**Plant Propagation Protocol for *Arabis aculeolata***
ESRM 412 – Native Plant Production


| TAXONOMY[2] | |
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| Family Names | |
| Family Scientific Name: | Brassicaceae |
| Family Common Name: | Mustard family |
| Scientific Names | |
| Genus: | *Arabis* |
| Species: | *aculeolata* |
| Species Authority: | Greene |
| Variety: | N/A |
| Sub-species: | N/A |
| Cultivar: | N/A |
| Authority for Variety/Sub-species: | N/A |
| Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information) | |
| Common Name(s): | Waldo rockcress |
| Species Code (as per USDA Plants database): | ARAC4 |
| **GENERAL INFORMATION** | |

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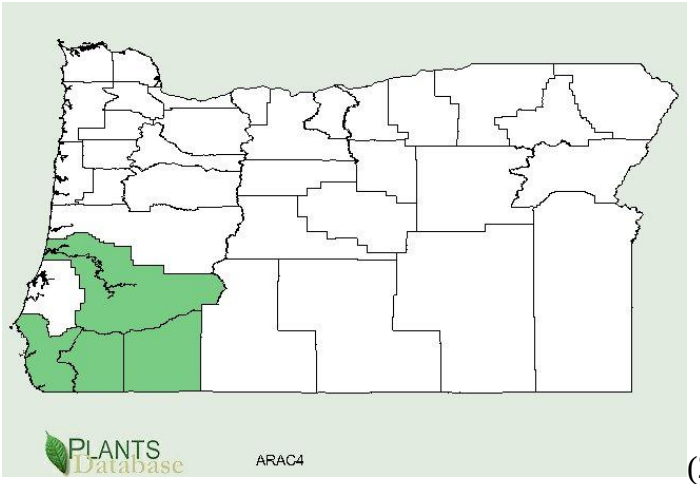
| Geographical range (distribution maps for North America and Washington state) |  (2)<br>  (2)<br><br>-Not found in Washington state, Map of Oregon. |
| Ecological distribution (ecosystems it occurs in, etc): | • In rocky or gravelly places, usually derived from serpentine at mid elevations[(4)] |
| Climate and elevation range | In Siskiyou Mountains, Snowfall can occur in the higher reaches because of the lower temperatures that occur there. Temperature trends actually tend to lie parallel to the coast, because of the ocean's major influence. The mean annual temperature is around 11.0 to 11.5 °C (52 to 53 °F) in the low elevations; however, higher in the mountains and further east, the temperatures range from minimums just above freezing to highs around 21.0 to 23.0 °C (70 to 73 °F).[(14)] |
| Local habitat and abundance; may include commonly associated species | • Endemic to the Siskiyou Mountains in southwestern Oregon and northwestern California.[(4)]<br>• Rocky serpentine soil |

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| Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional) | • perennial[1]<br>Information based on other *Arabis*:<br>• Stress-tolerant, drought-resistant[11]<br>  ○ In stressful environments, it develops a system of rootstocks that allow it to persist in inhospitable sites.[11]<br>• Displays a weedy tendency, colonizing recent road cuts or animal paths.[10] |
| Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc) | **Perennials;** (caudex simple or branched, covered with persistent petiolar remains); sparsely to moderately pubescent, trichomes sub-setiform, bulbous-based, simple, (to 1.5 mm), often mixed with fewer, forked, stalked ones. [1]<br>• **Stems** simple or few from base (caudex), erect, unbranched, (0.6-)1.5-3.5(-4.5) dm, (sparsely to densely hirsute basally or throughout). [1]<br>• **Basal leaves:** petiole 0.3-1.5 cm, (ciliate); blade oblanceolate to obovate, (0.5-)1-3(-4) cm × (2-)3-6 (-10) mm, margins entire, repand, or obtusely dentate, (ciliate), apex obtuse, surfaces pubescent, trichomes usually simple, sometimes mixed with fewer forked ones, rarely subglabrate. [1]<br>• **Cauline leaves:** 3-6 (or 7); blade oblong, 0.4-1(-1.5) cm × (1-)2-4 mm, base not auriculate, margins entire or repand, apex obtuse. [1]<br>• **Racemes:** simple, (dense). [1]<br>• **Fruiting pedicels** ascending to suberect, 8-12(-15) mm, (subglabrate or sparsely pubescent). [1]<br>• **Flowers:** sepals (purple), oblong, 4-8 × 1.5-2.5 mm, lateral pair saccate basally; petals purple, spatulate, (9-)10-18(-20) × (2.5-)3.5-6(-8) mm, apex obtuse; filaments 4-9 mm; anthers oblong, 1.5-2 mm. [1]<br>• **Fruits** ascending to suberect, not torulose, sometimes slightly curved, 3.5-6.5 cm × 1.5-2 mm; valves each with prominent midvein extending full length; ovules 24-36 per ovary; style (0.7-)1-2 mm. [1]<br>• **Seeds** narrowly winged nearly throughout except wider distally, oblong, 1.5-2.3 × 1-1.3 mm; wing 0.1-0.3 mm wide. ***2n*** = 32. [1] |
| **PROPAGATION DETAILS** | |
| Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from): | Cultivation: Full sun or light shade, and well-drained, rather dry, rocky, or gravely soil.[4] |
| Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or | |

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| Other Propagules): | |
| Propagation Method (Options: Seed or Vegetative): | • Seed[12] |
| Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.)) | • Soil Requirements: in light (sandy), medium (loamy) and heavy (clay) soils and requires well-drained soil. The plant can also grow in acid, neutral and basic (alkaline) soils.[7,12] |
| Stock Type: | |
| Time to Grow (from seeding until plants are ready to be outplanted): | • Seed germination takes about 2-3 weeks at 21°C[4] |
| Target Specifications (size or characteristics of target plants to be produced): | |
| Propagule Collection (how, when, etc): | It is recommended that the seeds are divided in autumn or early spring (after flowering), or detach rooted pieces of mat-form species. Sow the seeds in autumn, or in spring at 50°F (10°C).[6] |
| Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc): | |
| Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc): | |
| Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc): | • Recommended planting density: 15-18 in (38-45 cm)[2] |

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| Establishment Phase (from seeding to germination): | • When large enough to handle, prick the seedlings out into individual pots and plant them out in the summer.[13] Root stem-tip cuttings in the summer.[6] |
| Length of Establishment Phase: | |
| Active Growth Phase (from germination until plants are no longer actively growing): | |
| 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 | |

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| guidelines, if available): | |
| **INFORMATION SOURCES** | |
| References (full citations): | [1] "*Arabis aculeolata"*. Flora of North America. FNA Vol. 7 Page 259, 264, 265. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250094728<br>[2] USDA Natural Resources Conservation Service, http://plants.usda.gov/<br>[3] "*Arabis aculeolata*". Lady Bird Johnson: Wildflower Center: The University of Texas at Austin. http://www.wildflower.org/plants/result.php?id_plant=ARAC4<br>[4] USDA Forest Services. *Range Plant Handbook.* Toronto, Ontario: General Publish Company, Ltd, 1988.<br>[5] Toogood, Alan (editor). *American Horticultural Society: Plant Propagation.* New York: DK Publishing, Inc., 1999.<br>[6] Filbert, Marianne, Richter, A., and Robson, Kathleen A. *Encyclopedia of Northwest Native Plants for Gardens and Landscapes*. Portland: Timber Press Inc., 2007.<br>[7] Price, 1997 as cited in Koch, M. 1999. Arabidopsis and Arabis, Plant Biology. Max-Planck-Institute for Chemical Ecology, Tatzendpromenade 1a, D-07745 Jena, Germany<br>[8] Hopkins, M. 1937. Arabis in eastern and central North America. Rhodora 39: 63-98, 106-148. Cited by Division of Natural Areas and Preserves, Ohio Department of Natural Resources<br>[9] Endangered and Threatened Species of the Southeastern United States FWS Region 4; http:/endangered.fws.gov/i/q/saqdg.html<br>[10] Journal of Vegetation Science 4: (2) 195-202. Feb. cited in Oregon Endangered Species website.<br>[12] Sanders. T.W.1926. Popular Hardy Perennials, Collingridge<br>[13] Rice, G. 1988. A Wide Range of Perennial Plants that can be Grown in Britian and How to Grow Them. Volume 2. Thompson and Morgan.<br>[14] Briles, C. 2005. Postglacial vegetation, fire, and climate history of the Siskiyou Mountains, Oregon, USA. |
| Other Sources Consulted (but that contained no pertinent information) (full citations): | • Pojar, Jim and Andy MacKinnon. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia & Alaska.* Vancouver: Lone Line, 1994.<br>• Burke Museum of National History and Culture. http://biology.burke.washington.edu/herbarium/<br>• Sanders. T.W.1926. Popular Hardy Perennials, Collingridge<br>• The Native Plants Propagation Protocol Database http://www.nativeplantnetwork.org/network/ |
| Protocol Author (First and last name): | Sherie Tan |

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| Date Protocol Created or Updated (MM/DD/YY): | 06/04/2012 |

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