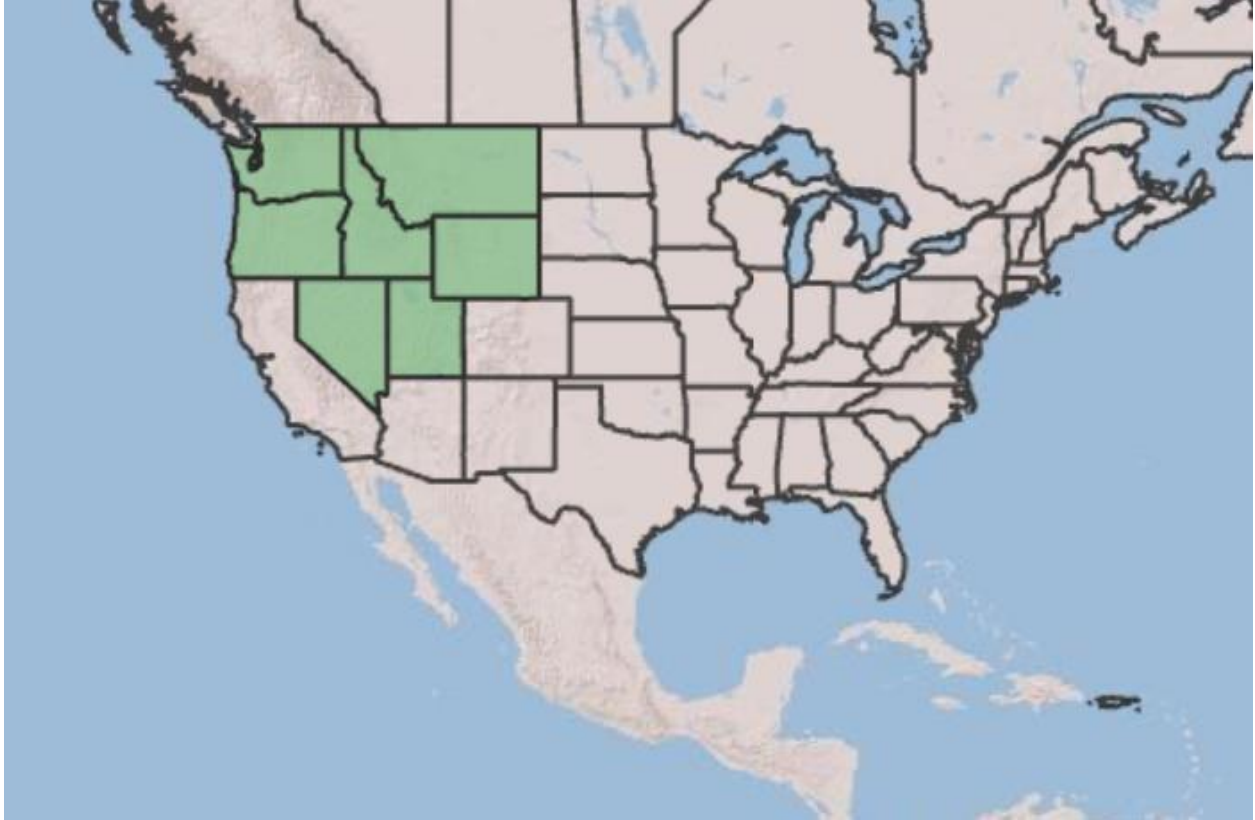


**Plant Propagation Protocol for *Townsendia florifer* (showy Townsend daisy)**

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2025/TOFL.pdf>

United States Distribution



Source: USDA Plants database

<b>TAXONOMY</b>	
Plant Family	
Scientific Name	Asteraceae Bercht. & J. Presl
Common Name	Aster Family
Species Scientific Name	
Scientific Name	<i>Townsendia florifer</i> (Hook.) A. Gray
Varieties	None
Sub-species	None
Cultivar	None
Common Synonym(s)	<i>Townsendia florifera</i> (Hook.) A. Gray, database artifact <i>Townsendia florifera</i> (Hook.) A. Gray var. <i>watsonii</i> (A. Gray) Cronquist, database artifact <i>Townsendia florifer</i> (Hook.) A. Gray var. <i>watsonii</i> (A.

	Gray) Cronquist
Common Name(s)	Showy Townsend daisy, Townsend daisy

Species Code (as per USDA Plants database)	TOFL
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### GENERAL INFORMATION

Geographical range	W. United States; Montana, Idaho, Wyoming, Utah, Colorado, Oregon, and NE. Nevada (USDA plants database, n.d.). See map above for United States distribution.
Ecological distribution	Open, rocky slopes, grasslands, sagebrush steppe, and disturbed areas such as roadsides (Kew, n.d.)
Climate and elevation range	Dry open climates near sagebrush in gravelly or sandy soils. Tolerates full sun to light shade preferring well drained soil at 50 – 1500m elevations (OregonFlora, n.d.).
Local habitat and abundance	Dry meadows, rocky ridges, and montane to subalpine zones. Often associated with species like <i>Artemisia tridentata</i> (big sagebrush). It is often sparsely distributed but can be locally abundant in suitable conditions (Giblin D., n.d.).
Plant strategy type / successional stage	<i>Townsendia florifer</i> is considered a stress-tolerator and early successional species. It is adapted to dry, nutrient-poor environments and often colonizes open or disturbed areas (OregonFlora, n.d.).
Plant characteristics	Biennial or perennial herb that can grow to be 2-12cm tall meaning that it can live for up to a few years (Meyers, S., 2020).  Basal leaves tufted and persistent, spatulate or spatulate-obovate, 2-6 cm. long and 3-11 mm. wide, the cauline similar or reduced and flowers between the months of May- July (Giblin D., n.d.).

### PROPAGATION DETAILS

Ecotype	USFS, Rocky Mountain Research Station - Owyhee Front, Idaho; 2540 ft. elevation (Barner, J., 2007).
Propagation Goal	Seeds
Propagation Method	Seed

Product Type	Propagules (seeds, cuttings, poles, etc.)
Stock Type	Container plug with good drainage
Time to Grow	Approximately 6–9 months from sowing to outplantready seedling. This includes a cold stratification period of 6–12 weeks as done with <i>Townsendia exscapa</i> (PropagateOne, 2024) and ~3–4 months of active growth.
Target Specifications	tight rosette of leaves ~3-6 cm in diameter and 2–3+ true leaves as seen in <i>Townsendia hookeri</i> (Organicindia, n.d.)

Propagule Collection Instructions	Hand collected into paper bag (Barner, J.) when flowers bloom around April-June (CBR, 2023)
Propagule Processing/Propagule Characteristics	Air-screen using a office Clipper, with a top screen, 3 x 16 wire mesh or a 4 x 24 wire mesh and a bottom screen, blank, low speed, low air. Number of Seeds per Pound: 546,506, Purity: 98%, X-Ray 90 Seeds: 79% Filled (Barner, J.)
Pre-Planting Propagule Treatments	Seed deawned by hand by removing cottony pappus and chaff from the seeds  seeds should be stored in cool, dry conditions. T. florifer seeds are stored in sealed containers at 33–38°F (near-freezing) to maintain viability (Barner, J.)
Growing Area Preparation / Annual Practices for Perennial Crops	Sow seeds in a greenhouse or outdoor nursery in late winter to early spring (after stratification). If stratifying seeds in a refrigerator, plan to sow them in early spring in moist and cool conditions with well drained and rocky soil (Neil, R.)
Establishment Phase Details ]	Seeds typically germinate within 10-21 days, depending on environmental conditions. During germination, keep the substrate moist at all times do not allow it to dry out when seedlings are emerging  Maintain a temperature of 60-70°F (16-21°C) for optimal germination (Organicindia, n.d.)
Length of Establishment Phase	2-3 weeks  Put through another cold stratification phase if it takes more than 6 weeks (PropagateOne, 2024)

Active Growth Phase	<p>When seedlings develop their first few true leaves (~1 cm tall rosettes), they can be thinned or transplanted. If multiple seedlings are crowded in one cell or clump, retain the strongest one and gently separate out extras to transplant elsewhere</p> <p>Move seedlings to a sunny, well-ventilated area. Provide at least 6 hours of sun or equivalent light daily and water sparingly (PropagateOne, 2024).</p> <p>Transplant into a gritty potting mix similar to the germination mix. For example, a mix of 1:1:1 peat (or coir):perlite:sand can work, or a standard native plant nursery mix augmented with extra grit. Pots around 2–4 inches in diameter and deep are suitable for growing out. Ensure excellent drainage (Garden.org, n.d.)</p>
Length of Active Growth Phase	2 - 3 months
Hardening Phase	Reduce watering frequency slightly during this period to toughen the plants. move the plants to a cold frame or sheltered outdoor area for 1–2 weeks before outplanting
Length of Hardening Phase	1 – 2 weeks
Harvesting, Storage and Shipping	Keep in cold storage (around 34–38°F) until sowing. Seeds should be stored dry
Length of Storage	Viability is maintained under these conditions for a few years; however, fresher seeds (within 1 year) show highest germination (Organicindia, n.d.)
Guidelines for Outplanting / Performance on Typical Sites	<p>Transplant <i>T. florifer</i> to the field in early spring or early fall for best results. Spring (after last frost) is often ideal (Organicindia, n.d.) It is adapted to harsh conditions, so outplanted individuals generally survive if they make it through the establishment phase.</p> <p>Survival rate is dependent on location and flowers may not bloom during its first year</p>
Other Comments	Some aspects of this protocol are based on collective information of other related genus where information on this specific species could not be found.
<b>INFORMATION SOURCES</b>	
References	Full Below
Other Sources Consulted	N/A
Protocol Author	Lexi Nakamura

Date Protocol Created or Updated	05/06/25
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## References:

Barner, Jim. (2007). Propagation protocol for production of Propagules (seeds, cuttings, poles, etc.) *Townsendia florifer* (Hook.) Gray seeds USDA FS - R6 Bend Seed Extractory Bend, Oregon. In: Native Plant Network. URL: <https://NativePlantNetwork.org> (accessed 2025/05/07). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

CBR. (2023). Lady Bird Johnson Wildflower Center - the university of Texas at Austin. Wildflower.org. [https://www.wildflower.org/plants/result.php?id\\_plant=TOFL5](https://www.wildflower.org/plants/result.php?id_plant=TOFL5)

David, Giblin, Herbarium, W. T. U., Burke Museum, & University of Washington. (n.d.). *Townsendia florifera* - Burke Herbarium Image Collection. Burkeherbarium.org. Retrieved May 7, 2025, from <https://burkeherbarium.org/imagecollection/taxon.php?Taxon=Townsendia%20florifera>

(N.d.). Garden.org. Retrieved May 7, 2025, from <https://garden.org/plants/view/86693/Hooker-Townsendia-Townsendia-hookeri/>

Neil Reese, R. (2024). Asteraceae : *Townsendia exscapa*. <https://openprairie.sdstate.edu/nativeplant/124/>

OregonFlora. (n.d.). Oregonflora.org. Retrieved May 7, 2025, from <https://oregonflora.org/taxa/index.php?taxon=8827>

PropagateOne (2024, September 16). How to propagate *Townsendia exscapa*. Propagate One. <https://propagate.one/how-to-propagate-townsendia-exscapa/>

Stephen, Meyers, Flora of Oregon. Volume 2, page 364: Dicots A-F. (2020). Shop BRIT. Retrieved May 7, 2025, from <https://shopbritpress.org/collections/alltitles/products/floraoforegon2>

*Townsendia florifera* (hook.) A.gray. (n.d.). Plants of the World Online. Retrieved May 7, 2025, from <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:255880-1/general-information>

*Townsendia hookeri* Seeds for Gardening Enthusiasts. (n.d.). Organicindiaseeds. Retrieved May 7, 2025, from [https://www.organicindiaseeds.com/products/townsendia-hookeri-seeds-forgardening-enthusiasts-rare-wildflower-seeds-for-home-gardens-and-landscaping?pr\\_prod\\_strat=e5\\_desc&pr\\_rec\\_id=2b3560ff4&pr\\_rec\\_pid=7330129903702&pr\\_ref\\_pid=7330139373654&pr\\_seq=uniform](https://www.organicindiaseeds.com/products/townsendia-hookeri-seeds-forgardening-enthusiasts-rare-wildflower-seeds-for-home-gardens-and-landscaping?pr_prod_strat=e5_desc&pr_rec_id=2b3560ff4&pr_rec_pid=7330129903702&pr_ref_pid=7330139373654&pr_seq=uniform)

USDA plants database. (n.d.). Plants.Sc. Retrieved May 7, 2025, from <https://plants.sc/plantprofile/TOFL5>