

# Plant Diversity Website

## ***Calystegia pubescens*** Lindl.

**Common Names:** Japanese false bindweed, Japanese bindweed, California-rose (referring to the "double" cultivar), Hairy False Bindweed (1, 4).

**Etymology:** *Calystegia* is Greek for "a covering cup," derived from *kalux*, "cup" and *stegos*, "a covering." *Pubescens* refers to the soft pubescence which may or may not be present (3, 5, 13).

**Botanical synonyms** (1, 15):

*Calystegia abyssinica* Engler  
*C. acetosifolia* (Turczaninow) Turczaninow  
*C. hederacea* Wall.  
*C. pellita* (Ledeb.) G. Don.  
*Convolvulus acetosifolius* Turczaninow  
*C. calystegioides* Choisy  
*C. pellitus* Ledeb.  
*C. wallichianus* Sprengel  
*C. japonicus* auct. non Thunb. [misapplied]  
*Volvulus hederaceus* (Wallich) Kuntze.

**FAMILY:** Convolvulaceae, the bindweed or morning glory family

**Quick Notable Features:**

- twining vine with large sepaloid bract on flowers
- flowers white or pink or both
- triangular leaves with basal lobes

**Plant Height:** Usually grows to 5.0m high

**Subspecies/varieties recognized:** none

**Most Likely Confused with:** *Calystegia sepium* or *Polygonum convolvulus*

**Habitat Preference:** This species is usually only found in cultivation in the Eastern U.S., but when it does escape it is found along roadsides and railroads. It can survive in most soil types, but cannot survive in the shade, and prefers moist soil (2, 4, 12).

**Geographic Distribution in Michigan:** This species is only found in Kalamazoo, Newaygo, Oakland, and Wayne counties (1).

**Known Elevational Distribution:** Introduced individuals in Italy were found at 1340m elevation (18).

**Complete Geographic Distribution:** This eastern Asian (most likely Chinese) native is found mostly in the northeastern United States (WI, IL and east; TN, NC and north except WV, MD and RI), as well as MO, LA, KS, and ID (1, 4, 6).



**Vegetative Plant Description:** The plant is a perennial herb. The climbing and trailing stem bears simple, alternately arranged, entirely margined, pinnately veined leaves. The firm leaves are 4-8cm long and usually 1/3 as broad, with an oblong terminal lobe and a sagittate to hastate base. Their form is nearly triangular (only slightly hastate), but can have two-lobed basal lobes with the rounded lobes pointing away from the apex of the leaf. The petioles are 1/4 to 1/3 as long as the leaf blade. The stems, leaves and bracts are usually glabrous, but may be softly pubescent. The roots are perennial and spreading and the young stems are erect, more so than the older stems, which are prostrate. Large sepeloid bracts are borne below the calyx (1, 2, 6, 7, 11, 14).

**Climbing Mechanism:** Climbs with the apex of the plant twining in a dextral direction (image from reference 17 and M.M., pers. obs.).



two seeds (10,11)

**Flower Description:** The inflorescence has complete, regular flowers with parts in fives. The five sepals are usually smaller than the sepeloid bracts below the calyx (the epicalyx). The funnel-shaped, pink or pale purplish corolla is 2-4 cm long and twisted in bud. The ovary is unilocular and superior with an oblong, cylindrical stigma. The flowers are mostly double (absent stamens and pistils) in our region, while single flowers are usually cultivated. When the five stamens are present, they are 1.1-1.6cm (rarely up to 1.9cm) long with 3-4mm anthers. Once produced, the flowers are short-lived; some may last for only a single day (2, 6, 11, 12).

**Flowering Time:** Flowers August - October in the northeastern United States (12).

**Pollinator:** In the rare flowers that are not of the double form, bees and members of Lepidoptera are the most likely pollinator (12).

**Fruit Type and Description:** capsule, bearing

**Seed Description:** When doubled, the plants will not produce seeds due to the “doubled” nature of the flowers. The plant most likely reproduces vegetatively by spreading its roots and prostrate stems (14). The term “double” refers to the flowers having more petals than normal, usually in place of the androecium and/or gynoecium.

**Dispersal Syndrome:** Rarely producing fruits, more often reproducing by its rhizomatous roots (16). It has been reported as gravity dispersed (10).

**Distinguished by:** The easiest way to distinguish this species from *C. sepium* is by the flowers and the bracts surrounding them. The flowers and bracts of *C. pubescens* are smaller (2-4cm) than those of *C. sepium* (4-7cm). In Ohio, *C. pubescens* emerges later and grows more slowly

than *C. sepium* (14). It can also be confused with Polygonaceae climbers such as *Polygonum convolvulus* but that species flowers are small, green, apetalous, and hardly noticeable (16, pers. obs.).

**Other members of the family in Michigan (number species):** *Calystegia* (3), *Convolvulus* (1), and *Ipomoea* (5).

**Ethnobotanical Uses:** The washed and steamed root is very nutritious, rich in starch and sugar, but it should not be eaten regularly due to its purgative properties. Medicinally, the seed (when produced) can be simmered in water and used as a diuretic to stimulate kidney secretions (12).

**Phylogenetic Information:** Here we follow the direction of the Michigan Flora online, which synonymizes *C. hederacea* with this species. Within the family Convolvulaceae, the genus *Calystegia* is placed in the tribe Convolvuleae, according to recent molecular studies. Also included in this tribe are the widespread species of *Convolvulus*, in which *Calystegia* previously was included, and the genus *Polymeria*, endemic to Australia. Within the family, this tribe is closest to the tribe Jacquemontieae (consisting of the genus *Jacquemontia*), and both tribes are close to the tribe Aniseieae (including *Aniseia*, *Iseia*, *Odonellia*, and *Tetralocularia*). The family Convolvulaceae is part of the Solanales, which is one of the four clades of the Euasterids I, which is in turn part of the Core Asterids which are Tricolpate Angiosperms (8, 9).

**Interesting Quotation or Other Interesting Factoid not inserted above:** This species was introduced in England as a cultivated curiosity from China because of its double flower (7).

#### Literature and websites used:

- 1) USDA, NRCS. 2006. The PLANTS Database (<http://plants.usda.gov>, 8 November 2006). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- 2) Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. New York: The New York Botanical Garden Press.
- 3) Brown, R.W. 1956. *Composition of Scientific Words*. Washington, D.C.: Smithsonian Institution Press.
- 4) Voss, E.G. 1985. *Michigan Flora Part III*. Ann Arbor, MI: Cranbrook Institute.
- 5) Bailey, L.H. 1963. *How Plants Get Their Names*. New York, NY: Dover Publications, Inc.
- 6) Cooperrider, T.S. 1995. *The Dicotyledoneae of Ohio: Part 2. Linaceae through Campanulaceae*. Columbus, OH: Ohio State University Press
- 7) Fernald, M. L. 1950. *Gray's Manual of Botany, 8<sup>th</sup> ed.* New York: American Book Company.
- 8) Judd, W.S., C. S. Campbell, E.A. Kellogg and P.F. Stevens 1999. *Plant Systematics: A Phylogenetic Approach*. Sunderland, MA: Sinauer Associates, Inc.
- 9) Stefanovic, S., D.F. Austin and R.G. Olmstead 2003. *Classification of Convolvulaceae: A Phylogenetic Approach* in Systematic Botany. American Society of Plant Taxonomists 2(4): 791-806.
- 10) Ushimaru, A. and K. Kikuzawa 1999. *Variation of breeding system, floral rewards, and reproductive success in clonal Calystegia species (Convolvulaceae)*. American Journal of Botany 86: 436-446.
- 11) Iverson, L.R., D. Ketzner, and J. Karnes 1999. *Illinois Plant Information Network. Database* at <http://www.fs.fed.us/ne/delaware/ilpin/ilpin.html> Illinois Natural History Survey and USDA Forest Service.
- 12) *Plants For A Future: Edible medicinal, and useful plants for a healthier world.* <<http://www.pfaf.org/index.html>> Accessed November 2006.
- 13) Charters, M.L. 2007. *California Plant Names: Latin and Greek Meanings and Derivations A*

- Dictionary of Botanical Etymology*. <http://www.calflora.net/botanicalnames/>
- 14) Cardina, J., C. Herms, T. Koch and T. Webster. 2007. *Ohio Perennial & Biennial Weed Guide*. <http://www.oardc.ohio-state.edu/weedguide/>
  - 15) Flora of North America's eFloras, 2004-2007. Last modified: 2007.  
<http://www.efloras.org/index.aspx>
  - 16) Atland, J. 2000. Weed Identification Guide. Oregon State University  
<http://oregonstate.edu/dept/nursery-weeds/startpage.html>
  - 17) Bowling, A.J. and K.C. Vaughn 2009. Gelatinous fibers are widespread in coiling tendrils and twining vines. *American Journal of Botany* 96(4): 719–727.
  - 18) Ballelli, S. 2013. *Calystegia hederacea* Wall. a random exotic species, new for Italy. *Webbia* 68(1):63-65.

**Image Credits (all with copyright permission):**

Image One is copyright by Cambridge 2000 at <http://www.cambridge2000.com/gallery>  
The pink-flowered image is courtesy of Yoshiaki Yoneda from Morning Glories Image Database,  
URL: <http://protist.i.hosei.ac.jp/Asagao/Images/menu.html>

**PRIMARY AUTHOR:** Robyn J. Burnham and Marko Melymuka

© Robyn J. Burnham, University of Michigan

For additional information on Michigan Plant Diversity web pages please contact Robyn J. Burnham via email: [rburnham@umich.edu](mailto:rburnham@umich.edu)