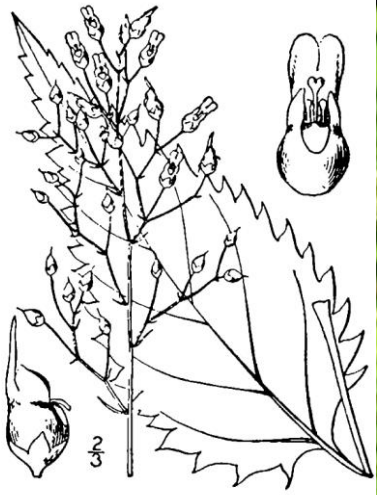
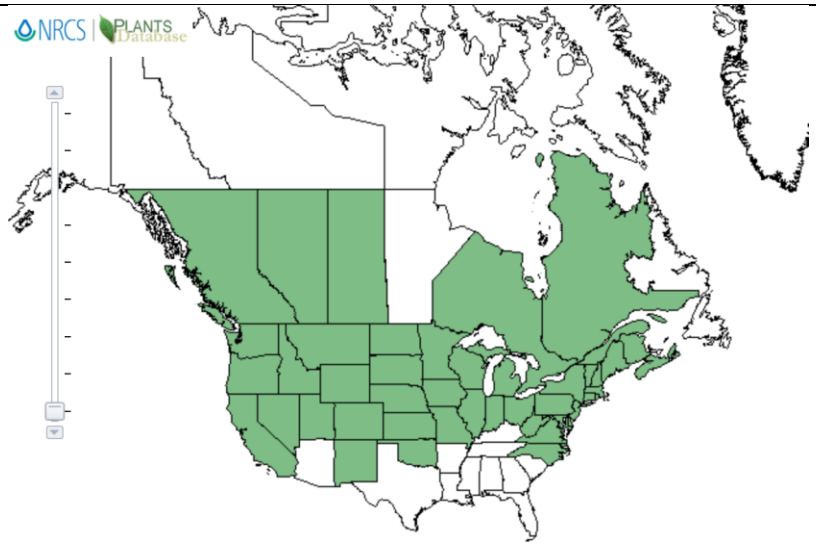
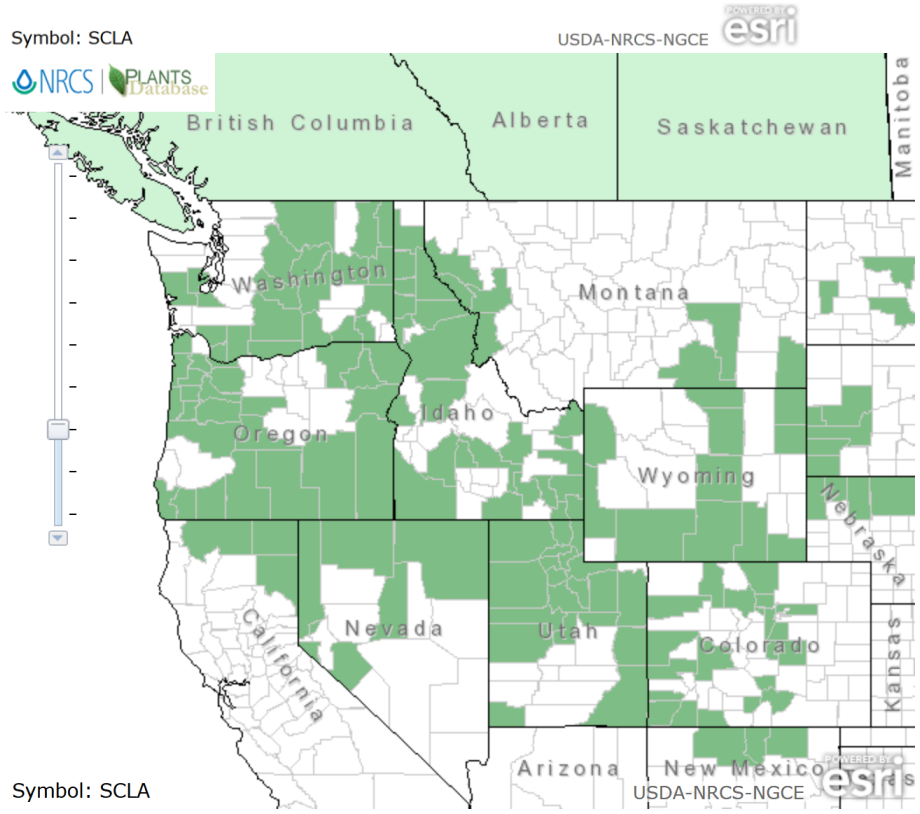
Plant Propagation Protocol for *Scrophularia lanceolata*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/SCLA.pdf




(credit: Keir Morse, CalPhotos; Britton & Brown, USDA; John Hixson, Lady Bird Johnson Wildflower Center)

TAXONOMY	
Plant Family	
Scientific Name	Scrophulariaceae
Common Name	Figwort Family
Species Scientific Name	
Scientific Name	*Scrophularia lanceolata* Pursh
Varieties	none
Sub-species	none
Cultivar	none
Common Synonym(s)	*Scrophularia leporella* E.P. Bicknell *Scrophularia occidentalis* (Rydb.) E.P. Bicknell *Scrophularia pectinate* Raf.
Common Name(s)	Lanceleaf figwort Early figwort Hare figwort Mountain figwort
Species Code (as per USDA Plants database)	SCLA
GENERAL INFORMATION	

Geographical range	  (USDA)
Ecological distribution	Moist streambanks, meadows, thickets and woodlands (Kersh). Sandy roadsides and woodlands (Jepson Manual). Sandy places (CalScape).
Climate and elevation range	Can be found growing at 1,000-2,800m elevation (Kersh); Klamath Ranges and Cascade Range (Jepson Manual).
Local habitat and abundance	Full sun to part shade. Found in open woods, thickets, roadsides, railroads and open fields (Minnesota Wildflowers). Soil of medium moisture (Prairie Moon Nursery).
Plant strategy type / successional stage	Abundant in nectar, of special value to native bees and pollinators, especially hummingbirds and butterflies, also supports predatory/parasitoid insects (Lady Bird Johnson Wildflower Center; Prairie Moon Nursery; CalScape).

Plant characteristics	Herbaceous perennial can reach 2-6 feet in height. Blooms May-July, late spring to early summer. Flowers are irregular, short (1/4 – 1/3" length), urn-shaped corolla with 5 rounded lobes, the 2 upper lobes are longest, extending straight outwards and lower lobe folds down and is typically green. Occurring in branching clusters (panicle), opposite on stem. Leaves are simple, triangular/lance-shaped and opposite, up to 8" long and 3" wide, sharply pointed apex, coarse teeth margins, on short petioles; looks similar to *Urtica dioica* but without stinging hairs. Fruit is dull brown, teardrop-shaped capsule, up to 1/3" long/6-8mm, contains many tiny black seeds, when ripe capsule splits in 2 (Minnesota Wildflowers; Jepson Manual; CalScape).
PROPAGATION DETAILS **Seed Propagation**	
Ecotype	For *Scrophularia californica*: Marin County, California (Young)
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug) (Young)
Stock Type	For *Scrophularia californica*: Deepot 16 (Young)
Time to Grow	n/a
Target Specifications	Seedling with firm roots
Propagule Collection Instructions	For *Scrophularia californica*: Seeds collected between May 15 and September 15. Mature inflorescences are brown, seeds are tiny (Young).
Propagule Processing/Propagule Characteristics	For *Scrophularia californica*: Seeds removed from capsules by hand. Seeds are kept dry and stored in a refrigerator. Seeds/gram: 10,125 (Young).
Pre-Planting Propagule Treatments	Seeds are recalcitrant and "…must be planted within a few days of harvesting or stored in 1:1 ratio of damp sand, milled sphagnum, or a peat-perlite blend and stored in a refrigerator (not frozen)" (Genesis Nursery). Seeds germinate after 60 days of cold, moist stratification. Place seeds in sealed plastic bag with equal parts of damp sand, vermiculite or other horticultural-use medium; moisten mixture slowly. Store in refrigerator at 33-38˚F. If more than a few seeds sprout in bag, plant immediately (Prairie Moon Nursery). Seeds need cold stratification for 8 weeks at 35-40˚F (Dreesen & Grasswitz). For *Scrophularia californica*: None required (Young).
Growing Area Preparation / Annual Practices for Perennial Crops	Sow seeds on surface of coarse media; need light for germination (Dreesen & Grasswitz). "Seeds should be surface sown - no soil cover or just a dusting of soil should be applied. If grown in outdoor garden beds, sow seed on level surface. Cover with a single layer of burlap or cotton sheet. Remove cover after germination. Do not let soil dry out until seedlings are established. If sowing seeds in containers, water from the bottom as necessary" (Prairie Moon Nursery). For *Scrophularia californica*: Fully controlled greenhouse. "2 grams of seeds are sown per flat containing Sunshine Mix #4 Aggregate Plus (peat moss, perlite, major and minor nutrients, gypsum, and dolomitic lime). Seeds are mixed with media to sow and are surface sown. Flats are watered in with an automatic mist and irrigation system. Seeds are sown on August 15th. % Germination: 50%" (Young).

Establishment Phase Details	For *Scrophularia californica*: "Seeds germinate 14 days after sowing. Seedlings are transplanted 14 days after germination to individual containers 2"x7" tubes (Deepot 16) containing standard potting mix of peat moss, fir bark, perlite, and sand. Transplant Survival averages 95%" (Young).
Length of Establishment Phase	For *Scrophularia californica*: 28 days (Young)
Active Growth Phase	"Shading with a window screen set 12" above soil the first year will help prevent drying" (Prairie Moon Nursery). For *Scrophularia californica*: "Fertilize with Nutricote NPK (13-13-13) 3 months after transplanting. Prune back and keep large leaves cut back to avoid crown rot. Space tubes in racks for adequate air circulation and ease of irrigation." (Young).
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	Plant in full sun to partial shade, in soils of medium moisture.
Other Comments	Greenhouse propagation is difficult; seed is only occasionally commercially available (Dreesen & Grasswitz). Listed as species of Special Concern in Rhode Island (USDA).
INFORMATION SOURCES	
References	See list below
Other Sources Consulted	See list below
Protocol Author	Summer Swallow
Date Protocol Created	May 28, 2019

This propagation protocol template was modified by J.D. Bakker from that available at: http://www.nativeplantnetwork.org/network/SampleBlankForm.asp

References:

CalPhotos. 2012. Regents of the University of California, Berkeley. Accessed on May 27, 2019. Available online at: http://calphotos.berkeley.edu/.

CalScape. *Scrophularia lanceolata,* in California Native Plant Society, https://calscape.org/loc-california/Scrophularia%20lanceolata(), accessed 27 May 2019.

Dreesen, D. & Grasswitz, T. 2015. Pollinator plant recommendations for New Mexico. Plant Materials Technical Note No. 71 (Final Revision). https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/nmpmctn12632.pdf, accessed on 27 May 2019. Albuquerque, NM: USDA-NRCS. p.5

Genesis Nursery. 2014. *Recalcitrant versus Orthodox seeds; OR, they die as they dry!* [pdf file] http://www.genesisnurseryinc.com/guidelines/O%20recalcitrant.pdf, accessed 27 May 2019. Tampico, IL. p.3-4

Jepson Manual. 1993. *Scrophularia lanceolata*, in Treatment from the *Jepson Manual*, http://ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?7177,7570,7576, accessed on 27 May 2019.

Kersh, K. 2012. *Scrophularia lanceolata*, in Jepson Flora Project (Eds.) *Jepson eFlora*, http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=43856, accessed on 27 May 2019.

Lady Bird Johnson Wildflower Center. 2014. *Scrophularia lanceolata*, in Plant Database, https://www.wildflower.org/plants/result.php?id_plant=SCLA, accessed on 27 May 2019.

Minnesota Wildflowers. 2019. *Scrophularia lanceolata* (Lance-leaf Figwort), https://www.minnesotawildflowers.info/flower/lance-leaf-figwort, accessed 27 May 2019.

Prairie Moon Nursery. 2019. *Scrophularia lanceolata*, in Seeds, https://www.prairiemoon.com/scrophularia-lanceolata-early-figwort-prairie-moon-nursery.html, accessed on 27 May 2019.

USDA, NRCS. 2019. *Scrophularia lanceolata*, in the PLANTS Database (https://plants.usda.gov/java/reference?symbol=SCLA, 27 May 2019). Greensboro, NC: National Plant Data Team.

USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. [botanical illustration] *An illustrated flora of the northern United States, Canada and the British Possessions. 3 vols.* Charles Scribner's Sons, New York. Vol. 3: 180.

Young, Betty. 2002. Propagation protocol for production of Container (plug) *Scrophularia californica* Cham. & Schlecht. plants Deepot 16; San Francisco, California. In: Native Plant Network, http://NativePlantNetwork.org, accessed 27 May 2019. US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

Consulted Resources:

AoB PLANTS. 2019. *Annals of Botany*, https://academic.oup.com/aobpla/issue/11/3, accessed 27 May 2019. Oxford University Press.

Cooke, S (Ed.) 1997. A field guide to the common wetland plants of Western Washington and Northwestern Oregon. Seattle, WA: Seattle Audubon Society.

Leigh, M. 1999. Grow your own native landscape. Olympia, WA: WSU Cooperative Extension – Thurston County.

Tropicos.org. *Scrophularia lanceolata* Pursh, Missouri Botanical Garden. 27 May 2019 http://www.tropicos.org/Name/29201538

Weldy, T., Werier, D. & Nelson, A. 2019. *Scrophularia lanceolata*, New York Flora Atlas. [S. M. Landry and K. N. Campbell (original application development), USF Water Institute. University of South Florida]. New York Flora Association, http://newyork.plantatlas.usf.edu/Plant.aspx?id=2909, accessed 27 May 2019. Albany, New York.

Young, J. & Young, C. 1986. Collecting, Processing and Germinating Seeds of Wildland Plants. Portland, OR: Timber Press. p.177-178