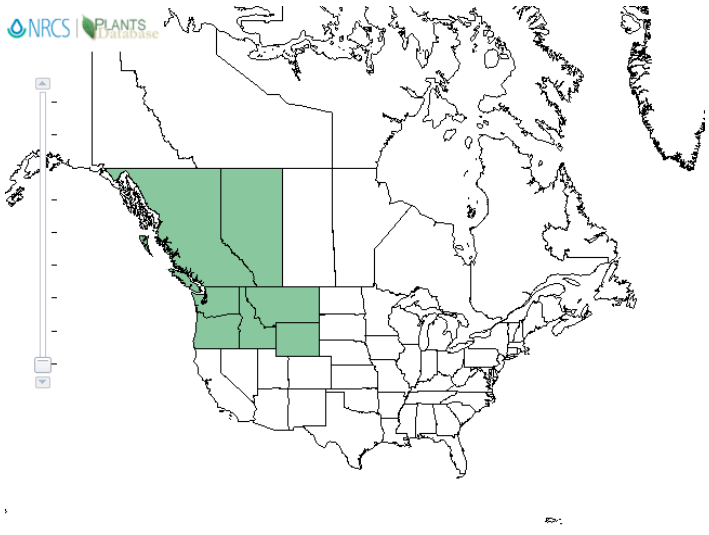
Plant Propagation Protocol for *Penstemon fruticosus*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/*PEFR3.pdf*

TAXONOMY	
Plant Family	
Scientific Name	Scrophulariaceae (USDA)
Common Name	Figwort Family, Snapdragon Family (USDA)
Species Scientific Name	
Scientific Name	*Penstemon fruticosus* (Pursh) Greene (USDA)
Varieties	*Penstemon fruticosus* (Pursh) Greene var. *fruticosus*, *Penstemon fruticosus* (Pursh) Greene var. *scouleri* (Lindl) Cronquist, *Penstemon fruticosus* (Pursh) Greene var. *serratus* (D.D. Keck) Cronquist (USDA)
Sub-species	There are no USDA recognized subspecies
Cultivar	N/A
Common Synonym(s)	N/A
Common Name(s)	Bush penstemon, Bush beardtongue, Shrubby penstemon, Shrubby beardtongue (Lady Bird Johnson Wildflower Center)
Species Code (as per USDA Plants database)	PEFR3
GENERAL INFORMATION	
Geographical range	 This species grows in Washington, Oregon, Idaho, Montana, Wyoming, British Columbia and the western half of Alberta (USDA).
Ecological distribution	This species can occur in rocky, open or wooded ecosystems (Burke Museum)

Climate and elevation range	Grows in a wide elevation range from foothills to higher elevations ranging from 184m to 2635m (E-Flora, Department of Geology UBC). Can grow on rocky slopes and cliffs with dry soils and sunny conditions (WA Native Plant Society).
Local habitat and abundance	Grows on cliffs, rocky slopes, and outcrops (WA Native Plant Society).
Plant strategy type / successional stage	Can grow in rocky and dry soils on cliffs and outcrops. Can tolerate high levels of sun (Lady Bird Johnson Wildflower Center). Can tolerate drought more than any other Penstemon species (NARGS).
Plant characteristics	*P. fruticosus* is an herbaceous perennial subshrub. It is semi-evergreen and can grow 6 to 16 inches in height. It is typically wider than it is tall (Lady Bird Johnson Wildflower Center). Leaves: Opposite, glabrous, larger leaves at base of plant, entire or toothed margins, short petiole, dark green in color (Burke Museum) Flowers: Purple tubular flowers in inflorescences, glabrous on outside of petals and white hairs on the base of the inside of the flower, long and hairy anthers (Burke Museum). Flowers in June and July (WA Native Plant Society). Fruits: Dry capsules (Burke Museum)
PROPAGATION DETAILS	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container or field grown
Stock Type	Small shrub
Time to Grow	Germination rates and durations vary widely for this species. Could take a full year after seeding before germination occurs (American Penstemon Society).
Target	Small shrub, 1 gallon containers
Propagule Collection Instructions	N/A
Propagule Processing/Propagule Characteristics	Seed density information not provided. Seeds should be stored in a dry place for 6 months to 1 year before stratifying. Seeds will last up to 5 years in storage if kept in a dry and cool place (American Penstemon Society).
Pre-Planting Propagule Treatments	Seeds should be soaked for 24 to 48 hours or until they

	sink (American Penstemon Society Newsletter). This species requires a minimum of 8 weeks of cold and moist stratification prior to planting (NARGS). While in stratification, seeds should be stored at 50 degrees F. Seeds can be planted into a media of perlite or vermiculite that has been dampened or could be stored in sand in a cooler. Sand should be dampened regularly (American Penstemon Society).
Growing Area Preparation / Annual Practices for Perennial Crops	*P. fruticosus* can grow in containers or could be directly sown into beds after stratification in a growing media mixed with sand. Grow in an environment that is between 40 and 60 degreees F, either outside or in a greenhouse depending on what the outdoor temperature variation is (American Penstemon Society).
Establishment Phase Details	Seeds can be sown from November to early March in colder environments. Germination will occur when temperature increases. After seeds are sown, containers should be placed in a sunny environment with temperatures that get gradually warmer over time. Grow lights can be used to increase the amount of sunlight and should be set to 14 to 16 hours per day. *P. fruticosus* is prone to damping-off disease and should be monitored for this during the establishment phase (American Penstemon Society).
Length of Establishment Phase	N/A
Active Growth Phase	Grow in an environment that is between 40 and 60 degreees F, either outside or in a greenhouse depending on what the outdoor temperature variation is. This species requires expose to sun, wind, and dry conditions during the active growth phase. This species requires well drained soils. Mixing media with sand will allow for more effective drainage and higher success rate (American Penstemon Society).
Length of Active Growth Phase	N/A
Hardening Phase	N/A
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	N/A
Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	Outplant when conditions are not extremely warm. Species can die if temperatures rise too quickly when they are first outplanted or transplanted (American Penstemon Society).
Other Comments	N/A
INFORMATION SOURCES	
References	See below
Other Sources Consulted	See below

Protocol Author	Courtney Bobsin
Date Protocol Created or Updated	05/25/16

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