

Plant Diversity Website

Desmodium rotundifolium (Michaux) DC.

Common Names: round-leaved tick trefoil, dollarleaf, prostrate tick-clover (1, 5).

Etymology: *Desmodium* comes from the Greek word *desmos*, meaning bond, fetter, halter, or chain. “rotundifolium” comes from the Latin words *rotundus*, meaning “circular, round, or spherical,” and *folium*, meaning “leaf” (6).

Botanical synonyms (4):

Desmodium michauxii (Vail) Daniels
Meibomia michauxii Vail
Meibomia rotundifolia (DC.) Kuntze

FAMILY: Fabaceae (the bean family)

Quick Notable Features:

- prostrate stems up to 1.5m long
- pinnately compound trifoliate leaves arranged alternately along the stem, leaflets are rotund-ovate, with terminal leaf 3-7cm long
- the legume fruits separate into 1-seeded segments and are covered in small hooked hairs

Plant Height: stems up to 1.5m, prostrate (3)

Subspecies/varieties recognized: None found

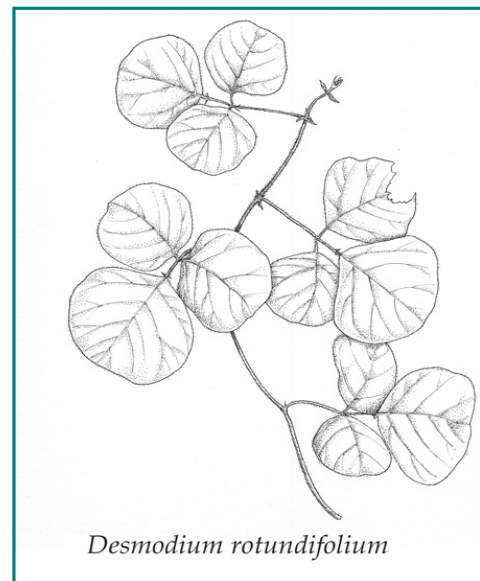
Most Likely Confused with: *D. ochroleucum*, *D. pauciflorum*, *D. lineatum*, *Pueraria lobata*, *Amphicarpaea bracteata*, or *Strophostyles helvula*. Any trifoliate alternate leaved species might be confused with *Toxicodendron radicans*.

Habitat Preference: *D. rotundifolium* is found on hillcrests and tops of ridges as well as in oak woods, dry thickets, and openings. Herbarium specimens indicate presence in dry, sandy soil in partly shaded areas. It appears to do best in the interior of woodlands rather than in open areas. (1, 2, 10).

Geographic Distribution in Michigan: *D. rotundifolium* is found in most counties in the southern half of the Lower Peninsula (2).

Known Elevational Distribution: None found.

Complete Geographic Distribution: *D. rotundifolium* is native to North America. It is found in Eastern Canada (Ontario), most states in the Northeastern U.S. with the exception of Maine, as



well as the northcentral and southeastern United States. The range of *D. rotundifolium* reaches as far west as eastern Kansas and Texas (5).

Vegetative Plant Description: This perennial, herbaceous species has prostrate stems reaching up to 1.5m long, ranging from glabrous to villous. It has alternate leaf arrangement. The petioles are ciliate and range from 3 to 5cm in length. It has pinnate, trifoliate leaves, with leaflets that are round or ovate. The terminal leaflet is 3-7cm; often wider than it is long and usually larger than the lateral leaflets. Leaflets are villous on both surfaces, and with entire margins. The stipules are up to 1 cm long and 7mm broad, ovate with acuminate tips. Stipels are present on all three leaflets, linear and as much as 3mm in length (1, 3, 9, 11)

Climbing Mechanism: No specific description found. As a leguminous climber, it is likely that the stems twine with the apical portion as no modified leaves or tendrils are reported.

Flower Description: The inflorescence is a raceme up to 30cm long, with axillary and terminal perigynous flowers. Ovate bracts are present on the inflorescence axis. The sepals are zygomorphic, pubescent externally, with a single lobe on the upper lip and three on the lower lip (9). The violet (pink to purple) papilionaceous flower petals range from 8-11mm long and bear two white spots edged with dark purple on the base of the standard. The keel and wings are glabrous. The 10 stamens are united into a group of 9 and 1 free (diadelphous). The style is curved, ovary superior, composed of a single carpel. (1, 3, 9, 11)



Flowering Time: In Illinois, *D. rotundifolium* flowers from August through September (1) and in Missouri from July to September (9).

Pollinator: None found in literature.

Fruit Type and Description: The fruit is a legume, elevated above the stamens and calyx on a stipe of 3-5mm in length. The legume is divided into usually three to six 1-seeded joints, 5-9mm long and 4-5mm wide each. The legumes are pubescent on sides and margins (3, 11).

Seed Description: None found.

Dispersal Syndrome: The legumes are indehiscent (3). No other information was found. The segmentation of the pods and personal experience indicate that fruit segments can be dispersed on passing animals or humans.

Distinguished by: *D. rotundifolium* is distinguished from *D. ochroleucum* by its untwisted fruit, more trailing habit, and rounder more villous leaves. It is distinguished from *D. pauciflorum* and *D. paniculatum* by its prostrate stems (*D. pauciflorum* has decumbent or ascending stems and *D. paniculatum* is upright and bears lanceolate leaflets). *D. lineatum* has smaller leaflets (1.5-3 cm) than *D. rotundifolium*. It can be distinguished from the leguminous creeper, *Strophostyles helvula* by the excurrent vein that runs beyond the leaf tip in that species. It can be distinguished from *Pueraria lobata* (kudzu) by the presence of whitish pubescence abaxially in that species. The other potential leguminous impostor in Michigan is *Amphicarpaea bracteata*, whose leaflets are longer than broad with an acute apex (not rounded).

Other members of the family in Michigan: *Wisteria* (1), *Amorpha* (2), *Amphicarpaea* (1), *Anthyllis* (1), *Apios* (1), *Astragalus* (3), *Baptisia* (4), *Caragana* (1), *Cercis* (1), *Chamaecrista* (2), *Cladrasis* (1), *Colutea* (1), *Crotalaria* (1), *Cytisus* (1), *Dalea* (1), *Desmodium* (12), *Genista* (1), *Gleditsia* (1), *Glycine* (1), *Gymnocladus* (1), *Hedysarum* (1), *Kummerowia* (1), *Lathyrus* (10), *Lespedeza* (13), *Lotus* (1), *Lupinus* (2), *Melilotus* (2), *Mimosa* (1), *Orbexilum* (1), *Phaseolus* (2), *Pisum* (1), *Pueraria* (1), *Robinia* (3), *Securigera* (1), *Senna* (1), *Strophostyles* (1), *Tephrosia* (1), *Trifolium* (9), *Vicia* (8), *Vigna* (1) (4)

Ethnobotanical Uses: None found for this species however other species of the genus *Desmodium* have been used for antiplasmodial activity in African malaria, and visceral leishmaniasis (7,8).

Phylogenetic Information: Fabaceae belongs to the order Fabales, which is closely related to Fagales, Cucurbitales, and Rosales within the clade, Eurosids I. Within Fabaceae, *Desmodium rotundifolium* belongs to the subfamily, Faboideae (also known as Papilionoideae). Members of this subfamily are characterized by papilionaceous flowers (6, 12).

Interesting Quotation or Other Interesting Factoid not inserted above:

Reports of hybrids between this species and *D. paniculatum* has produced the intermediate *D. humifusum*, whose range always overlaps those of its parents. Isozyme evidence supports these observations (10).

Literature and websites used:

- 1) Iverson, L., D. Ketzner, and J. Karnes. 2006. *Desmodium rotundifolium*. Illinois Plant Information Network. <http://www.fs.fed.us/ne/delaware/ilpin/ilpin.html>
- 2) Voss, Edward G. 1985. Michigan Flora Part II. Ann Arbor: University of Michigan
- 3) Gleason, Henry A. 1963. *Illustrated Flora of the Northeastern United States and Adjacent Canada*. Vol. 2. New York. Hafner Publishing Company.
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- 8) Singh, N., P.K. Mishra, A. Kapil, K.R. Arya, R. Maurya, and A. Dube. 2005. Efficacy of *Desmodium gangeticum* extract and its fractions against experimental visceral leishmaniasis. *Journal of Ethnopharmacology*, 98 (1-2):83-88.
- 9) *Desmodium rotundifolium* webpage at Missouri Plants www.missouriplants.com/Pinkalt/Desmodium_rotundifolium_page.html
- 10) Raveill, J.A. 2002. Allozyme evidence for the hybrid origin of *Desmodium humifusum* (Fabaceae). *Rhodora* 104 (919): 253-270.
- 11) Fernald, M.L. 1950. *Gray's Manual of Botany*, 8th ed. New York: American Book Company.

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