

Plant Propagation Protocol for *Plantago maritima* L.

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/PLMA3.pdf>

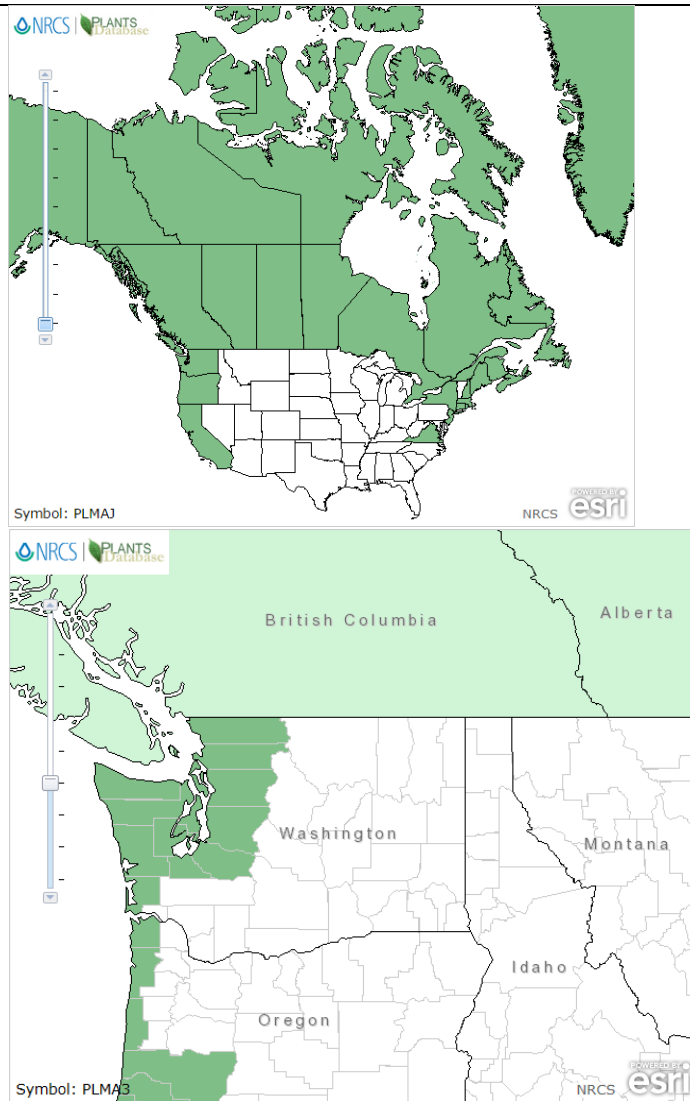


Photo credit: Ben Legler 2004

TAXONOMY	
Plant Family	
Scientific Name	Plantaginaceae (1)
Common Name	Plantain Family
Species Scientific Name	
Scientific Name	<i>Plantago maritima</i> L.
Varieties	<i>Plantago maritima</i> var. <i>californica</i> (Fernald) Pilg. <i>Plantago maritima</i> var. <i>juncoides</i> (Lam.) A. Gray <i>Plantago maritima</i> var. <i>maritima</i> L. (2)
Sub-species	
Cultivar	
Common Synonym(s)	<i>Plantago maritima</i> subsp. <i>serpentina</i> (All.) Arcang. (3)
Common Name(s)	Pacific Seaside Plantain, alkali plantain, goose tongue, maritime plantain (4)
Species Code (as per USDA Plants database)	PLMA3 (1)

GENERAL INFORMATION

Geographical
range



Ecological
distribution

Salt marshes coastal bluffs, wet, saline places (5) (6).

Climate and
elevation range

Found from 0 to 320 meters above sea level (6).

Local habitat and
abundance

Found on the Pacific Coast of Washington. Occurring from southern California north to British Columbia. Found abundantly and is not a species of special conservation status. Grows on gravelly sand slopes, in rocky crevices of bluffs, and salt marshes. Often found just above the high tide mark or in the splash zone. Commonly found with *Carex obnupta*, *Holcus lanatus*, *Deschampsia cespitos*, and *Potentilla pacifica* (6).

Plant strategy
type /
successional
stage

Halophyte growing in salt marshes or dry areas with salty soil (7).

Plant characteristics	Perennial herb or forb. Long taproot. Leaves are 3-15 cm long, linear or narrowly oblanceolate and gently tapered to base. Leaves tend to be fleshy or succulent (6). Inflorescence is a narrow cylindric spike which is looser towards the base. The calyx of the flower is not pressed against the axis of the inflorescence (5). Flowers from June through August in the Pacific Northwest (8). Seeds are elliptic, brown/red and 2mm long at maturity (9). Vegetative propagation of <i>P. maritima</i> is rare (10).
PROPAGATION DETAILS	
Ecotype	Marin County, California (9)
Propagation Goal	Plants (9)
Propagation Method	Seeds (9)
Product Type	Container (Plug) (9)
Stock Type	Deepot 40 (9)
Time to Grow	Unknown. The propagation protocol created by Betty Young (2001) only goes through the establishment phase and no other sources are currently available on the propagation of <i>P. maritima</i> .
Target Specifications	Firmly rooted in container. (9)
Propagule Collection Instructions	Seeds are collected at maturity, when the capsules are brown. Can be collected from July 3 rd to November 10 th . (9)
Propagule Processing/Propagule Characteristics	Seeds should be rubbed over a No. 12 sieve but do not need to be separated from the chaff. For storage, seeds should be kept dry and stored in a refrigerator. (9)
Pre-Planting Propagule Treatments	Soak seeds for 24 hours in fresh water prior to planting. (9)
Growing Area Preparation / Annual Practices for Perennial Crops	Start seeds in flats at a density of approximately 4 grams per flat. Recommended soil medium is Sunshine Mix #4 Aggregate Plus which is a mixture of peat moss, perlite, macro and micro nutrients, gypsum, and dolomitic lime. Lightly cover seeds with medium to sow. The recommended irrigation system is an automatic mist system. (9)
Establishment Phase Details	After 7 days, the successful germinants are transplanted into Deepot 40 containers. Recommended potting material for the establishment phases is a standard potting mix with peat moss, fir bark, perlite, and sand. After the transfer to Deepots, seedlings may be irrigated with an overhead irrigation system or sub-irrigation system. (9)
Length of Establishment Phase	14 Days (9)

Active Growth Phase	Unknown
Length of Active Growth Phase	Unknown
Hardening Phase	Unknown
Length of Hardening Phase	Unknown
Harvesting, Storage and Shipping	Unknown
Length of Storage	Unknown
Guidelines for Outplanting / Performance on Typical Sites	Unknown
Other Comments	
INFORMATION SOURCES	
References	<p>1. NRCS, USDA. <i>Plantago maritima</i> L. <i>Plants Database</i>. [Online] May 19, 2015. http://plants.usda.gov/core/profile?symbol=PLMA3.</p> <p>2. ITIS.gov. [Online] Integrate Taxonomic Information System. [Cited: May 19, 2015.] http://www.itis.gov/servlet/SingleRpt/SingleRpt. Search terms: <i>Plantago maritima</i></p> <p>3. <i>Plantago maritima</i> Seaside Plantain. Encyclopedia of Life, 2015. [Cited: June 7, 2015.] http://eol.org/pages/579212/names/synonyms.</p> <p>4. <i>Plantago maritima</i> L. <i>Calflora</i>. [Online] Consortium of California Herbaria, 2015. [Cited: May 19, 2015.] http://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=6620.</p> <p>5. Plantaginaceae. <i>Jepson eFlora</i>. [Online] Jepson Herbarium, 2013. [Cited: May 19, 2015.] http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=38573.</p> <p>6. Giblin, David. <i>Plantago maritima</i>- salt marsh plantain. <i>Burke Herbarium</i>. [Online] Burke Museum of Natural History and Culture, 2015. [Cited: May 19, 2015.] http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Plantago&Species=maritima.</p> <p>7. Flanaga, L.B. and Jefferies, R.L. <i>Photosynthetic and stomatal responses of the halophyte, Plantago maritima L. to fluctuations in salinity</i>. Plant, Cell & Environment, 1989, Vol. 12.</p> <p>8. Adams, Mary Jo. <i>Plantago maritima</i> supspecies <i>juncoides</i> (Seaside plantain). <i>Intertidal Organisms EZ-ID GUIDES</i>. [Online] Washington State University</p>

	<p>Extention, August 23, 2006. [Cited: May 19, 2015.] http://www.beachwatchers.wsu.edu/ezidweb/shoreplants/Plantago.htm.</p> <p>9. Young, Betty. Propagation protocol for production of container <i>Plantago maritima</i> L. plants (Deepot 40). <i>Propagation Protocol Database</i>. [Online] Native Plant Network, 2001. [Cited: May 19, 2015.] http://www.nativeplantnetwork.org/network/ViewProtocols.aspx?ProtocolID=658.</p> <p>10. Nilsson, Emil. <i>Breeding System Evolution and Pollination Success in the Wind-Pollinated Herb Plantago maritima</i>. Uppsala : Comprehensive Summaries of Uppsala Dissertations from the Faculty of Science and Technology, 2005, Vol. 14.</p>
Other Sources Consulted	<p>1. Dan Moerman. <i>Plantago maritima. Native American Ethnobotany, University of Michigan</i>. [Online] May 19, 2015. http://herb.umd.umich.edu/herb/search.pl?searchstring=Pyrola+asarifolia</p> <p>2. Munz, P. 1973. <i>A California Flora and Supplement</i>. University of California Press. Berkley and London</p>
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