Plant Propagation Protocol for Erythronium oregonum
ESRM 412 – Native Plant Production
Spring 2008

TAXONOMY	
Family Names	
Family Scientific Name:	Sarraceniaceae
Family Common Name:	Pitcher Plant
Scientific Names	
Genus:	*Darlingtonia*
Species:	*californica*
Species Authority:	Torr
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information)	*Chrysamphora californica* (Torr.) Greene
Common Name(s):	Cobra lily, California pitcher plant, calf's head, deer licks (6)
Species Code (as per USDA Plants database):	DACA5
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	From British Colombia south to California. However, Barry Rice and Peter D'Amato both state that *Darlingtonia* are only native to Oregon and California. (3,6,7)

	
Ecological distribution (ecosystems it occurs in, etc):	Can be found growing in sunny sphagnum bogs, wet grassy meadows, or gravelly serpentine slopes. They persist in constantly wet areas where cool water moves slowly through the nutrient-poor soil, such as a spring, stream bed, lakeside, glade, etc. (1,2,6,7)
Climate and elevation range	0 – 8000+ ft. (7)
Local habitat and abundance; may include commonly associated species	*Darlingtonia* is associated with bog plants, especially sphagnum moss, and grasses. *Chamaecyparis lawsoniana*, Port-Orford cedar, is a tree that commonly found in *Darlingtonia* habitats. (6)
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	*Darlingtonia* grows in boggy places where sweeping fires are common. This helps control woody plants from getting too large and creating a canopy. Since regeneration after a fire is considered as secondary succession, one would assume that *Darlingtonia* is early successional. (6)
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	*Darlingtonia* a herbaceous plant with a think rhizome and fibrous roots. After flowering has finished in the spring the new leaves of *Darlingtonia* extend up towards the sky, up to three feet, balloon out forming a tube with a large hollow head and a forked “tongue” where the opening lays below. On the upper side of the head areoles, thin window-like modifications of the leaf, let light into the trap disorienting prey. Prey fall into the tube and are imprisoned because of the slippery interior and numerous sharp downward pointing hairs. Water secreted by the plant drowns the prey and are decomposed by bacteria and symbiotic insects. The

	nutrients and are reabsorbed by the plant and used as its main source of nitrogen. It is not uncommon for leaves to survive more than one season and only loose their usefulness when they die then replaced by new leaves. Stolons are frequently produced, thus it is not uncommon to find large colonies of *Darlingtonia*. The single, maroon-petaled flowers, hidden beneath lime green sepals are typically taller than the leaves and are usually produced in early spring. A pollinator for *Darlingtonia* has not been found. (1,4,5,6,7)
PROPAGATION DETAILS	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	n/a
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plantlets, divisions, seeds
Propagation Method (Options: Seed or Vegetative):	Divisions (whole plant and stolons), seeds, tissue culture. Since seedlings take considerable time it is preferred to take stolon cuttings for faster results. (1,4,6,7)
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	n/a
Stock Type:	n/a
Time to Grow (from seeding until plants are ready to be outplanted):	About 2-3 years after seedlings have germinated. (6,7)
Target Specifications (size or characteristics of target plants to be produced):	n/a
Propagule Collection (how, when, etc):	Allow seeds to ripen and dry on flowers, but be sure to collect the pod before it splits open and scatters the seeds.

Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	n/a
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	The seeds need to be cold stratified for about 2-3 months before germination will occur. Seedlings are slow growing and only after about two years they will produce mature erect pitchers. (4,6,7)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	A soil recipe of one part sand or perlite to one part sphagnum peat moss is a desirable medium. When creating the growing medium be sure to keep the mix as sterile and nutrient-poor at possible. The mix should be airy while allowing the roots to be cool. (6,7)
Establishment Phase (from seeding to germination):	n/a
Length of Establishment Phase:	2-3 months.
Active Growth Phase (from germination until plants are no longer actively growing):	From early spring to late fall.
Length of Active Growth Phase:	About 8 months.
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	n/a
Length of Hardening Phase:	n/a
Harvesting, Storage	n/a

and Shipping (of seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	2-3 years after germination.
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	n/a
Other Comments (including collection restrictions or guidelines, if available):	*Darlingtonia* are losing their habitat, so collecting plants from the wild is not advisable. Collecting limited amount of seeds is preferred. (6)
INFORMATION SOURCES	
References (full citations):	1. Wildflower Center. Lady Bird Johnson. The University of Texas at Austin. http://www.wildflower.org/plants/result.php?id_plant=EROR4 2. The Burke Museum of Natural History and Culture. 2006. http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Darlingtonia&Species=californica 3. USDA, NRCS. 2008. The Plants Database. http://plants.usda.gov/java/profile?symbol=DACA5 4. Wikipedia. 2008. http://en.wikipedia.org/wiki/Darlingtonia_californica 5. Hitchcock, C. Leo and Cronquist, Arthur. Flora of the Pacific Northwest. 1998. University of Washington Press, Seattle and London. 6. Rice, Barry A. Growing Carnivorous Plants. 2006. Timber Press, Inc. 7. D'Amato, Peter. Cultivating Carnivorous Plants, The Savage Garden. 1998. Ten Speed Press.
Other Sources Consulted (but that contained no pertinent information) (full citations):	1. Native American Ethnobotany. University of Michigan. 1971. http://herb.umd.umich.edu/herb/search.pl?searchstring=Darlingtonia+californica 2. ITIS Report. 2008. http://www.itis.gov/servlet/SingleRpt/SingleRpt 3. Native Plants Journal and Network. http://nativeplants.for.uidaho.edu/network/PreviewResults.asp
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