

Plant Propagation Protocol for *Arctostaphylos nevadensis* Gray

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/ARNE.pdf>

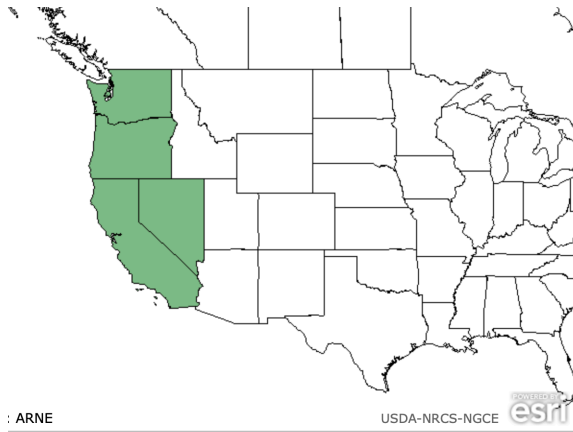


Figure 1 North American
Distribution of Pinemat Manzanita
“Plants Profile for *Arctostaphylos
nevadensis* Gray
(Pinemat Manzanita).”
plants.usda.gov

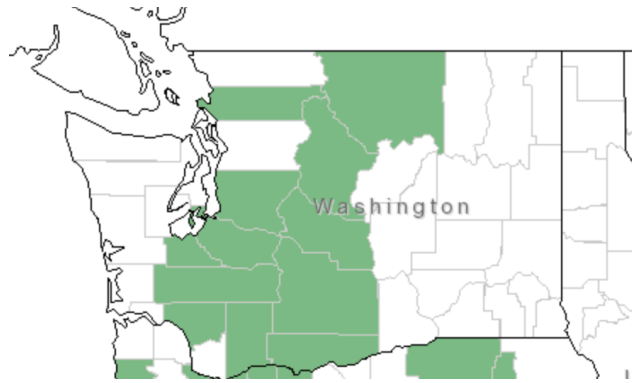


Figure 2 Washington Distribution of Pinemat
Manzanita (“Plants Profile for *Arctostaphylos
nevadensis* Gray (Pinemat Manzanita).”
plants.usda.gov

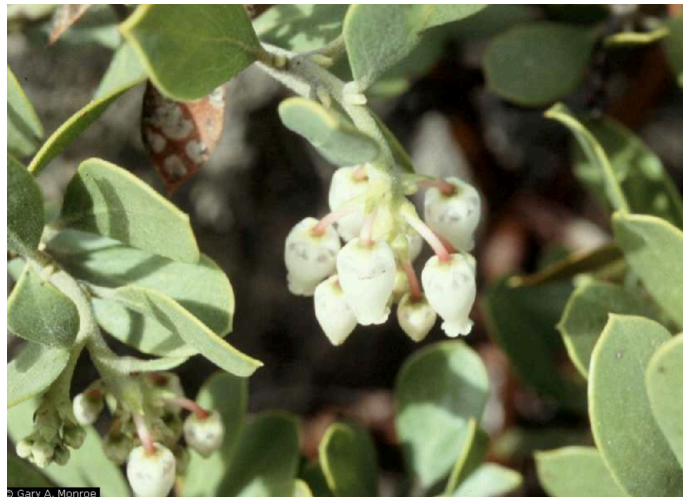


Figure 3 Pinemat Manzanita (“Plants
Profile for *Arctostaphylos
nevadensis* Gray (Pinemat
Manzanita).” plants.usda.gov)

TAXONOMY	
Plant Family	
Scientific Name	Ericaceae
Common Name	Heath Family
Species Scientific Name	
Scientific Name	<i>Arctostaphylos nevadensis</i> Gray
Varieties	No recognized varieties
Sub-species	No recognized sub-species
Cultivar	No recognized cultivars
Common Synonym(s)	<i>Arctostaphylos pungens</i> Kunth ssp. <i>nevadensis</i> (A. Gray) J.B. Roof (1)
Common Name(s)	Pinemat Manzanita, kinnikinnick (5)
Species Code (as per USDA Plants database)	ARNE
GENERAL INFORMATION	
Geographical range	See Figure 1 & 2 for distribution maps of Pinemat Manzanita. Pacific coast states and Nevada; In the Cascades and Blue Mountains of the Pacific Northwest; growing as an understory shrub in dry woods at Crater Lake National Park (3).
Ecological distribution	FRES20 Douglas-fir FRES21 Ponderosa pine FRES22 Western white pine FRES23 Fir - spruce FRES26 Lodgepole pine FRES27 Redwood FRES34 Chaparral - mountain shrub
Climate and elevation range	5,000-10,000 feet elevation, sunny its with warm, dry summers and cold winters.

Local habitat and abundance	Pinemat manzanita of montane chaparral and understories of west coast coniferous forests (5). They are commonly associated with species like bearberry, snow brush, Washoe pine, shore pine, or Oregon-grape (5).
Plant strategy type / successional stage	Pinemat manzanita is known to be an early colonizer of disturbed sites. It grows well in open sites, so once forests grow back it tends to die off . (5)
Plant characteristics	<p>Life Form: Shrub</p> <p>Longevity: Unknown</p> <p>Fruit/Seed characteristic: The fruits are depressed-globose, 6-9 mm in diameter, smooth and reddish brown, with a mealy pulp that encloses several, hard- walled seeds (4).</p> <p>Height: 1-3ft tall (6)</p> <p>Type: Evergreen</p> <p>Physical Description: Mature bark is smooth and reddish brown. Leaves are short-petioled with ovate to elliptic blades that are 1.5-3 cm long and 1-1.5cm wide and bright green. See Figure 3 for picture.</p>
PROPAGATION DETAILS	
Ecotype	Crater Lake National Park, 6,300 to 6,500 ft elevation (3)
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Container (plug)
Stock Type	1-gallon containers
Time to Grow	2 years
Target Specifications	Well-developed, branching woody base. Root system: Well-developed. (2)
Propagule Collection Instructions	Mature, 1-year-old (current seasons growth) cuttings of good vigor and caliper should be collected as late as possible in the fall (2).

Propagule Processing/Propagule Characteristics	Pack cuttings in moist peat in polyethylene bags and pack bags in snow. Then store in cooler at 40 F for 8 weeks. Peat should be lightly moist. (2)
Pre-Planting Propagule Treatments	Dip cuttings into a 5% bleach solution for 10 seconds and place in media(2).
Growing Area Preparation / Annual Practices for Perennial Crops	Media: Horticulture perlite (2). Area: Placed into 5” deep meal - bottomed propagation boxes. Minimally heated greenhouse on bottom-heat mats set to 68-70F. (3) Other practices: Light misting to keep perlite moderately moist (3).
Establishment Phase Details	Leave cuttings undisturbed for 4 months in propagation beds. In spring, lift rooted cuttings to 6” square pots with Sunshine “Aggregate-Plus” soil-less potting medium. Return to greenhouse for one more month. After one month, place outdoors.
Length of Establishment Phase	5 months (3)
Active Growth Phase	Water with drip irrigation once or twice a week. Fertilizer: Every other week with a half-strength Peters’ 20-20-20 solution (3).
Length of Active Growth Phase	3 months (2).
Hardening Phase	After the end of active growth phase, stop fertilizing. Space out watering more to encourage maturity. Cover plants with shade cloths (40%) in late fall to protect from rain (3).
Length of Hardening Phase	3 months (3).
Harvesting, Storage and Shipping	Hold over winter in walk-in cooler at 38-40 F. Keep pots fairly dry. In spring, return pots to greenhouse to resume growth and place outside in summer. In late summer, transport plants in refrigerated van to out planting site.
Length of Storage	Can be stored in walk-in cooler or other dry conditions over winter.
Guidelines for Outplanting / Performance on Typical Sites	Roots should be well-branched at planting time, shoots may be pruned prior to shipping or planting (3).

Other Comments	Pinemat manzanita propagation by seed is very difficult and has been mostly unsuccessful.
INFORMATION SOURCES	
References	<p>(1) Plants Profile for <i>Arctostaphylos Nevadensis</i> (Pinemat Manzanita). <i>USDA Natural Resources Conservation Service</i>, plants.usda.gov/core/profile?symbol=ARNE#.</p> <p>(2) Ericaceae (<i>Arctostaphylos</i>). <i>Reforestation, Nurseries and Genetics Resources</i>, nnp.rngr.net/nnp/propagation/protocols/ericaceae-arctostaphylos-2350/?searchterm=Arctostaphylos%2Bnevadensis.</p> <p>(3) USDA. 3 Protocol Information for Pinemat Manzanita. <i>Corvallis Plant Materials Center</i>, www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/orpmcmt9922.pdf.</p> <p>(4) Santa Barbara Botanic Garden & USDA NRCS National Plant Data Center. Plant Guide for Pinemat Manzanita. USDA NRCS.</p> <p>(5) <i>Arctostaphylos Nevadensis</i>. <i>Fire Effects Information System</i>, www.fs.fed.us/database/feis/plants/shrub/arcnev/all.html.</p> <p>(6) Pinemat Manzanita. <i>Lady Bird Johnson Wildflower Center - The University of Texas at Austin</i>, www.wildflower.org/plants/result.php?id_plant=ARNE.</p>

Other Sources Consulted	<p>(7) Pinemat Manzanita, <i>Arctostaphylos Nevadensis</i>. <i>California Native Plant Society</i>, <u>calscape.org/Arctostaphylos-nevadensis-()</u>.</p> <p>(8) Pinemat Manzanita. <i>EOL</i>, <u>col.org/pages/587521</u>.</p> <p>(9) Vannoy, Carmen. Manzanita, A Favorite Native Plant. <i>The Backyard Gardener</i>, 14 May 2014, <u>ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=17722</u>.</p> <p>(10) Kathleen, et al. The Manzanita. <i>California Native Plant Society</i>, 3 Apr. 2018, <u>www.cnps.org/gardening/the-manzanita-5559</u>.</p>
Protocol Author	Amber Roland
Date Protocol Created or Updated	27 May 2020

