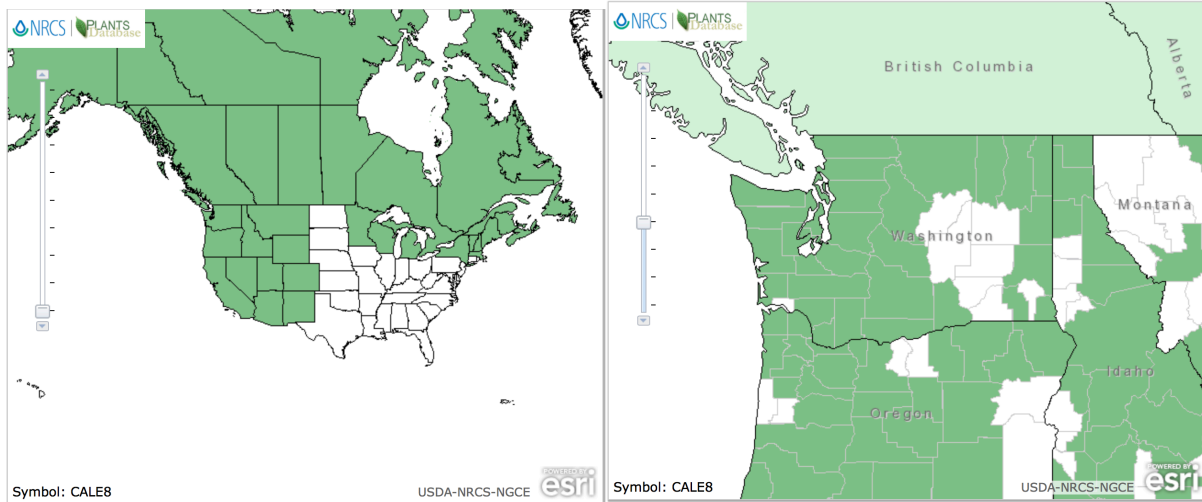


Plant Propagation Protocol for *Carex lenticularis*
 ESRM 412 – Native Plant Production
 Spring 2018

Protocol URL: <https://courses.washington.edu/esrm412/protocols/CALE8.pdf>



TAXONOMY	
Plant Family	
Scientific Name	Cyperaceae ³
Common Name	Sedge ⁵
Species Scientific Name	
Scientific Name	<i>Carex lenticularis</i> Michx. ⁵
Varieties	<i>Carex lenticularis</i> var. <i>impressa</i> (L.H. Bailey) L.A. Standley ² <i>Carex lenticularis</i> var. <i>limnophila</i> (Holm) Cronquist ² <i>Carex lenticularis</i> var. <i>lipocarpa</i> (Holm) L.A. Standley ² <i>Carex lenticularis</i> var. <i>dolia</i> (M.E. Jones) L.A. Standley ²
Sub-species	
Cultivar	
Common Synonym(s)	<i>Carex vulgaris</i> L. H. Bailey ⁵
Common	Lakeshore sedge, few-ribbed sedge ⁵ , tufted sedge, shore sedge ⁶

Name(s)	
Species Code (as per ^{USDA} Plants database)	CALE8 ⁹
GENERAL INFORMATION	
Geographic range	North America – Alaska, Canada, Continental US ⁶ Maps at top
Ecological distribution	Wet grasslands ⁵ , shores & wetlands ¹ , coastal plains, marshes, inland beaches, bedrock shore ¹⁰
Climate and elevation range	<ul style="list-style-type: none"> Elevation: Sea level to the lower timberline⁵, subalpine¹, <3,000m⁸ Climate: variable, but often temperate to mountain climates in wet regions with possible seasonal flooding⁸
Local habitat and abundance	<ul style="list-style-type: none"> Wet, mineral-rich meadows and watersides⁸ which may flood seasonally¹¹ Medium: Loamy/sandy soil; not clay⁷ Occurs in dense clusters⁴ Found with: <i>Weissia rostellata</i>, <i>Actinemys marmorata</i>, <i>Carex michauxiana</i>, <i>Lysichiton americanus</i>, <i>Areneria interpres</i>, etc⁸
Plant strategy type / successional stage	<ul style="list-style-type: none"> Perennial, unisexual flowers, ~2-year life, rhizomes produce new shoots⁸ Blooms May-August⁵ Flowers produced in late spring; fruit produced July-September⁸
Plant characteristics	<ul style="list-style-type: none"> Densely clustered, slim, tall, yellow-green stems⁴ Stem blade: bears 4-9 leaves, <0.9m long⁸, 1.5-5.5mm wide, smooth or rough, hairless¹ Stalk bottom spike: peduncle present¹ Stalk top spike: staminate flowers only¹ Perigynium length: 1.5-3mm¹ Rhizomes: short Leaves: protrude from central base, folded with notable midvein, papillae on upper surface¹
PROPAGATION DETAILS: No Prior Propagation Protocols Existent	
Ecotype	
Propagation Goal	Plants
Propagation Method	Seeds
Product	Bareroot

Type	
Stock Type	
Time to Grow	6-9 months
Target Specifications	<ul style="list-style-type: none"> • Dense clusters with stem blades reaching 60+cm. • Healthy male and female reproductive organs present • Rhizomes present
Propagule Collection Instructions	Achenes collected from the perigynium of a diverse sample of <i>Carex lenticularis</i> from the desired ecosystem type of propagation during August and/or September.
Propagule Processing/Propagule Characteristics	<p>Solitary seeds can be found in the achenes of the <i>C. lenticularis</i>, which are encased by the perigynium.</p> <p>Seeds may be removed from existing plants without harming the parent plant.</p>
Pre-Planting Propagule Treatments	<p>Store seeds in dry, cool environment</p> <p>Before planting, treat seeds with 24 hour medium-strength acidic solution bath</p>
Growing Area Preparation / Annual Practices for Perennial Crops	<p>Locate target planting plots based on the following characteristics:</p> <ul style="list-style-type: none"> • Well-saturated or seasonally flooded soil, freshwater streams/riverside preferably • Fine grain to loose, sandy medium • Nutrient rich • Compatible community (as detailed by Arkive⁸) • Temperate, coastal, or mountainous climates (below 3000m) • Sun availability <p>Keep in mind:</p> <ul style="list-style-type: none"> • Maintain constant natural hydrology of catchment water source, even significant soil disturbance¹⁰ • Prepare plots at multiple sites in a given area • Space seeds planted at the same site by at least 1 meter • Avoid clay-rich medium, herbicides, pesticides
Establishment Phase Details	<p>Sow <i>Carex lenticularis</i> seeds in November, before the start of Winter.</p> <p>Prepare plots:</p> <ul style="list-style-type: none"> • Carefully till soil where seed will be buried • Prepare hole about 6-12mm deep, depending on the size of the seed • Fertilize with dung or compost • Bury 2-3 seeds per hole

	Check progress of germinants monthly, tending to the plant only if necessary
Length of Establishment Phase	2-3 yearly cycles
Active Growth Phase	~6-9 months
Hardening Phase	6-8 months
Harvesting, Storage and Shipping	<ul style="list-style-type: none"> • Remove achenes from the perigyniums of healthy <i>Carex lenticularis</i> carefully with blade and tweezers • Place seeds in paper envelope to be stored in a dry, cool environment until preparation time and then until planting.
Length of Storage	<2 years, if stored properly
Guidelines for Outplanting / Performance on Typical Sites	<ul style="list-style-type: none"> • Healthy and diverse seeds from healthy, diverse parent plants • 3 seeds per plot will hopefully yield at least 1 plant per plot, with possible relocations in the early monthly progress checks • If plants are healthy after first year, natural propagation will likely proceed
Other Comments	Very little information on the propagation of <i>Carex lenticularis</i> is available. This collection of information is a good start, but actual trials of this protocol still need to be carried out.

INFORMATION SOURCES

References	<ol style="list-style-type: none"> 1. "Carex Lenticularis Michx." <i>Go Botany</i>, New England Wildflower Society, gobotany.newenglandwild.org/species/carex/lenticularis/. 2. "Carex Lenticularis." <i>Flora of North America</i>, EFloras, www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242357284. 3. "Carex Lenticularis - Michx." <i>Nature Serve Explorer</i>, Nature Serve, http://explorer.natureserve.org/servlet/NatureServe?loadTemplate=tabular_report.wmt&paging=home&save=all&sourceTemplate=reviewMiddle.wmt 4. "Carex Lenticularis." <i>SEINet Portal Network</i>, SEIN, swbiodiversity.org/seinet/taxa/index.php?taxon=947. 5. "Carex Lenticularis." <i>WTU Herbarium Image Collection - Burke Museum</i>, Burke Museum of Natural History and Culture, biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Carex&Species=lenticularis. 6. "ITIS Standard Report Page: Carex Lenticularis." <i>ITIS Report</i>, Integrated Taxonomic Information System, www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=39665#null. 7. "Lakeshore Sedge, Carex Lenticularis." <i>Calscape</i>, California Native Plant Society, calscape.org/Carex-lenticularis-(). 8. "Lenticular Sedge Photos and Facts." <i>Widescreen Arkive</i>, Arkive, www.arkive.org/lenticular-sedge/carex-lenticularis/. 9. "Plants Profile for Carex Lenticularis (Lakeshore Sedge)." <i>USDA Plants Database</i>, Natural Resources Conservation Service, plants.usda.gov/core/profile?symbol=CALE8. 10. "Shore Sedge (Carex Lenticularis)." <i>Wisconsin DNR</i>, Wisconsin Department of Natural Resources, dnr.wi.gov/topic/EndangeredResources/Plants.asp?mode=detail&SpecCode=PMCY037A0. 11. Lansdown, R.V. 2016. <i>Carex lenticularis</i>. The IUCN Red List of Threatened Species 2016: e.T64271758A67728880. http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T64271758A67728880.en. Downloaded on 15 May 2018.
Other Sources Consulted	
Protocol Author	Michael Van de Brooke
Date Protocol Created or	05-08-2018

Updated	
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This propagation protocol template was modified by J.D. Bakker from that available at:
<http://www.nativeplantnetwork.org/network/SampleBlankForm.asp>