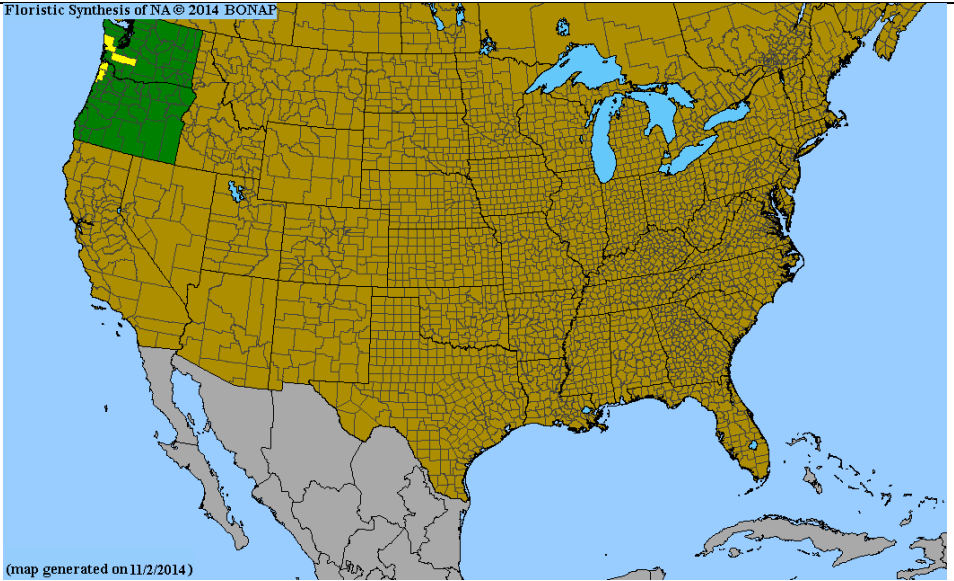




Plant Propagation Protocol for *Synthyris schizantha*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2024/SYSC.pdf>

TAXONOMY	
Plant Family	
Scientific Name	Plantaginaceae ¹ .
Common Name	Plantain Family ¹ .
Species Scientific Name	
Scientific Name	<i>Veronica schizantha</i> (Piper) M. M. Martínez Ort. & Albach ¹ . [Note: taxonomic merge of <i>Synthyris</i> into <i>Veronica</i> is not universally accepted; document will proceed with the “outdated” binomial still in most common usage as reflected by the current USDA symbol.]
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<i>Synthyris schizantha</i> Piper ¹ .
Common Name(s)	Fringe-petal kittentails, Fringed kittentails ¹ .
Species Code (as per USDA Plants database)	SYSC ³ .
GENERAL INFORMATION	
Geographical range	<p>Floristic Synthesis of NA © 2014 BONAP</p>  <p>(map generated on 11/2/2014)</p> <p>Map sourced from the Biota of North America Program (BONAP)⁴. Dark green indicates that species is present in state; yellow indicates that species is present and rare in county.</p>

Ecological distribution	Cliff and forest. From Washington State to Oregon, known from only a handful of sites: in the western Olympics, especially around Mount Colonel Bob; the “Rockies” mountain range in eastern Lewis County, WA; and the Coast Ranges of Oregon ⁵ .
Climate and elevation range	<i>Synthyris schizantha</i> is situated at mid-elevation sites. The majority of sites are situated in USDA Hardiness Zone 8A, corresponding to winter average lows of 10-15 degrees Fahrenheit with only exceptional dips below; the site at Mount Colonel Bob is more comparable to USDA Hardiness Zone 7A, corresponding to winter average lows of 5-10 degrees Fahrenheit with only exceptional dips below ⁶ . This species has been recorded between 880 – 1370 meters in elevation ⁵ .
Local habitat and abundance	Moist, shaded north-facing cliffs, ledges, and talus, often of granite or lithic sandstone. Typically found at the edge of forests consisting of <i>Abies amabilis</i> , <i>Callitropsis nootkatensis</i> , or <i>Tsuga mertensiana</i> . Species with which it occurs include <i>Carex spectabilis</i> , <i>Rubus parviflorus</i> , <i>Heuchera</i> spp., <i>Rhododendron menziesii</i> , <i>Struthiopteris spicant</i> , <i>Vaccinium ovalifolium</i> ⁵ , <i>Dodecatheon</i> spp. ⁷ , <i>Valeriana</i> spp. ⁷ , and <i>Veratrum</i> spp. ⁷ .
Plant strategy type / successional stage	Seral in moist talus and slopes ⁵ .
Plant characteristics	<p>Herbaceous perennial forb spreading through stout rhizomes. Leaves all basal, with long petioles; the leaf blades are reniform-cordate to cordate-rotund, between 4-12 cm wide and long. Leaves are palmately veined, and have shallow, few-toothed lobes. Distinctive flowers emerge on a terminal raceme: from a green calyx of 4 sepals emerge deeply laciniate, lavender-blue corollas with dark central venation¹. This unusual flower morphology is the source of the species’ binomial, <i>schizantha</i>, meaning “split flower”^{8,9}.</p> 

	
<p><i>Synthyris schizantha</i> in situ (own photos).</p>	
<p>PROPAGATION DETAILS: FROM SEED</p>	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug).
Stock Type	Firm, well-rooted plug in 10in ³ Ray Leach Super cell.
Time to Grow	8 weeks ¹⁰ .
Target Specifications	Germinants are ready to plant as soon as their roots fill out in their plug container.
Propagule Collection Instructions	Fruit appears from May to August ² ; collect seed from dried capsules.
Propagule Processing/Propagule Characteristics	Separate seeds from dried capsules and chaff.
Pre-Planting Propagule Treatments	Moist, cold stratification for at least 8 weeks ¹⁰ . Sow directly into cells in late November.
Growing Area Preparation / Annual Practices for Perennial Crops	Well-draining soil, top-dressed with thin layer of pea gravel.
Establishment Phase Details	Germinants emerge in March with warming temperatures of early spring ¹⁰ .
Length of Establishment Phase	4 months ¹⁰ .

Active Growth Phase	Water evenly, keeping soil moist but well-drained; apply weekly regimen of fertilizer.
Length of Active Growth Phase	Data unavailable.
Hardening Phase	Not needed, plant will go dormant at the end of growing season ¹ . Plugs can be outplanted in fall ¹¹ .
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	Storage unnecessary with fall outplanting.
Length of Storage	Data unavailable.
Guidelines for Outplanting / Performance on Typical Sites	Plants should be ready to flower the following growth season after outplanting ¹¹ .
Other Comments	<p><i>Synthyris schizantha</i> is a very localized regional endemic, with known sites on federal or protected land. Permits should be obtained for collection at all sites.</p> <p>Based on anecdotal evidence, seed is infrequently set in cultivation, making seed increase beds potentially infeasible¹¹; more experimentation is necessary.</p>
PROPAGATION DETAILS: VEGETATIVE	
Ecotype	N/A
Propagation Goal	Plants.
Propagation Method	Vegetative.
Product Type	Container (plug).
Stock Type	Rhizome divisions.
Time to Grow	<p>[NOTE: This information is based on <i>Synthyris reniformis</i>, a closely-related species growing in similar conditions.]</p> <p>Division in March allows for outplanting by September; otherwise, divide in September and overwinter rhizomes in containers for outplanting the following spring¹¹.</p>
Target Specifications	<p>[NOTE: This information is based on <i>Synthyris reniformis</i>, a closely-related species growing in similar conditions.]</p> <p>Rooted rhizome cuttings.</p>
Propagule Collection Instructions	<p>[NOTE: This information is based on <i>Synthyris reniformis</i>, a closely-related species growing in similar conditions.]</p> <p>Dig up rhizomes in March, divide with a sterilized blade¹¹.</p>

Propagule Processing/Propagule Characteristics	Short, stout rhizomes ¹ .
Pre-Planting Propagule Treatments	N/A
Growing Area Preparation / Annual Practices for Perennial Crops	Containers of varying sizes, depending on division, with well-drained yet moisture-retentive media.
Establishment Phase Details	[NOTE: This information is based on <i>Synthyris reniformis</i> , a closely-related species growing in similar conditions.] Spring divisions are ready by September, fall divisions are ready by March ¹¹ .
Length of Establishment Phase	Data unavailable.
Active Growth Phase	Water regularly, with light fertilizer to aid in root establishment.
Length of Active Growth Phase	Data unavailable.
Hardening Phase	Not needed, plant will go dormant at the end of growing season ¹ .
Length of Hardening Phase	Protect rhizomes that are overwintered in containers from extreme cold temperatures.
Harvesting, Storage and Shipping	Store containers outside, protect from extreme cold.
Length of Storage	Data unavailable.
Guidelines for Outplanting / Performance on Typical Sites	Fall outplanting allows for flowering the following spring ¹¹ .
Other Comments	<i>Synthyris schizantha</i> is a very localized regional endemic, with known sites on federal or protected land. Permits should be obtained for collection at all sites. Based on anecdotal evidence, seed is infrequently set in cultivation, making vegetative division the only currently viable method ¹¹ ; more experimentation is necessary.
INFORMATION SOURCES	
References	<ol style="list-style-type: none"> 1. Giblin, D., Legler, B. (n.d.). <i>Veronica schizantha</i> – Burke Herbarium Image Collection. Retrieved May 7, 2024, from https://burkeherbarium.org/imagecollection/taxon.php?Taxon=Veronica%20schizantha 2. Hufford, L. D. (n.d.). <i>Synthyris schizantha</i> – <i>Flora of North America</i>. Retrieved May 7, 2024, from http://dev.semanticfna.org/Synthyris_schizantha

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Other Sources Consulted	<ol style="list-style-type: none"> 1. Schmidt, M. G., Dasmann, R. F. (1980). <i>Growing California native plants</i>. University of California Press. 2. Emery, D. A. (1988). <i>Seed Propagation of Native California Plants</i>. Santa Barbara Botanical Garden. 3. Titchmarsh, A. (1983). <i>The Rock Gardener's Handbook</i>. Croom Helm Ltd. 4. North American Rock Garden Society, McGary, M. J. (1996). <i>Rock garden plants of North America : an anthology from the Bulletin of the North American Rock Garden Society / edited by Jane McGary</i>. Timber Press.
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