominated types such as ponderosa pine (*Pinus ponderosa*) forest and juniper (*Juniperus* spp.) woodland [1,2].

May be collected as: (seed, layered, divisions, etc.)

Bitterbrush is typically collected as seed. Propagation by stem cuttings is also possible, although specific details on the procedures are not readily available [1].

Collection restrictions or guidelines

Bitterbrush reaches seed-bearing age in 8 to 10 years. Seeds ripen in late summer and generally turn from

light in color, to dark red, and then to gray as they ripen. The seeds can be collected by shaking them from the bush onto a tarp or into a container. They should then be cleaned with a de-winger and separated from the husks with a fanning mill [2].

Seed germination

The bitterbrush seed is a leathery, oblong achene 0.6-1.25 cm in length. To break dormancy, it should be stratified for 2-7 weeks at 2-5°C. Stratified seed must be sown while wet. A five-hour soak in a three percent hydrogen peroxide solution is an effective short-term treatment to improve germination [2].

Seed life and recommended storage conditions

Field dried seed can be stored in bags in a cool, dry place for up to five years [2]. Some studies have shown a germination rate of 74% after 25 years of storage when in proper conditions [1].

Propagation recommendations

Seed should be sown in the spring or fall. It should not be sown more than two centimeters deep [2].

Soil or medium requirements

The propagation medium should be well drained.

Installation form (form, potential for successful outcomes, cost)

Direct seeding of antelope bitterbrush has shown mixed results. Research has shown that direct seeding is fairly successful in pinyon-juniper communities, but less so in big sagebrush and mountain brush types. Establishing antelope bitterbrush from small seedlings requires good seedbed preparation, including weed control. Seedling survival can be very low, especially when the seedlings must compete with cheatgrass (*Bromus tectorum*). Installation of larger, containerize individuals has shown more success in some studies [1].

Recommended planting density

Shrubs should be installed 3-5 feet on center depending on the desired density and expected mortality [3].

Care requirements after installed

Information on care requirements was not available. Supplemental water would, of course, increase survival of any plant in an arid environment.

Normal rate of growth or spread; lifespan

Adult plants reach 0.5-2 meters in height. Bitterbrush is fairly slow growing and long lived.

Sources cited

(1) *Purshia tridentata.* Fire effects information website. U.S. Forest Service, U.S. Department of Agriculture. http://www.fs.fed.us/database/feis/plants/shrub/ purtri/all.html. Retrieved May 5, 2003.

(2) Rose, R. et al (1998). Propagation of Pacific Northwest Native Plants. Corvallis, OR: Oregon State University Press.

(3) Sound Native Plants. http://www.soundnativeplants.com. Retrieved May 5, 2003.

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