

Plant Propagation Protocol for *Abronia latifolia*

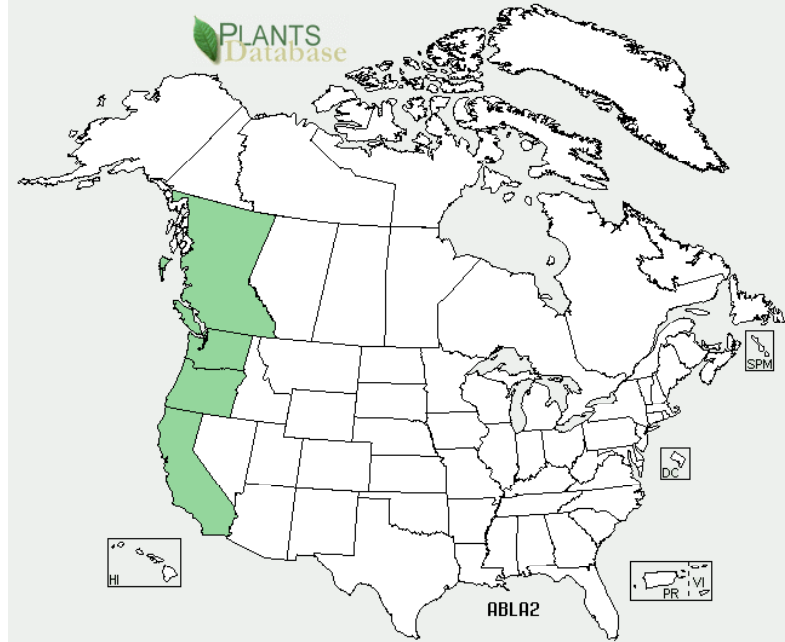
ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/ABLA2.pdf>



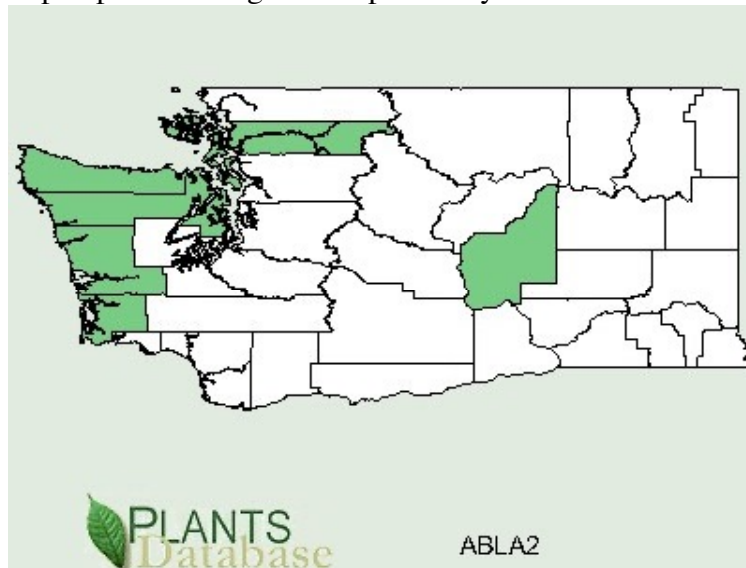
(Monroe 2006)

| TAXONOMY | |
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| Plant Family | |
| Scientific Name | Nyctaginaceae |
| Common Name | Four o'clock family |
| Species Scientific Name | |
| Scientific Name | <i>Abronia latifolia</i> Eschsch. |
| Common Name(s) | Coastal sand verbena, yellow sand verbena |
| Species Code (as per USDA Plants database) | ABLA2 |
| GENERAL INFORMATION | |
| Geographical range | |



(USDA 2020)

<https://plants.usda.gov/core/profile?symbol=ABLA2>



(USDA 2008)

http://plants.usda.gov/java/county?state_name=Washington&statefips=53&symbol=ABLA2

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| Ecological distribution | Occurs on sandy beaches and dunes (Pojar & Mackinnon 2004). It is native to the Pacific coast of North America and is considered an important plant for its help in stabilizing the dunes and decreasing erosion (California Native Plant Society 2020). |
| Climate and elevation range | Occurs in very low elevation in maritime climates (Pojar & Mackinnon 2004) ranging from British Columbia to California (USDA 2008). |

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| Local habitat and abundance | <i>Abronia latifolia</i> is usually scattered but is locally common in some areas. It is commonly associated with the species <i>Carex stipata</i> , <i>Poa macrantha</i> , <i>Glehnia littoralis</i> ssp. <i>leiocarpa</i> , and <i>Calystegia soldanella</i> (Pojar & MacKinnon 2004). |
| Plant strategy type / successional stage | Because of the plant's ability to thrive on dunes and beaches, it could be classified as a colonizer (O'Brien 2008). It is also able to tolerate soil with very little organic matter and high salinity (California Native Plant Society 2020) which could classify it as a stress-tolerator. |
| Plant characteristics | This is a perennial plant with a thick taproot and trailing growth habit that can be described as "succulent mats" (California Native Plant Society 2020). The leaves are fleshy, and oppositely arranged with yellow flowers in rounded heads (Pojar & MacKinnon 2004). Its stems may grow as long as 1m (Robson et al, 2007). |
| PROPAGATION DETAILS | |
| Ecotype | For Young, the ecotype is Marin County, California (Young 2001). The Ecotype was not specified in the other sources (O'Brien 2008). |
| Propagation Goal | The goal for Deno is germination (Deno 1993). The goal for Thompson and Schmidt is plants (Thompson 2005; Schmidt 1980). The goal for Young is plants (Young 2001). For the other sources, no information is given (O'Brien 2008). |
| Propagation Method | Thompson recommends both seed and vegetative methods (Thompson, 2005). Schmidt uses seed propagation (Schmidt, 1980). Young used seeds (Young, 2001). The other sources do not specify a method (O'Brien 2008). |
| Product Type | The product for Schmidt is field grown plants (Schmidt 1980). The product type for Young was a container (plug) (Young 2001). No information in other sources (O'Brien 2008). |
| Stock Type | Young's stock type was Deepot 16. Container is a 2" x 7" tube (Young 2001). No information in other sources (O'Brien 2008). |
| Time to Grow | No information found. |
| Target Specifications | The container plant should have compact growth, a firm root plug, and a tuber that is well developed (Young 2001). No information in other sources (O'Brien 2008). |
| Propagule Collection Instructions | Cuttings should be taken in spring (Thompson, 2005). Rice-shaped seeds should be collected from June 1 through September 1 |

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| | <p>and are in sand colored pod fruits that are 5 mm – 10 mm. When ripe, seeds are light or dark brown and hard (Young 2001).</p> <p>No information in other sources (O'Brien 2008).</p> |
| <p>Propagule Processing/Propagule Characteristics</p> | <p>Soak pods for 1 or 2 days and then place in a processor with taped blades. Add water and process on high for 10 minutes. Strain before dry storage in a refrigerator. Pods are often empty and can have as low as 10% fill (Young 2001).</p> <p>No information in other sources (O'Brien 2008).</p> |
| <p>Pre-Planting Propagule Treatments</p> | <p>Deno treated some seeds of <i>A. fragrans</i> and <i>A. villosa</i> with different experimental dormancy breaking treatments. For <i>A. fragrans</i>, he obtained 2% germination after 8 to 10 days at 70°F and determined that light or a prior at a distance of 3 m did not affect germination. Percent germination for <i>A. fragrans</i> was determined to be inaccurate due to chaff. For <i>A. villosa</i> he obtained 40% germination after 4 to 6 days at 70°F and 40% germination in the third week at 40°F. (Deno 1993)</p> <p>Thompson recommends peeling off the outer covering on the seed before planting for species of <i>Abronia</i> in general (Thompson 2005).</p> <p>Moist, cleaned seeds require 2 weeks of cold stratification in a plastic bag (Young 2001).</p> <p>No information in other sources (O'Brien 2008).</p> |
| <p>Growing Area Preparation / Annual Practices for Perennial Crops</p> | <p>Containers are not recommended because the seedlings suffer from disturbance and because rot is more common. Sandy, friable soil is recommended, and clay soil is probably harmful. Moderate water is suggested (Schmidt 1980).</p> <p>Young used 10 grams of seed per flat sown on July 1st into Sunshine Mix #4 Plug Aggregate Mix. This mix contains peat moss, perlite, major and minor nutrients, as well as gypsum and dolomitic lime. The seeds were covered and watered with automatic irrigation until leached thoroughly (Young 2001).</p> <p>No information in other sources (O'Brien 2008).</p> |
| <p>Establishment Phase Details</p> | <p><i>Abronia</i> species seeds should be sown in autumn (Thompson 2005). Schmidt also recommends autumn sowing because the rain may aid germination. Germination is described as slow and irregular. (Schmidt 2005).</p> <p>Average germination for Young was 60% (Young 2001).</p> <p>No information in other sources (O'Brien 2008).</p> |

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| Length of Establishment Phase | 14 days (Young 2001). No information in other sources (O'Brien 2008). |
| Active Growth Phase | Young transplanted the seedlings 1 month after germination into Deepot 16 with a one-to-one mix of perlite and standard potting mix, which contains fir bark, peat, and sand perlite. After transplanting, seedling survival averaged 60%. A low water regime with soluble fertilizer started 2 months after transplanting was used with positive results. Also, two months after transplanting, seedlings are moved to the shade house and plants are pruned vigorously. Plants should develop a large tuber at this time (Young 2001). No information in other sources (O'Brien 2008). |
| Length of Active Growth Phase | No information found. |
| Hardening Phase | No information found. |
| Length of Hardening Phase | No information found. |
| Harvesting, Storage and Shipping | Prune plants into a compact shape and remove trailers (Young 2001). No information in other sources (O'Brien 2008). |
| Length of Storage | No information found. |
| Guidelines for Outplanting / Performance on Typical Sites | Plant in sun in sandy, friable soil where it will receive moderate water (Schmidt 2005). Drainage must be very sharp for the plant to tolerate moderate water (Robson et al 2007). Plants should be pruned and have trailers removed before outplanting (Young 2001). No information in other sources (O'Brien 2008). |
| Other Comments | The genus <i>Abronia</i> has a peripheral and linear embryo that grows more germination and encloses either perisperm or endosperm (Hartman et al 2002). The plant was reportedly used as food by the Clallam and Makah peoples. They dug the plant in fall and cooked it (Kuhlein and Turner 1991). |

INFORMATION SOURCES

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| References | Deno, Norman C. <u>Seed Germination Theory and Practice</u> . Pennsylvania State University, 1993. Hartman, Hudson T., Dale E. Kester, Fred T. Davies Jr., and Robert L. Geneve. <u>Plant Propagation: Principles and Practices</u> . Upper Saddle River, NJ: Prentice Hall, 2002. |
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| | <p>Kuhlein, Harriet V., and Nancy J. Turner. <u>Traditional Plant Foods of Canadian Indigenous Peoples: Nutrition, Botany, and Use</u>. Philadelphia: Gordon and Breach Science Publishers, 1991</p> <p>Monroe, Gary A. 2006. Hosted by USDA, NRCS. The PLANTS Database. Digital JPEG. URL: https://plants.usda.gov/core/profile?symbol=ABLA2</p> <p>Pojar, Jim, and Andy MacKinnon. <u>Plants of the Pacific Northwest Coast</u>. Vancouver, BC: Lone Pine Publishing, 2004.</p> <p>Robson, Kathleen, Alice Richter, and Marianne Filbert. <u>Encyclopedia of Northwest Native Plants for Gardens and Landscapes</u>. Portland, OR: Timber Press, 2007.</p> <p>“Sand Verbena: <i>Abronia latifolia</i>.” California Native Plant Society, n.d. URL: https://calscape.org/Abronia-latifolia-() (accessed on 05/23/20).</p> <p>Schmidt, Marjorie G. <u>Growing California Native Plants</u>. Berkeley, CA: University of California Press, 1980.</p> <p>Thompson, Peter. <u>Creative Propagation</u>. Portland, OR: Timber Press, 2005.</p> <p>“<i>Abronia latifolia</i> Eschsch. coastal sand verbena.” n.d. USDA, NRCS. The PLANTS Database. National Plant Data Center, Baton Rouge, LA 70874-4490 USA. URL: https://plants.usda.gov/core/profile?symbol=ABLA2 (accessed 05/23/20).</p> <p>Young, Betty. 2001. “Propagation protocol for production of container <i>Abronia latifolia</i> Eschsch. plants (Deepot 16)”; USDI NPS - Golden Gate National Parks, San Francisco, California. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed on 05/23/20). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.</p> |
| Other Sources Consulted | <p>The American Horticultural Society. Toogood, Alan, ed. <u>Plant Propagation</u>. New York, NY: DK Publishing, Inc., 1999.</p> <p>Baskin, Carol C., and Jerry M. Baskin. <u>Seeds: Ecology Biogeography, and Evolution of Dormancy and Germination</u>. San Diego, CA: Academic Press, 1998.</p> |

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| | <p>Klinka, K., V.J Krajina, A. Ceska, and A.M Scagel. <u>Indicator Plants of Coastal British Columbia</u>. Vancouver, BC: UBC Press Vancouver B.C., 1995.</p> <p>Young, James A., and Cheryl G. Young. <u>Collecting, Processing, and Germinating Seeds of Wildland Plants</u>. Portland, OR: Timber Press, 1986.</p> |
| Protocol Author | <p>Original author: Anna O'Brien Revised by: Casey Jones</p> |
| Date Protocol Created or Updated | <p>Revised (05/23/20)</p> |