

# Plant Diversity Website

## *Vicia cracca* L.

**Common Names:** Tufted Vetch, Bird Vetch, Cow Vetch, Canada pea

**Etymology:** *Vicia* is Latin for the common name “Vetch”. *Cracca* is Latin for any type of pulse or legume (2).

**Botanical synonyms (18):**

*Ervum cracca* (L.) Trautv.,  
*Vicia hiteropus* Freyn,  
*Vicia lilacina* Ledeb.  
*Vicia macrophylla* B. Fedtsch

**FAMILY:** Fabaceae (the Pea family)

**Quick Notable Features:**

- Leaves terminated by a split tendril
- Has a single-sided, dense raceme of purple legume flowers
- Ballistic seed dispersal

**Plant Height:** *V. cracca* can grow up to 2m long and 1 meter in height (1,3).

**Subspecies/varieties recognized: (3,4,18)**

*Vicia cracca* subsp. *atroviolacea* (Bornm.) P.H. Davis, *Vicia cracca* var. *canescens* (Maxim.) Franch. & Sav., *Vicia cracca* subsp. *cracca*, *Vicia cracca* var. *cracca*, *Vicia cracca* subsp. *galloprovincinalis* Asch. & Graebn., *Vicia cracca* subsp. *Gerardii* (W.D.J. Koch) Briq., *Vicia cracca* var. *gerardii* W.D.J. Koch, *Vicia cracca* var. *grossheimii* Radt, *Vicia cracca* subsp. *imbricata* Rouy, *Vicia cracca* ssp. *incana* (Gouan) Rouy, *Vicia cracca* var. *lilacina* (Ledeb.) Krylov, *Vicia cracca* subsp. *oreophila* (Zertova) Á. Löve & D. Löve, *Vicia cracca* ssp. *stenophylla* (Velen.) P.H. Davis, *Vicia cracca* var. *tenuifolia* (Roth) G. Beck, *Vicia cracca* subsp. *tenuifolia* Gaudin, *Vicia cracca* subsp. *vulgaris* Schinz & R. Keller

**Most Likely Confused with:** Other legumes in the same genus such as *Vicia americana*, *V. carolina*, *V. tetrasperma*, and *V. villosa*. Other species in the Fabaceae possibly confused are *Amphicarpaea bracteata* and *Apios americana*, *Desmodium rotundifolium*, *Lathyrus japonicus*, *L. latifolius*, *L. ochroleucus*, *L. palustris*, *L. pratensis*, *L. sylvestris*, *L. tuberosus*, and *L. venosus*, *Phaseolus polystachios*, *P. vulgaris*, *Pisum sativum*, *Pueraria lobata*, *Strophostyles helvula*, *Wisteria frutescens*, and *W. sinensis*.

**Habitat Preference:** *Vicia cracca* can grow in coarse, fine, and medium textured soils. It also grows in fields and near roadsides and railroads. It grows in soils with a pH between 4.9 and 7 (4,5,17).

**Geographic Distribution in Michigan:** Found throughout Michigan’s lower and upper peninsulas (5).





**Known Elevation Distribution:** In California, *V. cracca* can be found from 0 to 1500m (6), but up to 4200m above sea level in China (20).

**Complete Geographic Distribution:** *Vicia cracca* is native to Europe and temperate Asia. It has been introduced to most of the continental United States, Alaska, Hawaii, and Canada. Exceptions are AZ, CO, FL, KS, LA, MS, ND, NE, NM, NV, OK, SC, and TX (4,15). It was first reported as introduced in 1860 at Prescott, Ontario by Aarssen et al. 1986 (17).

**Vegetative Plant Description:** *Vicia cracca* is a perennial vine. The alternate, pubescent, glaucous, compound leaves are 6-12cm in length, each with a well-developed 2-3 branched tendril at the tip and entire to semi-hastate stipules at the base. The leaves bear 6-15 oblong to linear mucronate, silvery leaflets borne opposite one another, each 0.5-3cm in length and 0.1-0.6cm in width with indistinct mid-veins. The stem can grow to be 100 cm long (3,7,10).

**Climbing Mechanism:** *V. cracca* uses the tendrils of its terminal leaflets to climb (10).

**Flower Description:** *V. cracca* bears 10-30 flowered axillary racemes on a long peduncle all of which is longer than the subtending leaf. The purplish-blue, pendulous perfect flowers are 0.9 to 1.2cm long. Each flower has a swollen or enlarged campanulate calyx tube that is 2 to 3cm in length, sometimes petaloid and often with the lower teeth narrower than the upper teeth. The corolla is typical of the pea-family: zygomorphic consisting of a clawed standard with both parts about equal in length, the keel (2 petals fused or folded together), and 2 lateral petals. As with most legumes, the flowers bear 10 diadelphous stamens with filiform filaments. The single pistillate ovary is compressed and two-valved. The style is long and thin with hairs at the tip (3,7,12,13,16, 20).

**Flowering Time:** *Vicia cracca* blooms in late spring and may continue in bloom until August (3,4).

**Pollinator:** The flower is bee- and fly-pollinated (12,17).

**Fruit Type and Description:** *Vicia cracca* is a legume with a dehiscent pod. The flattened, lanceolate, and multi-seeded (3-6) pods are 1.5-2cm in length and 0.6-1cm in width (9,13,14,19).



**Seed Description:** The seeds become ripe in July through September. The brownish-yellow seeds weigh 12-25mg and are up to 3mm in length (12,18). A hilum is 1/3 to 1/4 as long as the seed circumference (3). Dormancy imposed by the seed coat is broken by temperatures alternating between 10 and 20 °C under moist conditions.

**Dispersal Syndrome:** Seeds can be carried on vegetation that adheres to maintenance equipment (14). As the seedpods dry and dehisce, the seeds are dispersed ballistically, probably the only mechanism that carries the seed far from the plant (9). Because the seeds are relatively dense, they also fall through pasture grass to the soil beneath, facilitating germination.

**Distinguished by:** *Lathyrus* leaflets are typically wider in proportion to their length than *Vicia*'s proportions. *Desmodium*, *Phaseolus*, *Amphicarpaea*, and *Strophostyles* have 3 leaflets while *Vicia* has 2, 4, or more leaflets. *Pisum* has longer and wider stipules than its lowest leaflets while *Vicia* has smaller stipules than its lowest leaflets. *Wisteria* is a woody vine while *Vicia* is herbaceous. *Apios* has a developed terminal leaflet while *Vicia* has a terminal leaflet commonly represented by a forked-tendrill or bristle and *Pueraria* leaflets have no tendrill. *Vicia carolina* has lax racemes while *Vicia cracca* had dense racemes. *Vicia tetrasperma* has at most 8 flowers while *Vicia cracca* has 10 to 30 flowers. *Vicia villosa* calyx is gibbous and saccate at the base while *Vicia cracca* is rounded and not gibbous at the base. *Vicia cracca* has entire stipules while *Vicia americana* has serrate stipules (3,5,7).

**Other members of the family in Michigan (number species):** *Wisteria* (1), *Amorpha* (2), *Amphicarpaea* (1), *Anthyllis* (1), *Apios* (1), *Astragalus* (3), *Baptisia* (4), *Caragana* (1), *Cercis* (1), *Chamaecrista* (2), *Cladrastis* (1), *Colutea* (1), *Crotalaria* (1), *Cytisus* (1), *Dalea* (1), *Desmodium* (12), *Genista* (1), *Gleditsia* (1), *Glycine* (1), *Gymnocladus* (1), *Hedysarum* (1), *Kummerowia* (1), *Lathyrus* (10), *Lespedeza* (13), *Lotus* (1), *Lupinus* (2), *Melilotus* (2), *Mimosa* (1), *Orbexilum* (1), *Phaseolus* (2), *Pisum* (1), *Pueraria* (1), *Robinia* (3), *Securigera* (1), *Senna* (1), *Strophostyles* (1), *Tephrosia* (1), *Trifolium* (9), *Vicia* (7), *Vigna* (1) [4].

**Ethnobotanical Uses:** The leaves can be used for tea. *V. cracca* can also be used as a green manure as it fixes nitrogen (12).

**Phylogenetic Information:** *Vicia cracca* is a member of the Fabaceae, subfamily Faboideae. Families Fabaceae, Polygalaceae, Quillajaceae, and Surianaceae form the Fabales order. The Fabales, Rosales, Cucurbitales, and Fagales form a monophyletic group within the Eurosids I within the larger rosid group. All are eudicots and angiosperms (11).

**Interesting Quotation or Other Interesting Factoid not inserted above:** *Vicia cracca* can be used to increase milk production in humans and other animals. It is known as the tufted vetch because it has many flowers. Meadow voles prefer to eat *V. cracca* because of its high levels of protein and low levels of phenolics (8,12,14).

**Literature and websites used:**

- 1) Gleason, H.A. 1963. *Illustrated Flora of the Northeastern United States and Adjacent Canada, Volume 2*. New York, New York, USA: Hafner Publishing Company, Inc.
- 2) Brown, R.W. 1956. *The Composition of Scientific Words*. Washington, D. C., USA: Smithsonian Institution Press.
- 3) Fernald, M.L. 1950. *Gray's Manual of Botany*, 8<sup>th</sup> ed. New York, USA: American Book Company.
- 4) USDA, Natural Resource Conservation Service. 2008. The PLANTS Database (<http://plants.usda.gov>, 10 April 2008). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- 5) Voss, E.G. 1985. *Michigan Flora Part II*. Ann Arbor, Michigan, USA: University of Michigan Press.

- 6) Calflora, 2008. [http://www.calflora.org/cgi-bin/species\\_query.cgi?where-taxon=Vicia+cracca](http://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Vicia+cracca) (April 10, 2008).
- 7) McGregor R.L. 1986. *Flora of the Great Plains*. Lawrence, Kansas, USA: The University Press of Kansas.
- 8) Bergeron, J.M., and L. Jodoin. 1987. Defining "High Quality" Food Resources of Herbivores: The Case for Meadow Voles. *Oecologia* 71(4): 510-517.
- 9) University of Alaska Fairbanks. Alaska Committee for Noxious and Invasive Plants Management. 2004. [http://www.uaf.edu/ces/cnipm/Vicia\\_cracca.html](http://www.uaf.edu/ces/cnipm/Vicia_cracca.html)
- 10) Nolen, A. Vetch Infestations in Alaska. Alaska Department of Natural Resources, 2002. [http://www.dot.state.ak.us/stwddes/research/assets/pdf/fhwa\\_ak\\_rd\\_02\\_11.pdf](http://www.dot.state.ak.us/stwddes/research/assets/pdf/fhwa_ak_rd_02_11.pdf)
- 11) ANGIOSPERM PHYLOGENY GROUP 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Botanical Journal of the Linnean Society* 141(4):399-436.
- 12) Plants For A Future, 1996-2003. Last modified: June 2004. <http://www.pfaf.org/database/plants.php?Vicia+cracca>
- 13) Burke Museum of Natural History and Culture Website 2006. Herbarium: Accessed March 25, 2008. <http://biology.burke.washington.edu/herbarium/imagecollection/taxon.php?ID=6747>
- 14) Alaska Invasive Species Working Group. Invasive Fabaceae. <http://www.uaf.edu/ces/aiswg/resources-links.html#InvasivePlants>
- 15) USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network. Last modified: August 2004. <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?418855> (April 10, 2008).
- 16) Hitchcock, C.L. & A. Cronquist 1973. *Flora of the Pacific Northwest*. Seattle, Washington: University of Washington Press.
- 17) Aarssen, L.W., I.V. Hall, & K.I.N Jensen, 1986. The biology of Canadian Weeds. 76. *Vicia angustifolia* L., *V. cracca* L., *V. sativa* L., *V. tetrasperma* (L.) Schreb and *V. villosa* Roth. *Canadian Journal of Plant Science* 66: 711–737.
- 18) Seefeldt, S.S., J.S. Conn, B.E. Jackson, & S.D. Sparrow 2007. Response of seedling bird Vetch (*Vicia cracca*) to six herbicides. *Weed Technology* 21:692–694.
- 19) Tropicos.org. Missouri Botanical Garden. 19 Dec 2012  
<<http://www.tropicos.org/Name/13034716>
- 20) Bao, B. & N.J. Turland 2010. *Flora of China*, Vol. 10. [http://www.efloras.org/florataxon.aspx?flora\\_id=2&taxon\\_id=200012353](http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=200012353)

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