

# Plant Diversity Website

## ***Smilax hispida*** Muhl.

**Common Names:** Bristly Greenbrier (1), China root, Helffetter (2) Sarsaparilla (6)

**Etymology:** According to (12), *Smilax* is Greek for clasping; *hispida* meaning hairy, bristly, rough (15).

**Botanical synonyms:** *Smilax tamnoides* var. *hispida* (Muhl. ex Torr.) Fern. (13). The species is widely called *Smilax tamnoides*, but we have followed recent efforts to synonymize the two species.

**FAMILY:** Smilacaceae (the Catbrier family)

**Quick Notable Features:**

- Dark brown or blackish cylindrical prickles on lower stems
- 3-5 principle leaf veins arching toward the apex
- Tendrils arise from the petioles, not the stem

**Plant Height:** *S. hispida* can grow as long as 10 -14 m (4,7).

**Subspecies/varieties recognized (13):**

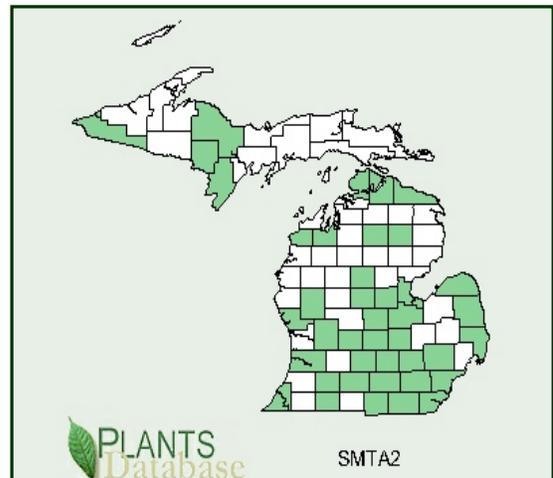
- Smilax hispida* var. *australis* Small
- Smilax hispida* var. *montana* Coke

**Most Likely Confused with:** *Smilax rotundifolia*, *Smilax glauca*, or *Smilax lasioneura*, as well as *Dioscorea villosa* and *Menispermum candensis*.

**Habitat Preference:** *S. hispida* often occurs in low woods and thickets. It is also found in moist habitats or lightly shaded woods and along roadsides, fence rows, old fields, edges of woods, and banks of rivers and streams (2,3,4).

**Geographic Distribution in Michigan:** *S. hispida* occurs in most of the counties in southern Michigan. Only four of the Upper Peninsula counties have confirmed observations (5).

**Known Elevational Distribution:** 0-400m (6)



**Complete Geographic Distribution:**

Native to North America and Canada. *S. hispida* is currently found from South Dakota south to Texas and east to New York. It is also found in New Hampshire and Connecticut (5).

**Vegetative Plant Description:**

*S. hispida* is a stout, climbing vine that can grow up to 10m long. The branches spread slightly and are clone-forming. The plant climbs using tendrils borne in pairs on the petioles. Leaves of *S. hispida* are alternate and simple, with 5-12cm long blades that are 3-9cm wide and broadly ovate, acute, or cuspidate. They are also rough-margined or with a few minute bristle-tipped teeth. The leaves are thin, dark green, glabrous on both sides, and there are usually 5 primary veins, that run parallel-arcuate, with at least 3 of them uniting at the apex. The leaves fall off the plant from above the petiole base. The petioles are 1-2cm long and bear tendrils. Twigs are slender, round, green, glabrous, and armed with straight, slender, blackish prickles that can be up to 1.2 cm long. The lower stem is densely covered with the bristles, whereas actively growing shoots and younger branches are mostly clear of them. Pith is absent, vascular bundles are scattered throughout the stem, and there is no definite leaf scar (2,3,4,5,6,7,8).



**Climbing Mechanism:** The plant climbs using tendrils borne in pairs on the petioles (4,7,8).



**Flower Description:** The flowers of *S. hispida* are unisexual and species is dioecious. The plants bear few to many flowered umbels with peduncles up to 7cm long with each branch bearing 4-12 flowers. The flowers are small and green to yellowish. The tiny perianth is bronze to greenish. There are 3 lanceolate sepals and 3 petals. There are usually 6 distinct to slightly connate stamens and 3 connate superior carpels (2,4,5,7,8,11).

**Flowering Time:** *S. hispida* blooms in late spring between May and June (7,2,4,8).

**Pollinator:** *S. hispida* is insect pollinated by both bees and flies (4,11).



**Fruit Type and Description:** The berries of *S. hispida* are black and globose at maturity. For the most part, there is only one seed but rarely there are two. The fruit is ~5-8mm across. The fruit ripens during the later months of fall in October and November (2,3,4,7,8).

**Seed Description:** Seeds are a shiny reddish brown and they are subglobose (2,4).

**Dispersal Syndrome:** The fruits of *S. hispida* are bird-dispersed, observed

at least for thrushes (11, 16).

**Distinguished by:** *S. hispida* is best identifiable at a glance by the many needlelike, nearly black, lustrous prickles on the lower parts of the stems. It can be distinguished from *Dioscorea villosa* by the presence of petiole tendrils, which are absent in *Dioscorea*. In addition, *Dioscorea* has as many as 9 veins arching to the apex whereas *S. hispida* has only 3-5 (3).

*Menispermum canadensis* is a similar alternate-leaved climber that does not bear the strong arching veins and no petiole tendrils.

**Other members of the family in Michigan:**

There are 6 other species of *Smilax* in Michigan: *Smilax ecirrhata*, *Smilax herbacea*, *Smilax illinoensis*, *Smilax lasioneura*, *Smilax pulverulenta*, and *Smilax rotundifolia*. *Smilax* is the sole genus in the Smilacaceae (5).



**Ethnobotanical Uses:** *S. hispida* has many ethnobotanical uses. The stem prickles can be rubbed on the skin as a counter-irritant to relieve local pains, muscle cramps, and twitching. The stems are used as a general tonic. Tea made from the leaves and stems has been used in the treatment of rheumatism and stomach problems. The wilted leaves are applied as a poultice to boils. A mixture of the crushed root has been used as a wash on ulcers, particularly leg ulcers. A tea made from the roots is used to help the expelling of afterbirth. Reports that the roots contain testosterone have not been confirmed, but they might contain steroid precursors (9).

**Phylogenetic Information:** The Smilacaceae is a member of the order Liliales. Liliales belong in the monocot clade. They form a monophyletic group with Asparagales, Dioscoreales, Pandanales, Arecales, Poales, Commelinales, Zingiberales, Petrosaviales, Alismatales, and Acorales. Liliales are angiosperms (10).

**Interesting Quotation or Other Interesting Factoid not inserted above:**

According to Iroquois medicine, in addition to *S. hispida* being used for several of the ailments above the Iroquois used it to “bring about bad luck, accidents, or death”. In conjunction with *Rosa acicularis*, *S. hispida* is used to make a doll similar to a voodoo doll. It also can be used with *Crataegus submollis* to “kill a woman who is using you bad”. Interestingly enough, all three of these species that are being used for voodoo and black magic have spines or thorns (14).

**Literature and websites used:**

- 1) Voss, E.G. 1972. *Michigan Flora Part I: Gymnosperms and Monocots*. Bloomfield Hills, Michigan, USA: Cranbrook Institute of Science.
- 2) Fernald, M. L. 1950. *Gray's Manual of Botany*, 8<sup>th</sup> ed. New York, USA: American Book Company.
- 3) Godfrey, R.K. 1988. *Trees, Shrubs, and Woody Vines of Northern Florida and Adjacent Georgia and Alabama*. Athens, Georgia, USA: The University of Georgia Press.
- 4) Barnes, B.V. & W.H. Wagner 1992. *Michigan Trees: A Guide to the trees of Michigan and the Great Lakes Region*. Ann Arbor, MI, USA: The University of Michigan Press.
- 5) USDA, NRCS. 2007. The PLANTS Database (<http://plants.usda.gov>, 25 January 2008). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- 6) Holmes, W.C. 2002. *Smilacaceae*. In: Flora of North America Editorial Committee, eds. 1993+. *Flora of North America North of Mexico*. New York and Oxford. Vol. 26
- 7) Johnson, F.L. & B.W. Hoagland 1999. Okalahoma Biological Survey ([www.biosurvey.ou.edu](http://www.biosurvey.ou.edu) 25 January 2008)
- 8) Seiler, J.R., E.C. Jensen, & J. A. Peterson 2008. Virginia Tech Fact Sheets for Tree Identification (<http://www.cnr.vt.edu/dendro> 30 January 2008)
- 9) Plants For A Future, 1996-2003. Last modified: June 2004. (<http://www.pfaf.org> 30 January 2008)
- 10) Solomon, J. 2006. W3TROPICOS VAST nomenclatural database. Missouri Botanical Garden. (<http://mobot.mobot.org/W3T/Search/vast.html> 30 January 2008)
- 11) Judd, W.S., C.S. Campbell, E.A. Kellogg & P.F. Stevens. 1999. *Plant Systematics: A Phylogenetic Approach*. Sunderland, Massachusetts, USA: Sinauer Associates, Inc.
- 12) Robert W. Freckmann Herbarium University of Wisconsin-Stevens Point. Last modified: March 19, 2008 (<http://wisplants.uwsp.edu> 18 March 2008)
- 13) Kartesz, J. 2000. ITIS Standard Report Page. 1996-2008 (<http://www.itis.gov> 26 March 2008)
- 14) Herrick, J.W. 1995. *Iroquois Medical Botany*. Syracuse, New York, USA: The Syracuse University Press.
- 15) Brown, R. W. 1956. *Composition of Scientific Words*. Washington, D.C., USA: Smithsonian Institution Press.
- 16) Malmborg, P.K. & M.F. Willson 1988. Foraging ecology of avian frugivores and some consequences for seed dispersal in an Illinois woodlot. *The Condor* 90(1): 173-186.

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

- 1) Photo of stem with leaf © Robyn J. Burnham, University of Michigan
- 2) Michigan distribution map from U. S. Department of Agriculture <http://plants.usda.gov/java/profile?symbol=SMTA2>
- 3, 4, 5) Photos of leaves, petiole tendrils, and prickly stems © Robyn J. Burnham, University of Michigan
- 6) Fruit image from George Yatskievych and Discover Life <http://www.discoverlife.org> [http://pick5.pick.uga.edu/mp/20p?see=I\\_MO976\\_1&res=640](http://pick5.pick.uga.edu/mp/20p?see=I_MO976_1&res=640)

**PRIMARY AUTHOR:** Bradley Sisson, with editing and additions by Robyn J. Burnham

© 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)