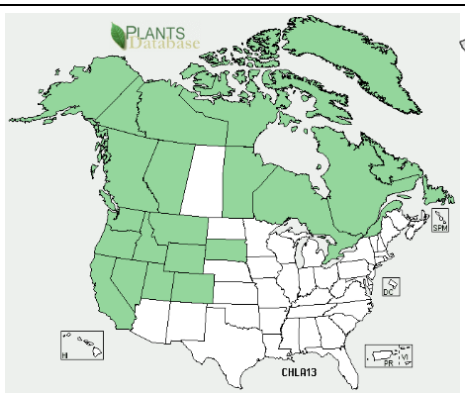
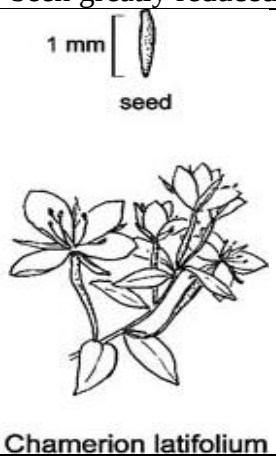
Plant Propagation Protocol for *Chamerion latifolium*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/2021/CHLA13.pdf

Figure 1: *Weyland, Phyllis (Lady Bird Johnson Wildflower Center)*

TAXONOMY	
Plant Family	
Scientific Name	*Onagraceae*
Common Name	Evening Primrose Family
Species Scientific Name	
Scientific Name	*Chamerion latifolium* (L.) Holub
Varieties	None found.
Sub-species	None found.
Cultivar	None found.
Common Synonym(s)	*Epilobium latifolium* *Chamaenerion latifolium* *Chamerion subdentatum*
Common Name(s)	Dwarf fireweed, alpine fireweed, broadleaf willowherb, river-beauty[7]
Species Code (as per USDA Plants database)	CHLA13

GENERAL INFORMATION	
Geographical range	  Figure 2: North America map of *Chamerion laifolium presence*[9] Figure 3: PNW regional map of *Chamerion laifolium presence* [2]
Ecological distribution	Subalpine, Moist Riverbanks, Alpine, Bog/Fen/Wetland, Meadow[2]
Climate and elevation range	Appears throughout the northern regions of the Northern Hemisphere, including subarctic and Arctic areas such as snowmelt-flooded gravel bars and talus, in a wide range of elevation.[7]
Local habitat and abundance	*Chamerion latifolium* is widely found and not a concern for conservation. Mentioned previously, it can be found in subalpine to alpine river bars, gravelly stream banks, snowmelt areas, and seasonally drier slopes.[5] This plant associates with a variety of pollinators including butterflies, moths, and hummingbirds.[7]
Plant strategy type / successional stage	Weedy/Colonizer; Thrives best when the competition has been greatly reduced.[1]
Plant characteristics	 This is a perennial herb that grows in the range of 2-15 inches in height and that has rose/pink flowers that come between June-September.[5] The plant has 4 oval petals and 4 linear sepals that are the same length. *Chamerion latifolium* leaves are generally 1 to 2 1/2 in. long, widely oval, alternate along stem, including among the flowers.[2] Figure 4: Botanical diagram of *Chamerion latifolium* [3]

PROPAGATION DETAILS

Reference for this protocol:
Moore, Nancy; Hunt, Peggy. 2003. Propagation protocol for production of Container (plug) *Chamerion latifolium* (L.) Holub plants Alaska Plant Materials Center Palmer, Alaska. In: Native Plant Network. URL: http://NativePlantNetwork.org (accessed 2021/05/25). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

Ecotype	Sandy riverbars, roadsides, foothills in Alaska
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	Not available.
Time to Grow	Not available.
Target Specifications	Root trainer, 10.5 cu.in./cell. Multiple leaves, firm root plug.
Propagule Collection Instructions	Seeds collected after capsules start to show signs of splitting. Seeds are golden when ripe - approximately the end of July. Collecting by hand into bucket seems to catch much of the fluff.
Propagule Processing/Propagule Characteristics	Air dry. Cleaning (so as not to hurt the seed and still remove the fluff) consists of 3 steps: Brush cleaner,hand screen, air separator. Store in freezer.
Pre-Planting Propagule Treatments	Using a facultative soil mix, plant 2 seeds per cell in the fall. Subject them to ambient temperature fluctuations (cold/moist stratification.)
Growing Area Preparation / Annual Practices for Perennial Crops	Bring cells into greenhouse in spring. Seeds germinate in about 10 days.
Establishment Phase Details	Plants moved to lathhouse to harden off after last frost. Fertilize minimally after true leaves appear.
Length of Establishment Phase	Two months
Active Growth Phase	Not available.
Length of Active Growth Phase	Not available.
Hardening Phase	Not available
Length of Hardening Phase	Not available.
Harvesting, Storage and Shipping	Not available.
Length of Storage	Not available.
Guidelines for Outplanting / Performance on Typical Sites	Not available.
Other Comments	Not available

INFORMATION SOURCES	
References	Cited below.
Protocol Author	Brenton Riddle
Date Protocol Created or Updated	05/24/2021

References

[1] *Aiken, M.J. Dallwitz, L.L. Consaul, C.L. McJannet, L.J. Gillespie, R.L. Boles, G.W. Argus, J.M. Gillett, P.J. Scott, R. Elven, M.C. LeBlanc, A.K. Brysting and H. Solstad. 1999 onwards. Flora of the Canadian Arctic Archipelago: Descriptions, Illustrations, Identification, and Information Retrieval. Version: 29th April 2003. http://www.mun.ca/biology/delta/arcticf/*

[2] *Chamerion latifolium | Red Willowherb | Wildflowers of the Pacific Northwest*. (n.d.). Retrieved May 24, 2021, from https://www.pnwflowers.com/flower/chamerion-latifolium

[3] Hoch, P. C. (n.d.). *Chamerion latifolium*. Jepson Herbarium. Retrieved May 25, 2021, from https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=19029

[4] Hunt, P., & Wright, S. (n.d.). *Kobuk Germplasm dwarf fireweed*. State of Alaska Department of Natural Resources. Retrieved May 25, 2021, from https://plants.alaska.gov/pdf/plant-flyers/Kobukdwarffireweed.pdf

[5] Knoke, D., & Giblin, D. (n.d.). *Chamaenerion latifolium*. Burke Herbarium Image Collection. Retrieved May 24, 2021, from https://biology.burke.washington.edu/herbarium/imagecollection/taxon.php?Taxon=Chamaenerion%20latifolium

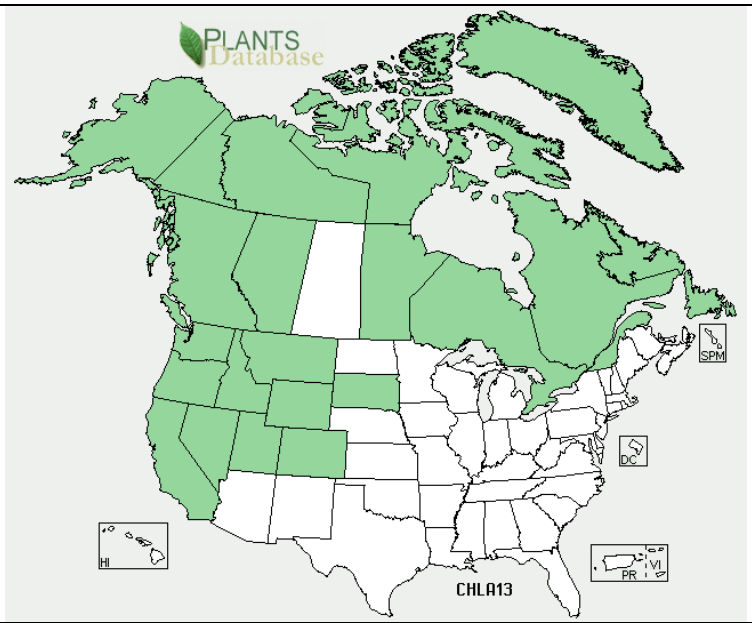
[6] Moore, N., & Hunt, P. (2003). *Onagraceae (Chamerion)—Reforestation, Nurseries and Genetics Resources*. https://npn.rngr.net/npn/propagation/protocols/onagraceae-chamerion-2755/?searchterm=chamerion%20latifolium

[7] River Beauty, Chamerion latifolium. (n.d.). Retrieved May 24, 2021, from https://calscape.org/Chamerion-latifolium-()

[8] Southwest, T. A. (n.d.). *Dwarf Fireweed, Chamerion Latifolium*. Retrieved May 24, 2021, from https://www.americansouthwest.net/plants/wildflowers/chamerion-latifolium.html

[9] USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?410681 (24 May 2021)

Plant Propagation Protocol for *Chamerion latifolium* (*Epilobium latifolium*) (dwarf fireweed)
ESRM 412 – Native Plant Production
Spring 2008

TAXONOMY	
Family Names	
Family Scientific Name:	*Onagraceae*
Family Common Name:	Evening Primrose Family
Scientific Names	
Genus:	*Chamerion*
Species:	*latifolium*
Species Authority:	(L.) Holub
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s):	*Epilobium latifolium*, *Chamaenerion latifolium*, *Chamerion subdentatum*
Common Name(s):	Dwarf fireweed, alpine fireweed, broadleaf willowherb, river-beauty [1]
Species Code (as per USDA Plants database):	CHLA13
GENERAL INFORMATION	
Geographical range:	
Ecological distribution:	Damp areas such as damp slopes, margins of streams, and river gravels [2]

Climate and elevation range	Wooded areas, semi-shade, cultivated beds [2]; Can grow at sea-level and even found at regions around 5000m [3]
Local habitat and abundance:	Common and abundant [3]
Plant strategy type:	Weedy/Colonizer; Thrives best when the competition has been greatly reduced. [3]
Plant characteristics:	Die at the end of each growing season [3], plants perennial herbs [3]
PROPAGATION DETAILS	
Ecotype:	Sandy areas, especially on roadsides and river bars [4]
Propagation Goal:	Plants
Propagation Method:	Seed
Product Type:	Container (Plug)
Stock Type:	Not available.
Time to Grow:	Not available.
Target Specifications:	Root trainer, 10.5 cubic inches per cell. A firm root plug and multiple leaves. [4]
Propagule Collection:	When the capsule begins to show signs of opening, collection of seeds will begin. Most of the seeds seem to be captured by hand and put into a bucket. The seeds turn golden when ripe at approximately the end of July. [4]
Propagule Processing:	Air dry works best while cleaning consists of three steps; Using a brush cleaner, a hand screen, and an air separator. The seeds are then stored in a freezer. [4]
Pre-Planting Propagule Treatments:	In the fall, two seeds per cell are planted using facultative soil mix. A cold/moist stratification works best with ambient temperature changes. [4]
Growing Area Preparation:	In spring, the cells should be brought into a greenhouse. Then let the seeds germinate for about 10 days. [4]
Establishment Phase:	After the last frost, plants should be moved to a lathhouse. They then should be fertilized rarely after true leaves appear. [4]
Length of Establishment Phase:	Two months.
Active Growth Phase:	Not available.
Length of Active Growth Phase:	Not available.
Hardening Phase:	Not available.
Length of Hardening Phase:	Not available.
Harvesting, Storage and Shipping (of	Not available.

seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	Not available.
Guidelines for Outplanting:	Not available.
Other Comments:	Not available.
INFORMATION SOURCES	
References (full citations):	1. USDA, ARS, National Genetic Resources Program. *Germplasm Resources Information Network - (GRIN)* [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?410681 (13 May 2008) 2. Morris, R. (2000). *Plants for A Future - Species Database*. Retrieved May 13, 2008, from Epilobium latifolium: http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Epilobium+latifolium 3. S.G. Aiken, M.J. Dallwitz, L.L. Consaul, C.L. McJannet, L.J. Gillespie, R.L. Boles, G.W. Argus, J.M. Gillett, P.J. Scott, R. Elven, M.C. LeBlanc, A.K. Brysting and H. Solstad. 1999 onwards. Flora of the Canadian Arctic Archipelago: Descriptions, Illustrations, Identification, and Information Retrieval. Version: 29th April 2003. http://www.mun.ca/biology/delta/arcticf/ 4. Hunt, Peggy; Moore, Nancy. 2003. Propagation protocol for production of container *Chamerion latifolium* (L.) Holub plants; Alaska Department of Natural Resources Plant Materials Center, Palmer, Alaska. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 13 May 2008). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. 5. Burke Museum of Natural History and Culture. (2006). *WA Native Plant Society.* Retrieved May 13, 2008, from Chamerion latifolium: http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Chamerion&Species=latifolium 6. Wildflower Center. (2007, January 1). *University of Texas at Austin*. Retrieved May 13, 2008, from Native Plant Databse: http://www.wildflower.org/plants/result.php?id_plant=CHLA13
Other Sources Consulted (but that contained no pertinent information) (full citations):	7. Baskin, Carol C.; Baskin, Jerry M. 2002. Propagation protocol for production of container *Chamerion latifolium* (L.) Holub. plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 13 May 2008). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. 8. Montana.Gov. *Montana Field Guides*. Retrieved May 13, 2008,

	from Dwarf Fireweed: http://fieldguide.mt.gov/detail_PDONA060E0.aspx 9. Canadian Forest Service. (2007, August 22). *Canada's Plant Hardiness Site*. Retrieved May 13, 2008, from Natural Resources Canada: http://planthardiness.gc.ca/ph_spp_intro.pl?lang=en&speciesid=1004903 10. Calflora: Information on California plants for education, research and conservation. [web application]. 2008. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/. (Accessed: May 13, 2008)
Protocol Author (First and last name):	Charlotte Campbell
Date Protocol Created or Updated (MM/DD/YY):	05/13/2008

Note: This template was modified by J.D. Bakker from that available at:
http://www.nativeplantnetwork.org/network/SampleBlankForm.asp
(Burke Museum of Natural History and Culture, 2006)