Plant Propagation Protocol for *Oemleria cerasiformis*
ESRM 412 – Native Plant Production

TAXONOMY	
Family Names	
Family Scientific Name:	*Rosaceae*
Family Common Name:	Rose
Scientific Names	
Genus:	*Oemleria*
Species:	*cerasiformis*
Species Authority:	Landon
Variety:	NA
Sub-species:	NA
Cultivar:	NA
Authority for Variety/Sub-species:	NA
Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information)	NUCE *Nuttallia cerasiformis* Torr. & A. Gray ex Hook. & Arn. OSCE2 *Osmaronia cerasiformis* (Torr. & A. Gray ex Hook. & Arn.) Greene (1) *Osmaronia cerasiformis* (5)
Common Name(s):	Indian plum, osoberry (5), bird cherry, skunk bush (12), Indian peach (14)
Species Code (as per USDA Plants database):	OECE
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	Native to the lower 48 states and Canada. (1) The shrub range from British Columbia to northern California and from the coast to western slopes of Cascade and Sierra Nevada mountains. (14)
Ecological distribution (ecosystems it occurs in, etc):	Shaded coniferous forest, chaparral.
Climate and elevation range	Low elevations (5), < 1700 m (7)
Local habitat and abundance; may include commonly associated species	OECE can be found in dry to moist, open woods, streambanks, and other open areas (5). It prefers shade but can tolerate full sun. (8) It's facultative upland in Northwest region. This indicates 67%-99% probability of finding OECE in non-wetlands and 1%-33% probability for wetlands. And it does not occur in other regions. (6) The pH tolerance range from 5.8 to 6.1. It has low drought

	tolerance and cold stratification is required for germination. (1)
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	NA
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Dicot, perennial shrub or small tree, 1-5m tall(1, 7), short life span (9) Leaves: alternate, deciduous, pale-green, 5-12 cm long, lance-shaped leaves smell like cucumber when crushed. (5) Flowers: fragrant, greenish-white, each flower about 1cm across, dioecious, 5 petals, 5 stamens, hang in 5-10cm clusters from leaf axils (5). The superior ovary has 2 cells. (14) Fruit: starts as peach-coloured and turns bluish-black, looks like a small plum, edible, bitter, about 1 cm long (5). Short lifespan is coupled with rapid growth. At maturity, height averages 5 ft, maximum height at 20 years is 20 ft. (1) The roots are shallowly spread.
PROPAGATION DETAILS: Seeds	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	Ecotype A: USFS, Willamette National Forest, Oregon; 1000-2000 ft. elevation (3) Ecotype B: Presidio, CA
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Seeds (3), plants (2)
Propagation Method (Options: Seed or Vegetative):	Seeds (2, 3)
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Propagules (seeds, cuttings, poles, etc) Container plugs (2),
Stock Type:	Seeds (3); deepot 40, 2 1/2” dia. x 10” long, 40 cubic inches (2),
Time to Grow (from seeding until plants are ready to be	NA

outplanted):	
Target Specifications (size or characteristics of target plants to be produced):	Height – NA Caliper – NA Root system – firmly established in container (2)
Propagule Collection (how, when, etc):	Ecotype A consists of a small lot of 0.99 pounds hand collected into paper bag (3). Ecotype B were collected between May 7th and July 29th (2). Generally collect in June just as the fruit ripens. (8)
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Ecotype A: The seeds can be extracted from the fruits by maceration then rinsed and screened to remove pulp. The seeds are left to air dry on mesh trays. Seed density was 4181 per pound with 99% purity. 90% of the 100 seeds X-Rayed were filled. The seeds were placed into cold storage between 33-38 F (3). Ecotype B: The seeds cleaning procedure is not available or is the storage condition. Seed density is 4 seeds per gram or about 1814 seeds per pound (2). Fruits can also be dried and stored until sowing in the fall. (8) Seed yield from fruit is about 25% by weight. (15)
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	Ecotype B seeds were soaked in water and stratified for 60 days (2). Seeds need to be cold stratified for 4 months for full germination and sporadic germinations removed. (8, 15)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Ecotype B seeds were lightly covered with Sunshine Mix #4 Aggregate Plus (see comments) on July 1st and placed in flats. Flats were placed on a heated bench and watered by an automatic irrigation system. (2) Seedlings of B were grown in 2” x 10” tubes (Deepot 40) containing standard potting mix of peat moss, fir bark, perlite, and sand. (2)
Establishment Phase (from seeding to germination):	Ecotype B seeds germinated after 4 days after sowing. 37% successfully germinated. 70% of transplants survived moving from germination to seedling pots. (2)
Length of Establishment Phase:	Ecotype B took 8 days to grow 3 true leaves (2).
Active Growth Phase (from germination until plants are no longer actively growing):	After establishment, seedlings were moved to a shadehouse (2).
Length of Active Growth Phase:	NA
Hardening Phase (from end of active growth phase to end of	NA

growing season; primarily related to the development of cold-hardiness and preparation for winter):	
Length of Hardening Phase:	NA
Harvesting, Storage and Shipping (of seedlings):	NA
Length of Storage (of seedlings, between nursery and outplanting):	NA
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	4-6 feet apart (10).
Other Comments (including collection restrictions or guidelines, if available):	Deepot 40 = 2 1/2" dia. x 10" long = 40 cubic inches (4). Sunshine Mix #4 Aggregate Plus -peat moss -perlite: -gypsum: -dolomititc lime: -major and minor nutrients

PROPAGATION DETAILS: Cuttings	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	NA
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	plants
Propagation Method (Options: Seed or Vegetative):	Vegetative
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Container, cuttings, seeds, bareroot (8)
Stock Type:	Root and branch cuttings as well as an uncut branch (8)
Time to Grow (from seeding	NA

until plants are ready to be outplanted):	
Target Specifications (size or characteristics of target plants to be produced):	NA
Propagule Collection (how, when, etc):	For best results, take cuttings from 1 year olds in early winter before budding (11). Cuttings can also be taken from May to September after blooming and cuttings should not exceed longer than 4 inches (14).
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	Cuttings: Remove leaves from part of the cutting that will be in the soil as well as spent flowers and flower buds. To encourage root growth in larger or thicker branches, cut off 1 ½" to 1" long strip of the outer layer of wood. (14) Layering: Bend a stem into a 6 inch deep trench. The stem should touch ground about a foot from the tip. Cut a small slit at the bend and dust the cut with rooting hormone. Insert matchstick sized sticks to keep the cut open. Cover the cut portion with 3 to 4 inches of soil. (14)
Pre-Planting Propagule Treatments (cleaning, dormancy treatments, etc):	NA
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Layering: Optimal soil consists of each part coarse sand and damp peat. Place a rock on top of the layer to keep branch in place and help retain moisture. (14) Cuttings: Pot the cuttings with 1:3 peat to coarse sand ratio and water thoroughly. Store pots in light, warm area out of direct sunlight. (14)
Establishment Phase (from seeding to germination):	Phase lasts until the cutting develop several robust roots.
Length of Establishment Phase:	NA
Active Growth Phase (from germination until plants are no longer actively growing):	NA
Length of Active Growth Phase:	NA
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):	NA
Length of Hardening Phase:	NA
Harvesting, Storage and	NA

Shipping (of seedlings):	
Length of Storage (of seedlings, between nursery and outplanting):	NA
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	4-6 feet apart (10).
Other Comments (including collection restrictions or guidelines, if available):	NA

INFORMATION SOURCES	
References (full citations):	See below.
Other Sources Consulted (but that contained no pertinent information) (full citations):	See below.
Protocol Author (First and last name):	Zhu Zhu Xiao
Date Protocol Created or Updated (MM/DD/YY):	05/13/09

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

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2. Young, Betty. 2001. Propagation protocol for production of container *Oemleria cerasiformis* (Torr. & Gray ex Hook & Arn) Landan plants (Deepot 40); USDI NPS - Golden Gate National Parks, San Francisco, California. In: Native Plant Network. [http://www.nativeplantnetwork.org] [accessed 10 May 2009]. Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

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(More detailed distribution map in CA.)

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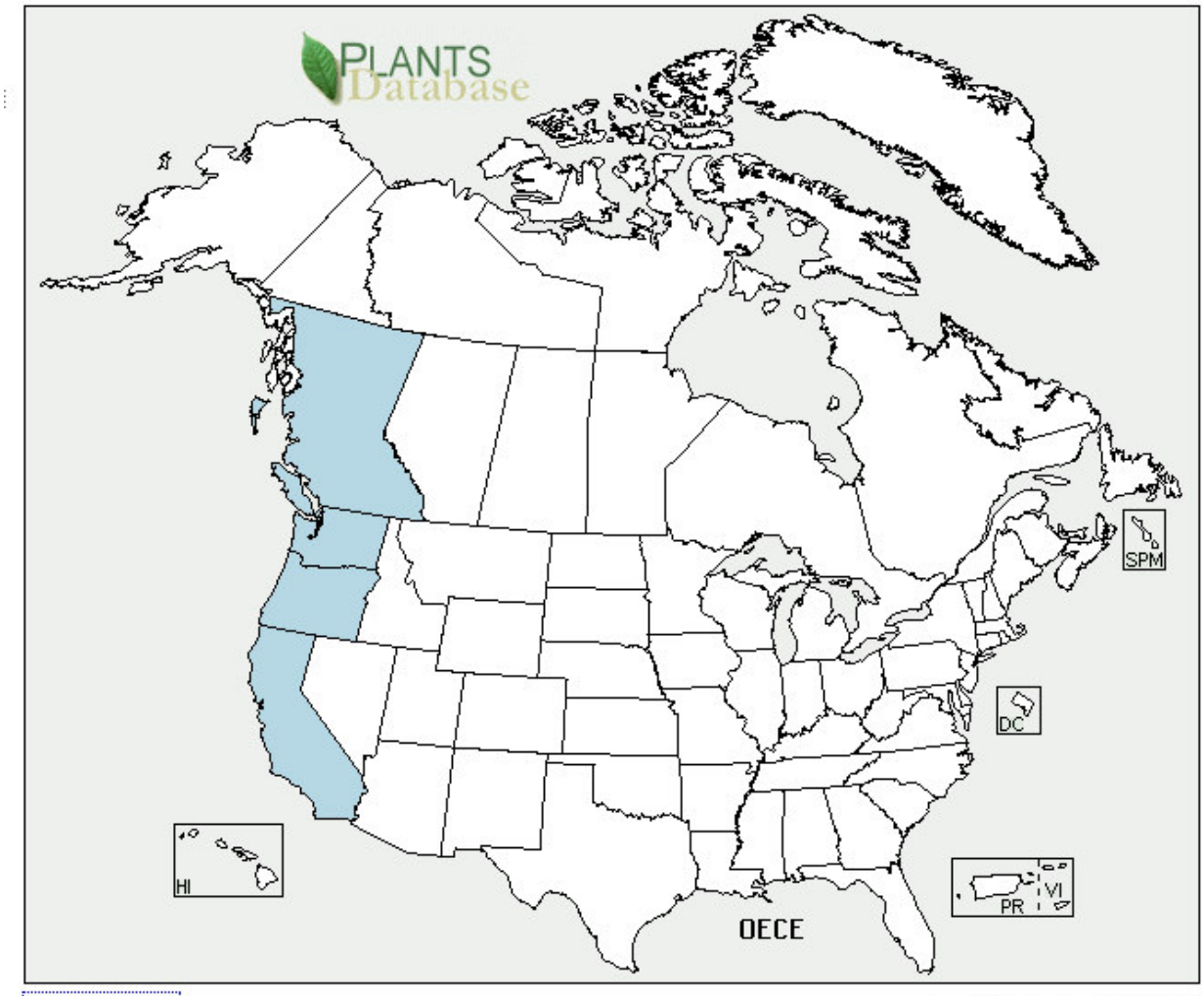
(Some synonyms)

Appendix

Fig. 1 USDA Natural Resource Conservation Service. Plants Profile:*Oemleria cerasiformis.* [http://plants.usda.gov/java/profile?symbol=OECE] [Accessed May 8, 2009, 3:15 PM]

The map is based primarily on the literature, herbarium specimens, and confirmed observations. However, not all populations have been documented, so some gaps in the distribution shown above may not be real.

Native Status:
Oemleria cerasiformis (Torr. & A. Gray ex Hook. & Arn.) Landon



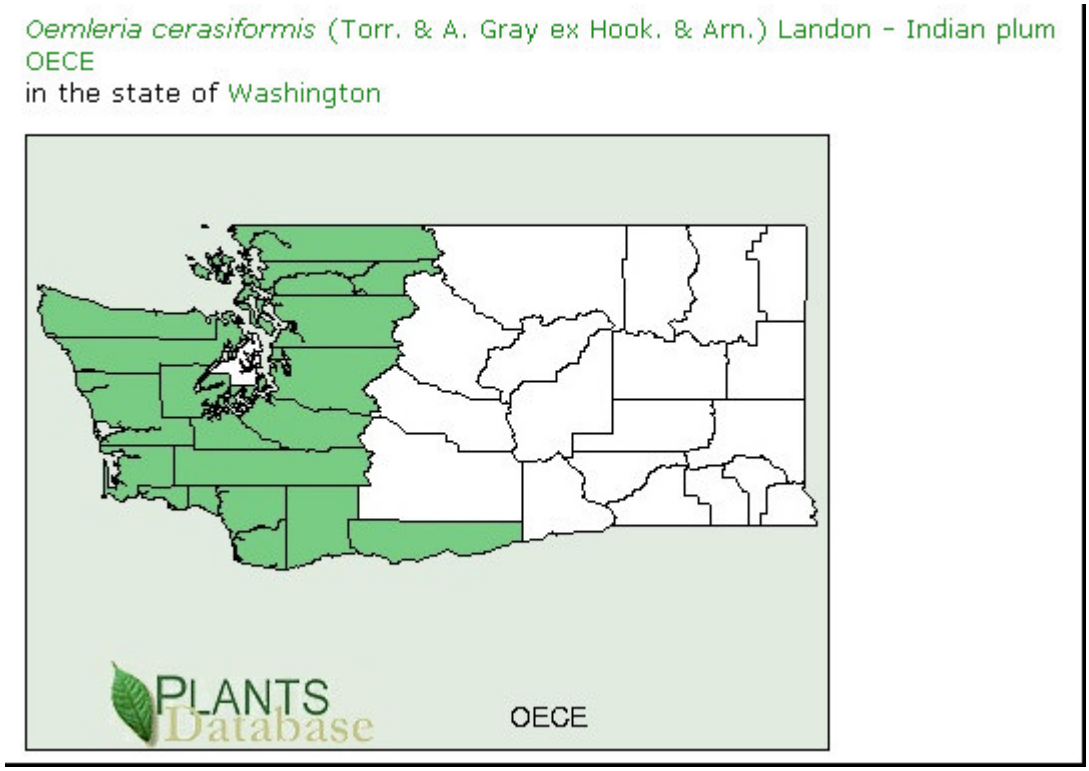
View Distribution

Native Introduced

Appendix continued

Fig. 2 USDA Natural Resource Conservation Service. Plants Profile:*Oemleria cerasiformis.* [http://plants.usda.gov/java/profile?symbol=OECE] [Accessed May 8, 2009, 3:16 PM]

The map is based primarily on the literature, herbarium specimens, and confirmed observations. However, not all populations have been documented, so some gaps in the distribution shown above may not be real.



Previous Protocol:

Plant Data Sheet: Indian Plum (*Oemleria cerasiformis*)

Range

Indian plum is found west of the Cascades. It ranges from coastal southern British Columbia through northern California [1].

Climate, elevation

Indian plum is found at low elevations [1]. It prefers the climate typical of the Pacific Northwest coast: Mild temperatures and moderate to high rainfall during winter months, although it is drought tolerant during summer months.

Local occurrence (where, how common)

Indian plum is common west of the Cascades. Due to a preference for open areas, it is often found along roadsides and does well in disturbed areas [1].

Habitat preferences

Indian plum prefers dry to moist, open woods. It is often found on stream banks and in open areas, such as roadsides [1,7].

Plant strategy type/successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)

Indian plum is a late seral, understory, forest shrub.

Associated species

Indian plum is often found growing near elderberry (*Sambucus racemosa*), red osier dogwood (*Cornus sericea*), stinging nettle (*Uritica dioica*), vanilla leaf (*Achlys triphylla*), foamflower (*Tiarella* spp.) and salal (*Gaultheria shallon*) [3].

May be collected as: (seed, layered, divisions, etc.)

Seeds can be collected. Hardwood cuttings are also successful. This plant produces numerous suckers, which can be removed from the parent plant during the winter months and will survive on their own in favorable conditions [3]. Plants less than 5' also salvage well [7].

Collection restrictions or guidelines

Due to its popularity with birds, seed should be collected in June as soon as it ripens. It can then be dried whole and sown in the fall [6]. There are variable results from hardwood cuttings. For best results, use vigorous 1-yr old wood and take the cuttings early in winter prior to bud swell [4].

Seed germination (needs dormancy breaking?)

Germination of spring-sown seed is more successful if the seeds are cold stratified for four months [3,7]. During this process, seed germination may occur. The seeds should be monitored bi-weekly and sprouted seeds removed [7].

Seed life (can be stored, short shelf-life, long shelf-life)

Seeds can be stored and should be cleaned before storage [7]. Information on seed shelf- life is not readily available.

Recommended seed storage conditions

Information on recommended seed storage conditions is not readily available.

Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.)

Propagation from seed is successful. Vegetative propagation from cuttings and suckers is moderately successful [4,7].

Soil or medium requirements (inoculum necessary?)

Indian plum does not appear to have any specific soil or inoculum requirements.

Installation form (form, potential for successful outcomes, cost)

Indian plum can be installed as container or bare root material. Rooted suckers and seeds can also be used with success.

Recommended planting density

4-6' apart [2].

Care requirements after installed (water weekly, water once etc.)

Although indian plum is drought tolerant, periodic watering during establishment is necessary. Deep watering may not be necessary due to its shallow, spreading root growth [5].

Normal rate of growth or spread; lifespan

Indian plum has a short longevity [5]. It is fairly fast growing and may eventually may reach a height of 5-16' [7].

Sources cited

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Data compiled by (student name and date)
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