

# Plant Diversity Website

## ***Cynanchum rossicum*** (Kleopow) Borhidi

**Common Names:** European swallow-wort, pale swallow-wort (1), dog-strangling vine, *dompte-venin de Russie* (3).

**Etymology:** *Cynanchum* is derived from the Greek words *kyon*, meaning "dog", and *anchein*, meaning "strangle" or "poison." *Rossicum* is the Latinized form of "Russia." The generic name possibly refers to a possible past use of the plant as an animal poison, and the specific epithet to its presumed origin. Interestingly, there are two explanations for the taxonomic synonym *Vincetoxicum*. DiTommaso (3) explains that it comes from the Latin *Vinco* and *toxicum*, and means "to overcome or subdue [with] poison." Fernald (13) says that *Vincetoxicum* is "an ancient name, meaning rope-like poison."

**Botanical synonyms:** *Vincetoxicum rossicum*, *Cynanchum medium*, *Vincetoxicum medium*, *Vincetoxicum hirundinaria* (1,3,6,11,12,15).

**FAMILY:** Apocynaceae (the dogbane family), or Asclepiadaceae (the milkweed family), depending on the taxonomist (1,2). Here we accept the larger Apocynaceae.

**Quick Notable Features:**

- linear bands of pubescence on the stem
- stems and leaves with latex
- pale pink to maroon flowers, slightly fleshy, with a corona

**Plant Height:** The stems are typically 0.6-2.5m long. It can twine as high as 0.8m (3,6,8,10,11,14).

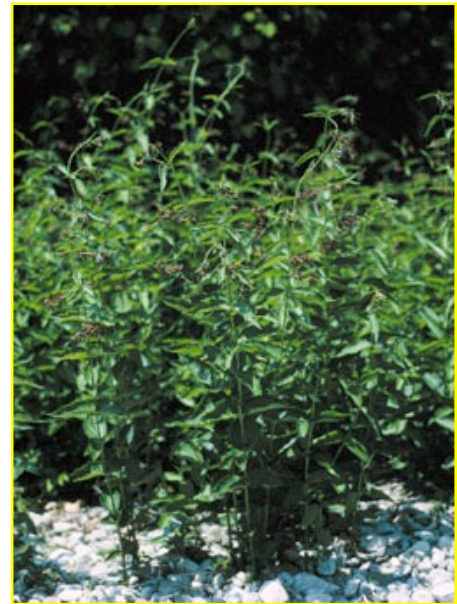
**Subspecies/variety recognized:** None found in the literature (1,3).

**Most Likely Confused with:** *Viburnum* spp., *Solanum dulcamara*, *Cynanchum louiseae*, *Lonicera* spp.

**Habitat Preference:** It occupies a variety of habitats, from the very disturbed (railroads, roadsides, fields, pastures, quarries, fencerows etc.) to the less disturbed (beech-maple, oak, ash forests). The species is not so dense or dominating in habitats with less light (17). Its native habitat is grasslands, rocky hills, and ravine slopes, in calcareous or alkaline soils (3,8,13,14).

**Geographic Distribution in Michigan:** Found in Berrien, Oakland, and Van Buren counties (1).

**Known Elevational Distribution:** None found in the literature.



**Complete Geographic Distribution:** The species has a distinctly northern distribution. The first description of *C. rossicum* came from the Ukraine near Kiev. It is thought to be endemic to the Caucasus and Black Sea region (3). *C. rossicum* is now found throughout most of New England, as well as Indiana, Michigan, Ohio, and Pennsylvania. In Canada it is found in British Columbia, Ontario, and Quebec (1,3).

**Vegetative Plant Description:** A perennial herbaceous scrambler, erect forb, or twining vine that over-winters as short, horizontal rhizomes. The roots are pale, fibrous, and fleshy. The opposite leaves are 7-13cm long and 5-8cm wide, ovate-lanceolate to elliptic and acuminate-acute with entire margins, growing smallest near the stem base and apices, and largest in the middle of the stem. The leaf margins and major veins are pubescent on the lower surface. The petioles are 5-20mm long (3,6,8,9,11,13,14).

**Climbing Mechanism:** The species twines with its apex (3,9). No twining orientation was found in the literature, but photographs indicate *C. rossicum* twines in a dextral direction (left to right).

**Flower Description:** Each cymose inflorescence contains 5-20 flowers, produced in a leaf axil. The peduncles are 1-5cm long and pubescent in linear bands. The pedicels are also pubescent, bearing 5-merous flowers that are pale pink, red, or maroon. The sepals are 1-1.5mm long, and slender. The petals are slightly fleshy, 2.5-5mm long, 1.25-2.5mm wide, and glabrous with translucent margins. The distinctly-lobed corona is typically a bit darker than the corolla, but can also be orange, or yellow. The gynostegium (a fusion of the androecium and gynoecium) is pale and green or yellow-green. The flower buds are conical (3,6,8,9,11,13,14).



**Flowering Time:** Observed in central New York flowering from mid-May to early June (3).

**Pollinator:** Flies, ants, bees, wasps, and beetles were all observed to pollinate the flower, which is described as sweetly fragrant (3).



**Fruit Type and Description:** Each flower of *C. rossicum* can produce 1 or 2 glabrous, fusiform follicles, approximately 4-7cm long and "slender." In central New York, the fruits are observed as early as the first week of June (3,6,9).

**Seed Description:** Light or dark brown and flattened, 4-6.5mm wide and 2.4-3.1mm long, oblong or obovoid. The surface can be smooth or wrinkly. Each seed has an apical coma (plume of hairs) 2-3cm long (3,9,10). Polyembryony (multiple embryos per seed) is reported as common (15). Seed germination has been reported as close to or greater than 50% under ideal growth condition (16,17).

**Dispersal Syndrome:** The follicles dehisce, dispersing the tufted seeds (3,9). It is noted that

reproduction is largely via seeds, rather than via rhizomes (9,10).

**Distinguished by:** Many Apocynaceae, including *Cynanchum*, can be distinguished from most other families by the presence of milky latex in the stems. While both *Lonicera* and *Cynanchum* are simple and opposite-leaved, no climbing *Lonicera* species in Michigan has latex in its stem. Climbing *Lonicera* species often have semi-woody stems. Furthermore, the flowers of *Lonicera* are usually strongly zygomorphic, whereas *Cynanchum* has actinomorphic flowers (2,11).

*C. rossicum* may be distinguished from *Solanum dulcamara* by its opposite, entire leaves (*Solanum* has alternate, serrate/lobed leaves) and fruit (*C. rossicum* has a follicle; *S. dulcamara* has a bright red berry) (11).

*Cynanchum rossicum* has pale pink, occasionally maroon flowers, with glabrous petals at least twice as long as wide, unlike *C. louiseae* (formerly known as *Vincetoxicum nigrum*), whose dark purple petals are about as long as they are wide, with adaxial surfaces pubescent. Furthermore, the flower buds of *C. rossicum* are conical, whereas the flower buds of *C. louiseae* are globose. Finally, the linear bands of hair on the stems of *C. rossicum* are much more distinct and dense than the bands of pubescence on *C. louiseae* (3,11,14,18).

**Other members of the family in Michigan:** *Asclepias* (12 spp.) and *Cynanchum* (2 spp.) in the Asclepiadaceae s.s. If Apocynaceae and Asclepiadaceae are treated as one family, as here, that adds *Apocynum* (3 species) and *Vinca* (1 species) to the family totals (source: 1).

**Ethnobotanical Uses:** None found, with the exception of the etymology mentioned above: *Cynanchum* comes from the Greek words *kyon*, meaning "dog", and *anchein*, meaning "strangle" or "poison." The name possibly refers to a possible past use of the plant as an animal poison, as well as its presumed origin. Interestingly, the Latin *Vinco* and *toxicum*, from which came the synonym *Vincetoxicum*, roughly means "to overcome or subdue [with] poison" (3).

**Phylogenetic Information:** Apocynaceae and Asclepiadaceae are sometimes treated as distinct families, but since 1962 have been merged by many workers, with Asclepiadoideae as one of five subfamilies within Apocynaceae. There are several differences (as well as similarities), but a few distinguishing characters may be useful in the field: corolla shape (generally rotate in Asclepiadaceae and funnellform or salverform in Apocynaceae), and filament fusion (typically connate in Asclepiadaceae, and distinct in Apocynaceae). The family Apocynaceae is placed in the Gentianales, within the Asterid I group of the angiosperms (2,7).

**Interesting Quotation or Other Interesting Factoid not inserted above:** *C. rossicum* often becomes highly invasive where it escapes, including Norway, southern Canada, and parts of the U.S. It is invasive and/or prohibited in the Great Lakes area as well as in Connecticut, Massachusetts, New Hampshire, New York, and Wisconsin (1,3,15,17).

Several species of butterfly, including the North American monarch butterfly (*Danaus plexippus*), lay their eggs exclusively on members of Asclepiadaceae. Although some butterfly species show a clear preference for non-toxic Asclepiadaceae species (primarily *Asclepias*) when they are available, some butterflies have been observed to lay their eggs on *C. rossicum*, raising concerns about the survival of the populations due to the toxic nature of compounds of *C. rossicum* and its recent rapid spread (5, 15). A study of arthropod populations in old fields with *C. rossicum* found the presence of the species to have a negative impact on the arthropod populations (4).

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- 4) Image of seed dispersing courtesy Leslie J. Mehrhoff, University of Connecticut, Bugwood.org (<http://www.invasive.org/browse/detail.cfm?imgnum=5275028>).

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