# Plant Diversity Website

## Clematis occidentalis (Hornem.) DC.

**Common Names**: Western Blue Virgin's Bower, Mountain Clematis, Purple Clematis, Purple Virgin's Bower (1)

**Etymology**: *Clematis* comes from the Greek *clem*, meaning "vine". *Occidentalis* comes from the Latin *occidens* and means "of the west" (6).

**Botanical synonyms**: *Atragene americana* Sims, *Atragene occidentalis* Hornem., *Clematis verticillaris* DC., *Clematis verticillaris* DC. var. *grandiflora* B. Boivin (1, 2, 4)

FAMILY: Ranunculaceae (the buttercup family)

#### **Quick Notable Features:**

- Large, showy blue or reddish-purple flowers with large petaloid sepals
- ¬ Bark green-red or red-purple, then becoming woody
- ¬ Leaves opposite and trifoliate.
- Stamens progressively broader from inside to outside; outermost stamens often sterile and petaloid

Plant Height: The stems grow to a length of 3.5m (7).

**Subspecies/varieties recognized:** Clematis occidentalis var. albiflora Cockerell (2), Clematis occidentalis var. dissecta (C.L. Hitchc.) J. Pringle, Clematis occidentalis var. grosseserrata (Rydb.) J. Pringle, Clematis occidentalis var. occidentalis (Hornem.) DC. (4)

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

**Habitat Preference:** *C. occidentalis* is found in calcareous, rocky areas, including cliffs, ledges, woods, clearings, embankments, and talus slopes (7).

**Geographic Distribution in Michigan:** According to Voss (14), this vine is found in only seven counties in the Upper Peninsula: Delta, Dickinson, Gogebic, Iron, Isle Royale, Keweenaw, and Marquette. Despite this sparse distribution, it is not listed as threatened or endangered in Michigan (15).

Known Elevational Distribution: C. occidentalis has been observed growing up to 1300m (7).

**Complete Geographic Distribution:** Native to the United States (3), *C. occidentalis* is found from Colorado north to Saskatchewan (Canada), west to Washington state, and British Columbia (Canada). It is also found in North Carolina and every state on the east coast of the U.S. north of NC as well as Quebec (Canada). Within the Midwest, it is found in Illinois, Iowa,



Michigan, Minnesota, Ohio, Pennsylvania, West Virginia, and Wisconsin. In many of these states or provinces, it is rare or endangered (1).

**Vegetative Plant Description:** A trailing or climbing perennial vine with stems growing as long as 2m (5). The softly villous leaves are opposite along a red-green stem that becomes woody with age. The leaves are trifoliate (though occasionally appearing simple near the apex of the stem) and 2-10cm long. The leaflets margins are usually entire but can be crenate or lobed. The ovate leaflets have rounded to reniform bases with acuminate tips, long petioles, and long petiolules (5, 6, 7, 10, 11, 12).

**Climbing Mechanism**: Climbs using twining petioles (11).

**Flower Description:** The axillary flowers are usually solitary "on peduncles about equaling the subtending petiole" (10). The 5-7.5cm broad



flowers are apetalous with four petaloid, ovate sepals that are reddish violet to pale blue, rarely white, and unfused. Stamens numerous, slim in the center whorl, with the outermost stamens petaloid and often sterile. The gynoecium is apocarpous and superior (6, 7, 10, 12, 16).

**Flowering Time:** In Connecticut, *C. occidentalis* flowers from April to June (3). It flowers in Illinois from May to June (6).

**Pollinator:** No specific pollinator was found for *C. occidentalis*, however, a species of butterfly (*Hesperis leonardus*) is known to pollinate *Clematis* species in general (9).



**Fruit Type and Description:** Many densely villous achenes (1-seeded fruits) form a globular head; the persistent styles are ~5cm long, flexuous and plumose (5, 12).

**Seed Description:** Small (5), with approximately 140 seeds/gram, or 63,500/pound (17).

**Dispersal Syndrome:** The persistent, plumose style suggests wind-dispersal.

**Distinguished by**: Although they both have trifoliate leaves borne on purplish-red petioles, *C. occidentalis* can be distinguished from

*Toxicodendron radicans* because the virgin's bower bears opposite leaves (*Toxicodendron* has alternate leaves). Furthermore, leaves of *T. radicans* are thicker and generally larger.

Saplings of Acer negundo are superficially similar to C. occidentalis, but Acer saplings are self-supporting and do not creep along the ground or climb other plants. Campsis radicans, like C. occidentalis, has opposite compound leaves. The leaves of C. radicans, however, have ca. 11 leaflets per leaf as opposed to C. occidentalis, which has 1-3. 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 reddish purple to blue sepals that usually enclose the floral parts (although they are sometimes relaxed). In addition, the leaflet margins of *C. occidentalis* are generally entire, as opposed to serrate or dentate in *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), *Niigella* (1), *Pulsatilla* (1), *Ranunculus* (18), *Thalictrum* (5) (source: [1])

**Ethnobotanical Uses:** The Blackfoot Indians used *Clematis* for several purposes: an infusion was made for a horse diuretic, the flowers were worn by children at night to keep ghosts and evil spirits away, and the leaves were used "remove 'ghost bullets,' supernatural objects shot into people by ghosts" (8).

**Phylogenetic Information**: According to Missouri Botanical Garden's Tropicos Phylogeny (13), "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." It is also suggested that Ranunculaceae are among the basal eudicots, as they have several 'primitive' characters (usually apocarpous and superior gynoecia among others). Within Ranunculaceae, *Clematis* falls into the Ranunculoideae tribe (13).

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