

Plant Propagation Protocol for *Abronia umbellata* (pink sand verbena)
ESRM 412 – Native Plant Production
Spring 2008

TAXONOMY

Family Names

Family Scientific
Name:

Nyctaginaceae

Family Common
Name:

Four o'clock family

Scientific Names

Genus:

Abronia

Species:

Abronia umbellata

Species Authority:

Lam.

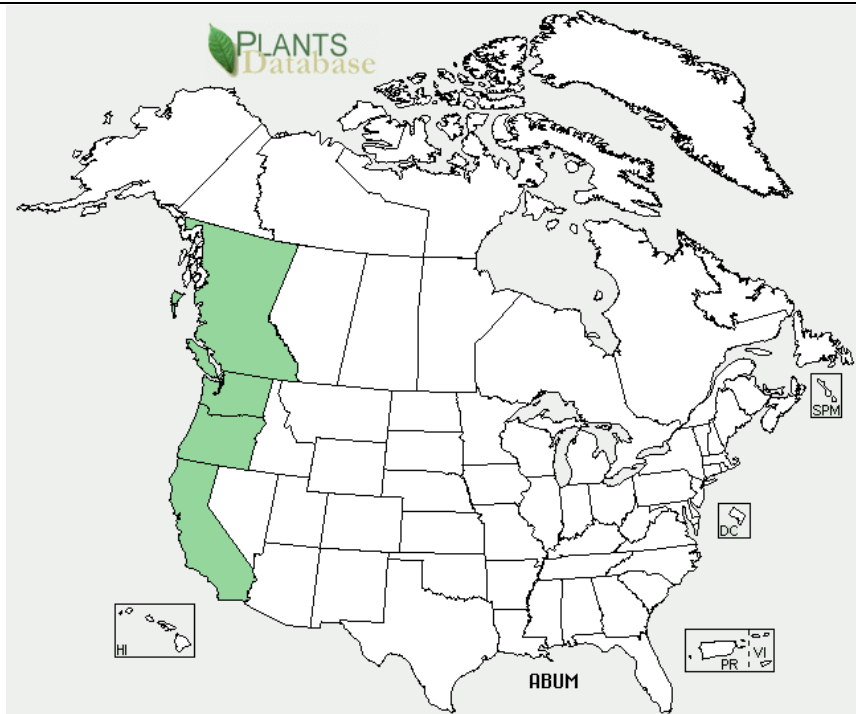
Variety:

Sub-species:	<i>breviflora, umbellata</i>
Cultivar:	
Authority for Variety/Sub-species:	Lam.
Common Synonym(s):	<i>Abronia umbellata</i> ssp. <i>alba</i> , <i>Abronia umbellata</i> ssp. <i>variabilis</i> , <i>Abronia insularis</i> , <i>Abronia minor</i> , <i>Abronia neurophylla</i> , <i>Abronia umbellata</i> ssp. <i>platyphylla</i>
Common Name(s):	Beach Sand Verbena, pink sand verbena, purple sand verbena
Species Code (as per USDA Plants database):	ABUM

GENERAL INFORMATION

Geographical Distribution:

photo credit; USDA Plants Database, *Abronia umbellata*,



<http://plants.usda.gov/java/profile?symbol=ABUM>

Ecological distribution:

Coastal areas, specifically dunes (Jepson, 1993)

Climate and elevation range

0-328 feet (Calflora, 2004)

Local habitat and abundance; may include commonly associated species

Populations tend to be smaller (Bureau of Land Management)

Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)

Stress-deciduous (Las Pilitas Nursery, 2001)

Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)

Annual, with a deep taproot, short branches, and forms a mat. (Klinkenberg, 2007)

PROPAGATION DETAILS

Ecotype (this is meant primarily for experimentally)

Marin County, California (Young, 2001)

derived protocols, and is a description of where the seed that was tested came from):	
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plants
Propagation Method (Options: Seed or Vegetative):	Seed
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container (plug)
Stock Type:	Deepot 16
Time to Grow (from seeding until plants are ready to be outplanted):	Firm plug in the container to make sure the root system is strong. Height and caliper are not listed.
Target Specifications (size or characteristics of target plants to be produced):	
Propagule Collection (how, when, etc):	Seeds collected between June 15 and October 1.
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Seeds extracted from the fruit using scissors or nail clippers to open the pod. Also using a sieve can separate the seeds from the pod along with dirt and debris. Putting seeds in a rock tumbler greatly reduced germination.
Pre-Planting Propagule Treatments	Seeds soaked in water for 48 hours then run in a blender (on high) for 10 minutes. Seeds are then put in a 5% bleach solution (for 2 minutes) and rinsed thoroughly. After seeds have gone through that, they are placed in a plastic bag with equal amounts of sterile peat

(cleaning, dormancy treatments, etc):	or perlite and placed in a refrigerator for about 2 weeks, or until some of the seeds start to germinate.
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Fully controlled greenhouse. Sowing method: transplanting germinates. 6 grams of seeds are sown per flat with Sunshine Mix #4-Plug Aggregate Mix which contains peat moss, perlite, major and minor nutrients, gypsum, and dolomitic lime. They are then watered using an automatic irrigation system. Seeds are lightly covered with the mix and are planted at a 2:1 ratio for diameter of seed to depth. The seeds were sown on August 1.
Establishment Phase (from seeding to germination):	The seeds began to germinate about 3 days after they were sown. After the seeds have become seedlings, they are transplanted into individual containers with a soil made up of fir bark, pear, perlite, and sand. They are then watered using an automatic irrigation system.
Length of Establishment Phase:	After 6 days of germination, the seedlings are transplanted to individual containers.
Active Growth Phase (from germination until plants are no longer actively growing):	The species needs a lot of fertilization. Suggested to fertilize using a soluble fertilizer NPK 15-15-18 at 100 ppm beginning two months after transplanting. The plants must be pruned back often but it is suggested to leave at least 2 fully developed leaves.
Length of Active Growth Phase:	
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	
Length of Hardening Phase:	
Harvesting, Storage and Shipping (of seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	
Guidelines for Outplanting / Performance on	

Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):

Other Comments (including collection restrictions or guidelines, if available):

INFORMATION SOURCES

References (full citations):

Bureau of Land Management, U.S. Department of the Interior. Pink Sand Verbena. URL: http://www.blm.gov/ca/pa/ssp/plants/abronia_umbellata_breviflora.html (Accessed: April 29, 2008)

Calflora: Information on California plants for education, research and conservation. [web application]. 2008. Berkeley, California: The Calflora Database [a non-profit organization]. Available: <http://www.calflora.org/>. (Accessed: Apr 29, 2008)

Klinkenberg, Brian. (Editor) 2007. E-Flora BC: Electronic Atlas of the Plants of British Columbia [www.eflora.bc.ca]. Lab for Advanced Spatial Analysis, Department of Geography, University of British Columbia, Vancouver. [Accessed: 4/29/2008 6:46:33 AM]

Las Pilitas Nursery. (2001). *Abronia umbellata*. URL: <http://www.laspilitas.com/plants/1149.htm> (29 April 2008)

PLANTS Profile, U.S. Department of Agriculture and Natural Resources Conservation Service. *Abronia umbellata* Lam. pink sand verbena. Retrieved April 29, 2008 from the Plants Database. URL: <http://plants.usda.gov/java/profile?symbol=ABUM>

UC Berkeley, The Jepson Manual. (1993). Treatment for *Abronia umbellata*. Retrieved April 29, 2008, from the UC/JEPS database. URL: http://ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?Abronia+umbellata

University of Texas, The Lady Bird Johnson Wildflower Center. (2007). *Abronia umbellata* Lam. Retrieved April 29, 2008, from the NATIVE PLANT DATABASE. URL: http://www.wildflower.org/plants/result.php?id_plant=ABUM

Young, Betty. 2001. Propagation protocol for production of container *Abronia umbellata* Lam. plants (Deepot 16); USDI NPS - Golden Gate National Parks, San Francisco, California. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 29 April 2008).
Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

<p>Other Sources Consulted (but that contained no pertinent information) (full citations):</p>	<p>Abronia umbellata in Flora of North America vol. 4. Retrieved April 29, 2008, from the Flora of North America database. URL: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242415096</p> <p>Burke Museum of Natural History and Culture. (2006). Research and Collections: <i>Abronia umbellata</i>. Retrieved April 29, 2008. URL: http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Abronia&Species=umbellata</p> <p>USDA, ARS, National Genetic Resources Program. <i>Germplasm Resources Information Network - (GRIN)</i> [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?400862 (29 April 2008)</p>
<p>Protocol Author (First and last name):</p>	<p>Charlotte Campbell</p>
<p>Date Protocol Created or Updated (MM/DD/YY):</p>	<p>April 29, 2008</p>

Note: This template was modified by J.D. Bakker from that available at:
<http://www.nativeplantnetwork.org/network/SampleBlankForm.asp>