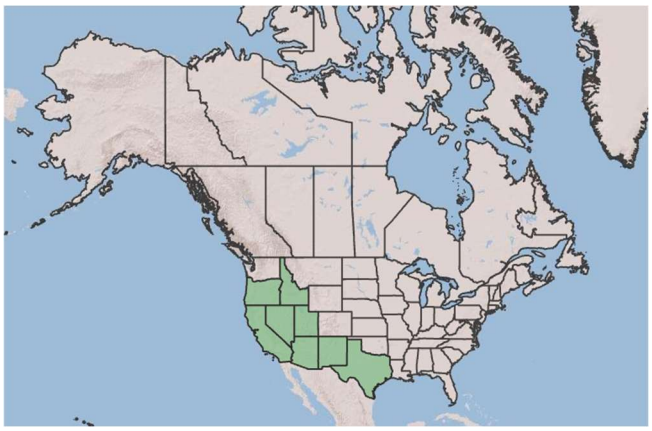
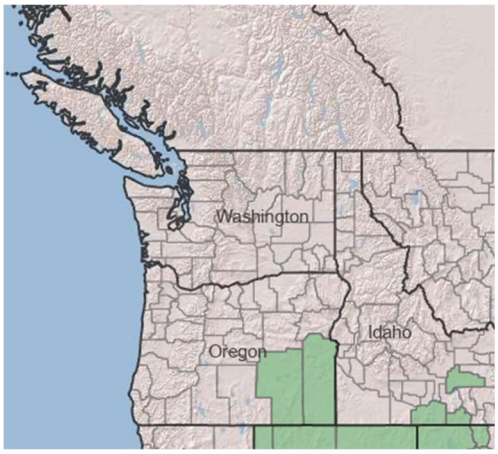
Plant Propagation Protocol for *[Allenrolfea occidentalis]*

ESRM 412 – Native Plant Production

TAXONOMY	
Plant Family	
Scientific Name	Chenopodiaceae
Common Name	Goosefoot family
Species Scientific Name	
Scientific Name	*Allenrolfea occidentalis (S. Watson) Kuntze*
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	*Allenrolfea mexicana* Lundell *Halostachys occidentalis* S. Watson
Common Name(s)	Iodine bush Pickleweed
Species Code (as per USDA Plants database)	ALOC2
GENERAL INFORMATION	

Geographical range	Found in the American southwest and in southeast Oregon and Idaho in the Pacific northwest region.[1]  *North America distribution*  *Pacific Northwest distribution*
Ecological distribution	Salt flats and playa margins, generally around saline soils.[2]
Climate and elevation range	Arid and semiarid climates, with low rainfall and precipitation occurring mostly in the winter. Elevation from 80 – 1800 meters.[3]
Local habitat and abundance	Locally abundant in the American southwest, although less abundant in the Pacific northwest communities. Local habitats often have low biodiversity as well as low precipitation and high levels of evaporation leading to high salt accumulation.[4] Can also occur in high precipitation areas if levels of evaporation are high and soil water retention is low. [5]

Plant strategy type / successional stage	Very stress tolerant, and in a relatively late successional stage compared to other shrubs found in its habitat, often becoming the dominant species.[6]
Plant characteristics	Shrubby succulent up to 2 meters tall,[7] segmented green to red stems and a deep root system.[8] Green-yellow flowers[9] with no petals and small, dry fruits, and salt-tolerant seeds that can germinate in saline conditions.
PROPAGATION DETAILS: FROM SEED	
Ecotype	Seeds harvested from naturally occurring populations in low elevation salt flats. Harvest in mid-summer to late-fall consistent with flowering patterns.[10]
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	Container-grown seedling plug, greenhouse-grown
Time to Grow	~6 months
Target Specifications	~10 cm tall with a well-developed root system filling the container
Propagule Collection Instructions	Clip entire flower cluster from plant, collecting in late summer and drying for 1 week. Rub dried seeds against screen to separate from flowers and other detritus.
Propagule Processing/Propagule Characteristics	Seed density is unknown and would have to be measured, and seed longevity is also unknown but similar species would indicate fairly high reliability within 1-3 years
Pre-Planting Propagule Treatments	Seeds should be cleaned of any other plant debris by gently sifted through a screen before being stored in a cool, dry, dark environment. Before germination, seeds should be scarified with sandpaper as the seed coat is very tough.
Growing Area Preparation / Annual	Media of 60% sandy loam soil, 20% perlite, and 20% coarse sand to mimic dry, coarse soil of native habitat. Plug containers 15 cm deep and with a diameter of 5 cm should be used to promote

Practices for Perennial Crops	deep root development. An area with full direct sunlight should be set up with a daytime temperature of 22 - 28°C, and, if possible, a night temperature of 15°C.
Establishment Phase Details	Seeds should be sown in early spring after scarification into the described media mixture. Soil should be kept slightly moist, with caution taken not to overwater, as well as an occasional light saline irrigation. Daytime temperatures of 22 - 28°C should be maintained.
Length of Establishment Phase	Potentially 6 to 12 weeks after germination
Active Growth Phase	Full sun exposure should be provided with temperatures held at 22 - 28°C during the day. Soil should still be kept slightly moist, with caution taken not to overwater, and humidity kept low and good airflow to prevent fungal issues. 5:5:5 fertilized can be applied if nutrition is noticeably insufficient, but the plants are used to low levels of nutrients so caution should be taken. Monitor for pests and weeds, and watering should be slowly reduced over the active growth phase.
Length of Active Growth Phase	Potentially 3-4 months
Hardening Phase	Continue to decrease watering frequency, and periods of dry soil are acceptable. Light saline irrigation is also acceptable to promote salt tolerance. Stop any fertilizer application and continue to lower humidity.
Length of Hardening Phase	Potentially around 3 weeks
Harvesting, Storage and Shipping	Loosen soil around the root plug and remove from the container without disturbing the roots. Store in cool dry environment and keep the roots somewhat moist. For shipping make sure the environment for the plants is cool and not too humid.
Length of Storage	Potentially around 2 weeks
Guidelines for Outplanting /	Planting should be done in the early spring if possible to avoid extreme heat, in slightly alkaline and saline soils in an open, fairly

Performance on Typical Sites	dry, noncompetitive area. Survival should be fairly high and growth should continue in natural conditions. Flowering would likely happen in 2-3 months in the early summer if outplanted into ideal conditions.
Other Comments	Some aspects of this protocol are based on collective information of other similar species where information on this specific species could not be found. Some conflicting information between sources regarding characteristics.
INFORMATION SOURCES	
References	See below
Other Sources Consulted	*Plant database entry for Iodinebush (Allenrolfea occidentalis) with 19 images and 24 data details.* (2025). Garden.org. https://garden.org/plants/view/79780/Iodinebush-Allenrolfea-occidentalis/ *Propagation Protocols — Reforestation, Nurseries and Genetics Resources*. (n.d.). Npn.rngr.net. https://npn.rngr.net/propagation/protocols *Burke Herbarium Image Collection*. (n.d.). Www.burkeherbarium.org. https://www.burkeherbarium.org/imagecollection/
Protocol Author	Jack McKenzie
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[1] *USDA Plants Database*. (2025). Usda.gov. https://plants.usda.gov/plant-profile/ALOC2

[2] *Lady Bird Johnson Wildflower Center - The University of Texas at Austin*. (2018). Wildflower.org. https://www.wildflower.org/plants/result.php?id_plant=ALOC2

[3] *CNPS Alliance: Allenrolfea occidentalis*. (2025). Cnps.org. https://vegetation.cnps.org/alliance/108

[4] *NatureServe Explorer 2.0*. (2025). Natureserve.org. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.686648

[5] *Allenrolfea occidentalis Calflora*. (2023). Calflora.org. https://www.calflora.org/app/taxon?crn=171

[6] Weber, D.J., Gul, B., Khan, M.A. (2002). Halophytic characteristics and potential uses of *Allenrolfea occidentalis* . In: Ahmad, R., Malik, K.A. (eds) Prospects for Saline Agriculture. Tasks for vegetation science, vol 37. Springer, Dordrecht. https://doi.org/10.1007/978-94-017-0067-2_36

[7] *North American Network of Small Herbaria - Allenrolfea occidentalis*. (2015). Nansh.org. https://www.nansh.org/portal/taxa/index.php?tid=31

[8] Calscape. (2025). *Iodine Bush*. Calscape.org. https://calscape.org/Allenrolfea-occidentalis-(Iodine-Bush)

[9] *Allenrolfea occidentalis – The Watershed Nursery Cooperative*. (2025). Watershednursery.com. https://www.watershednursery.com/nursery/plant-finder/allenrolfea-occidentalis/

[10] *Allenrolfea occidentalis in Flora of North America @ efloras.org*. (2025). Efloras.org. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=220000443