

HOOKER'S BALSAMROOT

Balsamorhiza hookeri (Hook.)
Nutt.
Plant Symbol = BAHO

Contributed by: USDA NRCS Plant Materials Center,
Aberdeen, Idaho



Hooker's balsamroot. Photo by Mrs. W.D. Bransford, Lady Bird Johnson Wildflower Center.

Alternate Names

Cutleaf balsamroot, cutleaf sunflower, hairy balsamroot.

Uses

Livestock and big game utilize Hooker's balsamroot. It is rated as desirable forage for cattle, sheep, horses and elk during the spring and for deer and antelope in both spring

and summer (Ogle and Brazee, 2009). Leaves are grazed lightly and flowers are often eaten. The plant becomes dry and worthless as forage by midsummer (Forest Service, 1937; Herman, 1966). It is recognized by pollination ecologists as attracting large numbers of native bees (Lady Bird Johnson Wildflower Center, Online). It may have some value for restoration but is not a dominant or major species in its area of adaptation.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Ethnobotany

The Atsugewi people parched, winnowed and ground the seed into cakes. The Gosiute, Northern Paiute, and Okanagan-Colville cooked and ate the roots. The Paiute used the plant root for food, as a decoction to treat severe stomach problems and for bladder troubles. The Washo made a decoction of the root to treat gynecological complaints (Native American Ethnobotany, Online)

Description

General: Sunflower Family (Asteraceae). Hooker's balsamroot is a perennial, native forb. It has a carrot-like taproot and simple crown, often producing slender, short creeping roots from which new plants arise, so that separate rosettes are connected underground. The leaves are 10-40 cm (3.9-15.8 in) long, basal, and deeply segmented. The flower stems are lax, 6-50 cm (2.3-19.7 in) tall. Flowers are solitary, involucre bracts are subequal or somewhat imbricate and woolly to hairy. The yellow sunflower-like flowers are 5-7 cm (1.9-2.8 in) wide. The fruit is an achene with no pappus. The chromosome number is $2n = 38$ (Cronquist et al., 1994; Lady Bird Johnson Wildflower Center, Online). PLANTS Database (Online) recognizes six varieties: *hirsuta*, *hispidula*, *hookeri*, *idahoensis*, *lagocephala*, and *neglecta*. The ill-defined differences between the varieties are based on leaf and involucre bract differences, and geographic distribution (Cronquist and others, 1994).

Distribution: Hooker's balsamroot is found in the western United States from Washington east to Montana, south into Colorado and Arizona and westward into California. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Hooker's balsamroot is a minor component of plant communities found in lowlands and foot hills in

grasslands, dry woodlands and shrublands (Munger, 2006).

Adaptation

Hooker's balsamroot is adapted to dry, open, and rocky or gravelly sites occurring mainly in foothills from 2,600 – 9,500 feet (792-2896 m) elevation. It is adapted to fine, medium, and coarse textured soils in areas receiving 9-20 inches (228-508 mm) annual precipitation and pH ranges from 6.6-9.0. It has medium tolerance to salinity, intermediate shade tolerance and no tolerance for flooding conditions. It is often one of the earliest plants to produce leaves and flowers in the spring (Munger, 2006; PLANTS Database).

Establishment

There is no published information on the establishment of Hooker's balsamroot. Monsen et al., (2004) infer that establishment, production, and management of Hooker's balsamroot are similar to arrowleaf balsamroot (*Balsamorhiza sagittata*).

Hooker's balsamroot should be drill-seeded into a weed-free seedbed in late fall. Seeding depth should be 0.25-0.50 inches (0.6-1.3 cm). Broadcast seeding can be successful if seed can be covered by dragging or harrowing. There are 55,000 seeds per pound (PLANTS Database). The calculated seeding rate based on 25 pure live seeds (PLS) per square foot at 12 inch row spacing is 19.8 pounds PLS/ac. When planted in a mixture, the seeding rate should be adjusted according to the proportion of Hooker's balsamroot in the mix. Young seedlings develop slowly and are not competitive against more vigorous species. Alternate row seeding is recommended for arrowleaf balsamroot to help reduce interspecies competition and dense stands may take 10 years or more to develop (Monsen et al., 2004). This is likely to be similar for Hooker's balsamroot.

Management

Hooker's balsamroot should be used as a minor component of seed mixtures. Management strategies should be based on the key species in the established plant community. Grazing should be deferred on seeded lands for at least two growing seasons to allow for full stand establishment (Ogle et al., 2008).

Hooker's balsamroot is tolerant of fire due to its deep taproot. Following fire, the species will often regenerate from the persistent caudex (Munger, 2006).

Pests and Potential Problems

There is no published information regarding pests and potential problems of Hooker's balsamroot. Since it is similar to arrowleaf balsamroot, the following information on pests and potential problems is from Tilley et al., (2012). Rodents and birds feed on the seed. Insect damage to seed can be significant and stored seed may require pesticide treatment and cold storage. Mold has

been observed on seedlings in greenhouse and growth chamber production.

Environmental Concerns

Hooker's balsamroot is native to western North America. It can spread under favorable conditions but does not pose any environmental concern to native plant communities.

Seed and Plant Production

There is no published information regarding seed and plant production of Hooker's balsamroot. Since it is similar to arrowleaf balsamroot, the following information on seed and plant production is from Tilley et al., (2012). Seed requires stratification for germination and for container plant production, seed should be planted into containers to a depth of 0.25-0.5 inches, lightly covered with pea gravel and then placed outdoors in late fall or early winter for natural stratification. Transplanting is difficult and plants should be handled carefully to prevent damage to the root system. Plants develop slowly and take 3 or more years after establishment to produce flowers.

Seed production fields are typically planted at 36-42 inch row spacing to facilitate between-row cultivation. Seed should be planted at a depth of 0.25-0.5 inches in the fall to allow for natural stratification. Germination is erratic with new plants appearing for 2- 3 years after planting. Once established, Hooker's balsamroot is probably very competitive with weeds which may be controlled by hand, between-row cultivation and herbicides.

Fertilizer is not generally recommended and irrigation is limited to 15-20 inches (381-508 mm) per year including natural precipitation. Overhead irrigation should be avoided during pollination. It is very likely that Hooker's balsamroot requires insect visitation for pollination. Plants are slow to develop and may take 3-5 years to reach full production. Peak yields of arrowleaf balsamroot of 75 to 125 pounds per acre have been reported.

As with arrowleaf balsamroot, seed crops of Hooker's balsamroot may often be damaged by frost during flowering. Harvest can be done by hand, with a vacuum-type harvester, or by direct combining. Timing of harvest is critical. Mature, viable seed readily shatters. Seed cleaning is easy with the seed falling readily from the flower heads. Seed should be stored at cool temperatures ranging from 33-40°F (1-4°C). Seed is susceptible to insect damage and can be treated with pesticide prior to storage.

Cultivars, Improved, and Selected Materials (and area of origin)

There are no cultivars, improved, or selected materials of Hooker's balsamroot. Common wildland collected seed is available from commercial sources (Native Seed Network).

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Prepared By:

Loren St. John, USDA NRCS Plant Materials Center, Aberdeen, ID

Derek Tilley, USDA NRCS Plant Materials Center, Aberdeen, ID

Citation

St. John, L. and D. Tilley. 2012. Plant Guide for Hooker's balsamroot (*Balsamorhiza hookeri*). USDA-Natural Resources Conservation Service, Aberdeen Plant Materials Center. Aberdeen, Idaho 83210.

Published June, 2012

Edited: 6June2012ls; 8June2012djt; 11June2012gm; 18June2012jab

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