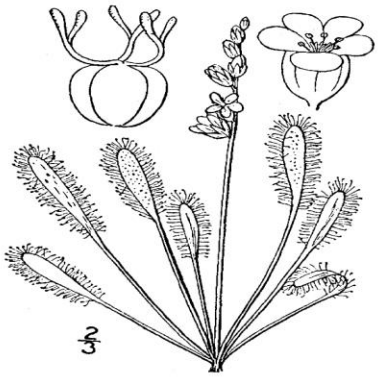
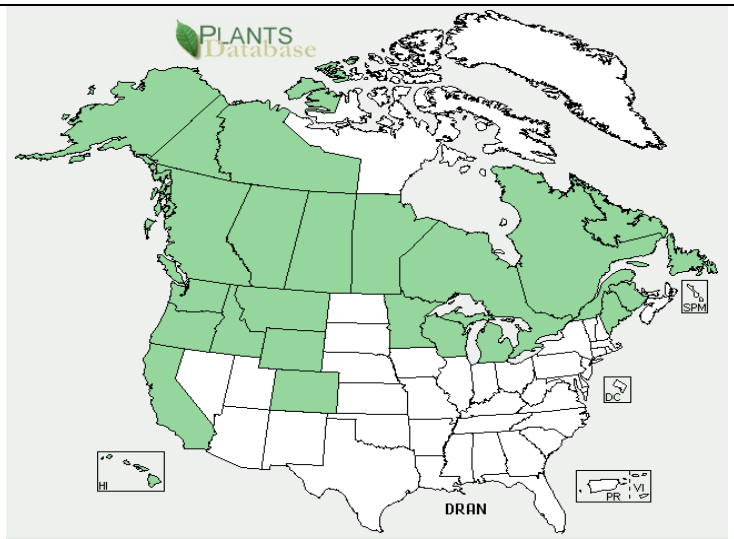
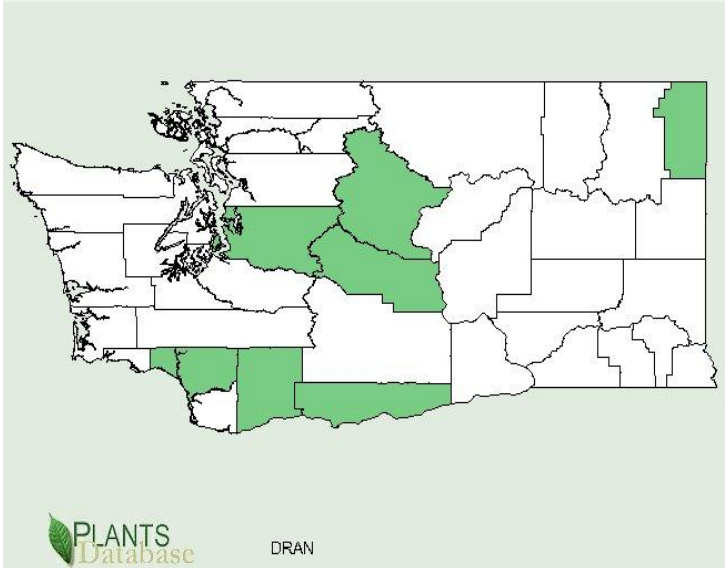
Plant Propagation Protocol for *Drosera anglica*
ESRM 412 – Native Plant Production
Protocol URL: https://courses.washington.edu/esrm412/protocols/DRAN



(USDA NRCS, 2013)

TAXONOMY	
Plant Family	
Scientific Name	Droseraceae
Common Name	Sundew
Species Scientific Name	
Scientific Name	*Drosera Anglica* Hudson
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	*Drosera longifolia* (USDA NRCS, 2013)
Common Name(s)	English Sundew, Great Sundew (USDA NRCS, 2013)(Schnell, 2002)
Species Code (as per USDA Plants database)	DRAN
GENERAL INFORMATION	

Geographical range	  (USDA NRCS, 2013)
Ecological distribution	*Drosera anglica* can be found in primarily in peatlands but also in marl and be found in "sphagnous bogs" or hammocks (Schnell, 2002) (Wolf, Gage and Cooper, 2006).
Climate and elevation range	*Drosera anglica* is limited to areas that do not undergo hard freezing and are constantly waterlogged. It can grow at elevations of 2000m, but requires a suitable mild climate. (Schnell, 2002)
Local habitat and abundance	*D. anglica* is found in wetland areas commonly associated with *Sphagnum spp* and Drosera rotundifolia and *Drosera linearis* (Schnell, 2002).
Plant strategy type / successional stage	*D. anglica* it could be considered a stress-tolerator. It is a wetland carnivorous species. It depends on carnivory and can live in areas with few nutrients (Wolf et al, 2006).
Plant characteristics	*D. anglica* is herbaceous. It has many long flat narrow petioles in a rosette. The petioles have pubescent round leaf blades attached at

	the end. These leaf blades are obovate-spatulate to linear spatulate - "spoon shaped" - and are sticky with 'dew'. Leaves can be up to 40mm long and 5mm across. Petioles can be as long as 7cm. There is a central flower scape. Flowers are 8-10 cm wide and white, without scent. Plants can live up to 5 years (Schnell, 2002) (Wolf et al, 2006).
PROPAGATION DETAILS: Vegetative	
Ecotype	
Propagation Goal	Plants, Cuttings, Seeds
Propagation Method	Vegetative
Product Type	Container Plants: Plastic Pots
Stock Type	Wild Plants/Green House Stock (after initial harvest)
Time to Grow	At least two months.
Target Specifications	*Nonspecific*- Look for mature bud formation with rosette of leaves.
Propagule Collection Instructions	Collect leaves or plantlets from stock plants. Stock may self-propagate by expelled leaves giving rise to new buds (Schnell, 2002). *Temporal notes not found.*
Propagule Processing/Propagule Characteristics	Pull leaf off of *Drosera* stock plant and place in damp to wet sphagnum moss immediately. Stretch clean, non-treated gauze in a single layer across the top of the pot so that the leaf is pressed to the moss. Make sure that gauze is fixed in place with a fastener (rubber band, string etc). Plantlets will form into new plants if placed in damp moss under conditions listed below (Schnell, 2002).
Pre-Planting Propagule Treatments	N/A
Growing Area Preparation / Annual Practices for Perennial Crops	Grow *D. anglica* in dead *Spagnum* moss slow growing live sphagnum, sand-peat mix or Canada Peat. Small, slow growing, close clumping variety of live sphagnum is recommended. Plastic or glazed clay pots recommended. Place containers in water and under bright lights. Medium should be kept wet. Relative humidity should be kept at around 50%. (Schnell, 2002).
Establishment Phase Details	*D. anglica* should be kept in a humid (relative humidity around 50%), well-lit, warm (around 30°C) environment until established. (Schnell, 2002) (Wolf, Gage and Cooper, 2006).
Length of Establishment Phase	It will take *D. anglica* propagules Several weeks to establish (Schnell, 2002).
Active Growth Phase	*D. anglica* will need to be fed or fertilized during the growing season and kept under bright light with good ventilation. 30°C is the recommended temperature for this period, with a relative humidity of around 50%.
Length of Active Growth Phase	Flowering phase is 3 months; *no additional information found* (Schnell, 2002).
Hardening Phase	*D. anglica* will curl up and form hibernacula (dormant bud) when it is setting into its cryptic phase, after this time stock plants and/or propagules should be kept cool. Watering should be reduced so that

	medium is damp rather than wet. The maximum temperature at this time should be 7-8°C (Schnell, 2002) (Wolf et al, 2006).
Length of Hardening Phase	General period of dormancy is 6-10 weeks (Schnell, 2002).
Harvesting, Storage and Shipping	*Not Available*
Length of Storage	*Not Available*
Guidelines for Outplanting / Performance on Typical Sites	Established bogs with sphagnum moss are best for places *Drosera anglica* out planting (Wolf et al, 2006).
Other Comments	*D. anglica* occurs in low abundance and has been historically over collected. Many industries indirectly affect the population levels by through harvest and mining operations. Habitat of this species is often protected by regulatory agencies (Wolf et al, 2006). Please make sure to go through proper permitting channels before collecting wild specimens– SEE USDA Forest Service Collection Policies for your region.
PROPAGATION DETAILS: Seed	
Ecotype	
Propagation Goal	Plants, Cutting, Seeds
Propagation Method	Seed
Product Type	Container – Plastic Pots
Stock Type	Wild Plants/Greenhouse Stock (After initial harvest).
Time to Grow	*No time period given.*
Target Specifications	*Nonspecific*- Look for mature bud formation with rosette of leaves.
Propagule Collection Instructions	Sundews form 3 fruit that will dry on the flower/bud stock (scape). These split at maturity (are dehiscent) and seeds can be gently collected after this split (Wolf, Gage and Cooper, 2006). It may be possible to pinch off each pod for seed collection.
Propagule Processing/Propagule Characteristics	*Drosera anglica* seeds are from 1.5- 2mm long, and weigh around 20 micrograms (roughly 22,680,000 seeds per pound). Seeds can be kept up to four years. (Wolf, Gage and Cooper, 2006).
Pre-Planting Propagule Treatments	Stratify seeds in a moist dark area at 10°C for eight to six-teen weeks. Sixteen weeks being described as 'optimal' (Wolf, Gage and Cooper, 2006). Stratification for both 12 weeks at variable 25/15°C and 18 weeks at 20/10°C had 100% germination in one study (Baskina, Milbergc, Anderssond, and Baskina, 2001).
Growing Area Preparation / Annual Practices for Perennial Crops	Grow *D. anglica* in dead *Spagnum* moss slow growing live sphagnum, sand-peat mix or Canada Peat. Small, a slow growing, close clumping variety of live *sphagnum* is recommended. Plastic or glazed clay pots are recommended. Place containers in water and under bright lights. Medium should be kept wet. Relative humidity should be kept at around 50%. (Schnell, 2002).
Establishment Phase	Seeds should be placed on the surface of media with 14 hours of

Details	light and a temperature of around 20°C. Light is necessary for germination of seeds (Baskina et al, 2001) (Wolf, Gage and Cooper, 2006).
Length of Establishment Phase	Germination of *D. Anglica* seeds takes roughly 49 days after sewing (Baskina et al, 2001).
Active Growth Phase	3 months.
Length of Active Growth Phase	*Flowering phase is 3 months no additional information found* (Schnell, 2002).
Hardening Phase	*D. anglica* will curl up and form hibernacula (dormant bud) when it is setting into its cryptic phase, after this time stock plants and/or propagules should be kept cool. Watering should be reduced so that medium is damp rather than wet. The maximum temperature at this time should be 7-8°C (Schnell, 2002) (Wolf et al, 2006).
Length of Hardening Phase	General period of dormancy recommended for *D. anglica* is 6-10 weeks (Schnell, 2002).
Harvesting, Storage and Shipping	*Not Available*
Length of Storage	*Not Available*
Guidelines for Outplanting / Performance on Typical Sites	Established bogs with sphagnum moss are best places for *Drosera anglica* out planting (Wolf et al, 2006).
Other Comments	*D. anglica* habitat species is often protected by regulatory agencies (Wolf et al, 2006). Seed collection could negatively impact these habitats if not done carefully. Please make sure to go through proper permitting channels before collecting wild specimens– SEE USDA Forest Service Collection Policies for your region.
INFORMATION SOURCES	
References	Baskina,C., Milbergc, P., Anderssond, L., Baskina, J. 2001. *Seed dormancy-breaking and germination requirements of Drosera anglica, an insectivorous species of the Northern Hemisphere* Acta Oecologica 22. 1−8. Schnell, Donald E. 2002. *Carnivorous plants of the United States and Canada*. Portland, Or: Timber Press. United States Department of Agriculture Natural Resource Conservation Service Website (USDA NRCS). *Drosera anglica* Huds. English sundew. http://plants.usda.gov/core/profile?symbol=DRAN Wolf, E.C., Gage, E. and Cooper, D.J.. 2006. Drosera anglica Huds. (English sundew): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Accessed 5/5/2014. http://www.fs.fed.us/r2/projects/scp/assessments/droseraanglica.pdf

Other Sources Consulted	Forest Servie Plant Database Forb List – Accessed 5/5/2014 - http://www.fs.fed.us/database/feis/plants/forb/index.html Flora of North America – Accessed 5/5/2014 - www.eFloras.org Hansen's Northwest Native Plant Database – Accessed 5/5/2014 - http://www.nwplants.com/ Lane, David M., and Stewart McPherson. 2008. "Glistening Carnivores: The Sticky-Leaved Insect-Eating Plants". *Rhodora*. 110 (944): 492-494 Native Plant Network – Accessed 5/5/2014 - http://www.nativeplantnetwork.org/network/ Pojar, Jim, A. MacKinnon, and Paul B. Alaback. 1994. *Plants of the Pacific Northwest coast: Washington, Oregon, British Columbia & Alaska*. Redmond, Wash: Lone Pine Pub. Slack, Adrian. 1988. *Insect-eating plants and how to grow them*. [Seattle]: University of Washington Press. Slack, Adrian, and Jane Gate. 1980. *Carnivorous plants*. Cambridge, Mass: MIT Press.
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