Plant Diversity Website

Rubus flagellaris Willd.

Common Names: Northern Dewberry, America Dewberry, Common Dewberry (1,4,5)

Etymology: *Rubus* is Latin for “bramble,” “blackberry,” or “raspberry.” *Flagellaris* means “whip-like” in Latin (9).

Botanical synonyms (4, 18, 21):
Rubus baileyanus Britton
Rubus canadensis L.
Rubus geophilus Blanch.
Rubus procumbens Muhl.
Rubus rhodophyllus Rydb.
Rubus subiniflorus Rydb.
Rubus invisus (Bailey) Britton
Rubus enslenii Tratt,
Rubus leviculus Bailey

FAMILY: Rosaceae (the Rose family)

Quick Notable Features:
¬ alternate, palmately compound leaves with 3(-5) serrated leaflets
¬ 5-parted flower with white petals that are longer than the sepals
¬ fleshy, aggregate black fruit
¬ stem tips root after arching

Plant Height: *R. flagellaris* normally trails with on stems on the ground, or initially grows erect but then develops a low arch. The stem is usually 2-5 m long (12).

Subspecies/varieties recognized (10,18):
Rubus flagellaris var. *almus* L.H.Bailey
Rubus flagellaris var. *geophilus* (Blanch.) L.H.Bailey
Rubus flagellaris var. *inermis* (Willd.) DC.
Rubus flagellaris var. *invisus* (L.H.Bailey) L.H.Bailey
Rubus flagellaris var. *michiganensis* (Card.) L.H.Bailey
Rubus flagellaris var. *occidualis* L.H.Bailey
Rubus flagellaris var. *roribaccus* (L.H.Bailey) L.H.Bailey

Most Likely Confused with: other members of *Rubus* such as *R. allegheniesis*, *R. argutus, R. occidentalis.* It may also be confused with *Rosa multiflora,* also a climber (16).

Habitat Preference: *R. flagellaris* is naturally found in dry open habitats. It grows best in areas with full sun to part shade and where soil is dry to moist. It is mostly found in open fields, woodlands, and forest margins. It is part of the dominant vegetation of dry sand prairies in southern and western Lower Michigan (1,2,14,19).

Geographic Distribution in Michigan: *R. flagellaris* exists south of, and including, the counties at the latitude of Bay County except: Lenawee, Branch, Jackson, Eaton, Ionia, Saginaw,

Tuscola, Sanilac, Lapeer, Midland, and Isabella. In other parts of the Lower Peninsula, it is found in the following counties: Clare, Lake, Mason, Wexford, Roscommon, Oscoda, Crawford, Grand Traverse, Benzie, Leelanau, Antrim, Emmet, Cheboygan, and Beaver Island. In the Upper Peninsula, it is found in Keweenaw, Houghton, Baraga, Marquette, Dickinson, Menominee, and Alger (1).

Known Elevational Distribution: The guide to Smoky Mountains (Tennessee) plants suggests this is a lower elevation species (probably below 2500 feet).

Complete Geographic Distribution: *Rubus flagellaris* is native to North America and Canada. It is found in all states east of Minnesota, Nebraska, Kansas, Oklahoma, and Texas. In Canada it is found in New Brunswick, Ontario, and Quebec (4,8).

Vegetative Plant Description: *Rubus flagellaris* is a perennial shrub whose individual canes live two years (biennial). The primocanes (first year) are usually erect at first, and later become low-arched and trail along the ground. There are scattered hooked prickles along the stem, and rooting usually occurs at the tips. Old stems are brown and woody, while young stems are green and more or less hairy (see image of young stem). The fruits and flowers can appear on primocanes but are largely restricted to the floricanes (second year), which then senesce after this second season of growth and reproduction.

The leaves are alternate and palmately compound. Most portions of the primocanes have three leaflets, although there can be five leaflets. The floricanes generally have three leaflets. The leaflets are ovate to lance-elliptical. They are usually 2-7 cm long and 0.5-6 cm wide. The leaflets are serrated and mostly hairless. Each leaflet is pale green on the underside (not white). The terminal leaflet has a short petiole, while the lateral leaflets are sessile. Each compound leaf is connected to the stem by a long petiole (3,5,17,22,24).

Climbing Mechanism: *R. flagellaris* is a scrambler that climbs weakly using recurved prickles (R. J. Burnham, pers. obs.).

Flower Description: The flower of *R. flagellaris* is 5-parted with both male and female organs (perfect). The cyme is characterized as flat-topped or elongated. The pedicels are pubescent. The sepals are 0.5-0.8 cm long and the petals are 1.5-3 cm long. The petals are white or rarely pink and obovate. Each flower consists of numerous stamens that surround a green cluster of loosely adherent carpels (3,24).

Flowering Time: In Wisconsin and North Carolina, *Rubus flagellaris* blooms in May-June (5,20).

Pollinator: *Rubus flagellaris* is pollinated by insects, and is known to attract a variety of bees. The plant can also reproduce by seeds formed without sexual fusion (13,14,24).

Fruit Type and Description: The globose to short oblong fruit is an aggregation of druplets, each of which has an outer fleshy layer surrounding the endocarp. The drupelets are red, maturing to black. The fruit is 1-2.5 cm long and wide. It is juicy and sweet (2,3,12).

Seed Description: Each drupe has one "hard- pitted" seed with almost no endosperm, a feature common to the genus *Rubus*. In the literature, *Rubus flagellaris*'s seeds are referred to as "stones." They are described as 0.3-0.34 cm long, yellowish, and strongly areolate (3,23).

Dispersal Syndrome: The seeds of *R. flagellaris* are dispersed mainly by birds and other animals. The aggregate fruit is eaten by mammals (non-bat) and birds (15,23).

Distinguished by: *Rubus flagellaris* is distinguished from other *Rubus* species by aspects of the leaf, fruit, and flower. *R. allegheniesis* most often has five leaflets/leaf, compared to *R. flagellaris*, which most often has three leaflets/leaf. The cane tips of *R. allegheniesis* and *R. argutus* do not root, while they do root in *R. flagellaris. R. argutus* has leaflets that are more lanceolate and elliptical in shape as opposed to obovate in *R. flagellaris*. *Rubus occidentalis* is distinguished from *R. flagellaris* by sepals that are longer than petals, leaflets with white undersides, and a raspberry fruit.

Rosa multiflora appears similar to *Rubus flagellaris* vegetatively, but can be distinguished by the leaves with 7-9 pinnately arranged leaflets (versus 3-5). The fruit of *R. multiflora* fruit is a "hip", which is small, smooth, and red (16).

Other members of the family in Michigan (number species): *Rubus* (48), *Agrimony* (5), *Amelanchier* (6), *Argentina* (1), *Aruncus* (1), *Chamaerhodos* (1), *Comarum* (1), *Crataegus* (42), *Dalibarda* (1), *Dasiphorda* (1), *Duchesnea* (1), *Filipendula* (1), *Fragaria* (2), *Geum* (9), *Gillenia* (2), *Malus* (4), *Photinia* (2), *Physocarpus* (2), *Potentilla* (11), *Prunus* (16), *Pyrus* (1), *Rosa* (18), *Sanguisorba* (3), *Sibbaldiopsis* (1), *Sorbaria* (1), *Sorbus* (3), *Spiraea* (6), *Waldsteinia* (1) (source 8).

Ethnobotanical Uses: Native Cherokee use *R. flagellaris* for drugs and food. Infusion of the root or leaf is used as a remedy for diarrhea, hemorrhoids, sore throat, or rheumatism (problems with joints and connective tissue). The fruit is also use to make juice and food. Native Osage people use the roots to make a tea that calms stomach irritation (2,11).

Phylogenetic Information: The genus *Rubus* is a member of the subfamily Rosoideae in the family Rosaceae. Rosoideae is distinguished by having many carpels and stamens, and an

aggregate of achenes or drupes as fruits. The family Rosaceae dates from at least 76 million years, within the order Rosales, which itself has been dated back 88-89 million years. Rosales is in the subclass Rosidae, a member of the eudicots (6,7).

Interesting Quotation or Other Interesting Factoid not inserted above:
The heptaploid *Rubus flagellaris* is facultatively apomictic. The species produces apomictic seeds, meaning that plant embryos can grow from egg cells without being fertilized by pollen. If "extensive detectable minisatellite variation" among different genotypes of the species exists, the minisatellite DNA can be useful in distinguishing between sexually derived offspring and apomictically derived offspring. Minisatellite analyses can be beneficial for studies about the complicated mechanisms of facultative apomixis (25).

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Image Credits:

1) Flower: Baskauf, Steven J. © 2004. http://www.cas.vanderbilt.edu/bioimages/species/rufl.htm
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