

Plant Propagation Protocol for *Ceanothus prostratus*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2023/CEPR.pdf>



Source: California Native Plant Society⁶



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TAXONOMY	
Plant Family	
Scientific Name	Rhamnaceae
Common Name	Buckthorn family
Species Scientific Name	
Scientific Name	<i>Ceanothus prostratus</i> Benth.
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<i>Ceanothus divergens</i> Parry ssp. <i>occidentalis</i> (McMinn) Abrams <i>Ceanothus prostratus</i> Benth. var. <i>laxus</i> Jeps. <i>Ceanothus prostratus</i> Benth. var. <i>occidentalis</i> McMinn
Common Name(s)	prostrate ceanothus, pinemat, mahala mat
Species Code (as per USDA Plants database)	CEPR
GENERAL INFORMATION	
Geographical range	Occurs east of the Cascades crest in south-central Washington; southern Washington to California, east to Idaho and western Nevada. ¹



This map shows the distribution of prostrate ceanothus in North America.⁴



This map shows the distribution of prostrate ceanothus in the Pacific Northwest.⁴

Ecological distribution	Grows in the understory of mixed conifer forests, from foothills to subalpine areas. It also inhabits open flats and ridges in areas of low chaparral as well as dry interior forest ecosystems. ⁶
Climate and elevation range	Can be found at sites with elevations ranging from 1,000 to 9,000 ft, with an annual rainfall ranging from 5.2 in – 151.2 in. ⁶
Local habitat and abundance	Typically found in dry open woods in central Washington and in western and central Oregon. ¹
Plant strategy type / successional stage	Prostrate ceanothus is a groundcover plant and will root itself as it spreads, but it is not weedy or invasive. ⁸ It is also very drought tolerant. ⁴
Plant characteristics	A flat, mat-forming shrub growing 6 inches tall up to about 8 ft. wide. The evergreen leaves are oppositely arranged, oval in shape with

	several large, sharp teeth along the edges. The upper surface is green and hairless, and the underside is paler in color and feltlike in texture. The flower cluster is a small cluster of deep blue or purple flowers. The fruit is a wrinkled capsule one half to one centimeter long. ^{6,2,3}
PROPAGATION DETAILS: VEGETATIVE	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Container (plug)
Stock Type	444 ml (27 in ³) container
Time to Grow	16 months ⁷
Target Specifications	Firmly rooted plug in container. No target height ⁷
Propagule Collection Instructions	Collect cuttings in mid-spring. Collect newest (previous year's) material just as new white rootlets are beginning to form, during a 2 to 3 week window depending on weather and elevation. ⁷
Propagule Processing/Propagule Characteristics	Keep cuttings moist and cold until sticking. Cuttings should not be stored for more than 48 hours before processing. ⁷
Pre-Planting Propagule Treatments	For each cutting, the base of the stem is re-cut and immediately dipped in 500 ppm IBA. The cutting is then inserted into a pre-dibbled hole in well-drained rooting medium. If possible, 2 to 3 root nubs will provide the best success. ⁷
Growing Area Preparation / Annual Practices for Perennial Crops	Cuttings are placed in a climate-controlled rooting chamber with mist. The rooting medium is 30:20:30:20 peat:composted fir bark:perlite:pumice. When rooting has occurred, cells are moved to the greenhouse to continue culturing. ⁷
Establishment Phase Details	Rooting is very slow and can take up to 3 months before cells are ready to be moved to a greenhouse facility. Success rate is usually around 50% for this species. Following rooting, plants are fertilized for 4 weeks. ⁷
Length of Establishment Phase	3 to 4 months ⁷
Active Growth Phase	Plants are slow-growing, requiring 2 full growing seasons to reach target. Soluble fertilizer is applied weekly throughout the growing season. ⁷
Length of Active Growth Phase	18 to 19 weeks ⁷
Hardening Phase	No dry-down is done to induce dormancy. Seedlings are moved to an outdoor growing area in early September. ⁷
Length of Hardening Phase	2 to 3 weeks ⁷
Harvesting, Storage and Shipping	Harvest Date: Mid to late October ⁷ Storage Conditions: Seedlings are usually outplanted in the fall. No storage except in outdoor growing area. Plants are well irrigated prior to shipping and shipped in containers. ⁷

Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	Prostrate ceanothus forms a dense mat across the ground and typically does not reach a height above 1 foot, so it would be best planted as a groundcover under larger shrubs or trees. ⁸ Flowers form in the spring. ⁸
Other Comments	Propagating prostrate ceanothus by cuttings has a higher success rate and is much easier than propagating by seed, so vegetative propagation is the recommended propagation method for this plant. ⁸
PROPAGATION DETAILS: SEED	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	N/A
Time to Grow	N/A
Target Specifications	N/A
Propagule Collection Instructions	The seed is ejected from its capsule with some force when fully ripe, so timing the collection of seed can be difficult because the seed is difficult to extract and rarely germinates satisfactorily if it is collected at the wrong time. The seed should be collected just prior to dehiscence. ⁵
Propagule Processing/Propagule Characteristics	The seed exhibits considerable longevity. When stored for 15 years in an air-tight dry container at 1 - 5°C it has shown little deterioration in viability. ⁵
Pre-Planting Propagule Treatments	Requires a scarification treatment followed by 2-3 months of cold, moist stratification. ⁸ Possible Methods: Boiling seed in water for 30 seconds, cooling immediately, then 156 days stratification. ⁶ Placing seed in concentrated sulfuric acid (H ₂ SO ₄) for 30 minutes, then 2 months stratification. ⁶
Growing Area Preparation / Annual Practices for Perennial Crops	N/A
Establishment Phase Details	N/A
Length of Establishment Phase	Germination usually takes place within 1 - 2 months. ⁵
Active Growth Phase	N/A
Length of Active Growth Phase	N/A
Hardening Phase	N/A

Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	N/A
Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	N/A
Other Comments	N/A
INFORMATION SOURCES	
References	<p>1) “Ceanothus Prostratus.” <i>Burke Herbarium</i>, burkeherbarium.org/imagecollection/taxon.php?Taxon=Ceanothus+prostratus. Accessed 23 May 2023.</p> <p>2) “Ceanothus Prostratus.” <i>The Jepson Herbarium</i>, ucjeps.berkeley.edu/eflora/eflora_display.php?tid=18489. Accessed 23 May 2023.</p> <p>3) “Ceanothus Prostratus.” <i>Flora of North America</i>, www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250101451. Accessed 23 May 2023.</p> <p>4) “Ceanothus Prostratus Benth.” <i>USDA Plants Database</i>, plants.usda.gov/home/plantProfile?symbol=CEPR. Accessed 23 May 2023.</p> <p>5) “Ceanothus Prostratus - Benth.” <i>Plants for a Future</i>, pfaf.org/user/Plant.aspx?LatinName=Ceanothus%2Bprostratus. Accessed 23 May 2023.</p> <p>6) “Pinemat, Ceanothus Prostratus.” <i>California Native Plant Society</i>, calscape.org/Ceanothus-prostratus-(Pinemat)?srchr=sc584fe3234395a. Accessed 23 May 2023.</p> <p>7) Riley, Lee E.. 2018. Propagation protocol for production of Container (plug) <i>Ceanothus prostratus</i> Plants 444 ml (27 in3) container; USDA FS - Dorena Genetic Resource Center Cottage Grove, Oregon. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2023/05/23). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.</p> <p>8) Rupp, Larry. “Prostrate Ceanothus in the Landscape.” <i>Native Plants for the Intermountain West</i>, cwelwnp.usu.edu/westernnativeplants/plantlist_view.php?id=84&nam</p>

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Other Sources Consulted	<p>“Ceanothus Prostratus.” <i>Lady Bird Johnson Wildflower Center - The University of Texas at Austin</i>, www.wildflower.org/plants/result.php?id_plant=CEPR. Accessed 23 May 2023.</p> <p>“Ceanothus Prostratus Benth.” <i>Calflora</i>, www.calflora.org/app/taxon?crn=1822. Accessed 23 May 2023.</p> <p>“Mahala-Mat Ceanothus (Ceanothus Prostratus).” <i>Idaho Fish and Game</i>, idfg.idaho.gov/species/taxa/57476. Accessed 23 May 2023.</p>
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