

## GOOSEBERRYLEAF GLOBEMALLOW *Sphaeralcea grossulariifolia* (Hook. & Arn.) Rydb. Plant Symbol = SPGR2

Contributed by: NRCS Plant Materials Center,  
Aberdeen, ID



Gooseberryleaf globemallow. Photo by Clint Shock.  
Malheur Experiment Station, Oregon State University.

### Alternate Names

Currant-leaf globemallow

### Uses

**Forage:** Globemallow species are grazed opportunistically by pronghorn antelope, deer, elk, and bighorn sheep (Beale et al., 1970; Rumbaugh et al, 1993). The leaves, fruits and seeds are eaten by rodents, rabbits and birds (Pendery and Rumbaugh, 1986). Palatability of globemallow species has been rated desirable to preferred in spring and summer for sheep and antelope and desirable in spring, summer

and fall for cattle, horses, deer and elk. (Ogle and Brazee, 2009).

**Pollinator habitat:** Globemallow species are known to attract numerous species of native bees including *Diadasia*, *Agapostemon*, *Halictus*, *Melissodes* and *Calliopsis* (Pendery and Rumbaugh, 1986). Some bee species are specialists which only forage pollen and nectar from *Sphaeralcea* and related taxa of the mallow family (Tepedino, 2011).

**Range revegetation:** Gooseberryleaf globemallow is well adapted to arid to semi-arid environments in the western United States. It establishes from seed and also by transplanting and has been shown to be competitive against cheatgrass and other winter annuals (Stevens and Monsen, 2004).

**Ethnobotanical:** Hopi Indians used boiled or chewed roots for bowel problems and for broken bones (Colton, 1974).

### Status

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).

### Description

**General:** Mallow family (Malvaceae).

Gooseberryleaf globemallow is a native perennial forb to subshrub with few to many stems arising from a deep, branched woody caudex. Mature plants range from 35 to 75 cm (14 to 30 in) in height. This species is morphologically diverse. Stems and leaves can be white to gray with dense stellate hairs, or green and sparsely hairy. The leaves are typically 3 to 5 lobed with the lobes distinct to the base, the blades 1.2 to 5 cm (0.5 to 1.0 in) long. Flowers are orange or rarely rose pink with 5 petals ranging from 8 to 18 mm (0.3 to 0.7 in) in length. The fruit is a schizocarp with 8 to 20 carpels (Welsh et al, 2003). There are approximately 1,100,000 seeds per kilogram (500,000 seeds per pound).

**Distribution:** Gooseberryleaf globemallow is native to western North America from Idaho south to New Mexico and west to arid regions of Washington, Oregon and California. For current distribution, consult the Plant Profile page for this species on the PLANTS Web site.

**Habitat:** Gooseberryleaf globemallow occurs in cool and warm desert shrub communities in western North

America. It is commonly found in salt desert shrub shadscale and saltbush plant communities. It is also found in the drier portions of sagebrush and pinyon-juniper plant communities. (Holmgren et al, 2005; Welsh et al, 2003).

### **Adaptation**

Plants can be found in open deserts, playas, hillsides and canyons from 800 to 2,300 m (2,600 to 7,500 ft) elevation in areas receiving 15 to 30 cm (6 to 12 inches) of annual precipitation. Gooseberryleaf globemallow is often found as an early to late seral species in open or disturbed sites. The species is adapted to clay to gravelly soils, and is moderately alkali (saline to sodic) tolerant (Pendery and Rumbaugh, 1986).

### **Establishment**

Gooseberryleaf globemallow should be planted with a drill or broadcast into a weed-free seed bed at a rate of 2.2 kg pure live seed (PLS) per ha (2 lbs PLS per acre) and at a depth of 3 to 6 mm (1/8 to 1/4 in) (Ogle et al, 2011). When planted in a mix, the seeding rate should be adjusted according to the proportion of the mix. The seed has an impermeable seed coat and should be scarified using boiling water or other treatment prior to planting if a high initial germination rate is desired.

### **Management**

Gooseberryleaf globemallow should be used as a minor component of restoration 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.

### **Pests and Potential Problems**

Rust (*Puccinia sherardiana*) and powdery mildew (*Leveillula taurica*) have been observed on gooseberryleaf globemallow (Briere and Franc, 1998; Sampangi et al., 2010).

### **Environmental Concerns**

None

### **Seed and Plant Production**

Harvested seed can be cleaned by processing with a brush machine or hammer mill and air screening equipment. There are approximately 1,100,000 seeds per kilogram (500,000 seeds per pound) (USDA NRCS, 2011).

Gooseberryleaf globemallow, like other members of the *Sphaeralcea* genus, has an impermeable seed coat which functions as a physical dormancy mechanism. Little improvement in germination has been found from cold-moist stratification alone. Smith and Kratsch (2009) report significant germination improvements for globemallow seed following the

combination of scarification (nicking the seed coat) and a 6 wk cold stratification. Smith and Kratsch (2009) suggest that *Sphaeralcea* may exhibit a double dormancy with physical and physiological mechanisms.

Germination of Munro's globemallow (*S. munroana*), thought by some to be the same species or a subspecies of gooseberryleaf globemallow, was significantly improved with scarification (35 %) and a combined scarification and stratification (44 %) treatment compared to a non-treated control (<10 %) (Kildisheva and Davis, 2011). Scarification alone and scarification followed by a 24 hour water or gibberilic acid (GA<sub>3</sub>) soak achieved the highest germination (87%, 93 % and 88 %, respectively).

Mechanical scarification treatments can cause globemallow embryo damage. Page et al. (1966) and Roth et al. (1987) suggest seeds of Munro's globemallow died following mechanical scarification in a sandpaper-lined rotating drum, irrelevant of treatment duration.

Chemical scarification treatments have been shown to be effective for some globemallow species (Page et al. 1966, Sabo et al. 1979, Roth et al. 1987, Smith and Kratsch 2009). Submergence in 18 M sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) for 10 min significantly increased germination of scarlet globemallow, (*S. coccinea*) (77 %) and two accessions of gooseberryleaf globemallow (69 % and 62 %, respectively).

Jensen (2011) found improved germination with the application of boiling water to seed prior to planting. He also found with this treatment that no stratification period is necessary. Kildisheva and Davis (2011) compared the effects of a 10 second submergence in boiling water, tumbling with aluminum oxide, burning, heat application at 80° C for 1 hr, and the combination of burning and heating. Seeds subject to the boiling water treatment reached the highest cumulative germination (49%); while seeds subject to the other treatments did not exceed 20% germination.

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

Common wildland collected seed is available through commercial sources. There are currently no commercial releases of gooseberryleaf globemallow.

### **References**

- Beale, D.M. and A.D. Smith. 1970. Forage use, water consumption, and productivity of pronghorn antelope in Western Utah. *Journal of Wildlife Management* 34:570-582.
- Briere, S.C. and G.D. Franc. 1998. First report of leaf and stem rust caused by *Puccinia sherardiana* on *Sphaeralcea grossulariaefolia* in North America

- and *S. munroana* in Wyoming. Plant Disease 82(7) 831.
- Colton, H.S. 1974. Hopi History and Ethnobotany. In: D.A. Horr (ed.) Hopi Indians. Garland: New York.
- Herman, F.J. 1966. Notes on Western Range Forbs: Curciferaceae through Compositaceae. USDA Forest Service. Ag Handbook No. 293.
- Holmgren, N.H., Holmgren, P.K. and A. Cronquist. 2005. Intermountain Flora: Vascular plants of the Intermountain West. New York: The New York Botanical Garden. 488 p.
- Jensen, S. 2011. Personal Communication. Provo, UT. USDA Forest Service. Botanist.
- Ogle, D., D. Tilley, J. Cane, L. St. John, K. Fullen, M. Stannard, and P. Pavsek. 2011. Technical Note 2A: Plants for pollinators in the Intermountain West. USDA-NRCS. Boise, ID. ID-TN2A. 40p.
- Ogle, D. and B. Brazee. 2009. Technical Note 3: Estimating initial stocking rates. USDA-NRCS. Boise, ID. ID-TN 3. 31p.
- Ogle, D., L. St. John, M. Stannard and L. Holzworth. 2011. Technical Note 24: Conservation plant species for the Intermountain West. USDA-NRCS, Boise, ID-Salt Lake City, UT-Spokane, WA. ID-TN 24. 57p.
- Pendery, B.M. and M.D. Rumbaugh. 1986. Globemallows: forbs for Utah rangelands. Utah Science 47:41-45.
- Roth, T.E., J.L. Holechek, and M.Y. Hussain. 1987. Germination response of 3 globemallow species to chemical treatment. Journal of Range Management 40:173-175.
- Rumbaugh, M.D., H.F. Mayland, B.M. Pendery, and G.E. Shewmaker. 1993. Utilization of Globemallow (*Sphaeralcea*) taxa by sheep. J. of Range Mgmt. 46:103-109.
- Sabo, D.G., G.U. Johnson, W.C. Martin and E.F. Aldon. 1979. Germination requirements of 19 species of arid land plants. USDA Forest Service Research Paper RM-210. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado.
- Sampangi, R., Aime, M.C., Mohan, K., and C. Shock. 2010. New and re-emerging rust diseases from Idaho and Oregon. Phytopathology. 100:S113.
- Smith, A. and H. Kratsch. 2009. Seed Propagation of *Sphaeralcea* (Globemallow). Hortscience 44:1139-1140.
- Stevens, R. and S.B. Monsen. 2004. Forbs for seeding range and wildlife habitats. In: S.B. Monsen, R. Stevens, and N.L. Shaw [compilers]. Restoring western ranges and wildlands. Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station. General Technical Report RMRS-GTR-136-vol-2. p. 425-466.
- Tepedino, V. 2011. Globemallow bee (*Diadasia diminuta*). [Online] Available at [http://www.fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/globe\\_mallow\\_bee.shtml](http://www.fs.fed.us/wildflowers/pollinators/pollinator-of-the-month/globe_mallow_bee.shtml). (Accessed Nov. 11, 2011). ARS Pollinating Insects-- Biology, Management and Systematics Research, Logan, UT.
- [USDA NRCS] USDA Natural Resources Conservation Service. 2011. The PLANTS Database. URL: <http://plants.usda.gov> (accessed Nov. 8, 2011). Baton Rouge (LA): National Plant Data Center.
- Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins. 2003. A Utah Flora. Third Edition, revised. Brigham Young University, Provo, UT.

#### Prepared By

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

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

Dan Ogle, USDA NRCS, Boise, Idaho

#### Citation

Tilley, D., St. John, L., and D. Ogle. 2011. Plant guide for Gooseberryleaf globemallow (*Sphaeralcea grossulariifolia*). USDA Natural Resources Conservation Service. Aberdeen, ID.

Published November 2011

Edited: 8Nov11djt; 8Nov11dgo; 8Nov11ls

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

PLANTS is not responsible for the content or availability of other Web sites.