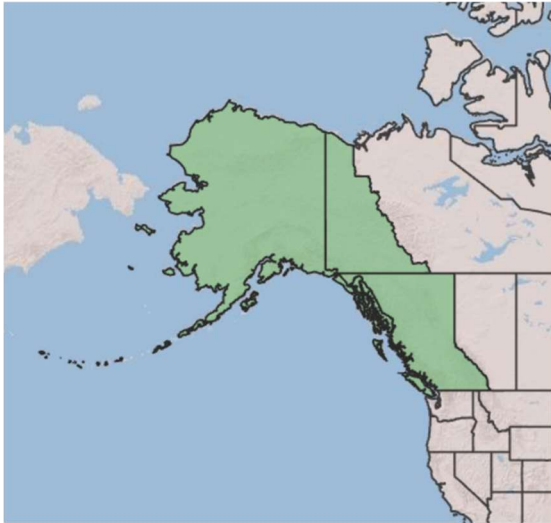


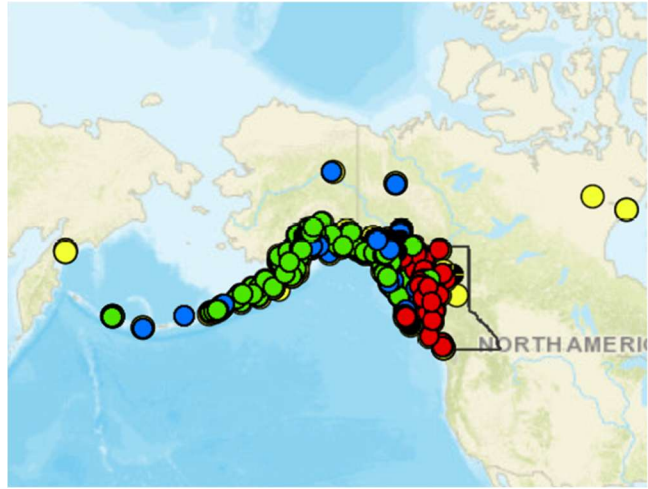
Plant Propagation Protocol for *Castilleja unalaschcensis*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2025/CAUN4>



Source: USDA Plants



Source: Klinkenberg, 2020

TAXONOMY	
Plant Family	
Scientific Name	<i>Scrophulariaceae</i> Juss. Previously in the family <i>Orobanchaceae</i> ⁹
Common Name	Figwort family
Species Scientific Name	
Scientific Name	<i>Castilleja unalaschcensis</i> (Cham. & Schltl.) Malte - Alaska Indian paintbrush ²
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<i>Castilleja pallida</i> var. <i>unalaschcensis</i> Cham. & Schltl. ⁹ <i>Castilleja unalaschcensis</i> subsp. <i>typica</i> Pennell ⁹ <i>Castilleja unalaschcensis</i> subsp. <i>transnivalis</i> Pennell ⁹
Common Name(s)	Alaska Indian paintbrush, Yellow Paintbrush ⁸ , Unalaska Paintbrush ⁸
Species Code (as per USDA Plants database)	CAUN4
GENERAL INFORMATION	
Geographical range	<i>Castilleja unalaschcensis</i> can be found in regions of the North Pacific, with documented occurrences in the United States (Alaska), Canada (British Columbia and Yukon), and Far East Russia (Kamchatka). ^{2, 6, 9} In North America, this species is found in lower alpine

	meadows and along coastal zones on the southern Alaskan coast (Aleutian Islands and Queen Charlotte Islands), the mainland of western British Columbia, and southern Yukon.
Ecological distribution	Occurrences in coastal to lower meadow alpine zones. ³ The species is found in areas that include meadows, dunes, thickets, upper levels of tidal flats, river flats, gravel bars, tundra, open forests, and roadsides, ranging from coastal to alpine zones. ³
Climate and elevation range	Found in elevations 0-2100m in temperate zones. ^{3,4}
Local habitat and abundance	Commonly associated with the species <i>Castilleja septentrionalis</i> found in boreal zones of the Rocky Mountains in eastern North America. ³
Plant strategy type / successional stage	<i>Castilleja</i> is a hemiparasite. They can produce their food and obtain their water and nutrients but form special roots called haustoria that attach to a host plant for additional water and organic nutrients. ¹⁰
Plant characteristics	<p>A perennial herb that can grow up to 32 inches in height.^{1,3}</p> <p>The flowers appear in clusters that can appear pale yellow, white, yellow-green, or pale orange that turn into red or pink as they age.¹ Bloom time ranges from May to September.¹ Flowers are in brackets at the terminal end of the spike.⁴</p> <p>The leaves are simple, long, and linear in shape, and can be described as rough and hairy.^{1,4,8} Fruits are capsule types, with many seeds that have loose seed coats and are net veined.^{1,4}</p> <p>The genus <i>Castilleja</i> is named after an 18th century Spanish botanist, Don Domingo Castillejo.⁸ The species <i>unalaschensis</i> is named after the city where it can be found Unalaska, Alaska.⁸</p>
PROPAGATION DETAILS: FROM SEED	
Ecotype	The following information is derived from the general propagation protocols for the <i>Castilleja</i> species. ¹⁰
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	Shallow 116 ml containers

Time to Grow	14 to 34 weeks
Target Specifications	Mature plants that can be out planted for home landscapes. A height of around 5cm and a root system that is firm in the plug container is recommended.
Propagule Collection Instructions	For species that flower in the spring, seeds should be collected in midsummer. For mid-elevation species, seeds should be collected in later summer. For high elevation species, seeds should be collected in the fall.
Propagule Processing/Propagule Characteristics	The seed capsules will mature 8 to 10 weeks following pollination. Several seeds per capsule are gray to tan in color with a texture that appears wrinkled or pitted.
Pre-Planting Propagule Treatments	<p>Seeds should be imbibed for 4 to 8 hours, and then excess water and debris should be discarded. Cold moist stratification is recommended for 30 to 150 days in moist paper towels placed in open plastic bags or Petri dishes at t 1 to 2 °C (33 to 36 °F).</p> <p>The time of cold moist stratification varies by species depending on the elevation and temperature of where seeds were collected.</p>
Growing Area Preparation / Annual Practices for Perennial Crops	<p>Seeds do not require a host plant to initiate germination, but after germination, the growth and flowering of the plant will be negatively impacted if no host plant is present.</p> <p>Host plants should be selected so that they do not outcompete <i>Castilleja</i> such as flowers, sedges, grasses, and other Scrophulariaceae that are small and have weaker rhizomatous root systems.</p> <p>Growing media depends on where the seed was collected. For dry and upland species with rocky and well draining soils, a 2:1:1 mix of Sunshine Mix #2, large perlite, and sharp sterile sand. For riparian or moist high elevation meadows species in rich organic matter soils, Sunshine Mix #2 is recommended.</p>
Establishment Phase Details	The temperature should follow natural day and night temperatures that mimic progressive cooler to warmer of spring. Cool temperatures and moist conditions are necessary, warm air and growing medium temperature can impact germination.

Length of Establishment Phase	10 to 14 days.
Active Growth Phase	<p>Keep germinates moist. Introduce the host at 4 to 6 weeks once 4 to 6 sets of true leaves are developed. Once the host is introduced into the container, it can be well watered and allow soil medium to dry slightly between waterings.</p> <p>Host plants should be trimmed to minimize shade in containers with <i>Castilleja</i>.</p> <p>Fertilizer can be used in low concentrations (20N:20P2O5:20K2O) at one quarter of the recommended rate.</p>
Length of Active Growth Phase	4 to 6 weeks
Hardening Phase	During midsummer, seedlings grown in a greenhouse can be outdoors to harden before outplanting.
Length of Hardening Phase	4 weeks before outplanting or 15 weeks after germination.
Harvesting, Storage and Shipping	None specified.
Length of Storage	None specified.
Guidelines for Outplanting / Performance on Typical Sites	<p>Most species are ready for outplanting 16 weeks after germination. Stems of <i>Castilleja</i> are easily broken, so care should be taken when outplanting.</p> <p>It is recommended to use the Ray Leach™ containers so they are more easily organized by size and can be easily separated.</p>
Other Comments	N/A
INFORMATION SOURCES	
References	See below.
Other Sources Consulted	See below.
Protocol Author	Mikaela Seelke
Date Protocol Created or Updated	5/20/25

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⁹*Castilleja unalaschcensis* (Cham. & Schltl.) Malte | *Plants of the World Online* | *Kew Science*.

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³*Castilleja unalaschcensis* - FNA. (2020). Floranorthamerica.org.

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⁵CPNWH. (2022). Pnwherberia.org.

[https://www.pnwherberia.org/data/results.php?SourcePage=search.php&submit=+Search
+&TaxonomicGroup=&Family=&Genus=Castilleja&Species=unalaschcensis](https://www.pnwherberia.org/data/results.php?SourcePage=search.php&submit=+Search+%26TaxonomicGroup=&Family=&Genus=Castilleja&Species=unalaschcensis)

⁴*E-Flora BC Atlas Page*. (2020). Geog.ubc.ca.

<https://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Castilleja+unalaschcensis>

⁶FNA: *Castilleja unalaschcensis*. (2025). Nwwildflowers.com.

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⁷Turner, N. J. (1973). *The ethnobotany of the Bella Coola Indians of British Columbia*. *Syesis*, 6,

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⁸*Unalaska Paintbrush*. (2025). ALASKA.ORG. <https://www.alaska.org/advice/unalaska-paintbrush>

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