

**Plant Propagation Protocol for *Carex tumulicola***  
 ESRM 412 – Native Plant Production  
 Protocol URL: <https://courses.washington.edu/esrm412/CATU3.pdf>



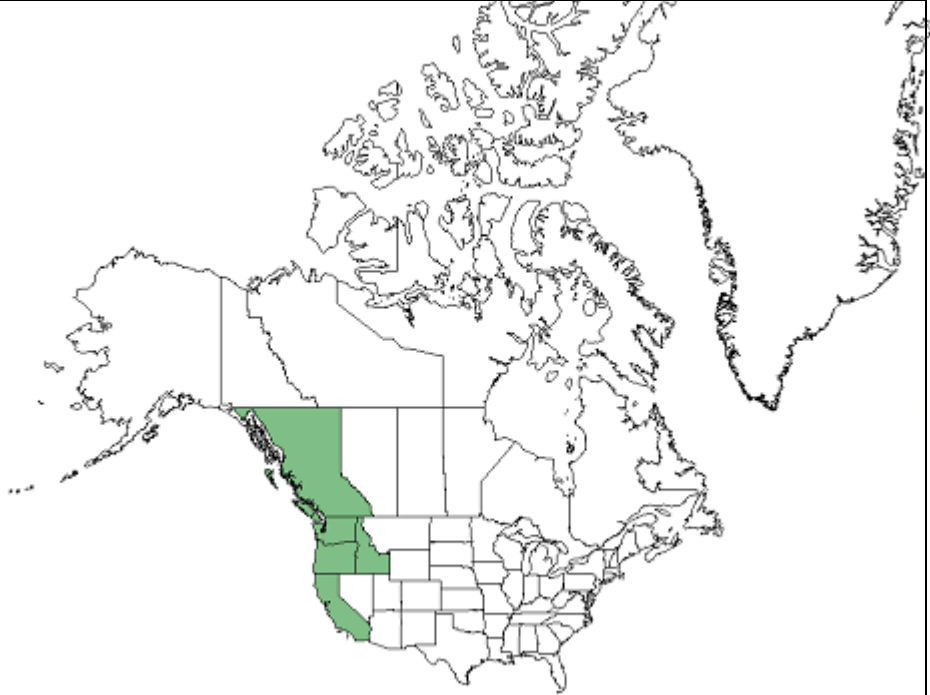

Images<sup>10</sup>

**TAXONOMY**

<b>Plant Family</b>	
Scientific Name	Cyperaceae
Common Name	Sedge family
<b>Species Scientific Name</b>	
Scientific Name	<i>Carex tumulicola</i> Mack
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	
Common Name(s)	Spli-tawn sedge Foothill sedge <sup>1</sup> Berkley sedge <sup>2</sup>
Species Code	CATU3

**GENERAL INFORMATION**

Geographical range	The species is distributed along the Western America, North from British Columbia down to California, and east to Idaho. <sup>2</sup> In Washington State it is distributed in Thurston County, King County, Skagit County, Pierce County, Klickitat County, Clark County, Southern parts of Kitsap County, and the San Juan Islands. <sup>3</sup>
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	  <p data-bbox="743 1577 1153 1612">Source: USDA Plants Database</p>
Ecological distribution	The species if occurs in meadows and open woodlands. <sup>2</sup>
Climate and elevation range	It grows in elevations below 1200 m. <sup>2</sup> However, climate for this species is either not evaluated, unknown or variable in accordance with British Columbia plant species codes and selected attributes, <sup>5,6</sup> The species most likely occurs in variable climates from very wet boggy to dry soils, part-shade to full sun. <sup>4,7,8</sup>

Local habitat and abundance	Herbaceous grass perennial growing mainly in counties in Western Washington in grassy ditches and damp areas of fields in full sun; in grasslands occurring with species <i>Danthonia</i> , <i>Festuca roemerii</i> , <i>Prunella</i> , <i>Bromus carinatus</i> , <i>Holcus lanatus</i> , <i>Anthoxanthum</i> , <i>Aira</i> , <i>Poa compressa</i> ; meadows ringed by oak, southwest slope in full sun; dry and damp meadows occurring with <i>Fraxinus</i> , <i>Populus</i> , <i>Crataegus monogyna</i> , <i>Anthoxanthum</i> , <i>Juncus effusus</i> subsp. <i>pacificus</i> , <i>Agrostis capillaris</i> ; marshes; alongside roads; in semi-shade. Occurs abundantly. <sup>4</sup>
Plant strategy type / successional stage	Rhizomatous and clumping grass perennial that is an early seral species which is a weedy colonizer which spreads early in succession. <i>Carex</i> are dominant vegetation of meadows of prairie wetlands. <sup>10</sup> Drought tolerant. <sup>12</sup>
Plant characteristics	Generally, <i>Carex tumulicola</i> is a perennial grass, that's loosely tufted from fibrous rhizomes. Stems are between 30-80 cm tall, 1-2.5 mm wide, growing in circular clusters. Stems are triangular in section. <sup>11</sup>  The species forms tight leaf sheaths, with 2 to 3 blades per stem which is borne on the lower quarter of its stem. The species produces 4 to 8 flowers spikes, where upper spikes rise close together, and lower ones are remote. The inflorescence is unstalked bearing inconspicuous male flowers at the tip and female flowers at the base with awn like bracts.  The fruit of <i>Carex</i> is a one-seeded indehiscent lens-shaped achene which grows with the perigynium. <sup>11,5</sup>
<b>PROPAGATION DETAILS</b>	
Ecotype	Riparian's and Meadows.
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	Ray Leach Containers (10 cubic inch "Super Cells"). <sup>14</sup>
Time to Grow	7 months (Starting in spring) <sup>15</sup>
Target Specifications	Root system that mass is sufficient to prevent root ball disintegration during out planting.
Propagule Collection Instructions	Collect seed in late summer or fall when flowers have browned. <sup>13</sup> Collect using spatially explicit manner, keeping seed separated according to site, elevation, and source. Store in dry airtight container. <sup>16</sup>
Propagule Processing/Propagule Characteristics	Seed inflorescences will appear brown when mature. <sup>2</sup>
Pre-Planting Propagule Treatments	To clean seed make use of a thresher or stationary combine to dislodge seeds. Run material through air-screen to remove large debris like stems, chaff, and unfilled seeds. <sup>12</sup>  Soak seed for 24 hours in cold water. Then move seeds to 12 weeks of wet

	stratification. NOTE: this means wet and may lead to water accumulation in the stratification container. <sup>15</sup>
Growing Area Preparation / Annual Practices for Perennial Crops	Recommended media: Sunshine mix #4. Container used for germination is Ray Leach Containers (10 cubic inch "Super Cells"). <sup>14</sup> Surface sow stratified seed onto plugs and put in the sun. <sup>15</sup>
Establishment Phase Details	Germination occurs 1 week after sowing and being moved into the sun, however the bulk of germination occurs after 3 weeks with a 40% germination rate. <sup>14</sup> Keep soil consistently moist. <sup>14</sup>
Length of Establishment Phase	2-3 months <sup>14</sup>
Active Growth Phase	Seed kept in Super Cells as outline in Establishment Phase. Sedges typically do not start growing until this phase, therefore apply a balanced fertilizer at a rate of 50 lb/ac. This should be done as soon as new growth appears. <sup>12</sup> Water infrequently to regularly. <sup>13</sup>
Length of Active Growth Phase	
Hardening Phase	Follow fertilizing of Super Cells as outline above. Ideally seedlings are ready to move out in early May. <sup>15</sup>
Length of Hardening Phase	
Harvesting, Storage and Shipping	Fertilize as outlined in the establishment phase.
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	Establishment rating is high from plugs and low from direct seeding. <sup>12</sup>
Other Comments	It is important to NOTE: if plugs are planted in the spring, they must be watered all summer or they do not root well. <sup>15</sup>  Slow establishment <sup>12</sup>
<b>INFORMATION SOURCES</b>	
References	<ol style="list-style-type: none"> <li>1. "California Native Plants for the Garden;" Bornstein, Fross, &amp; O'Brien; Cachuma Press; 2005; pp. 74-75</li> <li>2. "UC/JEPS: Jepson Manual treatment for CAREX tumulicola". ucjeps.berkeley.edu. Retrieved 2016-05-24.</li> <li>3. "WTU Herbarium Image Collection - Burke Museum." WTU Herbarium Image Collection - Burke Museum. N.p., n.d. Web. Retrieved 2016-25-05.</li> <li>4. Washington, WTU Herbarium, Burke Museum, University of. "CPNWH Search Results". www.pnwherbaria.org. Retrieved 2016-05-24.</li> </ol>

	<ol style="list-style-type: none"> <li>5. "BC Species Code Definitions." BC Species Code Definitions. N.p., n.d. Web. Retrieved 2016-22-05.</li> <li>6. "Carex tumulicola   Berkeley Sedge  plant lust". plantlust.com. Retrieved 2016-05-25.</li> <li>7. "Carex-divulsa-c-tumulicola-hort-berkeley-sedge." Carex-divulsa-c-tumulicola-hort-berkeley-sedge. N.p., n.d. Web. Retrieved 2016-22-05.</li> <li>8. Prairie Moon Nursery. North American Native Plants for Restoration and Gardening. Web. Accessed 20, April 2016.</li> <li>9. "CalPhotos". calphotos.berkeley.edu. Retrieved 2016-05-25.</li> <li>10. Robert H. Mohlenbrock &amp; Paul Wayne Nelson (1999). "Introduction". Sedges: Carex. Volume 14 of The Illustrated flora of Illinois. Southern Illinois University Press. pp. 3–7. ISBN 978-0-8093-2074-5.</li> <li>11. "Foothill Sedge - Carex tumulicola - Wholesale". www.heritageseedlings.com. Retrieved 2016-05-25.</li> <li>12. Corvallis PMC. "Field Guide to the Sedges of the Pacific Northwest." Native Plants Journal 9.3 (2008): 366-67. Retrieved 2016-22-05</li> <li>13. "Carex tumulicola - California Natives Wiki". www.theodorepayne.org. Retrieved 2016-05-25.</li> <li>14. Broadlick, Kelley. "Carex Tumulicola Propagation." E-mail interview. Graduate student researcher. Retrieved 2016-23-05.</li> <li>15. Boyer, Lynda. "C. Tumulicola." Heritage Seedlings and Liners. N.p., n.d. Retrieved 2016-22-05</li> <li>16. Erickson, Steve. "C. Tumulicola." Cascadia Prairie-Oak Partnership. N.p., n.d. Retrieved 2016-25-05.</li> </ol>
Other Sources Consulted	<p>"Carex divulsa [C. tumulicola, Hort.], European Grey Sedge/ Berkeley Sedge, Grass-like, [C. tumulicola, Hort., Berkeley Sedge]". Plant Information. Retrieved 2016-05-25.</p> <p>"Comprehensive Report Species - Carex tumulicola". explorer.natureserve.org. Retrieved 2016-05-25.</p>
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