

Plant Propagation Protocol for *Mentzelia laevicaulis*
 ESRM 412 – Native Plant Production



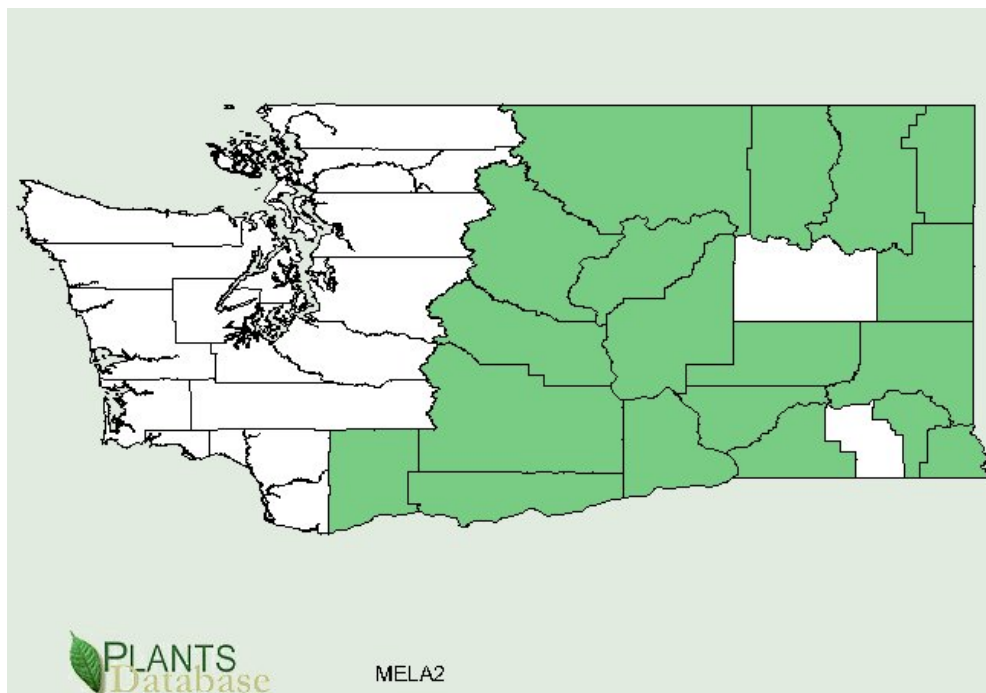
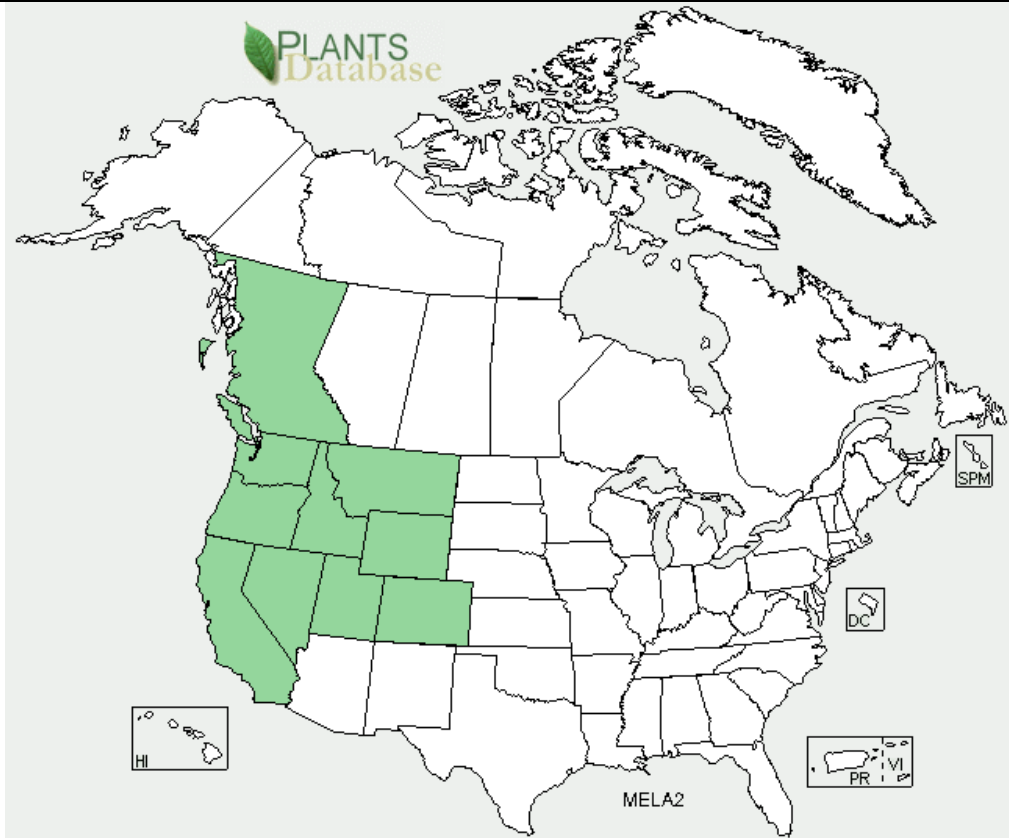
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TAXONOMY

Family Names	
Family Scientific Name:	Loasaceae
Family Common Name:	Loasa family
Scientific Names	
Genus:	<i>Mentzelia</i>
Species:	<i>laevicaulis</i>
Species Authority:	(Hook.) Torr. & A. Gray
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s)	<i>Bartonia laevicaulis</i> Douglas, <i>Nuttallia laevicaulis</i> (Douglas) Greene
Common Name(s):	Smooth stem blazing star, blazing star, giant blazing star, beautiful blazing star, stickleaf
Species Code (as per USDA Plants database):	MELA2
GENERAL INFORMATION	
Geographical range:	From British Columbia and eastern Washington west to Montana, south to California, Utah and Wyoming. In Washington, mainly east of the Cascades (Hitchcock & Cronquist, 1976).



Maps courtesy of USDA-NRCS Plants Database
<http://plants.usda.gov/java/profile?symbol=MELAP>

Ecological distribution:	Smoothstem blazingstar occurs on dry slopes in mountain brush, pinyon-juniper, shrub-steppe, cool desert shrub, salt desert shrub, and ponderosa pine habitats (Turner & Gustafson 2006, Link <i>et al.</i> 2006, Pavek 2011)
Climate and elevation range:	Dry, open, rocky sites below 9,000 ft (Turner & Gustafson 2006) receiving 18 to 38 cm (7 to 15 in) precipitation (Pavek 2011).
Local habitat and abundance; may include commonly associated species:	Locally common along sandy, gravelly or rocky slopes in washes or roadsides (Turner & Gustafson 2006, Taylor & Valum 2006). Typical of shallow soils; in association with <i>Physaria oregona</i> (Oregon twinpod) and/or <i>Eriogonum microthecum</i> (slender buckwheat) (Franklin & Dyrness 1988).
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional):	Although this plant has a weedy appearance and often grows in association with weeds, it is not weedy and does not aggressively colonize. It can tolerate anthropogenic disturbance and it is adapted to barren, rocky, shallow soils, where many other plants cannot survive (Franklin & Dyrness 1988, Turner & Gustafson 2006, Pavek 2011).
Plant characteristics:	Herbaceous biennial or perennial with a deep taproot. Erect whitish stem, 9-40", freely branching. Stems and alternate, deeply lobed leaves covered with rigid barbed hairs. Bright yellow flowers at stem tips; five sepals and five 1-2", sharp-pointed petals; many stamens at different lengths, inferior ovary. Woody, capsular fruit. Flowers all summer; flowers open only in sunshine (Hitchcock & Cronquist 1976, Kruckeberg 1996, Taylor & Valum 2006, Turner & Gustafson 2006, Young & Young 1986).

PROPAGATION DETAILS

Ecotype:	--
Propagation Goal:	Plants
Propagation Method:	Seeds
Product Type:	Container
Stock Type:	plug
Time to Grow:	6-7 months
Target Specifications:	10 cu. in. root plug
Propagule Collection:	Seed is ready for harvest once flowers have dropped and top of capsule has turned brown and brittle, usually mid to late summer. Plants are easily dislodged from the ground, making it difficult to strip fruits from plant. To avoid damage to plants, clip mature fruits from plant using wire cutters. Store fruits at room temperature in paper bags or envelopes until ready to be cleaned

	(Borders 2006, Skinner 2007, Pavek 2011).
Propagule Processing/Propagule Characteristics:	Crush capsules to release seed. Use an air screen separator to clean seed. Store cleaned seeds at 40 °F and 40% humidity (Borders 2006, Skinner 2007, Barner 2009). Seed density: 660,000 seeds per kilogram (300,000 seeds per pound) (Pavek 2011) Seed longevity: Not known
Pre-Planting Propagule Treatments:	If seeds are to be sown indoors, 90+ days of cold-moist stratification is required for seeds to germinate. Seed sown outdoors in the fall germinate readily without any pretreatment. Some seeds may only germinate after a second winter (Kruckeberg 1996, Borders 2006, Skinner 2007).
Growing Area Preparation / Annual Practices for Perennial Crops:	Sow seed in 10 cu. in. Ray Leach Super cell conetainers filled with Sunshine #4 growing mix (http://www.sunshineadvanced.com/sunshine%C2%AE-advanced-growing-mix-4-how-its-made). Cover lightly and apply a thin layer of pea gravel to prevent seeds from floating. Place outside. Water deeply (Skinner 2007).
Establishment Phase:	Move conetainers to the greenhouse in late January. Germination is complete in 12-14 days (Skinner 2007).
Length of Establishment Phase:	3 months
Active Growth:	Water deeply every other day. Fertilize once a week with a complete, water soluble fertilizer containing micro-nutrients (Skinner 2007).
Length of Active Growth Phase:	8-10 weeks
Hardening Phase:	Move plants to a cold frame in mid-April. Water as needed (Skinner 2007).
Length of Hardening Phase:	2-4 weeks
Harvesting, Storage and Shipping:	Plants can be stored outside in an open compound or shadehouse until shipping; protect from direct exposure to sun or wind. Extended storage is not recommended. Continue to provide fertigation during this period (Skinner 2007). Plants can be shipped in their containers.
Length of Storage:	Plants should be planted out as soon as possible to take advantage of moist spring conditions (Skinner 2007).
Guidelines for Outplanting / Performance on Typical Sites:	This species requires full sun, excellent drainage and dislikes frequent summer watering (Kruckeberg 1996, Borders 2006). Drill 1.5 inch deep holes at the planting site. Seedlings are difficult to transplant due to their taproot which

	prevents a tight plug from developing. Furthermore, the barbed pubescence on the leaves causes the plants to cling to each other and to clothing. Take care not to uproot transplanted seedlings. Space transplanted seedlings 0.6 to 0.9 m (2 to 3 ft) apart. Seedlings may be slow to establish (Borders 2006, Skinner 2007, Pavek 2011).
Other Comments:	<i>Mentzelia laevicaulis</i> can be established by seed or transplanted seedlings. Flowers second year on seeds sown outside in fall (Kruckeberg 1996).

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