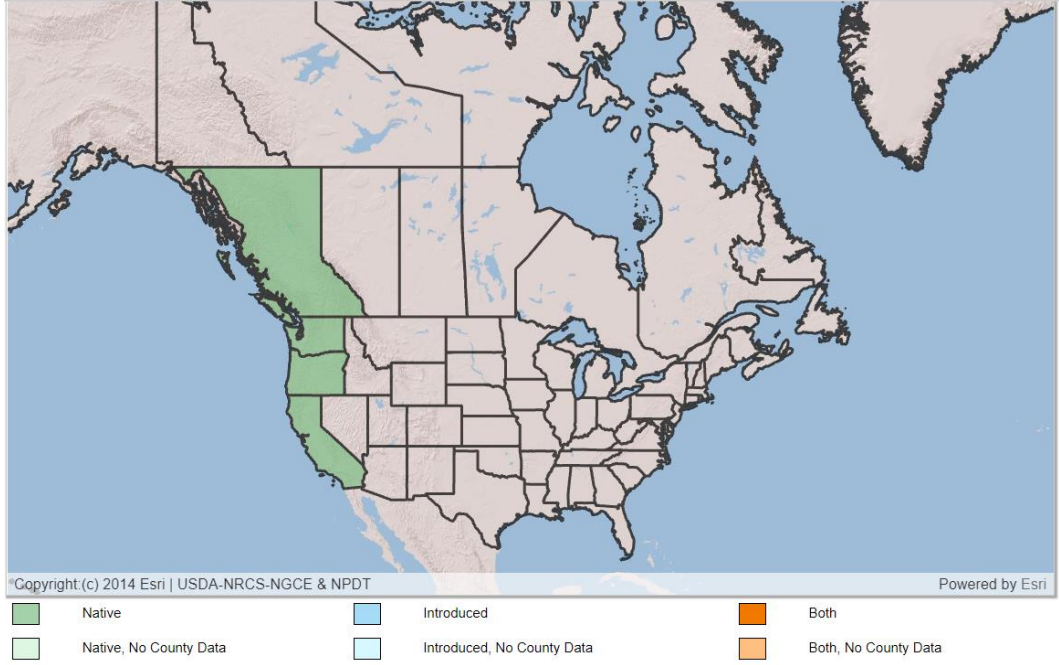


Plant Propagation Protocol for *Piperia transversa*
ESRM 412 – Native Plant Production
Spring 2022

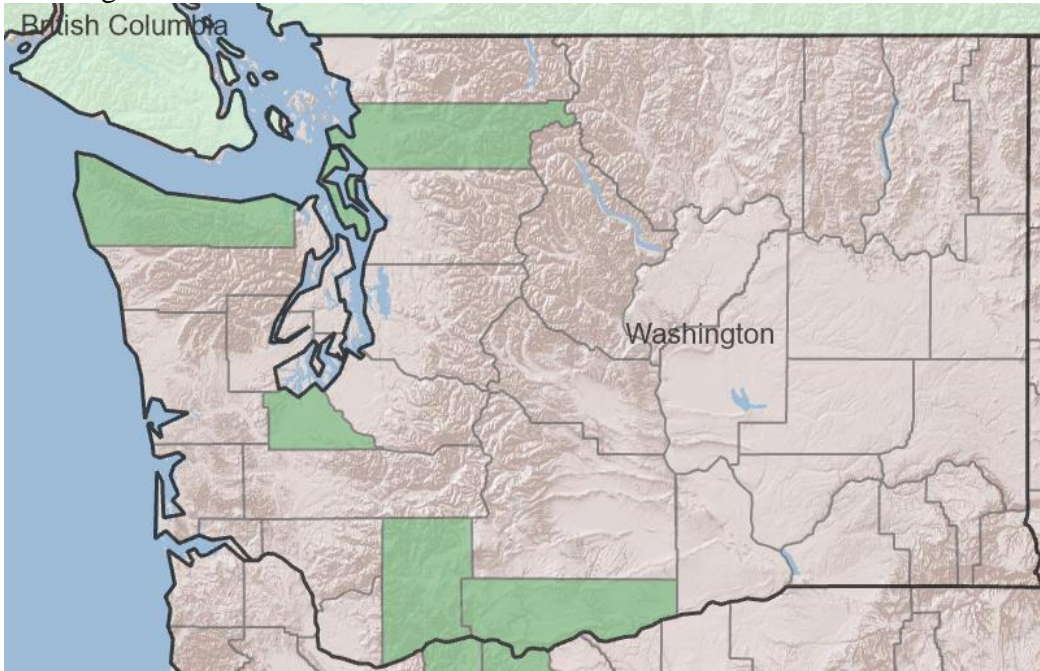
URL: <https://courses.washington.edu/esrm412/protocols/2022/PITR3.pdf>

North America Distribution



Source: USDA PLANTS Database

Washington Distribution



Source: USDA PLANTS Database

TAXONOMY	
Plant Family	
Scientific Name	Orchidaceae
Common Name	Orchid family
Species Scientific Name	
Scientific Name	Genus: <i>Piperia</i> Species: <i>transversa</i> Species Authority: Suksd.
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<i>Platanthera transversa</i> (Suksd.) R.M. Bateman
Common Name(s)	Royal rein orchid, flat-spurred <i>piperia</i> , and mountain <i>piperia</i> .
Species Code (as per USDA Plants database)	PITR3
GENERAL INFORMATION	
Geographical range	It is native to western North America, all the way from British Columbia to California. This includes Washington and Oregon. See maps above for distribution in North America and Washington.
Ecological distribution	Forest, woodland, chaparral, and scrub habitat, often in dry areas ³ .
Climate and elevation range	Annual Precipitation: 20.6" - 95.5" ³ Climate range ^{1,3} : -Summer Precipitation: 0.21" - 2.69" -Coldest Month: 27.5" - 49.8" -Hottest Month: 55.4" - 75.7" -Humidity: 0.01" - 24.45" -Elevation: <2600 m
Local habitat and abundance	It prefers dry, open forests, forest margins and rocky bluffs in the lowland to montane zones ⁴ .
Plant strategy type / successional stage	I could not find its strategy type.
Plant characteristics	Perennial forb/herb that ranges from 12-57 cm ¹ -Leaves: 2 to 5 Basal Leaves, stem leaves bractlike ⁴ -Flowers: "Inflorescence a terminal, spikelike raceme, 7-25 cm long, open to densely-flowered. The flowers are small, white to yellowish, and there is a clove-like scent noticeable in evenings" ^{3,4} -Fruits: Capsules, ascending to erect ⁴



Photo credit: Timothy Boomer,
<https://wildmacro.com/library/flora/Royal-rein-orchid-Piperia-transversa.html>

PROPAGATION DETAILS: Seed

Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Lab germinated seeds. In the wild, orchids often rely completely on developing a parasitic relationship with soil fungi to germinate and grow ¹⁰ . Thus, a lab setting is gaining more popularity.
Stock Type	Could not find this information.
Time to Grow	Could not find this information.
Target Specifications	As a mature plant in the wild it can vary from 12-57 cm ¹
Propagule Collection Instructions	<i>Piperia transversa</i> Suksd. flowers around May-August ¹ , so seed collection would need to take place some period of time after flowering.
Propagule Processing/Propagule Characteristics	Could not find this information.
Pre-Planting Propagule Treatments	Could not find this information.
Growing Area Preparation / Annual Practices for Perennial Crops	Media type was not specified. However, since its ideal habitat is dry, open forests, forest margins and rocky bluffs in the lowland to montane zones ⁴ , soil conditions similar to that would probably be best.

	Container: a pot, size was not specified.
Establishment Phase	Germinate wild seeds in a lab.
Length of Establishment Phase	Could not find this information.
Active Growth Phase	Could not find this information.
Length of Active Growth Phase	Could not find this information.
Hardening Phase	Could not find this information.
Length of Hardening Phase	Could not find this information specifically. However, this plant will flower from May-July, and will become dormant again until its next flowering season.
Harvesting, Storage and Shipping	Could not find this information.
Length of Storage	Could not find this information.
Guidelines for Outplanting / Performance on Typical Sites	Seedlings that are germinated from wild seed and propagated in labs, will be reintroduced back into their natural habitats in the U.S. ¹⁰
PROPAGATION DETAILS: Vegetative	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Division, back bulbs and offshoots.
Stock Type	Container
Time to Grow	Could not find this information.
Target Specifications	As a mature plant in the wild it can vary from 12-57 cm ¹
Propagule Collection Instructions	You will divide, use back bulbs, and use offshoots from already mature, fully-grown plants. Thus, it can be done right away on a mature plant.
Propagule Processing/Propagule Characteristics	N/A
Pre-Planting Propagule Treatments	N/A
Growing Area Preparation / Annual Practices for Perennial Crops	Media type was not specified. However, since its ideal habitat is dry, open forests, forest margins and rocky bluffs in the lowland to montane zones ⁴ , soil conditions similar to that would probably be best.
Establishment Phase Details	Could not find this information.
Length of Establishment Phase	Could not find this information.
Active Growth Phase	Could not find this information.
Length of Active Growth Phase	Could not find this information.
Hardening Phase	Could not find this information.
Length of Hardening Phase	Could not find this information.
Harvesting, Storage and Shipping	Could not find this information.

Length of Storage	<p>For division: “As soon as the new growths are started the plant can be taken from its pot, broken up and repotted”².</p> <p>For back bulbs: “As soon as one gets under way it should be potted”².</p> <p>For offshoots: “These may be allowed to grow to maturity and then carefully cut from the parent plant”².</p>
Guidelines for Outplanting / Performance on Typical Sites	<p>For division: “As soon as the new growths are started the plant can be repotted. After the repotting, the plant should be carefully sprayed until root growth has become quite evident”².</p> <p>For back bulbs: “Keep the plants in a fairly humid atmosphere and the "eyes" will soon develop. Spray the bulbs and leaves every day or so and watch the back bulbs carefully.”².</p>
Other Comments	<p>There is little to no propagation information and growth information to be found for this species specifically as it is a lesser-known, wild orchid. Also, some <i>Piperia</i> lack documentation due to having limited distribution, and small, fragmented populations due to human activity⁷. More research into this plant would be beneficial. There is a debate on whether or not this species should fall under the genus of <i>Piperia</i>, or <i>Platanthera</i>, or both⁸.</p>
INFORMATION SOURCES	
References	See below
Other Sources Consulted	<p>George, S., Sharma, J., & Yadon, V. (2009). Genetic diversity of the endangered and narrow endemic <i>Piperia yadonii</i> (Orchidaceae) assessed with ISSR polymorphisms. <i>American Journal of Botany</i>, 96(11), 2022-2030. https://www.jstor.org/stable/20621981?seq=1</p> <p>Bateman, Hollingsworth, P. M., Preston, J., Yi-Bo, L., Pridgeon, A. M., & Chase, M. W. (2003). Molecular phylogenetics and evolution of Orchidinae and selected Habenariinae (Orchidaceae). <i>Botanical Journal of the Linnean Society</i>, 142(1), 1–40.</p>

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Protocol Author	Emily Oh
Date Protocol Created or Updated	05/25/22

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