

Plant Diversity Website

Clematis terniflora DC.

Common Names: Sweet-autumn clematis and autumn clematis, yam-leaved clematis, sweet autumn virgin's bower and autumn virgin's bower, leatherleaf clematis, Japanese clematis (1,3,5,7).

Etymology: *Clematis* comes from the greek word *clema* (a shoot), and refers to a climbing plant with slender stems. The species name *terniflora*, in Latin means "flowers in 3's" (10,11).

Botanical synonyms (1):

Clematis dioscoreifolia H. Lév. & Vaniot

C. maximowicziana Franch. & Sav.

C. paniculata Thunb.

FAMILY: Ranunculaceae, the crowfoot or buttercup family

Quick Notable Features (2,3,11):

- Climbing plant with opposite, compound leaves with 5 entire leaflets (toothed on young plants)
- Leaflets coriaceous, mostly glabrous, basally cordate and apically round
- Flowers fragrant, white, bisexual or functionally unisexual
- Flattened achene topped with a long plume

Plant Height: Usually growing to 3-6m tall (3).

Subspecies/variety recognized (1):

C. terniflora var. *boninensis* (Hayata) W.T. Wang

C. terniflora var. *denticulate* (Nakai) U.C.La

C. terniflora var. *garanbiensis* (Hayata) M.C. Chang

C. terniflora var. *lancifolia* (Nakai) U.C.La

C. terniflora var. *latisepala* M.C. Chang

C. terniflora var. *mandshurica* (Rupr.) Ohwi

C. terniflora var. *manshurica* (Rupr.) Ohwi

C. terniflora var. *robusta* (Carrière) Tamura

C. terniflora var. *robusta* T.S. Liu & C.F. Hsieh



Most Likely Confused with: *Clematis occidentalis*, *C. virginiana*, *Dioscorea villosa*, *Smilax rotundifolia*, and *S. lasioneura*.

Habitat Preference: *C. terniflora* is widely cultivated as an ornamental, and when escaped, it is found on roadsides and other disturbed habitats, and near creeks. The species is shade tolerant, although it prefers sunny sites, and thrives in well-drained, moist soils (2,3,7,8).

Geographic Distribution in Michigan: The species is only found in Genesee and Washtenaw counties (2).

Known Elevational Distribution: In the United States, the species grows to elevations up to 1000m a.s.l. In Yunnan, China, it was recorded at 3150m above sea level (3,4).

Complete Geographic Distribution: Native to China, Korea, and Japan. In the United States, it is found in almost all eastern states (AL, AR, CA, CT, DC, DE, FL, GA, IL, IN, KS, KY, LA, MA, MD, MN, MO, MS, NC, NE, NH, NJ, NY, OH, OK, PA, RI, SC, TN, TX, VA, VT, WV), and in Ontario, Canada (2,3,5).

Vegetative Plant Description: *C. terniflora* is a perennial woody vine with semi-evergreen leaves. The mature bark is light brown and shreds longitudinally, the shallowly-grooved stems are 0.2-1.5cm in diameter (seldomly to 10cm in diameter) with nodes evident long after leaves have abscised. The leaves are opposite and pinnately compound with 5 leaflets (occasionally 3 or 7); the petiole is 2.4-4.5cm long. Each leaflet is entire (toothed on young plants), coriaceous, round-ovate to suborbicular, apically round and basally cordate. The blades are glabrous or sparingly pubescent along the main veins (palmate), 2.5-10cm long and 1-6cm broad (2,3,7,10,11,13,14).



Climbing Mechanism: The petioles and leaf rachis are sensitive, twisting around supporting plants, allowing *C. terniflora* to climb (3,6).

Flower Description: The inflorescence is an axillary, corymbose or cymose panicle with 3-12 flowers subtended by 2 linear to oblong bracts (0.8-3.5cm long). The peduncles are 1-7cm long and pedicels 1-3.5cm long. The 4(-5) spreading petaloid sepals are white, fragrant, and pubescent below; each sepal is 0.5-1.7cm long and 0.3-0.5cm broad, and linear to narrow obovate. Petals and petaloid staminodes are absent. Each flower can be bisexual, or pistillate flowers may bear sterile stamens and staminate may bear undeveloped pistils. There are approximately 50 stamens with glabrous filaments, and the anthers are 2-4mm long. The 5-10 pistils are uni-carpellate and the styles are long and plumose; the ovary is superior (2,3,11,13,14).

Flowering Time: The species usually flowers from July to October, although some flowering may occur year round in warmer regions (3,8,14).

Pollinator: The fragrant flowers attract insects, especially bees and flies (8).

Fruit Type and Description: The fruit is a flattened achene, 0.4-0.9cm long and 0.2-0.6cm broad, with silky flat-lying hairs. The fruit is orange-yellow to brown with conspicuous edges, topped with a white to silvery style plume (2-6cm long) (2,3,7,11,13).

Seed Description: The seeds are enclosed by the achenes, and can take up to 9 months to germinate. Like other members of the Ranunculaceae, the albumen is hard and the embryo very small (7,11).

Dispersal Syndrome: The seeds (inside the achenes) are dispersed by wind with assistance from the plumes (12).

Distinguished by: *Clematis occidentalis* has trifoliolate leaves, but the leaflet apices are acuminate, not round. Flowering specimens of *C. occidentalis* are easy to distinguish based on their purple, solitary flowers. *C. virginiana* has marginally toothed leaflets, whereas the leaflets are mostly entire in *C. terniflora*. The white flowers in *C. virginiana* are similar to those of *C. terniflora*,



however, they are always unisexual and adaxially pubescent; *C. virginiana*'s are bisexual and adaxially glabrous. *Dioscorea villosa* is an herbaceous vine with alternate, simple, cordate leaves (basal leaves occasionally whorled). The flowers of *D. villosa* are minute and unisexual, and produce capsules with winged seeds, not achenes. *Smilax rotundifolia* is an herbaceous vine with armed stems (unarmed in *C. terniflora*), alternate and simple leaves that are not glabrous adaxially, climbing using tendrils. The inflorescences are umbels bearing minute yellowish flowers that produce dark berries. *S. lasioneura* stems are herbaceous, leaves similar to those of *S. rotundifolia* but puberulent, the umbels bear 20-100+ minute flowers and the fruits are black berries (2,3,11).

Other members of the family in Michigan (number species): *Aconitum* (1), *Actaea* (3), *Anemone* (5), *Aquilegia* (2), *Caltha* (2), *Clematis* (2), *Consolida* (1), *Coptidium* (1), *Coptis* (1), *Delphinium* (1), *Enemion* (1), *Ficaria* (1), *Halerpestes* (1), *Helleborus* (2), *Hepatica* (2), *Hydrastis* (1), *Myosurus* (1), *Nigella* (1), *Ranunculus* (18), *Thalictrum* (6) (source 2).

Ethnobotanical Uses: Members of the genus *Clematis* are known to be toxic, so caution is advised when consuming it. However, it is reported that young stems can be eaten when cooked. Buds (not specified if flower or vegetative buds) and flowers can be parboiled and cooked or stir-fried. Chinese and Japanese medicines use the underground parts of a few *Clematis* species, including *C. terniflora* var. *mandshurica*, as anti-inflammatory, analgesic, and to treat tumors; in Korea, the same variety is used to treat dysentery, neuralgia, and menstruation/vaginal problems (8,9).

Phylogenetic Information: The genus *Clematis* is a member of the subfamily Ranunculoideae within the Ranunculaceae family. The Ranunculaceae is included in the Ranunculales, which includes approximately 1.6% of all known eudicots (6). *Clematis* is part of the tribe Anemoneae, together with a few other genera including *Anemone* and *Ranunculus* (15).

Interesting Quotation or Other Interesting Factoid not inserted above: Cultivated in the U.S. since 1877, *C. terniflora* has naturalized in many states, and it is often considered an invasive species, capable of killing saplings and sometimes fully grown trees (7). *C. terniflora* inhibits the growth of other plants, especially legumes (8).

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