Vicia americana Muhl. *ex* Willd.
American vetch **Family: Fabaceae**

Figure 72. Documented range of *Vicia americana* in northern British Columbia.

Figure 73. Growth habit of *Vicia americana* grown in cultivation, in the open.

Vicia americana Muhl. *ex* Willd. American vetch (continued)

Background Information

Vicia americana is found north to southeast Alaska and the Northwest Territories, east to Quebec and New Brunswick, and south to West Virginia, Ohio, Kansas, New Mexico and California. It is common in the southern two-thirds of B.C., but is less frequent northward and is absent from the Queen Charlotte Islands (Taylor 1974, Douglas et al. 1999a).

Growth Form: Rhizomatous herb with a single trailing or climbing stem, which is ridged; 8-18 leaflets with bluish purple to reddish purple pea-like flowers in a loose terminal cluster (Figure 73); stipules are pointed and toothed; mature plant size is 15 - 100 cm tall (MacKinnon et al. 1992, Douglas et al. 1999a). Forms symbiotic root nodules with nitrogen-fixing *Rhizobium* bacteria.

Site Preferences: Moist to mesic meadows, thickets and open forests at low to middle elevations; dominant in aspen or mixedwood stands in the southern half of the northern Interior (MacKinnon et al. 1992, Douglas et al. 1999a). In B.C. it is reported to be shade tolerant to shade intolerant, to persist in pioneer seral stands, and to increase in abundance in deciduous and mixed young and mature seral stages especially in the BWBS (Klinka et al. 1989, Beaudry et al. 1999). Distributed in the SBS on richer sites (SNR >D, SMR 2-5), and on rich moist sites in the BWBS; found over a narrow range on moderately fertile sites (SNR C-D) in the SBPS (Beaudry et al. 1999). May prefer heavy (clayey) soils (Rose et al. 1998).

Seed Information

Seed Size: Length: 3.17 mm (2.76 - 3.76 mm)
Seeds per gram: 67 (range: 62 - 74)
Volume to Weight Conversion: 743.1 g/L at 88.3% purity
Germination Capacity: At 30°/20° C untreated: 85.0%
At 25°/15° C untreated: 87.3%
stratified: 85.7%
Germination Speed: To first germination: 14.3 days
To 50% potential: 29.9 days
With scarification: 3-7 days;
Without scarification: 14 days (Pahl and Smreciu 1999).
Seed Longevity: Unknown; probably many years, as found for other hard-coated legumes.

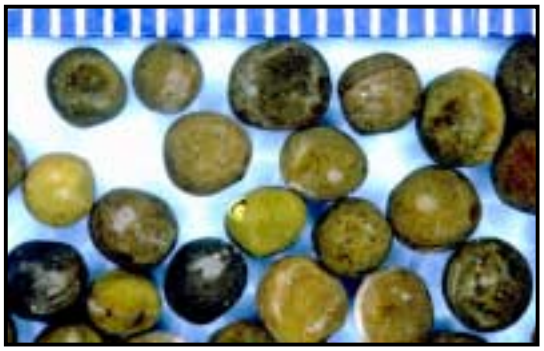

Figure 74. Seeds of *Vicia americana*. Rule divisions are 1.0 mm.

Considerations for Growing

Techniques for Seed Production

Seed treatment: Scarification or stratification may accelerate germination, but does not improve overall germination capacity; so we recommend no pre-germination treatments before sowing; seeds should be at least one year old when sown (Rose et al. 1998).

Soil considerations: Plant in a moist clayey soil in an area with at least 8 hours of direct light per day (Rose et al. 1998).

Stand establishment: Plant in the spring or fall in a site free of weeds, especially rhizomatous grasses and other persistent species, because there are currently no selective herbicides that can be used once plants are growing.

Vicia americana Muhl. *ex* Willd. American vetch (continued)

(Techniques for Seed Production, continued)

Row spacing: Row cropping recommended with 60 cm spacing.
Seeding density: 100-150 PLS seeds per linear metre.
Seeding depth: 1 cm (Pahl and Smreciu 1999).
Stand maintenance: Regularly cultivate rows and spot spray with herbicide to keep plot weed free. Stand life is generally only two to three years (confirming cmments by Pahl and Smreciu 1999); 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 4th to September 8th. Timing of harvest is important as pods dehisce very easily when ripe.
Hand clipping: Use sharp hand clippers or pick pods or pod clusters by hand. Harvest the seedpods as they turn brown. 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. Do not allow seeds to become over-ripe or pods will split before harvest and you will lose many seeds. Plastic between rows is recommended so dropped seeds can be salvaged.
Vacuum: Not recommended.
Seed stripper: Not recommended, as pods are not held above dense foliage.
Mechanical harvesting: It has been suggested that mechanical harvesting is feasible and simpler if this species is grown with a sparse nurse crop such as alfalfa, the seeds of which can then be easily separated from *Vicia americana* seeds. Care should be taken with any method of harvest because *V. americana* is a very slender plant and is easily uprooted (Pahl and Smreciu 1999).
Combine/thresher settings: 885 rpm with 4 mm gap. Remove seed shaken loose after each batch before threshing uncleaned seed (cleaned seeds will crack otherwise); after threshing is completed, remove any intact pods from thresher and run through once more to remove any remaining seed.
Seed cleaning: Put through fanning mill with the following configuration: prescreen 4 x 19 mm slot; top screen 4.89 mm round; bottom screen blank. Then put through vacuum separator with speed set high and suction set to low to remove dust and <5% of seeds.
Storage requirements: Cool dry conditions.

Considerations for Use in Revegetation

- In Alberta, this species is reported to grow on medium to coarse textured mesic soils (Gerling et al. 1996), and has been found growing naturally on coal mine spoils (Strong et al. 1978).
- *Vicia americana* is a nitrogen fixer which has been successfully used for revegetation in alpine tundra in B.C.
- Baker and Reid (1977) report that *Vicia americana* accumulates more phosphorus and zinc than other legume species.
- It has excellent forage value and is palatable to livestock and wildlife (Hardy 1989, Gerling et al. 1996).
- This species can be the main legume of revegetation mixes where consumption by livestock or wild ungulates is anticipated or intended.
- *Vicia americana* is a common species in fescue grasslands in Alberta, mixed-grass prairies and mixedwood areas (Pahl and Smreciu 1999).

Vicia americana Muhl. *ex* Willd. (continued) — American vetch

(Considerations for Use in Revegetation, continued)

- *Wasser (1982) and Sieg et al. (*1983) report that *Vicia americana* may be useful in revegetating open or depleted trembling aspen rangelands, including burned over or thinned conifer areas and coal mined lands, roadsides and critical site stabilization areas, as well as for beautification.

* *fide* Coladonato 1993.

Other considerations

- *Vicia americana* has potential as a climbing ornamental species, or as ground cover.

Notes