Plant Propagation Protocol for *[Lonicera involucrata]*
ESRM 412 – Native Plant Production


(Clayton)

TAXONOMY	
Family Names	
Family Scientific Name:	Caprifoliaceae (Lonicera involucrata (Richardson) Banks ex Spreng.)
Family Common Name:	Honeysuckle (Flora of the Inland Pacific Northwest).
Scientific Names	
Genus:	Lonicera L. (Lonicera involucrata (Richardson) Banks ex Spreng.)
Species:	Lonicera involucrate (Richardson) Banks ex Spreng
Species Authority:	L. (Lonicera involucrata (Richardson) Banks ex Spreng.)
Variety:	
Sub-species:	*Ledebourii* (Esch.) Zebel (Young, Betty). Subclass: Asteridae (Lonicera involucrata (Richardson) Banks ex Spreng.)
Cultivar:	
Authority for Variety/Sub-species:	*var. involucrata* (*Lonicera involucrata*).
Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies	LOINI *Lonicera involucrata* (Richardson) Banks ex Spreng. var. *involucrata* LOINF *Lonicera involucrata* (Richardson) Banks ex Spreng. var. *flavescens* (Dippel) Rehder LOINL *Lonicera involucrata* (Richardson) Banks ex Spreng. var. *ledebourii* (Eschsch.) Zabel (*Lonicera involucrata (Richardson) Banks ex Spreng.* USDA)

information)	
Common Name(s):	Twinberry honeysuckle (Lonicera involucrata (Richardson) Banks ex Spreng.) Bearberry Honeysuckle, Bracted Honeysuckle (*Lonicera involucrata* Bracted Honeysuckle).
Species Code (as per USDA Plants database):	LOIN5 (Lonicera involucrata (Richardson) Banks ex Spreng.)
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	Western US including Alaska; upper Midwest in Michigan and Wisconsin. Woodlands, moist to wet soils up to high elevations (Trindle, Joan). Bearberry honeysuckle ranges from southern Alaska south to Mexico from lowlands to high elevations. It grows in moist, open sites, such as wetlands and riparian areas and is also found in the forest understory (King County 1994). Native Habitat and Range: moist forests and thickets, streambanks, and swampy sites at low to fairly high elevations, from Alaska south through California and Mexico, and eat to the Rocky Mountains, occasionally to the Great Lakes (Robson, Kathleen A.). Easily grown in moist, open sites, it occurs wild on both sides of the mountains, from sea level to well up in the mountains (Kruckeberg, Arthur R.).  ("PLANTS Profile for Lonicera involucrata.").
Ecological distribution	Moist places in the mountains (Flora of the Inland Pacific Northwest).

(ecosystems it occurs in, etc):	
Climate and elevation range	
Local habitat and abundance; may include commonly associated species	Moist or wet soil in forests, clearings, riverbanks, swamps and thickets; widespread across NW Ontario's boreal forest, north and west to north-central Alberta and the northern part of Alaska's panhandle (*Lonicera involucrata* Bracted Honeysuckle).
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Upright, deciduous shrub is fast growing, to 3 meters or more. The young branches have four angles in cross-section. The leaves are opposite, elliptic in shape, and up to 15cm long, on short petioles. Peduncles about 2.5cm long develop from the leaf axils, each bearing a pair of tubular, yellow flowers, 2cm in length. Flowers bloom mid spring to late summer. Each pair of flowers is subtended by two pairs of showy bracts that turn reddish purple as the flowers fade and the fruits ripen. The bracts form a shallow cup around the pair of shiny, black berries (Robson, Kathleen A.). Full sun to full shade, and moist to wet soil. Site in the moister soils of a hedgerow or near the margin of a stream, pond, or bog. This handsome shrub is also an excellent plant for the hummingbird or wildlife garden on either side of the Cascades; although the flowers are small, hummingbirds visit them, and the berries, inedible to humans, are enjoyed by fruit-eating birds (Robson, Kathleen A.). Shrub (Lonicera involucrata (Richardson) Banks ex Spreng.)
PROPAGATION DETAILS	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	Crater Lake, around 6,500 feet near vidae falls , near creaks, streams and seeps (Trindle, Joan) Colorado, GMV (Butler, Jennifer). Marin County, California (Young, Betty).
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plants (Trindle, Joan). Plants (Butler, Jennifer). Plants (Young, Betty).
Propagation Method	Seed (Trindle, Joan).

(Options: Seed or Vegetative):	Vegetative (Butler, Jennifer). Seed (Young, Betty). Vegetative (King County 1994).
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container (plug) (Trindle, Joan). Container (plug) (Butler, Jennifer). Container (plug) (Young, Betty)
Stock Type:	1-gallon containers (Trindle, Joan). Deepot 40 (Young, Betty).
Time to Grow (from seeding until plants are ready to be outplanted):	
Target Specifications (size or characteristics of target plants to be produced):	A shrub that grows 1-3 meters high. Stems are four-sided when young, and leaves are opposite, elliptical, with arcunate veins, and entire margins. The fruit is a berry, about 6 mm in diameter, and reddish-black to black in color. Birds often eat the berries. Bearberry honeysuckle is a good soil binder (Propagation of Pacific Northwest Native Plants). Upright, deciduous shrub is fast growing, to 3 meters or more. The young branches have four angles in cross-section. The leaves are opposite, elliptic in shape, and up to 15cm long, on short petioles. Peduncles about 2.5cm long develop from the leaf axils, each bearing a pair of tubular, yellow flowers, 2cm in length. Flowers bloom mid spring to late summer. Each pair of flowers is subtended by two pairs of showy bracts that turn reddish purple as the flowers fade and the fruits ripen. The bracts form a shallow cup around the pair of shiny, black berries (Robson, Kathleen A.). Well-branched roots and tops; free of foliar disease (Trindle, Joan).
Propagule Collection (how, when, etc):	Ripened berries picked in August/September; berries scarce in some years. Summer softwood cutting can be collected in July (Trindle, Joan). Seeds are collected between April first and July first. Mature fruits are bluish black and the seed is hard (Young, Betty). The fruit ripens in July and August and can be collected by hand or stripping from the branches (Brinkman 1974).
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Seeds processed by breaking up berries in blender with dulled blades (or covered blades with rubber tubing); pour off pulp, rinse, strain and dry seeds on paper toweling. Gently rub seed and hand-screen to remove any remaining chaff (Trindle, Joan). Seeds per kilogram: ~500,4400 – 1,051,590 (Brinkman 1974).
Pre-Planting	Seed germination of young lots cold moist stratified for 90 days was up to

Propagule Treatments (cleaning, dormancy treatments, etc):	55%; a small comparison of 1-year-old versus 3-year-old seeds showed slightly reduced germination and initially weaker seedling vigor; however these seedlings grew well after one season (Trindle, Joan). To clean, mash berries in a bucket, wash seeds until they separate and pour through a sieve. Before planting soak the seeds in fresh water for 12 hours. Cold stratify in peat or perlite for 3-6 months (Young, Betty). Clean the seed by macerating and allowing the pulp and empty seed to float away (Brinkman 1974).
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Seedlings started in shallow propagation trays and transplanted directly into vertically ribbed, 1-gallon pots filled with a rich soil mix of Sunshine peat-based potting medium amended with low rates of micromax trace elements. Plants should be closely monitored for aphids throughout spring and summer (Trindle, Joan).
Establishment Phase (from seeding to germination):	Seedlings or cuttings sensitive to drying out; media should be kept moist during initial establishment. Intermittent mist especially important for summer softwood cuttings (Trindle, Joan). Seeds germinate 14 days after sowing. Seedlings are transplanted 14 days after germination into individual containers 2" x 8" tubes (Deepot 40) containing standard potting mix of peat moss, fir bark, perlite, and sand. The transplant survival is about 90% (Young, Betty).
Length of Establishment Phase:	6 weeks (8 weeks for cuttings) (Trindle, Joan) 28 days (Young, Betty)
Active Growth Phase (from germination until plants are no longer actively growing):	Whether established from seed or cuttings, established plants are held over summer in outdoor shadehouse (50% shade) with drip irrigation on elevated benches to provide airflow. Peters' Triple-20 fertilizer at 50% strength applied at 2 week intervals in May to July. Shoot pruning often needed in June to head back tall leaders and encourage branching (Trindle, Joan).
Length of Active Growth Phase:	May to July (Trindle, Joan).
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):	Fertilizer withheld in August; watering intervals lengthened to encourage vegetative maturity; shade cloth removed by the end of August. Shoot growth should not be pruned back at this time because it will cause lateral bud break and start a new growth cycle (Trindle, Joan).
Length of Hardening Phase:	August to September (Trindle, Joan).
Harvesting, Storage	Seeds should be kept dry and stored in a refrigerator (Young, Betty).

and Shipping (of seedlings):	Air-dried seeds can be stored in sealed containers at 1-3 C for up to 15 years. Cold stratification for a period of 45-60 days increases germination rates. Sow in the fall and cover with a thin layer of soil and 5-7 cm of straw mulch (Brinkman 1974). Bearberry honeysuckle propagates easily from hardwood cuttings. Take cuttings during the dormant season and keep thoroughly moist over summer (King County 1994).
Length of Storage (of seedlings, between nursery and outplanting):	Over wintering outdoors ok; may need repotting/root and shoot pruning following spring (Trindle, Joan).
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	Root ball should be scored prior to transplanting; survival around the lodge at Crater Lake was good but watch for aphids (Trindle, Joan).
Other Comments (including collection restrictions or guidelines, if available):	Three other shrubby species, *Lonicera utahensis, L. caerulea, and L. conjugialis* are smaller in all attributes than *L. involucrata.* They should naturalize well in eastside gardens (Kruckeberg, Arthur R.). Berries considered poisonous by the Thompson and Okanagan-Colville. A poultice of boiled leaves was also applied to swellings, and a decoction of the stems and leaves were used for scabs, sores and broken bones by the Thompson (Flora of the Inland Pacific Northwest). Distinguishable from non-flowering specimens of other *Lonicera* by its squared stem and sharply pointed leaves (*Lonicera involucrata* Bracted Honeysuckle). Threatened in Michigan (Lonicera involucrata (Richardson) Banks ex Spreng.).
INFORMATION SOURCES	
References (full citations):	Brinkman, K.A. 1974. *Lonicera* L. Honeysuckle. Pp. 515-519. Buis, S. 1996. Owner, Sound Native Plants, Olympia, WA. Personal communication. Butler, Jennifer; Frieswyk, Christin. 2001. Propagation protocol for vegetative production of container *Lonicera involucrata* plants; USDI NPS - Rocky Mountain National Park, Estes Park, Colorado. Clayton , Antieau J.. "Lonicera involucrata var. involucrata." Online Image. Burke Museum of Natural History and Culture.. 1985. 22 April 2009 <http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Lonicera&Species=involucrata>. Flora of the Inland Pacific Northwest. 06 September 2008 Central Washington Native Plants. 22 April 2009 <http://www.cwnp.org/photopgs/ldoc/loinvolucrata.html>.

	Jebb, T. 1995. Horticulturalist, USDI Bureau of Land Management, C.A. Sprague Seed Orchard, Merlin, OR. Personal communication. King County Department of Public Works, Surface Water Management Division. 1994. *Lonicera involucrata* Bracted Honeysuckle. Boreal Forest. 22 April 2009 <http://www.borealforest.org/shrubs/shrub26.htm>. *Lonicera involucrata* (Richards) ssp. *ledebourii* (Esch.) Zebel plants (Deepot 40); USDI NPS - Golden Gate National Parks, San Francisco, California. *Lonicera involucrata (Richardson) Banks ex Spreng.* 27 April 2009 United States Department of Agriculture: Natural Resources Conservation Service. 22 April 2009 <http://plants.usda.gov/java/nameSearch>. *Lonicera involucrata.* 2006 Burke Museum of Natural History and Culture.. 22 April 2009 <http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Lonicera&Species=involucrata>. Northwest Native Plants, Identification and Propagation for revegetation and Restoration Projects. King County, WA. 68p. "PLANTS Profile for Lonicera involucrata." Online Image. USDA. No date. 22 April 2009 <http://plants.usda.gov/java/nameSearch?keywordquery=LOIN5&mode=symbol&submit.x=5&submit.y=10>. Propagation of Pacific Northwest Native Plants. Robin Rose, Caryn E.C. Chachulski, and Diane L. Haase. Oregon State University Press. Corvallis, Oregon.1998 First edition. Schopmeyer, C.S. (tech. coord.) 1974. *Seeds of the Woody Plants in the United States.* Agric. Handbook 450. Washington, DC: USDA Forest Service. 883p. Trindle, Joan DC; Flessner, Theresa R. 2003. Propagation protocol for production of container *Lonicera involucrata* Banks ex Spreng. Plants; USDA NRCS - Corvallis Plant Materials Center, Corvallis, Oregon. Young, Betty. 2001. *Propagation protocol for production of container Lonicera involucrata.* USDI NPS - Golden Gate National Parks, San Francisco, California. In: Native Plant Network. 22 April 2009 <http://www.nativeplantnetwork.org>.
Other Sources Consulted (but that contained no pertinent information) (full citations):	
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