Poa alpina* L. ssp. *alpina
alpine bluegrass **Family: Poaceae**

Figure 45. Documented range of *Poa alpina* in northern British Columbia.

Figure 46. Growth habit of *Poa alpina* in cultivation.

Poa alpina L. ssp. *alpina* alpine bluegrass (continued)

Background Information

The natural range of *Poa alpina* is circumboreal. It can be found north to Alaska, the Yukon and Northwest Territories, east to Newfoundland and Nova Scotia, and south to Michigan, Oregon, Colorado, Utah and New Mexico; it is also found in Greenland and Eurasia. Only one subspecies is found in B.C. and it is common throughout the province, especially at higher elevations (Douglas et al. 2001b).

Growth Form: Short tufted bunch grass with mats of basal leaves, short flat wide leaves, ligules 1-3 mm long, no auricles; open broad panicle, lemmas hairy; mature plant size is 5-50 cm tall (MacKinnon et al. 1992).

Site Preferences: Moist to wet meadows, talus slopes and tundra at middle to high elevations (MacKinnon et al. 1992, Douglas et al. 1994). In Alberta it is reported to grow on fine to coarse textured, mesic to dry soils, and to be tolerant of drought and acidic conditions (Gerling et al. 1996). Tolerates a minimum of 610 mm and a maximum of 1398 mm annual precipitation; can tolerate minimum temperatures to -36°C (NRCS 2002).

Seed Information

Seed Size: Length: 4.02 mm (3.43 - 4.57 mm)
Width : 1.38 mm (1.07 - 1.61 mm)
Seeds per gram: 2,931 (range: 2,308 - 3,576)
Volume to Weight Conversion: Unknown
Germination Capacity: At 30°/20° C untreated: 30% (25 - 35%)
stratified: 50.6%.
At 25°/15° C untreated: 80.3% (62 - 98%)
stratified: 67.2% (63 - 72%)
Germination Speed: To first germination: 11.2 days
To 50% potential: 13.3 days
Seed Longevity: Unknown

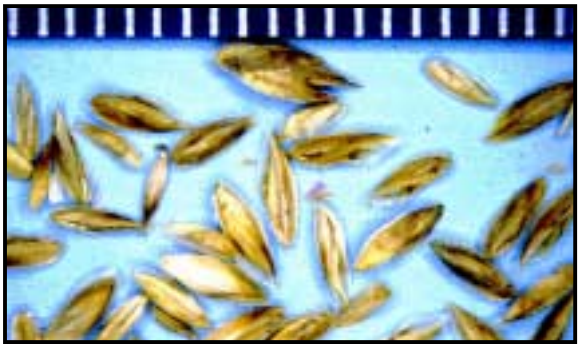

Figure 47. Seeds of *Poa alpina*. Rule divisions are 1.0 mm.

Considerations for Growing

Techniques for Seed Production

Seed treatment: No advantage to two days of cool moist stratification at 5°C when seeds are germinated at 25°/15°, but germination is enhanced after stratification if occurring at warmer temperatures. We generally consider pre-germination not necessary.

Stand establishment: Loamy firm seedbed recommended; site should be free of all weeds, although grass species can be sprayed with a selective broadleaf herbicide without damage; apply phosphorus during establishment and then nitrogen when seedlings are established, annual fertilization with nitrogen yearly thereafter (Smith and Smith 2000).

Row spacing: 20-60 cm; 30 cm is irrigated, 60 cm if dryland (Pahl and Smreciu 1999, Smith and Smith 2000).

Poa alpina L. ssp. *alpina* alpine bluegrass (continued)

(Techniques for Seed Production, continued)

Seeding density: 164-246 PLS per linear metre.
Seeding depth: 0.6 cm; early spring seeding is best (Pahl and Smreciu 1999, Smith and Smith 2000).
Stand maintenance: Regularly cultivate rows and spot spray with herbicide to keep plot weed free. Annual fertilization with low N formulations may extend the life of the plot, and lightly mowing stands then removing the straw will rejuvenate them; mow stands closely immediately after harvesting. This species is best grown under irrigation. Productive stand life of *Poa alpina* is approximately four years, usually with peak seed production in the second or third year (Pahl and Smreciu 1999).

Harvesting and Seed Processing
Dates of selective harvesting in the Bulkley Valley of northwestern B.C. have ranged from July 4th too August 23rd. This species shatters moderately easily.
Hand clipping: Manually harvest with a hand sickle or clippers (some people prefer large scissors) seeds are ripe in July or August, followed by drying in the sun, or indoors in a warm dry area.
Vacuum: It is unlikely that seed of *Poa alpina* can be effectively harvested by direct vacuuming. Like most wild grass species this species shatters when ripe, so plastic placed between rows will enable you to harvest lost seeds that shattered early or were scattered while being harvested by hand clipping or mechanical methods. We recommend that scattered seed be vacuumed from weed cloth immediately after any method of harvesting.
Seed stripper: Moderately effective, especially if crop has ripened uniformly; soft-brushed harvesting head recommended. If harvesting mechanically and seed scatters, use a vacuum to retrieve scattered seed. Dry harvested seed outdoors in the sun, or indoors in a warm dry area.
Combine/thresher settings: 1850 rpm with a 6 mm gap. As seed stalks are relatively short, it is recommended that extra long stalks be left (to hold on to) when planning to use rotary flail for threshing, which works very effectively.
Seed cleaning: Run through fanning mill with the following screens: prescreen 2.1 x 25.4 mm slot; top screen 1.8 x 12.7 mm slot; bottom screen blank.
Storage requirements: Cool dry conditions.

Considerations for Use in Revegetation

- *Poa alpina* has excellent forage value but production is low (Gerling et al. 1996, Pahl and Smreciu 1999).
- A low-statured perennial grass species, *Poa alpina* is an important species for high altitude reclamation (Hardy, 1989, Pahl and Smreciu 1999).
- Tolerance of a wide range of climatic and soil conditions makes this a very flexible species, for use in revegetation; germinates reliably in the field, and is longer lived than *Festuca occidentalis*.
- Some cultivated varieties are now registered, generally derived from single alpine populations (e.g., from the Rocky Mountains of Alberta); see Darroch and Acharya (1996b).
- *Poa alpina* has a high tolerance to fire and medium tolerance to drought with low nutrient requirements (NRCS 2002).

Poa alpina* L. ssp. *alpina **alpine bluegrass**
(continued)

Notes