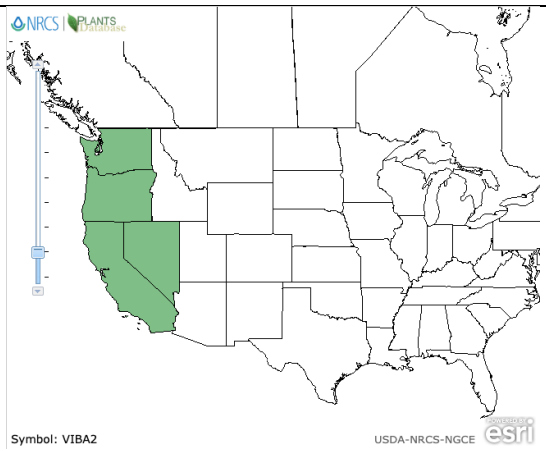
Plant Propagation Protocol for *Viola bakeri*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/VIBA2


Steve Matson, 2004


Steve Matson, 2004


Steven Perry, 2014

TAXONOMY	
Plant Family	
Scientific Name	Violaceae
Common Name	Violet
Species Scientific Name	
Scientific Name	*Viola bakeri* Green
Varieties	*Viola nuttallii* Pursh var. *bakeri* (Greene) C.L. Hitchcock (1,2)
Sub-species	*Viola bakeri* Green spp. *grandis* M.S. Baker *Viola bakeri* Green spp. *shastensis* M.S. Baker (1,2)
Cultivar	N/A
Common Synonym(s)	*Viola bakeri* ssp. *shastensis* M.S. Baker (3)
Common Name(s)	Baker's violet (1)
Species Code (as per USDA Plants database)	VIBA2 (1)
GENERAL INFORMATION	
Geographical range	North America

	 Washington State  (1)
Ecological distribution	Found in the mountains of northern Nevada, the southern High Sierra Nevada in California, Oregon, and southern central Washington. Mostly found in openings in moist coniferous forests but also seen in meadow habitats. (5,6)
Climate and elevation range	Sun: Shade, Part Shade Annual Precipitation: 18.3-129 in. Summer Precipitation: 0.88-4.32 in. Humidity: 1.01 vpd -20.13 vpd Hottest Month: 49.0 ° F – 70.3 ° F Coldest Month: 27.5 ° F-45.8 ° F Elevation: 1300-2700 m (4,5)
Local habitat and abundance	Baker's violet is abundant in southern central Washington, specifically Yakima County and Klickitat County. The violets grow best in openings in moist coniferous forests, usually where a meadow is present. (1,3)
Plant strategy type / successional stage	Baker's violet's strategy for successful growth is to grow in areas that do not have many plants around them to avoid competition and to grow in moist

	environments. They reach their peak growth in late June through early July which is before the peak of many other native plants. (6,8)
Plant characteristics	Baker's violet is a perennial forb that can grow to be 3-30cm tall. The stem is erect and is derived from a woody taproot. The leaves are simple, basal and cauline. The petiole is 1-8cm long and the base of the leaf is tapered. There are 5 flower petals and the petals are yellow with brownish veins on the lower portion of 3 of the petals. Sometimes the tips of the flowers can be purple or brown. (3,4)
PROPAGATION DETAILS	
Ecotype	N/A
Propagation Goal	Plants (7)
Propagation Method	Seed (7)
Product Type	Container (plug) (7)
Stock Type	18ml cone-tainers (7,8)
Time to Grow	4 months (8)
Target Specifications	The target specifications for Baker's violet is that the crowns need to be well developed. The roots and rhizomes also need to fill the soil profile within the container. (7)
Propagule Collection Instructions	Capsules form on the violet and once they have ripened, you can remove the capsule, split it open, and remove the seeds. The capsules will also disperse the seeds at maturity, so another method of collection would be to wrap aluminum foil around the capsule and allow the violet to release the seeds into the aluminum foil by itself. (3,8)
Propagule Processing/Propagule Characteristics	Each capsule in the violet will produce about 8 seeds. To tell if the seed is viable, it will be 2.8 to 3.1 mm, globular outgrowth, and the color of the seed will be tan to dark red-brown. (3,8)
Pre-Planting Propagule Treatments	Stratification for 90 days needs to occur before germination can take place. The seeds need to be stored in a cool, dry container with an equal amount of perlite or vermiculite. (7,8)
Growing Area Preparation / Annual Practices for Perennial Crops	The best growing environments for the Baker's violet would be in individual cone-tainers. The seeds need an environment of moist soil that has partial shade. (5,8)
Establishment Phase Details	Seeds are planted in the late fall and are kept in the greenhouse over the winter months. Soil is kept damp during the establishment phase. No artificial light is used during this time; partial shade with partial sunlight is used instead. (7,8,9)
Length of Establishment Phase	2 months (9)
Active Growth Phase	From mid April to May, shoots begin growing and leaves later develop. Between mid June and July, flowering occurs. In late July through mid August, the plant begins to die back and is no longer actively growing. (6,8)

Length of Active Growth Phase	The active growth phase lasts 4 months between mid April through mid August. (6)
Hardening Phase	During the hardening phase, watering can be less frequent, but still keep the plants in moist environments. The plants can be also moved into a cold frame covered by light diffusing material to avoid the sun scorching the plant. (7)
Length of Hardening Phase	Early spring to early summer, between 6 to 12 weeks (6,7, 8)
Harvesting, Storage and Shipping	Baker's violet are very delicate plants, just like many other violets, and should be handled with care when harvesting, storing, and shipping. When harvesting and storing, plant trays are used to transport the Baker's violet. If the violets are not planted during the late summer or fall, the remaining violets will stay in the greenhouse for another season. (7,8)
Length of Storage	Baker's violet can be stored for a few years in a greenhouse. (8)
Guidelines for Outplanting / Performance on Typical Sites	There is no current information on outplanting and performance of *Viola bakeri* due to limited literature, so this has been modified with information from *Viola praemorsa.* Baker's violet will have the best growth performance when planted away from other flowers or plants that will compete for resources. Like the *Viola praemorsa*, the Baker's violet does need two years before flowering. (8,9)
Other Comments	Much information specific to *Viola bakeri* is unavailable due to the limited amount of literature published on the species. Much of the propagation information was collected through the plant propagation for *Viola praemorsa* due to the similarities in geographical range, ecological distribution, and habitat.
INFORMATION SOURCES	
References	1. "Plants Profile for Viola Bakeri (Baker's Violet)." *Plants Database*, United States Department of Agriculture, plants.usda.gov/core/profile?symbol=VIBA2. 2. "Taxon Report 8285." *Viola Bakeri Calflora*, University of California, Berkeley, 2019, www.calflora.org//cgi-bin/species_query.cgi?where-taxon=Viola%2Bbakeri. 3. "Taxon Page." *Viola Bakeri*, University of California, Berkeley, 2019, ucjeps.berkeley.edu/eflora/eflora_display.php?tid=48162. 4. "Jepson Manual Treatment for Violaceae." *Jepson Floral Project*, University of California, Berkeley, 2019, ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?7799%2C7800%2C7804. 5. "Baker's Violet, Viola Bakeri." *California Native Plant Society*, 2010, calscape.org/Viola-bakeri-().

	6. "Wildflower Identification Baker's Violet." *Wildflower Search,* 2019, www.wildflowersearch.org/search?oldstate=name%3AViola%2Bbakeri%3Bcredits%3Ashowcredits%3Ashow&PlantNAme= 7. "Propagation Protocols." *Reforestation, Nurseries and Genetics Resources,* 2015, rngr.net/npn/propagation/protocols/?SearchableText 8. Fox, Victoria. "Plant Propagation Protocol for Viola Praemorsa." *University of Washington ESRM 412*, 30 May 2018, courses.washington.edu/esrm412/protocols/VIPR3.pdf. 9. Marcel. "Growing Pansies, Viola Tricolor, Violet Flower - How to Grow and Care." *Plantopedia*, 24 Feb. 2017, www.plantopedia.com/viola/.
Other Sources Consulted	"Viola Bakeri." *Flora of North America*, Www.eFloras.org, www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250100898. "Viola Bakeri Greene." *ITIS Standard Report Page: Viola Bakeri,* www.itis.gov/servlet/SingleRpt/SingleRpt?seach_topics=TSN&search "Viola Bakeri." *CalPhotos*, University of California, Berkeley, calphotos.berkeley.edu/cgi/img_query?query_src=photos_index&where-taxon=Viola%2Bbakeri.
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