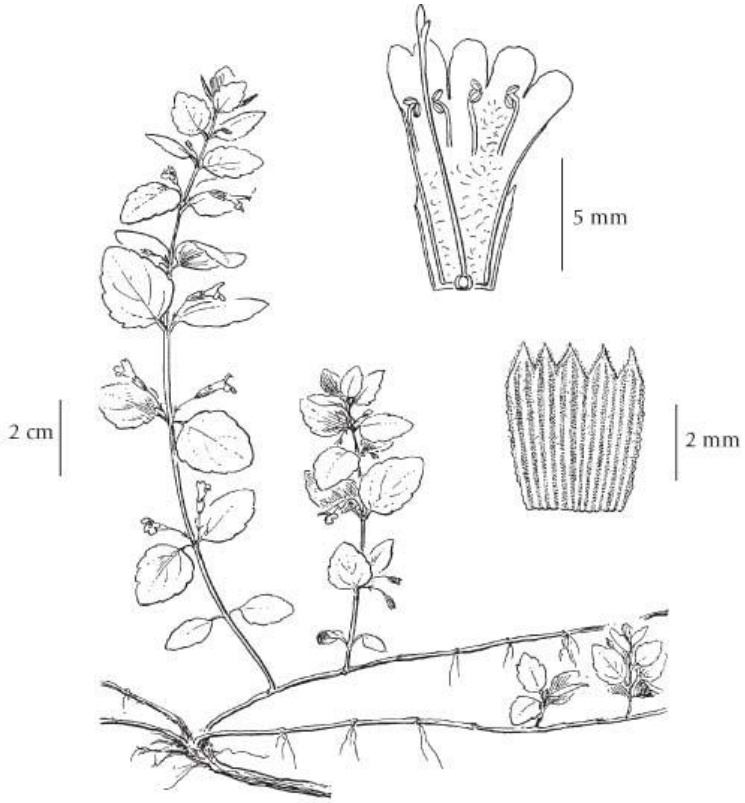
# Plant Propagation Protocol for *Clinopodium douglasii (Benth.) Kuntze*

ESRM 412 – Native Plant Production




*Clinopodium douglasii*

Image: *The Illustrated Flora of BC* [5]

Image: © Br. Alfred Brousseau, Saint Mary's College [9]

Image: James Gaither © 2011 [11]

| TAXONOMY | |
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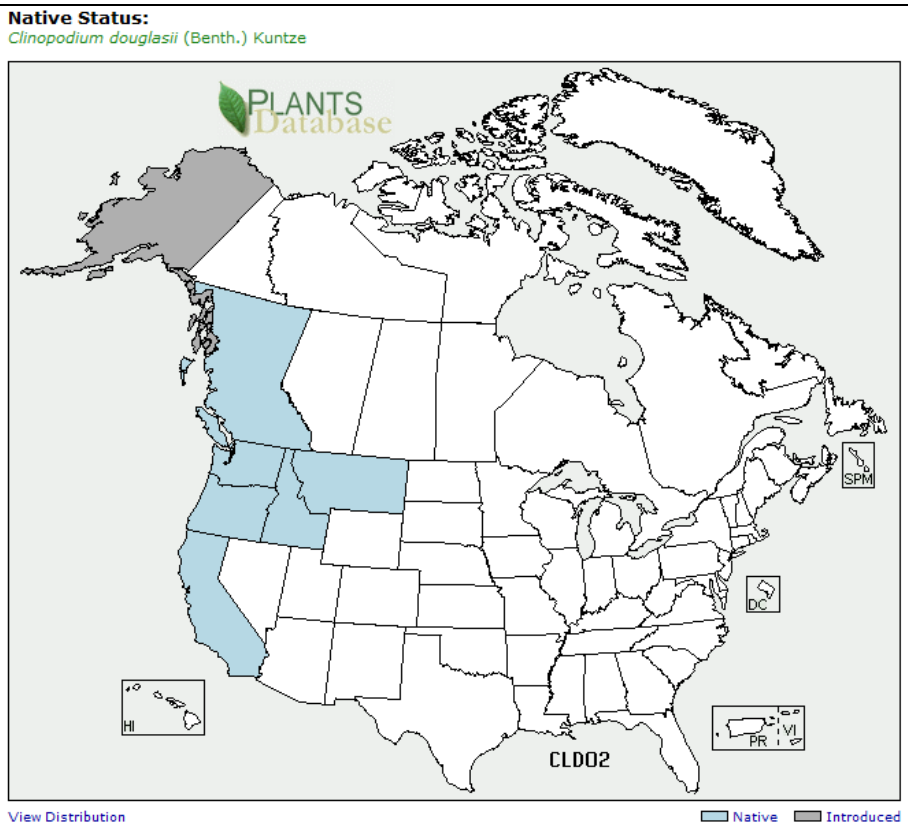
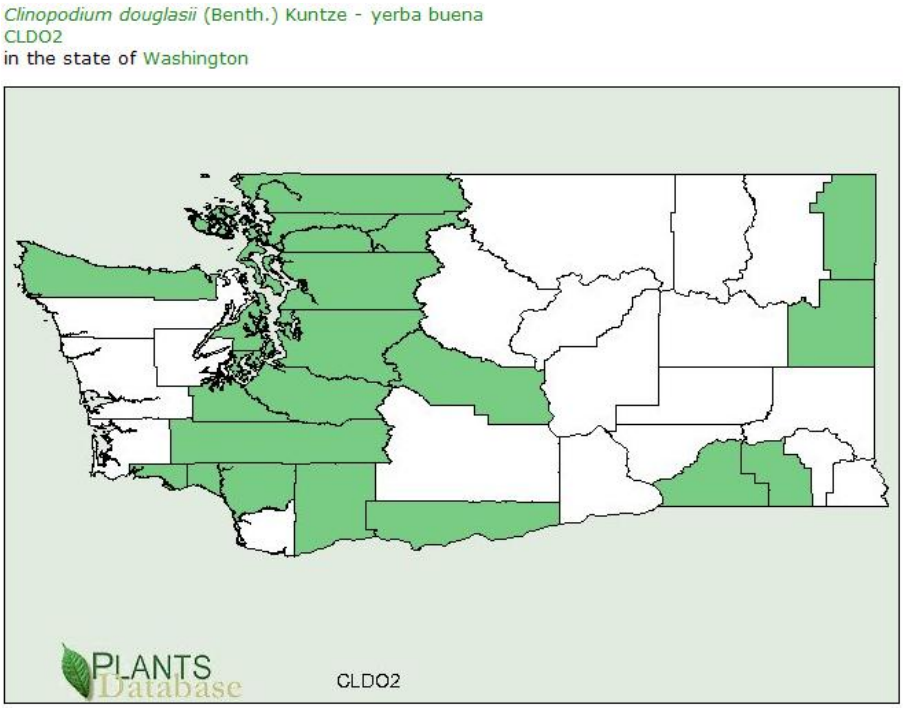
| Family Names | |
| Family Scientific Name: | Lamiaceae |
| Family Common Name: | Mint Family |
| Scientific Names | |
| Genus: | *Clinopodium* |
| Species: | *douglasii* |
| Species Authority: | David Douglas, George Bentham, Otto Kuntze |
| Variety: | |
| Sub-species: | |
| Cultivar: | |
| Authority for Variety/Sub-species: | |
| Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information) | *Micromeria douglasii*<br>*Micromeria chamissonis* (Benth.) Greene<br>*Satureja chamissonis* (Benth.) Briq.<br>*Satureja douglasii* (Benth.) Briq. [1] [5] |
| Common Name(s): | Yerba Buena, Indian Mint, Oregon-tea |
| Species Code (as per USDA Plants database): | CLDO2 [9] |

# GENERAL INFORMATION

Geographical range:




Native distribution of *C. douglasii* in North America. [9]




Distribution of *C. douglasii* in Washington State. [9]

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| | Mostly west of the Cascade summits in Washington; Alaska south to California, east to Idaho and Montana. [3] |
| Ecological distribution: | *C. douglasii* occurs throughout the range of the Pacific coastal redwood forest and is commonly present in the oak-madrone forest border. It also ranges through other conifer forests into oak woodland and chaparral, thus occupying various different light-quality conditions. [7]<br>Communities include Chaparral, Closed-cone Pine Forest, Mixed-evergreen Forest, Northern Coastal Sage Scrub and Redwood Forest. [8] |
| Climate and elevation range: | *C. douglasii* can grow in hardiness zones 7a (-12.7 °C) to 10b (1.7 °C). [1]<br>It prefers light, partial shade to full shade. It needs a climate that is moist and mild. [2] It is seen growing in all soil types and will tolerate sand and clay. [8]<br>Average elevation is 525 meters, minimum is 150, maximum is 1,290 meters. Average slope gradient is 24.6 % and the maximum is 48%. [5] |
| Local habitat and abundance; may include commonly associated species: | Coniferous woods, sea level to mid-elevations in the mountains. [3]<br>C. douglasii usually grows in shade as an understory plant, usually associated with trees like oaks (Quercus), Bays (Umbellularia californica) and Madrones (Arbutus menziesii). Some companion plants are Fragaria californica, Rubus ursinus, and Ribes sanguineum var. glutinosum. In its native range rainfall can occur a good portion of the year and can total up to 70". This species will survive well on as little as 15" of rainfall, but in low rainfall areas looks better with occasional rinsing of foliage (simulates fog drip occurring in its native range). It receives a good portion of its moisture as summer fog drip. [8] |
| Plant strategy type / successional stage: | Late successional, stress tolerator |
| Plant characteristic: | Blooms from late spring to early fall. [1]<br>Perennial herb from woody rhizomes, the stems prostrate, up to 1 m. long, often rooting, often with short, ascending branches. Trailing, mat-forming with low, crawling stems. Leaves bright green, opposite, short-petiolate or nearly sessile, the blade ovate to sub-rotund, 1-3.5 cm. long, usually with a few blunt teeth. Oil glands are on the bottom surface. [4] Flowers bilateral, solitary in the axils on slender pedicels 5-15 mm. long; calyx about 5 mm. long with prominent ribs and 5 short, acute teeth; corolla two-lipped, the lips short, white or purplish-tinged, 7-10 mm. long; stamens 4, nearly equal, ascending under the upper lip; style 2-parted; ovary 2-celled, superior. Fruit is composed of 4 nutlets. [3]<br>May be easily characterized by its square (4-sided) stems and spicy smell. C. douglasii, unlike some other plants of the Lamiaceae family, is only sparsely pubescent and the hairs are minute. [4]<br>C. douglasii can spread to 6 ft. across. [6] |

| PROPAGATION DETAILS | |
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| Ecotype: | Marin county, CA for seed protocol & Presidio, CA for vegetative protocol [10] |
| Propagation Goal: | Plants |
| Propagation Method: | Vegetative or Seed |
| Product Type: | Container (plug) |
| Stock Type: | 2 in. pot [10] |
| Time to Grow (from seeding until plants are ready to be outplanted): | Around 42 days |
| Target Specifications: | When the root system is firm in container. [10] |
| Propagule Collection: | Seeds are collected between May 1st and August 1st. Mature capsules are brown, seeds are tiny.<br>Herbaceous stem cuttings are collected May 21st. Cutting length is 4 inches. [10] |
| Propagule Processing/Propagule Characteristics: | To clean seeds rub capsules over a sieve. Seeds are kept dry and stored in a refrigerator.<br>Cuttings are kept moist and cool prior to treatment. [10] |
| Pre-Planting Propagule Treatments: | Soak seeds in fresh water overnight. Cold stratify in peat in the refrigerator until seeds begin to germinate. Check seeds weekly.<br>Cuttings are struck in flats containing 1:1 Perlite/Vermiculite.<br>Cuttings are struck 0.5 inch deep in flats. Lay cuttings horizontally ensuring that each internode is covered with media.<br>% Rooting: 80%. [10] |
| Growing Area Preparation / Annual Practices for Perennial Crops: | Grow in a fully controlled greenhouse.<br>Sowing Method: Transplanting Germinants.<br>3 grams of seeds are sown per flat containing Sunshine Mix #4 Aggregate Plus (peat moss, perlite, major and minor nutrients, gypsum, and dolomitic lime).<br>Seeds are mixed with media to sow and are surface sown.<br>Flats are watered in with an automatic mist and irrigation system.<br>Seeds are sown on August 1st.<br>% Germination: 50%<br>Vegetative:<br>Flats are kept in the greenhouse and watered with an automatic mist system until roots are fully developed. Flats are placed on a heated bench. [10] |
| Establishment Phase: | Seeds germinate 14 days after sowing.<br>Seedlings are transplanted 14 days after germination to individual containers |

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| | 2"x2"x5" tubes (Treeband #5) containing standard potting mix of peat moss, fir bark, perlite, and sand.<br>Transplant Survival averages 75%.<br>Planting Method: Transplanting Cuttings.<br>Cuttings are transplanted to individual containers 2" pots containing standard potting mix of peat moss, fir bark, perlite, and sand. Cuttings are placed in the shadehouse.<br>Transplant Survival averages 90%. [10] |
| Length of Establishment Phase: | 28 days [10] |
| Active Growth Phase (from germination until plants are no longer actively growing): | Fertilize with Nutricote NPK (13-13-13) 3 months after transplanting.<br>Prune back as needed. [10] |
| Length of Active Growth Phase: | Perennial growth gives a flexible growth phase. |
| Hardening Phase: | Place plants in a coldframe or outdoors during the day and inside at night before outplanting. |
| Length of Hardening Phase: | 5-7 days |
| Harvesting, Storage and Shipping (of seedlings): | Must be kept moist, cool, and out of direct sunlight. |
| Length of Storage (of seedlings, between nursery and outplanting): | Varies depending on container size and storage conditions. |
| Guidelines for Outplanting / Performance on Typical Sites: | High survival rates if planted in an appropriate location and watered adequately. |
| Other Comments: | |

## INFORMATION SOURCES

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| | *Clinopodium douglasii* (Benth.) Kuntze plants (Treebend #5); , San Francisco, California. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 17 May 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.<br><br>11. Image from: http://www.flickr.com/photos/jim-sf/6279409575/ By: James Gaither © 2011, San Francisco, CA. |
| Other Sources Consulted: | |
| Protocol Author: | Robyn Turner |
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