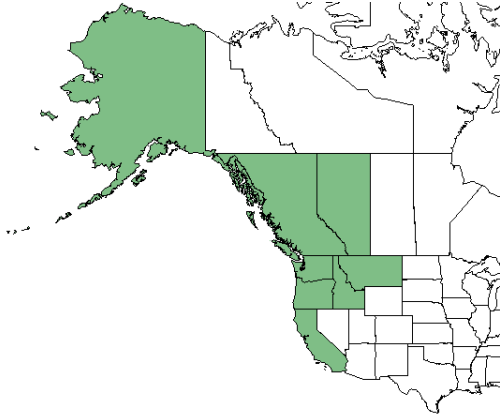


Plant Propagation Protocol for *Tiareella trifoliata*
ESRM 412 – Native Plant Production



Source: USDA Plants Database



WTU Herbarium

TAXONOMY	
Plant Family	
Scientific Name	Saxifragaceae
Common Name	Saxifrage family
Species Scientific Name	
Scientific Name	<i>Tiareella trifoliata</i>
Varieties	<i>Tiareella trifoliata</i> L. var. <i>unifoliata</i> (Hook.) Kurtz <i>Tiareella trifoliata</i> L. ssp. <i>unifoliata</i> (Hook.) Kern <i>Tiareella trifoliata</i> Hook. ^[3]
Sub-species	<i>Tiareella trifoliata</i> var. <i>laciniata</i> <i>Tiareella trifoliata</i> var. <i>trifoliata</i> <i>Tiareella trifoliata</i> var. <i>unifoliata</i> ^[3]
Cultivar	
Common Synonym(s)	
Common Name(s)	Threeleaf foamflower, laceflower, sugar-scoop
Species Code (as per USDA Plants database)	TITRU ^[5]
GENERAL INFORMATION	
Geographical range	This plant is found in the Pacific Northwest and ranges from Alaska and British Columbia, to California and east to Alberta, Idaho, and Montana ^[3] .
Ecological distribution	It is found in forested and moist areas such as woods and stream banks ^{[3][6]} .
Climate and elevation range	<i>Tiareella trifoliata</i> grows from sea level to mid elevations in the mountain ^[3] .
Local habitat and abundance	Found along both sides of the Cascade mountains and in the Olympics ^[7] .
Plant strategy type / successional stage	This plant is an understory species that spreads its seeds after disturbance ^[2] .
Plant characteristics	<i>Tiareella trifoliata</i> is a perennial herb that grows

	through rhizomes ^[2] .
PROPAGATION DETAILS^[4]	
Ecotype	
Propagation Goal	Plants
Propagation Method	Seed
Product Type	
Stock Type	Container
Time to Grow	9 Months
Target Specifications	6 cm tall with 5 to 7 true leaves
Propagule Collection Instructions	Seeds are collected by hand during late August and early Fall. Collect them after capsules begin to split. Seeds are black in color when they reach maturity.
Propagule Processing/Propagule Characteristics	Clean the seeds with screens and remove paper capsules.
Pre-Planting Propagule Treatments	Put seeds in cold stratification for 5 months.
Growing Area Preparation / Annual Practices for Perennial Crops	Sow in conetainers with a growing medium of 6:1:1 milled spaghnum peat, perlite, and vermiculite with osmocote controlled release fertilizer (13N:13P2O5:13K2O; 8 to 9 month release rate at 21C) and Micromax fertilizer (12%S, 0.1%B, 0.5%Cu, 12%Fe, 2.5%Mn, 0.05%Mo, 1%Zn) at the rate of 1 gram of Osmocote and 0.20 gram of Micromax per conetainer.
Establishment Phase Details	True leaves appear 3 weeks after germination. Germination rate is 25% to 85%.
Length of Establishment Phase	4 weeks
Active Growth Phase	Seedlings roots and shoots develop rapidly.
Length of Active Growth Phase	8 weeks
Hardening Phase	Plants are watered before overwintering.
Length of Hardening Phase	4 weeks
Harvesting, Storage and Shipping	After 9 months from initial germination, harvesting can be done in September. Plants should be kept in a shadehouse and insulated.
Length of Storage	5 months
Guidelines for Outplanting / Performance on Typical Sites	
Other Comments	
INFORMATION SOURCES	
References	
Other Sources Consulted	
Protocol Author	Patrick Kuo
Date Protocol Created or Updated	05/24/17

[1] 2015. *Tiarella trifoliata*. Retrieved from http://www.wildflower.org/plants/result.php?id_plant=TITR

- [2] Fretwell K, Cruickshank I, Starzomski B. 2013. *Foamflower-Tiarella trifoliata*. Retrieved from <http://www.centralcoastbiodiversity.org/foamflower-bull-tiarella-trifoliata.html>
- [3] Giblin D. *Tiarella trifoliata*. Retrieved from <http://biology.burke.washington.edu/herbarium/imagecollection.php?ID=4224>
- [4] Luna T, Evans J, Wick D. 2008. *Tiarella (trifoliata)*. Retrieved from <https://npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=saxifragaceae-tiarella-212>
- [5] *Tiarella trifoliata* L. var. *unifoliata* (Hook.) Kurtz *oneleaf foamflower*. Retrieved from <https://plants.usda.gov/core/profile?symbol=TITRU>
- [6] *Tiarella trifoliata*. Retrieved from <http://www.wnps.org/landscaping/herbarium/pages/tiarella-trifoliata.html>
- [7] *Tiarella trifoliata*. Retrieved from <https://www.pnwflowers.com/flower/tiarella-trifoliata>

(Original Protocol)
Plant Data Sheet



http://www2.ups.edu/faculty/kirkpatrick/fieldbotany/family_pages/Saxifragaceae/tiarella_trifoliata.htm

Species: *Tiarella trifoliata*, foam flower

Range: Alaska to California, east to Alberta, Montana, Idaho (1)

Climate, elevation: Sea level to mid-montane (1); below 3,500' (6)

Local occurrence: Stevens Pass (4), Mount Rainier National Park, Nisqually entrance (6)

Habitat preferences: damp, dense forests (2); coniferous forests, stream banks, seepage areas (3)

Plant strategy type/successional stage: Understory species (6); rhizomatous perennial herb (7); spreads by seed after disturbance (10)

Associated species: Cedar/Devil's club (1), Douglas fir/Mountain hemlock (8)

May be collected as: Seed or whole plant (1)

Collection restrictions or guidelines: Collect seeds in paper bags at the end of summer or early fall as capsules start to open. Screen to remove seeds from capsules (1); Bloom ends in August (5); Divide plants in early spring or fall (9)

Seed germination: Seeds require 5 month outdoor cold moist stratification to break physiological dormancy. Sow seeds directly on soil surface. (1)

Seed life: Unknown

Recommended seed storage conditions: Store in a drying shed with ventilation before cleaning (1)

Propagation recommendations (plant seeds, vegetative parts, cuttings, etc.): Seeds or divided nursery plants (1)

Soil or medium requirements: Unknown

Installation form: Plugs (1)

Recommended planting density: Unknown

Care requirements after installed (water weekly, water once etc.): Water frequently, plant in shade (11)

Normal rate of growth or spread; lifespan: Unknown

Sources cited:

1. Native Plant Network: http://www.nativeplantnetwork.org/network/view.asp?protocol_id=212
2. Washington Native Plant Society:
http://www.wnps.org/plants/tiarella_trifoliata.html
3. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia & Alaska*. Jim Pojar and Andy Mackinnon. (Vancouver, BC: Lone Pine Publishing, 1994)
4. Central Washington Native Plants:
<http://www.cwnp.org/photopgs/tdoc/titrioliata.html>
5. Burke Museum Herbarium
<http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Tiarella&Species=trifoliata>
6. *Flora of Mount Rainier National Park*. David Biek. (Corvallis: Oregon University Press, 2000)
7. California Native Plant Link
Exchange <http://www.cnplx.info/nplx/species?taxon=Tiarella+trifoliata+var.+trifoliata>
8. Washington Dept. of Natural Resources: <http://www.dnr.wa.gov/nhp/refdesk/communities/pdf/psme-tshe-titrla.pdf>
9. Rock Garden Plants Database: <http://www.kadel.cz/flora/e/kvCard.asp-Id=5041.htm>
10. "Seedling Establishment in Forests Affected by Tephra from Mount St. Helens." Joseph A. Antos; Donald B. Zobel. *American Journal of Botany*, Vol. 73, No. 4. (Apr., 1986), pp. 495-499.
11. Las Pilitas Nursery: <http://www.laspilitas.com/plants/763.htm>

Data compiled by Deborah Brown, April 13, 2006