Carex mertensii Prescott in Bong. Mertens' sedge

Family: Cyperaceae



Figure 57. Documented range of Carex mertensii in northern British Columbia.



Figure 58. Growth habit of Carex mertensii in cultivation.

Carex mertensii Prescott in Bong. (continued)

Background Information

Carex mertensii is found in wet places north to Alaska and the southern Yukon, east to Alberta and south to Idaho, Montana and California, and is also found in eastern Asia. It is commonly found in moist lowland and montane zones in B.C. south of 55°N and rarely in northwest B.C. (Hitchcock et al. 1969, Douglas et al. 2001a).

<u>Growth Form</u>: Slender stalks; densely tufted, with cylindrical spikes crowded together and drooping distinctively; white oval papery flattened perigynia; short flat leaves 4 -7 mm wide; mature plant size up to 120 cm tall (MacKinnon et al. 1992, Douglas et al. 1994).

<u>Site Preferences</u>: Moist to wet forest openings, rocky slopes, disturbed areas, roadsides, and ditches at middle to high elevations (not alpine) in the south half of the northern Interior (MacKinnon et al. 1992, Douglas et al. 1994). Under coastal conditions, it is reported to occur on fresh to very moist nitrogen rich soils, often near streams or on seepage sites, characteristic of disturbed sites on high elevation clearcuts and roadsides (Klinka et al. 1989).

Seed Information

Distinctive flat, papery tan coloured seeds. <u>Seed Size</u>: Length: 4.62 mm (4.10 - 5.14 mm) Width: 2.85 mm (2.48 - 3.34 mm) Thickness: 0.67 mm (0.23 - 0.98 mm) <u>Seeds per gram</u>: 1,555 (range: 1,551 - 2,212) <u>Volume to Weight Conversion</u>: 108.5 g/L at 91.1% purity <u>Germination Capacity</u>: At 30°/20° C untreated: 68.5% (37 - 93%) At 25°/15° C untreated: 32.7% (32 - 33%) stratified: 87.2% (84 - 90%) <u>Germination Speed</u>: To first germination: 22.9 days

To 50% potential: 37.5 days



Mertens' sedge

Figure 59. Seeds of *Carex mertensii*. Rule divisions are 1.0 mm.

<u>Seed Longevity</u>: In our research, seeds of *Carex mertensii* retained their viability after storage under cool dry conditions for two years.

Considerations for Growing

Techniques for Seed Production

Seed treatment: Responds well to stratification at lower soil temperatures; adequate germination of untreated seeds at higher temperatures as well.

Soil considerations: Establish on loamy, well prepared soils, with a firm seedbed; may prefer slightly cooler conditions.

Stand establishment: Site should be free of all weeds. Little is known about stand establishment from seed; this species may have complex dormancy requirements, so fall seeding is recommended.

Carex mertensii Prescott in Bong. (continued)

Mertens' sedge

(Techniques for Seed Production, Stand establishment, continued)

We have found greenhouse propagation of all *Carex* spp. seedlings, followed by outplanting of plugs, to the most effective means of establishing seed increase plots and small seed production fields, as also recommended by Smith and Smith (2000).

Row spacing: Unknown; suggest 75 to 120 cm under dryland conditions, 30 to 90 cm with good irrigation.

Seeding density: Unknown at present; suggest 60-100 PLS seeds per linear metre (Smith and Smith 2000).

Seeding depth: 0.6-1.2 cm.

Stand maintenance: Regularly cultivate rows and spot spray with herbicide to keep plot weed free. Our *Carex mertensii* plot was sprayed with the selective broadleaf herbicide BanvelTM (dicamba active ingredient) to control weeds without damage to plant growth, and with no apparent impact on seed yield. Annual fertilization with low N formulations may extend the life of the plot. Apparently rust can sometimes infect the leaves in early to middle spring or in late summer, but can be controlled in established fields with application of TiltTM fungicide (Link 1993).

Harvesting and Seed Processing

Dates of selective harvesting in the Bulkley Valley of northwestern B.C. range from September 3rd to October 1st. Timing of harvest is important as this seed shatters easily when it is ripe.

Hand clipping: Have hand tools (hand clippers or hand sickles) very sharp because movement of the seed heads easily dislodges seed, and seed stalks are very thick and rigid. Hold the seed heads over bins placed alongside the plants being clipped or place a bag over the seed heads before clipping to minimize seed loss.

Vacuum: Suitability unknown but unlikely, as seeds that are ripe enough to be sucked up are just as likely to fall to the ground first.

Seed stripper: Unknown suitability, but since the seeds shatter easily, only a gently brushing harvesting head could be used. If you are using any mechanical harvesting method, laying plastic between rows is recommended so the scattered seeds can be salvaged by sweeping or vacuuming. *Combine/thresher settings*: Hold stalks and put seed heads into a rotary flail.

Seed cleaning: Put through fanning mill two times after threshing. For the first run, screen configurations should be as follows: prescreen 4 x 19 mm slot; top screen 2.5 x 19 mm slot; bottom screen 1.8 x 12.7 mm. For the second run, use a prescreen with a 1.8 x 12.7 mm slot, followed by a top screen measuring 2.5 x 19 mm in a slot shape, and leave the bottom blank. Then use a vacuum separator with speed and suction set to low to remove dust and <5% of seeds.

Storage requirements: Cool dry conditions (Link 1993).

Considerations for Use in Revegetation

- Carex mertensii germinates more quickly than Carex aenea and Carex macloviana in lab tests.
- Hermann (1970) reports that *Carex mertensii* is grazed by livestock. Hardy (1989) reports that other *Carex* species are moderately grazed by wildlife, though are generally less palatable than most grasses.

Carex mertensii Prescott in Bong. (continued)

(Considerations for Use in Revegetation, continued)

- This species is well suited for revegetating seepage areas and moist meadows, especially at higher elevations, but should not be considered an "aquatic sedge" that can persist in marshes or fens with long-standing surface waters.
- Some *Carex* species are said to have extensive root systems so are suitable for erosion control (Hardy 1989); whether *Carex mertensii* has such a root system needs to be verified.

Other considerations

• The attractive drooping heads and lush foliage of this species make it aesthetically pleasing, and possibly of horticultural value as an ornamental species.

Notes

