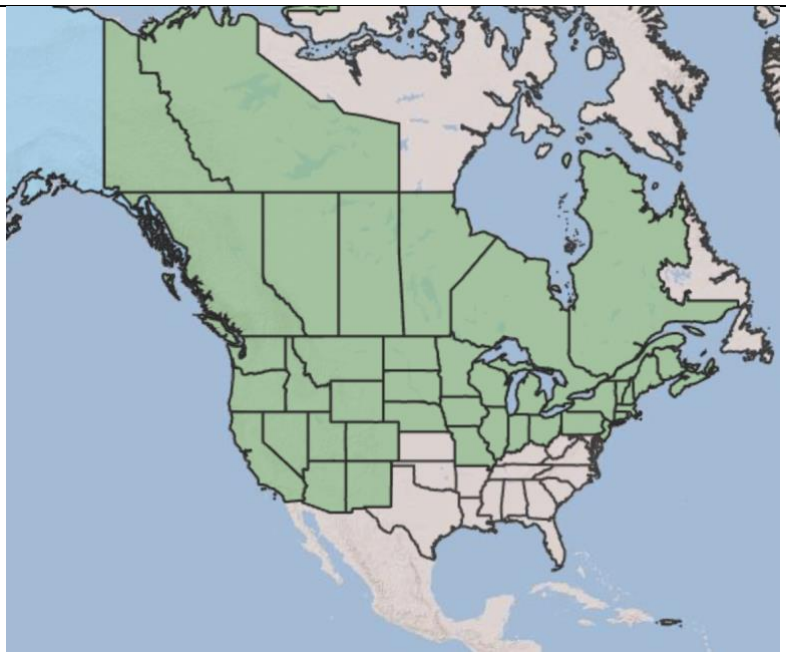
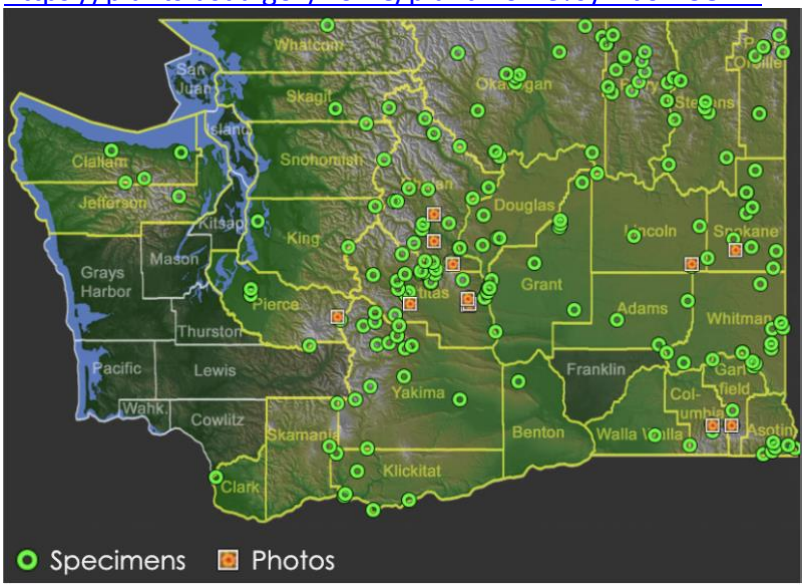
Plant Propagation Protocol for *Collomia linearis* Nutt.

ESRM 412 – Native Plant Production

URL: https://courses.washington.edu/esrm412/protocols/2024/COLI2.pdf

Photo by Robert L. Carr (2006)

TAXONOMY	
Plant Family	
Scientific Name	Polemoniaceae[1]
Common Name	Phlox family[1]
Species Scientific Name	
Scientific Name	*Collomia linearis* Nutt.[1]
Varieties	No varieties found.
Sub-species	No sub-species found.
Cultivar	No cultivars found.
Common Synonym(s)	No common synonym found.
Common Name(s)	Tiny Trumpet[1], Narrow-leaf collomia[2], Narrow-leaf Mountain Trumpet[4]
Species Code (as per USDA Plants database)	COLI2[1]
GENERAL INFORMATION	

Geographical range	 USDA (2014) https://plants.usda.gov/home/plantProfile?symbol=COLI2  Burke Herbarium Image Collection (n.d) https://burkeherbarium.org/imagecollection/taxonmap.php?Taxon=Collomia%20linearis&SourcePage=taxon Occurs across most of North America except the southern US from dry, open ground to moist, open meadows and open forest.[2] Compared to other species in the *Collomia* genus, *Collomia linearis* Nutt. has a broader distribution which extends eastward to the Rocky Mountains and to the plains of eastern Canada and northern United States.[6]

Ecological distribution	*Collomia linearis* Nutt. prefers sandy or gravelly disturbed soils. These conditions are often found in meadows, roadsides, railroads, open woods, clearing, and thickets.[5]
Climate and elevation range	Dry to somewhat moist regions in lowlands to moderate elevations in the mountains.[4]
Local habitat and abundance	Dry, open woods; dry to mesic, sandy or gravelly prairies.[7] Often found in meadows, roadsides, railroads, open woods, clearings, and thickets as stated above.[5]
Plant strategy type / successional stage	Reseeds and establishes on sites where there are openings in the vegetative cover.[2] In disturbed areas in New England, *Collomia linearis* is considered a weed.[8]
Plant characteristics	Annual forb/herb.[1] Flowers are dense clusters of 7-20 at the top of the plants. They are about ½ inch long and ¼ inch across. Flowers have 5 oval-elliptic petals that fuse at the base into a long, narrow tube. There are 5 stamens of unequal lengths and 5 sepals cupping the flower that are shorter than the floral tube. At the base of the cluster, there is whorl of large, leaf-like bracts.[5] Leaves are ¾-3.5 inches long and up to ½ inch wide. They are linear with entire margins; alternate; mostly stalkless. The lowest leaves are the smallest and may wither away early. The leaves have small hairs along the surface.[5]
PROPAGATION DETAILS: FROM SEED	
Ecotype	No ecotype discussed.
Propagation Goal	Plants[2]
Propagation Method	Seed[2]
Product Type	Container (plug)[2]
Stock Type	Unspecified.
Time to Grow	3 months[2]
Target Specifications	Tight root plug in container.[2]
Propagule Collection Instructions	Seed is collected when the inflorescence begins to dry and the capsules begin to open. This is done by cutting the stalk below the inflorescence. Maturity usually occurs in late July or early August. Seeds are dark brown in color and the inflorescence tend to be mucilaginous, which is why disposable gloves are recommended. The seed is expelled forcefully when mature and must be covered by a material which permits air circulations but prevents seed loss. Small amounts of seed are stored in paper bags at room temperature with the top of the bag covered with open weave cloth.[2] In seed increase plantings, entire plants are cut and dried on tarps in a shed or greenhouse. Plants are covered with garden row cover and fans are used to assure good air circulation. Mold can be a problem if there is poor air circulation.[2]
Propagule Processing/Propagule Characteristics	Most of the seed will shatter in the bag or on the tarp. Plant parts are discarded, and very little seed is left in the inflorescence. Small amounts of seeds are cleaned with an air column separator while larger amounts are cleaned with air

	screen equipment. The seeds are large and easy to clean. After cleaning, seed is stored at 40°F and 40% relative humidity.[2]
Pre-Planting Propagule Treatments	None required, but there may be an after-ripening requirement. Seeds that have been stored in cool and dry conditions have been observed to germinate at a higher rate than newly harvested seed.[2] Seeds from subalpine rangeland of Utah and Montana were found to germinate at 98% under alternating greenhouse temperatures of 17/12°C while warmer temperatures reduced percent germination.[3]
Growing Area Preparation / Annual Practices for Perennial Crops	In February, seeds are sown in the greenhouse in 10 cubic inch Ray Leach Super cell containers that are filled with Sunshine #4 and covered lightly. A thick layer of pea gravel is applied to prevent seeds and media from floating. The layer of pea gravel also ensures the containers are watered deeply.[2]
Establishment Phase Details	Germination begins in 5-6 days and is complete in 10 days. The medium is kept moist during this phase.[2]
Length of Establishment Phase	2 weeks[2]
Active Growth Phase	Roots develop quickly after germination. The plants are watered deeply every other day and fertilized once a week with a water soluble, complete fertilizer containing micronutrients.[2] There are no measurements of how much fertilizer is used in this section.
Length of Active Growth Phase	2-3 months[2]
Hardening Phase	Plants are moved to the cold frame in late March or early April depending on the weather conditions.[2]
Length of Hardening Phase	2-4 weeks[2]
Harvesting, Storage and Shipping	Not discussed.
Length of Storage	Not discussed.
Guidelines for Outplanting / Performance on Typical Sites	Not discussed.
Other Comments	Preliminary results from direct seeding trials in the field suggest seed sown in the fall establishes at a higher rate than seed sown in the spring.[2]
INFORMATION SOURCES	
References	1. United States Department of Agriculture. (n.d.). *Colombia linearis Nutt*. USDA plants database. https://plants.usda.gov/home/plantProfile 2. Skinner, David M,. 2005. Propagation protocol for production of Container (plug) *Collomia linearis* Nutt. plants USDA NRCS - Pullman Plant Materials Center Pullman, Washington. In: Native Plant Network. URL: https://NativePlantNetwork.org (accessed 2024/05/21). US Department

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Other Sources Consulted	1. Wherry, E. T. (1944). Review of the Genera Collomia and Gymnosteris. *The American Midland Naturalist*, *31*(1), 216–231. https://doi.org/10.2307/2421392 2. US Fish and Wildlife Service. 1988. National list of vascular plant species that occur in wetlands. US Fish & Wildlife Service Biological Report 88 (24). 3. Wilken, D. H. (1977). Local Differentiation for Phenotypic Plasticity in the Annual Collomia linearis (Polemoniaceae). *Systematic Botany*, *2*(2), 99–108. https://doi.org/10.2307/2418577
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