

Plant Diversity Website

***Clematis virginiana* L.**

Common Names: Devil's-Darning-Needles (1), Virgin's Bower (3), Herbe Aux Gueux (6), Woodbine (9)

Etymology: *Clematis* comes from the Greek *clem*, meaning "vine". *Virginiana* refers to the species' presence in the state of Virginia (6).

Botanical synonyms:

Clematis canadensis Mill.
C. dioica subsp. *virginiana* (L.) Kuntze
C. holosericea Pursh
C. ligusticifolia Nutt.
C. missouriensis Rydb.
C. pennsylvanica Donn ex Turcz.
C. bracteata Moench
C. cordifolia Moench

FAMILY: Ranunculaceae (buttercup family)

Quick Notable Features:

- dentate, mostly trifoliate leaves on purple-tinged petioles arranged oppositely on the stem
- relaxed white flowers on dioecious plants
- flowering panicles borne axillary to leaves

Plant Height: The stems are normally 2.5-4.5m at full length, but are reported to climb up to 7m in height (8, 11, 18).



Subspecies/varieties recognized (2):

Clematis virginiana L. var. *bracteata* (Moench) DC.
Clematis virginiana L. var. *campestris* (A.St.-Hil.) Macloskie
Clematis virginiana L. var. *catesbyana* (Pursh) Britton
Clematis virginiana var. *cordata* (Pursh) Kuntze
Clematis virginiana subsp. *dioica* (L.) Voss
Clematis virginiana var. *genuina* Kuntze
Clematis virginiana f. *missouriensis* (Rydb.) Fernald
Clematis virginiana f. *paucidentata* Kuntze
Clematis virginiana L. var. *sericea* (Kunth ex DC.) Kuntze

Most Likely Confused with: *Toxicodendron radicans*, *Campsis radicans*, *Clematis occidentalis*, and saplings of *Acer negundo*.

Habitat Preference: "The preference is partial sun, moist to mesic conditions, and a fertile soil that is loamy or silty. Full sun is also tolerated, although the leaves may turn yellowish green" (5). Also noted present in thickets, moist low lands, and disturbed forest edges (4, 5, 6, 16).

Geographic Distribution in Michigan: *C. virginiana* is found in most of Michigan's counties with fifteen exceptions scattered sporadically through the lower and upper peninsulas (1).

Known Elevational Distribution: A survey in the Adirondack Mountains of New York found *C. virginiana* growing to elevations of 900m (14).

Complete Geographic Distribution: Native to the Midwestern United States, *C. virginiana* is found in the United States from North Dakota south to Texas and every state eastward (1, 4). It is also recorded as a rare species in Manitoba, Canada (15).

Vegetative Plant Description: This perennial plant has glabrous to moderately pubescent stems that climb and sprawl, becoming woody with age. The bark is purplish gray and ridged. The leaves are opposite and compound (occasionally simple), with 3-5 leaflets per leaf (including a terminal leaflet). These leaflets have serrate-dentate margins and are sometimes lobed. Their shape is ovate to lanceolate with glabrous to sparse pubescence above and silky pubescence below. Each leaflet is approximately 5-7cm long and 2-4cm wide, borne on a petiolule that is ≤ 1 cm long. The petioles and petiolules are purplish and pubescent. The plant is noted to support itself by means of its long petioles (4, 5, 7).



Climbing Mechanism: "Climbs by twisted leaf-stems", which we interpret as petioles and petiolules (10).

Flower Description: The fragrant flowers are borne in dense axillary panicles, with "each division of the panicle subtended by a pair of small foliaceous bracts" (4). The pedicels and peduncles are pubescent. The pistillate and staminate flowers are both apetalous and bear four pubescent, white sepals, 6-12mm long and ca. 4mm across. The staminate flowers have 30-50 stamens with glabrous white filaments that are ± 8 mm long and pale yellow anthers, 0.6-1.5mm long. The pistillate flowers have sterile stamens and 40-70 pistils (4, 5, 6, 7, 18).

Flowering Time: In Missouri, *C. virginiana* flowers from July to September (4). It remains flowering in southern Michigan as late as the third week of September (pers. obs., RJB).



Pollinator: The nectar of the staminate flowers attracts flies, wasps, and Halictid bees (5). No information was found for the pistillate flower.

Fruit Type and Description: The fruit is a flat achene, bronze-brown to gray-brown, pilose to hirsute, 2.5-3.5 × 1.5mm. The flexuous style is persistent and plumose, 2.5-5cm long. The achenes are born in a globose head (6, 7, 8, 11).

Seed Description: No description found, but dispersed carpels (achenes) retain the plumose style and are likely dispersed by wind (see image of dispersed single seeded fruits).

Dispersal Syndrome: No authoritative description was found, although presumably the hirsute style topping the achene facilitates wind-dispersed.



Distinguished by: Although they both have leaves with three leaflets borne on purplish-red petioles, *C. virginiana* can be distinguished from *Toxicodendron radicans* because the virgin's bower bears opposite leaves. Furthermore, leaves of *T. radicans* are thicker and generally larger.

Saplings of *Acer negundo* are superficially similar to *C. virginiana*, but *Acer* saplings are much more upright and do not use their petioles to climb.

Campsis radicans, like *C. virginiana*, has opposite compound leaves. The leaves of *C. radicans*, however, have +/- 11 leaflets per leaf as opposed to *C. virginiana*'s 3-5. Furthermore, the flowers of *C. radicans* are red and trumpetlike (not white and downy), and the fruit is a green capsule.



C. occidentalis may be distinguished from *C. virginiana* by the leaflets and flowers. *C. virginiana* has white, relaxed sepals that expose the floral parts, and *C. occidentalis* has pink sepals that enclose the floral parts. In addition, the leaflet margins of *C. occidentalis* are generally entire, as opposed to serrate or dentate in *C. virginiana*. The petioles of *C. occidentalis* also lack the purple tinge of those of *C. virginiana*.

Other members of the family in Michigan: *Clematis* (2), *Aconitum* (1), *Actaea* (3), *Anemone* (5), *Aquilegia* (2), *Caltha* (1), *Consolida* (2), *Coptis* (1), *Delphinium* (1), *Enemion* (1), *Helleborus* (1), *Hepatica* (1), *Hydrastis* (1), *Nigella* (1), *Pulsatilla* (1), *Ranunculus* (18), *Thalictrum* (5) (1)

Ethnobotanical Uses: The Cherokee used this species as an infusion to treat backache, kidney pain, queasiness, and venereal sores, as well as in ceremonial medicine or to induce strange dreams (15).

Phylogenetic Information: According to Missouri Botanical Garden's Angiosperm Phylogeny website, "Ranunculaceae are a classic example of a 'famille par enchaînement', nothing in particular holding them together, but recent work suggests that it is largely monophyletic." Within the order Ranunculales, the family is closely related to Berberidaceae and Menispermaceae. Ranunculales is placed within the Eudicots (13).

Interesting Quotation or Other Interesting Factoid not inserted above:

- C. virginiana* is pollinated by the bee species *Sphecodes clematidis* (a bee having a species name derived from the flower's genus) (5).
- C. virginiana* has a natural pest, the clematis borer, which infests crowns and roots of the plant and sometimes hollows out the stem base (12).

Literature and websites used:

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- 18) Pringle, J.S. *Flora of North America*, Vol. 3. http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=233500416

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- 3) The fruit image is courtesy of the Randolph Taylor collection at the University of Michigan.
- 4) The seed image is courtesy of Steve Hurst @ USDA-NRCS PLANTS Database (<http://plants.usda.gov/java/profile?symbol=CLVI5>).
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