

SHORT-TOOTHED CANADA MILKVETCH

Astragalus canadensis L. var.
brevidens (Gandog.) Barneby

Plant Symbol = ASCAB

Contributed by: USDA NRCS Pullman Plant
Materials Center, Pullman, WA



Photo by Wayne Crowder, 6/26/2003, NRCS

Alternate Names

Canadian milkvech, *Astragalus spicatus*, *Astragalus tristis*, *Astragalus mortonii*, *Astragalus torreyi*, *Astragalus brevidens*

Uses

Primary uses include wildlife cover and native plant community restoration.

Ethnobotanic: The Blackfoot dug them in the spring for eating (Kindscher 1987). Canada milkvech was often used in a broth (Moerman, 1998).

Medical: The root is analgesic and antihemorrhagic and can be chewed or used as a tea to treat chest and back pains, coughs and spitting up of blood. A poultice made from the chewed root has also been used to treat cuts (Moerman, 1998).

Status

Currently, it is not listed as threatened or endangered in the areas where it occurs naturally, though the species is listed in several eastern states. Please

consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Description

General: Legume family (Fabaceae). Short-toothed Canada milkvech is a native, rhizomatous, perennial legume. It has a lower, comparatively more robust growth than *A. canadensis* var. *mortonii*. The erect or sometimes horizontal and ascending stems are usually 6 – 22 inches long, herbage usually paler green. The leaves are usually 2 – 6 inches long. The leaves are smooth or sometimes with minute hairs giving a grayish appearance; with 15 to 23 leaflets that are 1/4 to 1 1/4 inches long. The small hairs of the leaves and stems are shaped like picks, attached in the middle. The flowers are yellowish white, straw colored to greenish white, sometimes tinged with dull purple, with a pea flower shape, located at the ends of long stalks. The fruit is a grooved pod, 10 to 15 millimeters long and divided into two cells with usually 18 – 25 seeds. (Barneby, 1964)

Chromosome number: 2N=16 (Hu, et al, 2006)

Distribution: *Astragalus canadensis* var. *brevidens* occurs nearly throughout the western and northern Great and Columbia Basins, from east central and northeastern California to interior Washington and southern British Columbia, east to the upper Missouri River in southwestern Montana, the upper North Platte River in southern Wyoming and northwestern Colorado, northern Utah and central Nevada and southwestern Utah. (Barneby, 1964)

For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: It is found commonly with sagebrush but ascends along water courses into dry habitat pine forest, is widespread, common and locally abundant, often forming extensive clumps or colonies, nearly throughout the western and northern Great and Columbia Basins. (Barneby, 1964)

Adaptation

Short-toothed Canada milkvech is found in moist, but often summer-dry bottomlands, ditches, creek banks, lake shores, hillsides around springs and seeps, alkaline meadows and depressions on rolling

plains, rarely in dry (or apparently dry) sandy or gravelly soils of brushy hills or lava flows, at elevations of 750 feet in the north but commonly at 1500-8100 feet, mostly in stiff, often alkaline, water deposited soils of diverse origin. (Barneby, 1964)

Establishment

Propagation by Seed: Short-toothed Canada milkvetch seed should be scarified before planting. It has potential for high incidence of hard seed in the order of 85 to 90 percent. Scarified seed of good quality should germinate at a range of 85 to 90 percent or more. Plant seed in a firm, weed-free seed bed. Seed should be kept shallow, at ½ inch or less. Emergence in a controlled temperature setting in a growth chamber occurred in four days with temperature set at 70^o F. Early indications at Pullman, WA are that short-toothed Canada milkvetch should be spring seeded.

The average number of seeds per pound is 300,000, based on work with one selection at the Pullman Plant Materials Center.

Management

Seed production hinges on successful cross pollination of flowers by insects. Careful thought should be given to this fact when applying pesticides in the vicinity of Canada milkvetch plants.

Pests and Potential Problems

Short-toothed Canada milkvetch may be subject to predation by cutworms and rodents such as gophers which reduce the number of plants in the stand.

Environmental Concerns

Short-toothed Canada milkvetch has the potential for causing locoism in elk and livestock. Plants may contain a nitrotoxin (3-nitropropanoic acid) which is very detrimental to the animals.

Plant samples of the Pullman Plant Materials Center selection were sent to the USDA Agricultural Research Service Poisonous Plant Research Laboratory in 2003 for analysis. Vegetative and flower stage materials tested positive for nitrotoxin. Seed tested negative.

Cultivars, Improved, and Selected Materials (and area of origin)

Currently, there are no known cultivars of short-toothed Canada milkvetch on the commercial market.

The Pullman Washington Plant Materials Center has a selection of short-toothed Canada milkvetch that is scheduled for release. It was collected at Silver Lake in Lake County in south central Oregon.

'Sunrise' Canada milkvetch (*Astragalus canadensis*) was released with exclusive production rights in 1997 by the South Dakota Agricultural Experiment Station (Boe and Fluharty, 1998). 'Sunrise' originated from a native population near Brookings, SD. In March, 2006 seed was not available of this release (Lund, 2006).

The Bismarck North Dakota Plant Materials Center has worked with a selection of Canada milkvetch but does not plan to release the selection for commercial production.

Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

References

- Adcock, J.L. and R.E. Keiss. 1969. Locoism in elk. *Bulletin of the Wildlife Disease Association*, 5: 121-124.
- Barneby, R.C. 1964. *Atlas of North American Astragalus*. part II. vol 13. Memoirs of the New York Botanical Garden. NY, NY.
- Benn, M., Y. Bai, et al. 1995. Aliphatic nitro-compounds in *Astragalus canadensis*. *Phytochemistry Oxford*, 40: 1629-1631.
- Boe, A. and K. Fluharty. 1998. Registration of 'Sunrise' Canada milkvetch. *Crop Science*, 38: 884.
- Boe, A. and K. Fluharty. 1993. Reproductive biology of a Canada milk-vetch population from eastern South Dakota. *Prairie Naturalist*, 25: 65-72.
- Brashier, Mary. 2000. Friends and foes in the seed pod. *Farm and Home Research*, 51: 16.
- Davis, A.M. 1972. Selenium accumulation in *Astragalus* species. *Agron. Journal*, 64: 751-754.
- Davis, A.M. 1982. Crude protein, crude fiber, tannin and oxalate concentrations of 33 *Astragalus* species. *Journal of Range Management*, 35: 32-34.
- Eig, Alexander. 1955. *Systematic studies on Astragali of the Near East*. Israel Scientific Press, Jerusalem.
- Falken, M.C. and R.M Pengra., 1976. Rhizobia from Native Legumes. *Proceedings of the South Dakota Academy of Science*, 55: 172.

- Gallardo, R., E. Domingues and J.M. Munoz. 1994. Pollen-ovule ratio, pollen size and breeding system in *Astragalus* (Fabaceae) subgenus *Epiglottis*: A pollen and seed allocation approach. *American Journal of Botany*, 8: 1611-1619.
- Goodson, C.C., D.R Parker, C. Amrhein and Y. Zhang,. 2003. Soil selenium uptake and root system development in plant taxa differing in Se accumulating capability. *The New Phytologist*, 159: 391-401.
- Head, S.C. 1955. *A mitotic chromosome study in the genus Astragalus*. Thesis (M.S. in Botany). Washington State University. Pullman.
- Herman, F.J. 1966. *Notes on Western Range Forbs: Cruciferae through Compositae*. Ag. Handbook No. 293. USDA Forest Service. US Government Printing Office. Washington, DC.
- Holden, D.J. 1952. *Developmental Anatomy and Dehiscence of the Fruit of Astragalus canadensis L.* Thesis (M.S.) South Dakota State Univ., Brookings.
- Hu, J., M.J. Sanderson and M.F. Wojciechowski. 2006. *Astragalus* in <http://ginger.ucdavis.edu/astragalus/astragalus.home.htm> [online: cited August 28, 2006].
- James, L.F., et al. [Eds.] 1989. Swainsonine and related glycosidase inhibitors. *Swainsonine and Related Glycosidase Inhibitors Symposium*, Logan, UT. August 10-14, 1987.
- Jensen, N. 2002. Canadian Milkvetch, *Astragalus canadensis L.* (Plant Fact Sheet) in <http://plants.usda.gov> [online: cited March 6, 2006].
- Jones, M.E. 1923. *Revision of North-American Species of Astragalus*. Salt Lake City, UT.
- Kindscher, K. 1987. *An ethnobotanical guide: edible wild plants of the prairie*. University Press of Kansas, Lawrence.
- Larson, K.J. 1993. *Astragalus adsurgens Pall. (upstanding milkvetch): Economic botany, germination evaluation, and forage quality in Eastern Washington*. Thesis (M.S.) Washington State University, Pullman.
- Lund, C., (March 7) 2006. Personal communication. Norfarm Seeds, Inc. 218-463-3521. Roseau, MN.
- Moerman, D. 1998. *Native American ethnobotany*. Timber Press, Portland, Oregon.
- Moore, L.E. 2003. Canadian Milkvetch (Plant Guide). in <http://plants.usda.gov> [online: cited March 6, 2006].
- Naeem, S., S.F. Tjossem, et al. 1999. Plant neighborhood diversity and production. *Ecoscience* 6: 355-365.
- Platt, W.J., G.R. Hill, and S. Clark. 1974. Seed production in a prairie legume *Astragalus canadensis*. Interactions between pollination pre-dispersal seed predation and plant density *Oecologia (Berlin)*, 17: 55-64.
- Poisonous Plant Research Laboratory. Locoweed (*Astragalus* and *Oxytropis* spp.) USDA Agriculture Research Service. in <http://www.ppri.ars.usda.gov> [online: cited March 6,2006].
- Singh, Y.N., , A. Boe, J. Norberg and J. Wickre. 1992. Effect of seasonal and ecotypic variation on toxicity of Canada milkvetch (*Astragalus canadensis*) *IVth Pan American Symposium on Animal, Plant and Microbial Toxins (IST)*, Campinas, Brazil.
- Stubbendick, J. and E.C. Conrad. 1989. *Common Legumes of the Great Plains*. Univ. of Nebraska Press, Lincoln.
- Thlusty, B., J.M. Grossman and P.H. Graham. 2004. Selection of rhizobia for prairie legumes used in restoration and reconstruction programs in Minnesota. *Canadian Journal of Microbiology*, 50: 977-983.
- Wood, B.W. 1971. *Response of Canada milkvetch (Astragalus canadensis var. mertonii (Nutt.) Wats.) to range and forest improvement practices in Northeastern Oregon*. Thesis (Ph. D.) Oregon State Univ.
- Zaczkowski, N.K. 1973. Notes on North Dakota *Astragalus* spp distribution. *Proceedings of the North Dakota Academy of Science*, 27: 42.

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