

Sedges and Rushes

***Carex aenea* Fern.**
bronze sedge

Family: Cyperaceae



Figure 51. Documented range of *Carex aenea* in northern British Columbia.



Figure 52. Growth habit of *Carex aenea* in cultivation.

***Carex aenea* Fern.**
(continued)

bronze sedge

Background Information

Carex aenea is found north to Alaska and the Yukon, east to Newfoundland and Labrador, and south to Massachusetts, Pennsylvania, Minnesota, South Carolina, Montana, Idaho and Washington (Douglas et al. 2001a). In B.C. it is commonly found in, and east of, the Coast-Cascade Mountains on dry disturbed sites and open forests in the lowland and montane zones and is infrequently found in coastal southwestern B.C. (FEIS various dates). It is reported by MacKinnon et al. (1992) to be common throughout the northern Interior of B.C.

Growth Form: Dense tufts on slender wiry stems, bent over at the tip; 4-8 sessile spikes in a loose awned cluster, lower spikes well separated, bronze perigynia; soft flat leaves 2-4 mm wide; mature plant size is up to 100 cm tall (MacKinnon et al. 1992, Douglas et al. 1994). Flower colour is greenish brown; fruit colour is yellow-brown. Can be confused with *Carex praticola* (Roberts 1983).

Site Preferences: In northern British Columbia, this species is found in dry to moist open forests, on forest edges, in meadows and clearings at low to middle elevations. It often grows in profusion on disturbed sites (MacKinnon et al. 1992).

Seed Information

Seed Size: Length: 4.33 mm (3.92 - 4.78 mm)
Width : 1.81 mm (1.45 - 2.11 mm)

Seeds per gram: 1,399 (range: 1,136 – 1,853)

Volume to Weight Conversion: 398.2 g/L at 93.3% purity

Germination Capacity: At 30°/20° C untreated: 72.9%
(63 - 81%)
stratified: 87.8%
At 25°/15° C untreated: 64.2%
(61 - 68%)
stratified: 54.2%
(48 - 61%)

Germination Speed: To first germination: 37.0 days
To 50% potential: 47.0 days

Seed Longevity: In our research, seeds of *Carex aenea* had 10% lower germination after storage under cool dry conditions for two years.

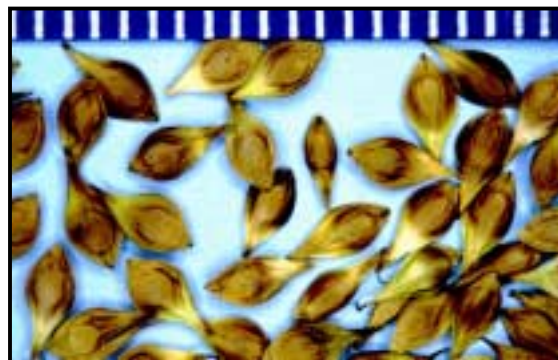


Figure 53. Seed of *Carex aenea*.
Rule divisions are 1.0 mm.

Considerations for Growing

Techniques for Seed Production

Seed treatment: Germinates best in warm soils, where stratification also seems beneficial.

Soil considerations: Establish on loamy, well prepared soils with a firm seedbed. Germination tests suggest superior germination under warm (almost hot) conditions.

Stand establishment: Site should be free of all weeds, especially rhizomatous grasses and other persistent species, to limit competition. This species may have complex dormancy requirements, so fall seeding is recommended, and it may still take two to three years to establish plots successfully from seed. Symbios Research and other researchers (Smith and Smith 2000) found propagation from greenhouse-grown plugs to be more effective for all *Carex* spp.

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(continued)**

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(Techniques for Seed Production, continued)

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

Seeding density: Unknown at present; suggest 60-100 PLS 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 aenea* plot was sprayed with the selective broadleaf herbicide Banvel™ (active ingredient, dicamba) to control weeds. It survived the spraying but there appeared to be reduced seed set that year. Annual fertilization with low N formulations may extend the life of the plot.

Harvesting and Seed Processing

Dates of selective harvesting in the Bulkley Valley of northwestern B.C. have ranged from August 22nd to October 9th. This species shatters moderately easily.

Hand clipping: Have hand tools very sharp (hand clippers or hand sickles) because seed stalks are hard and movement of the seed heads easily dislodges seed. 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.

Seed stripper: Suitability unknown.

For both hand clipping and mechanical harvesting, laying plastic between rows is recommended so any scattered seeds can be salvaged by sweeping or vacuuming.

Combine/thresher settings: Run at 1850 rpm with 6 mm gap; rotary flail machine works best if seed heads are harvested with long stalks.

Seed cleaning: After thrashing, put through fanning mill with the following screen configurations: prescreen 1.8 x 12.7 mm slot; top screen 1.2 x 7.1 mm slot; bottom screen blank. Then use vacuum separator with speed and suction set to medium to remove dust and <5% of seeds.

Storage requirements: Cool dry conditions, though seeds of this species appear especially tolerant of a wide range of environmental conditions.

Considerations for Use in Revegetation

- *Carex aenea* is slow to establish but often grows in profusion on very disturbed sites (MacKinnon et al. 1992, Haeussler et al. 2002).
- *Carex aenea* exhibited poorer emergence than *C. macloviana* in most field trials, and its inclusion in seed mixtures can be considered an investment in long-term inoculation of the site's seed bank.
- This species is suitable for establishment on upland sites, especially those dominated by clayey or compacted soils.
- Some *Carex* species are moderately grazed by wildlife, though palatability is generally considered lower than most grasses (Hardy 1989).
- Some *Carex* species are said to have extensive root systems so are suitable for erosion control (Hardy 1989); whether *Carex aenea* has such a root system needs to be verified.

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(continued)

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Notes

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