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

TAXONOMY	
Family Names	
Family Scientific Name:	Liliaceae
Family Common Name:	Lily
Scientific Names	
Genus:	*Erythronium*
Species:	*oregonum*
Species Authority:	Applegate
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)	Erythronium grandiflorum var. albiflorum Hook.
Common Name(s):	Giant White Fawn Lily, Oregon Fawn Lily, Giant Adder's Tongue, Wild Easter Lily
Species Code (as per USDA Plants database):	EROR4
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	From British Colombia south to California. (4)

	QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.
Ecological distribution (ecosystems it occurs in, etc):	Coastal mountain ranges; moist, alluvial woods; open, gravelly prairies. (1, 2, 4)
Climate and elevation range	0--500 m
Local habitat and abundance; may include commonly associated species	*Camassia quamash, Quercus garyanna, Symphoricarpos albus, Mahonia aquifolium, Dactylis glomerata, Polystichum munitum, Holodiscus discolor, and Vicia sativa* are usually found growing near or around *Erythronium oregonum.* This plant is also common throughout the Olympic Peninsula, except the Northeastern corner. This plant may also be found throughout Western Washington, due to cultivation in gardens which eventually escaped/introduced to surrounding natural habitats. (10)
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	This plant is associated with early succession and it usually found under open canopies with dappled shade.
Plant characteristics (life form (shrub, grass, forb),	Herbaceous plant with mottled leaves that arises from a corm that surrounds a 8”-16” stem topped with 1-3 pure white to pinkish flowers with yellow bands near the base of the inner flowers and dark purple on the base of the outer petals. (2)

longevity, key characteristics, etc)	
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):	Bulbs, plants, seeds
Propagation Method (Options: Seed or Vegetative):	Sow collected seeds in the fall and plundge (sink the pot into the ground) the pots in a shady area. Plants will be large enough to transplant in the second season (year) however, they will bloom after 4-5 seasons (years). *Note:* It is best to sow seeds as soon as they mature, since this will increase the rate of germination. Plants can also be divided when they are dormant. Be careful when dividing since the bulb is only comprised of one scale and a segmented corm made up of round annual segments. (2, 8, 10, 11)
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):	Plants will be ready to be out planted two seasons (years) after germination. (2)
Target Specifications (size or characteristics of target plants to be produced):	n/a
Propagule Collection (how, when, etc):	Allow seeds to ripen on flowers and or fall to the ground before collecting. *Note:* It is best to sow seeds as soon as they are ripe, since this will increase the percentage of germination. (8)

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 before germination will occur. The literature recommends sowing seeds outdoors to naturally cold-stratify them. (2)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Preferably in a well-drained, slightly acidic medium with humus and planted/placed somewhere shady, best provided by trees or shrubs. (8)
Establishment Phase (from seeding to germination):	Depending on when seeds are sown.
Length of Establishment Phase:	Depending on when seeds are sown.
Active Growth Phase (from germination until plants are no longer actively growing):	Early spring (March) into late summer when plants are dormant.
Length of Active Growth Phase:	At least 5-6 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):	It begins in late summer when they go dormant and resume growth in early spring.
Length of Hardening Phase:	About 6 months.
Harvesting, Storage	n/a

and Shipping (of seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	Two seasons (years).
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	Plants will mature in 5-6 seasons (years) before any flowering will occur. Plant these plants under the shade of trees for the best results. (2)
Other Comments (including collection restrictions or guidelines, if available):	n/a
INFORMATION SOURCES	
References (full citations):	1. Flora of North America. Vol. 26, pp. 155, **158**. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242101599 2. Wildflower Center. Lady Bird Johnson. The University of Texas at Austin. http://www.wildflower.org/plants/result.php?id_plant=EROR4 3. 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?409923 (01 May 2008) 4. The Burke Museum of Natural History and Culture. 2006. http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Erythronium&Species=oregonum 5. USDA, NRCS. 2008. The Plants Database. http://plants.usda.gov/java/profile?symbol=EROR4 6. Wikipedia. 2008. http://en.wikipedia.org/wiki/Erythronium_oregonum 7. Hitchcock, C. Leo and Cronquist, Arthur. Flora of the Pacific Northwest. 1998. University of Washington Press, Seattle and London. 8. Bird, R. 1990. *Growing from Seed. Volume 4.* Thompson and Morgan. 9. Chittendon, F. 1956. *RHS Dictionary of Plants plus Supplement.* Oxford University Press. 10. Pojar, J. and A. MacKinnon. 1994. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia and Alaska.* B.C. Ministry of Forests and Lone Pine Publishing. Vancouver, British Columbia. 11. www.Botany.com
Other Sources Consulted (but that	1. Native American Ethnobotany. University of Michigan. 1971. http://herb.umd.umich.edu/herb/search.pl?searchstring=Erythronium+oreg

contained no pertinent information) (full citations):	onum 2. ITIS Report. 2008. http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=196382 3. Native Plants Journal and Network. http://www.nativeplantsnetwork.org
Protocol Author (First and last name):	Terence Huang
Date Protocol Created or Updated (MM/DD/YY):	May 19, 2008

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

Plant Data Sheet

Erythronium oregonum

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are needed to see this picture.

Species (common name, Latin name) –White fawn lily, *Erythronium oregonum*

Range – British Columbia to California (USDA, 2003)

Climate, elevation – Moist woods, often on alluvial soils, and open gravelly prairies. The species is generally found at low elevations (Plants for a Future, 2000).

Local occurrence (where, how common) – White fawn lily is found throughout the Olympic Peninsula, except on the northeastern corner (Polar and Mackinnon 1994). Its presence throughout its range is rapidly declining (Stewart, 1994).

Habitat preferences – White fawn lily inhabits well-drained soils in open, often grassy areas and rocky woodlands that are open to fairly dense (Polar and Mackinnon 1994).

Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional) – An early successional species, it is often found under open canopies.

Associated species – The species of interest is often found with *Camassia quamash, Quercus garyanna, Symphoricarpos albus, Mahonia aquifolium, Dactylis glomerata, Polystichum munitum, Holodiscus discolor,* and *Vicia sativa.*

May be collected as: (seed, layered, divisions, etc.) – Seed or Bulb

Collection restrictions or guidelines - Divide bulbs in the summer as the leaves die down (Chittendon, 1956). Larger bulbs can be replanted immediately into their permanent positions, but it is best to pot smaller bulbs and grow them on in a shady position in a greenhouse for a year before planting them out when dormant in late summer. Just a warning… The bulbs have been suspected of poisoning poultry. Skin contact with the bulbs has been known to cause dermatitis in sensitive people (Plants for our Future, 2000).

Seed germination (needs dormancy breaking?) - Stored seed requires a period of cold stratification (Chittendon, 1956). Sow as early in spring as possible in a cold frame.

Seed life (can be stored, short shelf-life, long shelf-life) - Seeds are best sown as soon as they are ripe, in a shady position in a cold frame (Bird, 1990).

Recommended seed storage conditions -

Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.) – The plant flowers from March to June (Stewart 1994). By seed, allow the seeds to ripen and fall to the ground or sow them in containers (Botany.com). *Erythronium* species have unusual below-ground structures. They have a bulb with only one scale, and a segmented corm that is made of round annual segments (Polar and Mackinnon 1994). The plants can be divided when the leaves have died down (Botany.com). The bulbs should be planted about 7cm deep (Chittendon, 1956).
Soil or medium requirements (inoculum necessary?) –White fawn lily requires moist soil. Prefers slightly acid soil conditions but succeeds in chalky soils if they contain plenty of humus. Requires semi-shade, preferably provided by trees or shrubs, and a well-drained soil (Bird, 1990; Hendricks, 2001).

Installation form (form, potential for successful outcomes, cost) – Propagation from both bulbs and seed have been successful.

Recommended planting density - Sow the seed thinly so that it will not be necessary to thin them out for their first year of growth. (Bird, 1990). If you are planting bulbs, when the plants are dormant, pot the small bulbs by putting 2 - 3 bulbs in each pot. Grow them on in a shady position in the greenhouse for another 2-3 years and then plant them out into their permanent positions when they are dormant in late summer.

Care requirements after installed (water weekly, water once etc.) – Occasionally, give a liquid feed to the seedlings to make sure that they do not become nutrient deficient. Water lightly in summer, it should germinate in autumn or winter (Bird, 1990).

Normal rate of growth or spread; lifespan -

Sources cited

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Chittendon, F. 1956. *RHS Dictionary of Plants plus Supplement.* Oxford University Press.

Hendricks Park. 2001. Native Plant Alternatives for Landscaping. Hendricks Park Forest Management Plan.

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Plants For A Future: Database Search Results Plant information taken from the Plants For A Future - Species Database. Copyright (c) 1997-2000. WEB search engine by Rich Morris - Home Page- Contact Info Plants for a Future, Blagdon Cross, Ashwater, Beaworthy, Devon, EX21 5DF, UK. Website: www.pfaf.org

Stewart, C. 1994. *Wildflowers of the Olympics and Cascades. Nature Education Enterprises.* Port Angeles, Washington.

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www.Botany.com

Data compiled by (student name and date) – Daniela Shebitz, 5/5/03