

GREENLEAF MANZANITA

Arctostaphylos patula E.
Greene
Plant Symbol = ARPA6

Contributed By: Santa Barbara Botanic Garden &
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Uses

The fruits of greenleaf manzanita are utilized by bear, deer, other small mammals, and a wide array of birds. Infusions of the leaves and bark were used by some native Americans to treat cuts and burns. The crooked wood of central stems and lower branches are used in several cottage industries, including lamp stands and other decorative wood crafts.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description

General: Heath Family (Ericaceae). Greenleaf manzanita is an erect evergreen shrub 1-2 m tall, with a broad, rounded crown. It has a basal burl and consequently resprouts after fire. The bark of young twigs is resinous to short hairy with golden glands, but mature bark is smooth and bright red-brown. Leaves have short petioles with ovate to almost round blades that are 2-5 cm long, 1.5-4 cm wide, bright yellowish green, and glabrous on both sides. The flowers, which open from April to June, are arranged in panicles with glandular scale-like bracts that are 3-

7 mm long. The urn-shaped corollas are white, sometimes tinged with pink, and 6-8 mm long. The fruits are globose, 7-11 mm in diameter, smooth and chestnut brown, with a mealy pulp that encloses several, hard-walled seeds.

Hybrids between greenleaf manzanita and the prostrate kinnikinnick (*A. uva-ursi*) are found wherever the two species come into contact. Such hybrids have a spreading form, dense foliage, and white to pinkish flowers, which offer some promise as landscape ornamentals in areas experiencing cold winters.

Distribution

Arctostaphylos patula is one of the most widespread manzanitas, ranging throughout the mountains of western North America as far east as Colorado. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Establishment

Adaptation: It inhabits well-drained, rocky slopes in association with coniferous forests and high elevation chaparral. Its general geographic range is characterized by cool, relatively dry summers and wet winters with precipitation ranging from 50 to 80 inches per year, partly as snow. It prefers well-drained, acidic soils in open sunny sites. Greenleaf manzanita has a high tolerance for cold, below-freezing winters, but depends partly on snow cover to protect dormant buds. Occasional fires may be important to successful seed germination and establishment and to crown sprouting in senescent plants.

Natural Establishment: *Arctostaphylos patula*, like most manzanita species, requires insect visitation to ensure seed-set. The flowers are pollinated most effectively by bees that grasp the flower and shake it by actively beating their wings. This process, like shaking a salt and pepper container, permits efficient collection of the pollen, which is used for food. Fruits are dispersed primarily by animals, which presumably aid later germination by ingesting and digesting the fruit and softening the outer seed coat. However, natural germination is sporadic except after fire, which cracks the hard coat of seeds that have accumulated in the litter layer. Greenleaf manzanita prefers loose, well-drained soils and, like other members of the heath family (Ericaceae), has an obligate relationship with mycorrhizal fungi.

Seed Propagation: Propagation from seed is difficult, because of the thick, bony seed walls and low rates of germination (less than 10%) without treatment. However, if propagation from seed is desired, treatment must ensure that the seed coat is broken without damaging the embryo. Individual seeds may be filed with a steel file, but larger quantities can be treated by placing them into a container of boiling water that is removed from the source of heat after 1-2 minutes. Seeds also respond well to burning, which is accomplished by firing a 4-inch deep layer of combustible leaves and twigs over a flat planted with seeds. These treatments crack the seed coats but may reduce viability. Treated seeds should be stratified in a moist mix of milled sphagnum and beach sand for 2-8 months until they germinate. Other techniques, including use of sulfuric acid to soften the seed coat, may enhance germination, but also requires special precautions against spillage and contamination.

Vegetative Propagation: Vegetative propagation is preferred over seeds. Greenleaf manzanita is most easily propagated by cutting terminal shoots that include 1-2 inches of the woody stem from the previous year. Cuttings work best if taken between March and May and should be dipped in a rooting hormone before being placed in a moist sand-peat mixture. Cuttings need to be kept moist by regular watering or misting until roots appear. Once rooted, they should be transplanted into small containers using potting soil, to allow for proper root development. Manzanitas generally do not transplant well, so they should be grown to vigorous conditions in one-gallon containers and then moved to a permanent position in the late fall or early winter. Relatively slow growth rates during the first few years can be expected. If plants are used in an urban landscape, the use of organic-rich soils and acidified fertilizers is recommended.

Management

Under natural conditions, no special management is required to maintain established manzanitas. Either scarified seeds or well-rooted container plants may be used to revegetate cleared sites. In the urban landscape, several horticultural techniques should be used to ensure healthy plants. All manzanitas should be planted higher than the surrounding soil to prevent crown rot, which can result from excessive water and soil moisture, especially during the summer. Overhead watering should also be avoided because it tends to encourage fungal diseases (e.g., *Botryosphaeria*) that cause branch die-back and leaf spot. Manzanitas are also susceptible to gall-

producing aphids (*Tamalia*), which cause young leaves to curl and cease growth.

Periodic watering every 4-6 weeks will keep foliage healthy without weakening plants. Mulching is desirable to control weeds, retain soil moisture, and reduce the need for irrigation. Rock mulches have proven more successful than organic mulches. Pruning should be avoided and used only to remove dead wood and diseased branches.

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

'Altura' Greenleaf Manzanita was released in 1989 by the NRCS Plant Materials Center in Lockeford, California. This is a native, erect to semi-erect, evergreen shrub, 3-6 feet high and about 3-5 feet wide. It was collected from native plants in August and September of 1972 at South Lake Tahoe, California and was developed as a critical area stabilization plant for dry, rocky slopes and droughty, well-drained soils. It is slow to establish ground cover, but 3-4 year old plants provide good cover and erosion control. Stems root at nodes when put in contact with the ground by heavy snows. It seems to be useful for environmental enhancement and foundation plantings around mountain homes. It grows well in the Tahoe Basin, but is adapted to elevations down to 2000 feet where precipitation is adequate.

Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government". The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

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