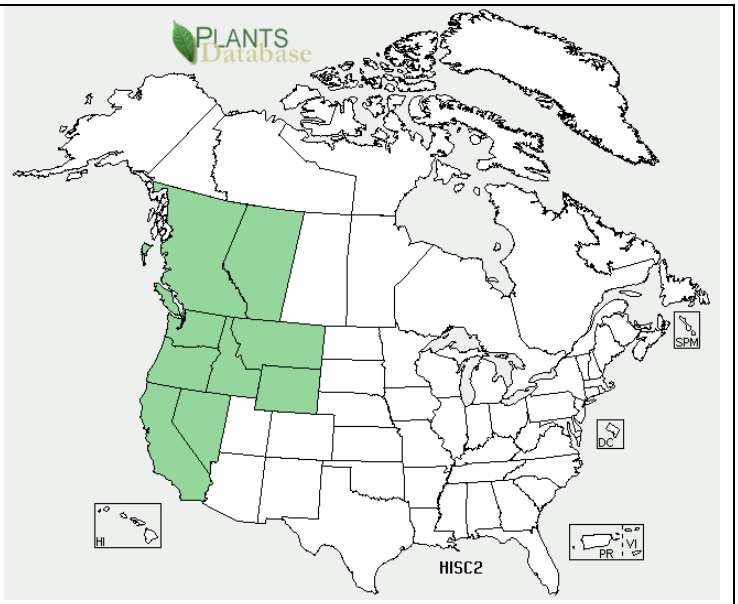
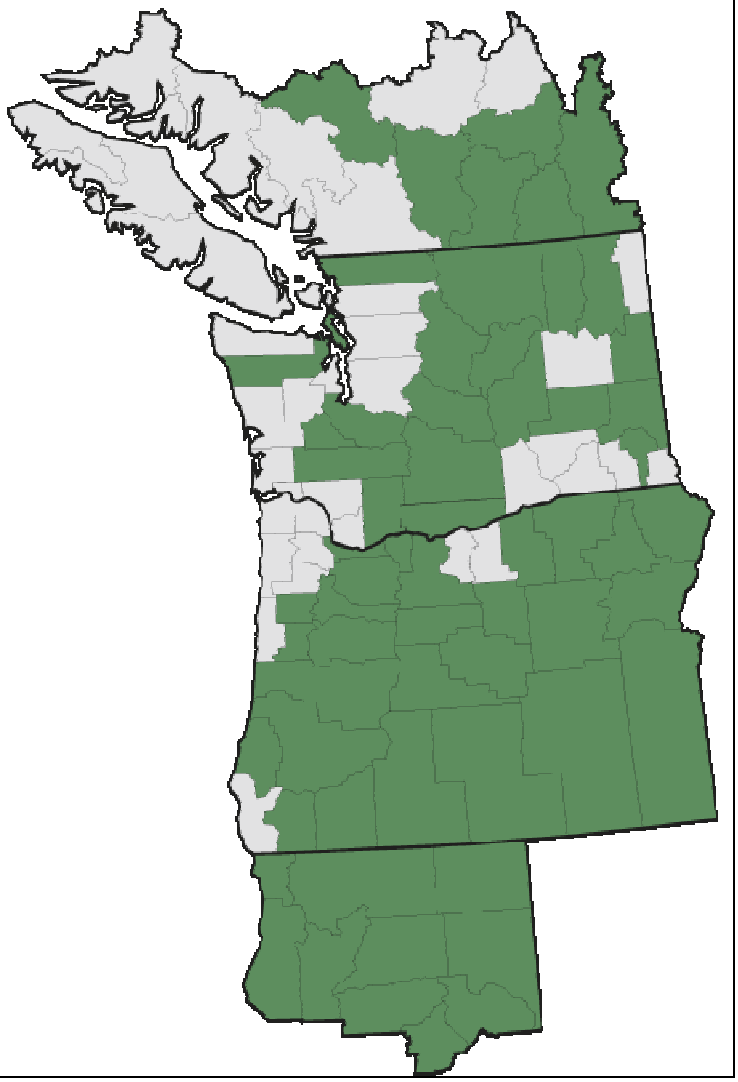
Plant Propagation Protocol for *Hieracium scouleri*
ESRM 412 – Native Plant Production
Spring 2008

TAXONOMY	
Family Names	
Family Scientific Name:	*Asteraceae*
Family Common Name:	Sunflower
Scientific Names	
Genus:	*Hieracium*
Species:	*scouleri*
Species Authority:	Hook
Variety:	albertinum
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	(Farr) G.W. Douglas & G.A. Allen
Common Synonym(s):	Hieracium albertinum Farr
Common Name(s):	Scouler's woollyweed, western hawkweed, hairy Albert
Species Code:	HISC2
GENERAL INFORMATION	

Geographical range:	 

Ecological distribution:	Native to dry to mesic open grasslands and open forests of western North America from British Columbia to Oregon and east to Montana and Wyoming. Mean annual precipitation range is from 14-30 inches for H. scouleri (USDA).
Climate and elevation range	Mountainous dry. 0 – 8000 ft.
Local habitat and abundance:	Found in mid elevation dry mountain areas. Commonly found with grassland species.
Plant characteristics:	Perennial herb, active growth in spring and summer, yellow to orange flowers, coarse foliage, brown fruit, grows in bunches, non-toxic, not fire resistant.
PROPAGATION DETAILS	
Ecotype:	Paradise Creek drainage near Pullman, Washington.
Propagation Goal:	Plants
Propagation Method:	Seed
Product Type:	Container (plug)
Stock Type:	10 cu. in.
Time to Grow:	4 Months
Target Specifications:	Tight root plug in container.
Propagule Collection:	Seed ripens in mid to late July. It is collected when the pappus begins to expand. Seed is dark reddish brown in color and wind disseminated, so must be collected before it blows away. Seed maturity is indeterminant. Seed can be collected using a vacuum cleaner. This removes only mature seed, leaving immature seed to ripen, and reduces the amount of trash which subsequently must be cleaned from the seed. Harvested seed is stored in paper bags at room temperature until cleaned. (Skinner, 2008)
Propagule Processing/Propagule Characteristics:	Small amounts are rubbed over a 10 mesh screen to remove the pappus, then cleaned with an air column separator. Larger amounts are threshed with a hammermill, then cleaned with air screen equipment. Sterile rice hulls can be added to the hammermill to facilitate removal of the pappus. This is not necessary if there are stems and leaves collected with the seed. Using a vacuum cleaner with a corrugated hose often removes the pappus to the extent that use of a hammermill is unnecessary. Clean seed is stored in controlled conditions at 40 degrees Fahrenheit and 40% relative humidity. (Skinner, 2008)
Pre-Planting Propagule Treatments:	Other Hieracium spp. germinate without pretreatment (Young & Young 1986). Seed from a western Washington source germinated best after 6 weeks cold

	moist stratification (Drake & Ewing undated). For this ecotype we determined germination without pretreatment is high. Unpublished data from trials conducted at the Pullman Plant Materials Center comparing untreated seed with seed treated by cold moist stratification for periods of 45, 90, or 120 days showed a decrease in total emergence following stratification. Unstratified seed emergence exceeded 97% while all stratification treatments resulted in 45-55% emergence. (Skinner, 2008)
Growing Area Preparation / Annual Practices for Perennial Crops:	In January seed is sown in the greenhouse in 10 cu. in. Ray Leach Super cell conetainers filled with Sunshine #4 and covered lightly. Head space of ¼ to ½ inch is maintained in conetainers to allow deep watering. A thin layer of coarse grit is applied to the top of the planting soil to prevent seeds from floating during watering. Conetainers are watered deeply. (Skinner, 2008)
Establishment Phase:	Medium is kept moist until germination occurs. Germination usually begins in 5 days and is complete in 10 days. (Skinner, 2008)
Length of Establishment Phase:	2 weeks
Active Growth Phase:	Plants are watered deeply every third day and fertilized once per week with a complete, water soluble fertilizer containing micro-nutrients. Plants may require water every other day during the final part of the active growth period. (Skinner, 2008)
Length of Active Growth Phase:	3-4 months
Hardening Phase:	Plants are moved to the cold frame in late March or early April, depending on weather conditions. They are watered every other day if the weather is cool, and every day during hot, dry spells. (Skinner, 2008)
Length of Hardening Phase:	2-4 weeks
Harvesting, Storage and Shipping (of seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	
Guidelines for Outplanting / Performance on Typical Sites:	Transplanting is done in early May by using an electric drill and portable generator to drill 1.5 inch diameter holes at the planting site. Survival in seed increase plantings without competing vegetation averages 97%. Transplanting into sites with existing vegetation may reduce survival and vigor depending on weather conditions following planting. (Skinner, 2008)
Other Comments:	Because some of the non-native members of Hieracium are invasive weeds, there is some fear among the

	uninformed that the native members of the genus are also weedy. Nothing could be farther from the truth. The native Hieracium are neither weedy nor invasive and, at least on the Palouse, fail to persist outside of native meadow steppe habitat. Even in their native habitat, they rarely comprise 10% of total cover, hardly characteristic of a species with weedy tendencies. (Skinner, David M.)
INFORMATION SOURCES	
References (full citations):	www.pnwflowers.com. "Hieracium scouleri Scouler's Hawkweed" 2008. http://www.pnwflowers.com/flower/hieracium-scouleri accessed May 28, 2008. USDA. "Hieracium scouleri Hook. Scouler's woollyweed" 2008. http://plants.usda.gov/java/profile?symbol=HISC2 accessed May 27, 2008. Skinner, David M. "Propagation protocol for production of container Hieracium scouleri Hook. var. albertinum" 2008. http://www.nativeplantnetwork.org/network/view.asp?protocol_id=3490 accessed May 27, 2008.
Other Sources Consulted (but that contained no pertinent information) (full citations):	Burke Museum of Natural History and Culture. "Hieracium scouleri" 2006. http://biology.burke.washington.edu/herbarium/imagecollection/taxon.php?ID=1819 accessed May 28, 2008. California Native Plant Link Exchange. "Hieracium scouleri" 2008. http://www.cnplx.info/nplx/species?taxon=Hieracium+scouleri accessed May 27, 2008. E-Flora BC. "Hieracium scouleri Hook." 2007. http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Hieracium%20scouleri accessed May 28, 2008. Hickman, James C. "The Jepson Manual: Higher Plants of California". University of California Press. 1993. Wikipedia. "Hieracium scouleri" 2008. http://en.wikipedia.org/wiki/Hieracium_scouleri

	accessed May 27, 2008. www.gardening.eu. "Hieracium scouleri Hook." 2008. http://www.gardening.eu/arc/plants/Shrubs/Hieracium-scouleri-Hook/34092 accessed May 28, 2008.
Protocol Author:	Chris White
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