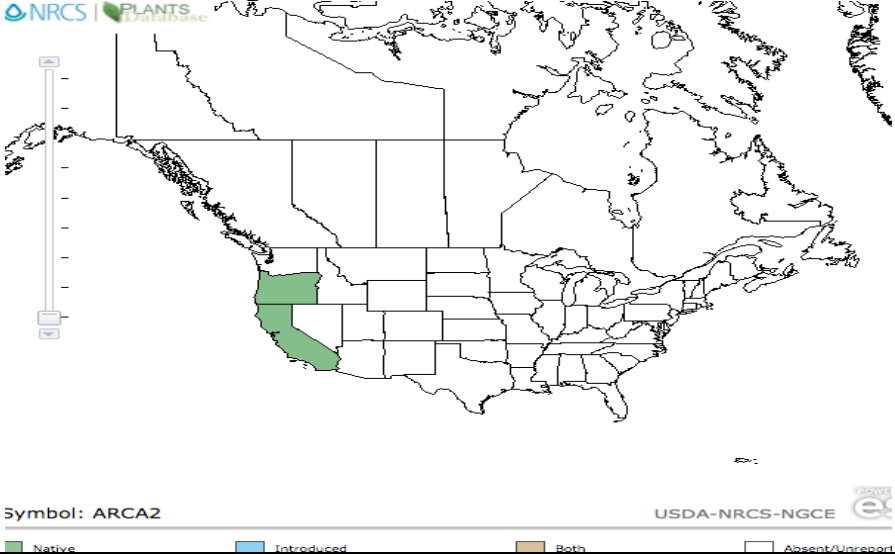



Plant Propagation Protocol for *Aralia californica*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/ARCA2.pdf>

TAXONOMY	
Plant Family	
Scientific Name	Araliaceae
Common Name	Ginseng family
Species Scientific Name	
Scientific Name	<i>Aralia californica</i> S. Watson
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<i>Aralia californica</i> var. <i>acuminata</i> ⁶
Common Name(s)	California spikenard, Elk’s clover, Elklover, Prairie sagewort
Species Code (as per USDA Plants database)	ARCA2
GENERAL INFORMATION	
Geographical range	<p>California and Oregon¹</p>  <p>Symbol: ARCA2</p> <p>USDA-NRCS-NGCE </p> <p>Legend: ■ Native ■ Introduced ■ Both Absent/Unreported</p>
Ecological distribution	<p>Wetlands of the Arid West, Western Mountains, Valleys, and Coast¹</p> <p><i>A. californica</i> is found in moist and shady spots, below 1550 meters, in many plant communities; from Orange County, California, to southern Oregon.⁴</p> <p>Shady and moist habitats such as in moist redwood, Douglas fir, and/or pine forests; mountain slopes and valleys; at the edge of</p>

	forests; along river banks, shaded streams, creeks, and ravines. ⁵
Climate and elevation range	Moist, humid climates at elevations ranging from 25' – 7419' ² or in other words, elevations from sea level to 1,830 meters. ⁵
Local habitat and abundance	It can be found in moist forested canyons and streamsides. ²
Plant strategy type / successional stage	The plant performs best under trees and moist, shady areas. It tolerates a variety of soils and cold temperatures down to 5° F (cal). ² Insects pollinate the plant. It grows best in a good deep loam and a semi-shady position. The herb requires a sheltered position and are hardier when grown in poorer soils. ⁵
Plant characteristics	<i>A. californica</i> is a large deciduous herbaceous perennial plant that can grow 2-3 meters with 1-2 meters long pinnate/bipinnate leaves that are 1 meter broad. The leaflets are 15-30 centimeters long and 7-15 centimeters broad. The greenish white flowers produce large, ball-shaped compound umbels 30-45 centimeters in diameter. They eventually mature into a blackish purple berry containing 3-5 seeds. ²
PROPAGATION DETAILS	
Ecotype	USFS land, Rogue River-Siskiyou National Forest, Gold Beach Ranger District, Gold Beach, Oregon: 1500 ft. elevation ³ Marin County, California
Propagation Goal	Seeds ³ , plants
Propagation Method	Seed ^{3,4}
Product Type	Propagules (seeds, cuttings, poles, etc.) ³ Container (plug) ⁴
Stock Type	4 inch pot ⁴
Time to Grow	0 ^{3,4}
Target Specifications	Height: N/A Caliper: N/A Root System: Firm plug in container. ⁴
Propagule Collection Instructions	Small lot, 0.9 pounds, hand collected into plastic zip-lock bag. ³ Aralias come easily from seeds collected in late summer. ⁷

	Seeds are collected between August 1st and September 30th. ⁴
Propagule Processing/Propagule Characteristics	METHOD OF CLEANING: Seeds are cleaned by maceration, pulp and debris are floated off; seeds are dried on mesh trays. An air column separator, Oregon Seed Blower, is used next for cleaning and separation. Number of Seeds per Pound: 210,000, Purity: 99%, X-Ray 100 Seeds: 91% Filled, TZ: 97% (Oregon State University Seed Laboratory Analysis) ³ None Required. ⁴
Pre-Planting Propagule Treatments	None Required. ⁴ Seed - best sown as soon as ripe in a cold frame. Stored seed requires 3 - 5 months of cold stratification. ⁵
Growing Area Preparation / Annual Practices for Perennial Crops	Fully Controlled Greenhouse under heavy shade. Sowing Method: Transplanting Germinants. 75 seeds are sown per flat containing Sunshine Mix #4 Aggregate Plus (peat moss, perlite, major and minor nutrients, gypsum, and dolomitic lime). ⁴ Seeds are mixed with media to sow and are lightly covered. Flats are watered in with an automatic irrigation system. Seeds are sown on July 1st. % Germination: N/A ⁴
Establishment Phase Details	Seeds germinate 60 days after sowing. Seedlings are transplanted 60 days after germination to individual containers (4 inch pots) containing standard potting mix of peat moss, fir bark, perlite, and sand. Newly transplanted seedlings should be covered with a screen in the shade house-birds like to eat seedlings. ⁴ Fruits are macerated and sown fresh. Seeds cleaned from fruit and sown following a 2 to 3 month stratification have also germinated well. Germination can be variable from year to year. ⁴ Germination usually takes place within 1 - 4 months at 20°C. ⁵
Length of Establishment Phase	When large enough to handle, prick the seedlings out into individual pots and grow them on in light shade in a greenhouse for at least their first winter. ⁵
Active Growth Phase	N/A
Length of Active	It can grow to full size in 2 to 3 years from seeds. ⁹

Growth Phase	
Hardening Phase	In fall, it finishes with a colorful flourish as the flower stems turn wine-red and a large crop of small, shiny berries ripen from green to red to black and the leaves turn golden yellow. Then the whole thing dies to the ground for winter since it's deciduous so the leaves come back during spring. ⁹
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	Storage: Cold Storage, 33-38 Degrees Fahrenheit ³
Length of Storage	Root cuttings 8cm long, early winter in a cold frame. Store the roots upside down in sand and pot up in early to mid spring. Division of the plants is done during late winter. ⁵
Guidelines for Outplanting / Performance on Typical Sites	Once the plants are 25cm or more tall, they can be planted out into their permanent positions, late spring or early summer being the best time to do this. ⁵ From June to August it blooms with 2-in.-wide umbels of small, greenish-white flowers in 18-in.-long panicles. ⁹
Other Comments	Elk Clover root extracts are used as a natural alternative to such commonly used anti-inflammatory drugs as Ibuprofen and Piroxicam. ⁸ Aralia root also is a valuable lung remedy. It relieves coughing and deepens respiration, easing asthma and other lung ailments. ¹⁰

INFORMATION SOURCES

References	<p>¹Aralia Californica S. Watson. (n.d.). Retrieved May 22, 2017, from https://plants.usda.gov/core/profile?symbol=ARCA2</p> <p>²C. (n.d.). Calscape is an easy to use on-line library of thousands of California native plants, focused on helping people restore nature by growing plants that belong where they live. Retrieved May 22, 2017, from http://calscape.org/Aralia-californica-(Elk's-Clover)?srchcr=sc58a72eada491f</p> <p>³Barner, Jim. 2009. Propagation protocol for production of Propagules (seeds, cuttings, poles, etc.) <i>Aralia californica</i> S. Watson seeds USDA FS - R6 Bend Seed Extractory Bend, Oregon. In: Native Plant Network. URL: http://NativePlantNetwork.org (accessed 2017/05/22). US Department of Agriculture, Forest</p>
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	<p>Service, National Center for Reforestation, Nurseries, and Genetic Resources.</p> <p>⁴Young, Betty. 2001. Propagation protocol for production of Container (plug) <i>Aralia californica</i> S. Wats. plants 4 inch pot; San Francisco, California. In: Native Plant Network. URL: http://NativePlantNetwork.org (accessed 2017/05/22). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.</p> <p>⁵Useful Temperate Plants: <i>Aralia californica</i>. (n.d.). Retrieved May 22, 2017, from http://temperate.theferns.info/plant/Aralia californica</p> <p>⁶The Plant List — A working list for all plant species. (n.d.). Retrieved May 22, 2017, from http://www.theplantlist.org/tpl1.1/record/kew-13984</p> <p>⁷Kruckeberg, A. R. (1996). <i>Gardening with Native Plants of the Pacific Northwest: Second Edition</i>. Seattle, WA: University of Washington.</p> <p>⁸Conrad, J. (2009, August 30). Elk Clover Newsletter. Retrieved May 22, 2017, from http://www.backyardnature.net/n/w/elk-clov.htm</p> <p>⁹Doda, J. (2010, November). WHS Plant Notes for November 2010. Retrieved May 22, 2017, from http://www.westernhort.org/plant_notes201011.pdf</p> <p>¹⁰California Spikenard Root Tincture. (n.d.). Retrieved May 22, 2017, from https://www.localharvest.org/california-spikenard-root-tincture-C25201</p>
Other Sources Consulted	A California Flora and Supplement, Munz, P., University of California Press, Berkeley and London, 1973.
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