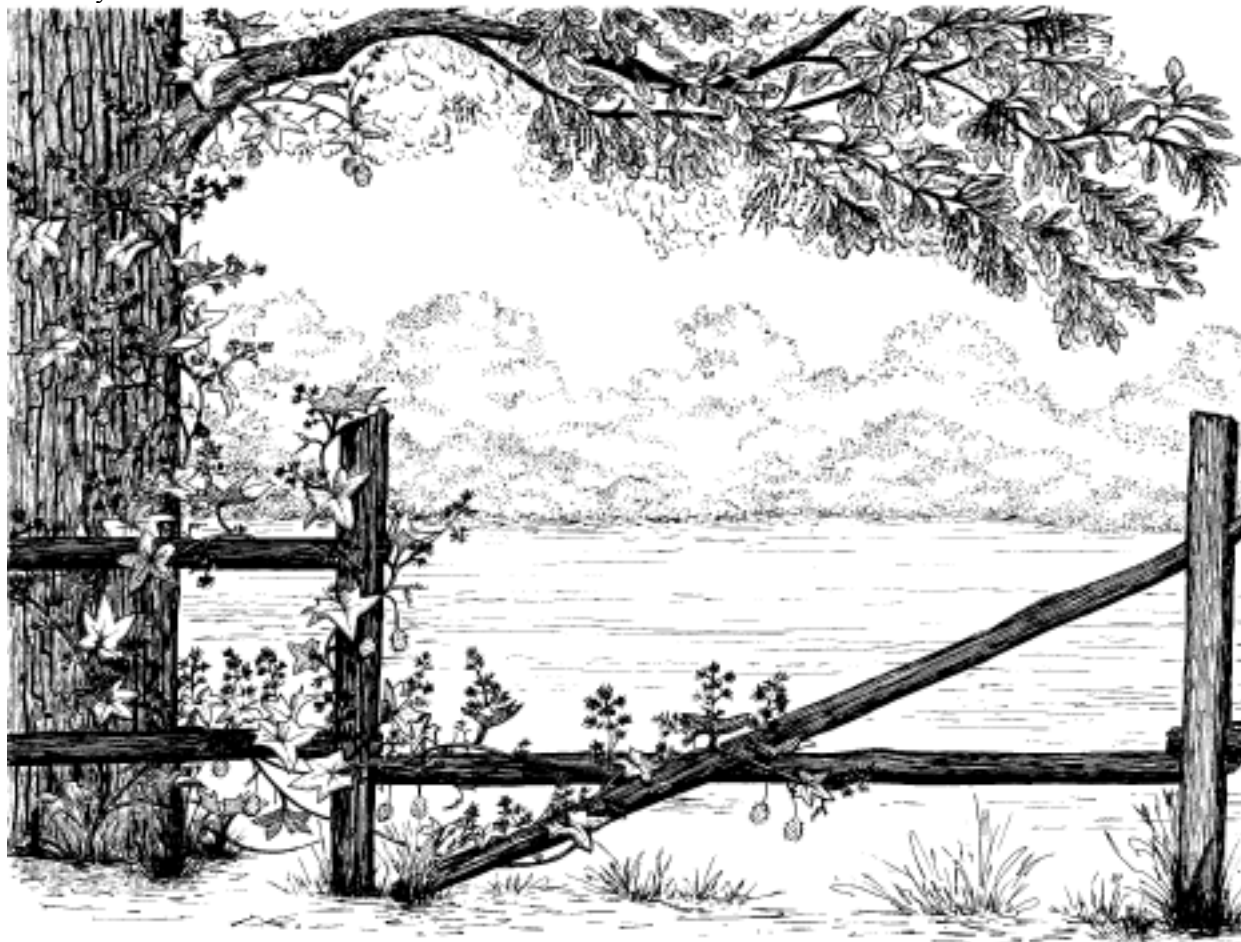


# LEGUMINOSAE

## PART DEUX

**Papilionoideae**, *Genista* to *Wisteria*  
Revised May the 4<sup>th</sup> 2015



BEAN FAMILY 2

PAPILIONACEAE cont.

Genista  
Glycine  
Glycyrrhiza  
Hylodesmum  
Lathyrus  
Lespedeza  
Lotus  
Lupinus  
Medicago  
Melilotus  
Onobrychis  
Orbexilum  
Oxytropis

Pediomelum  
Petalostemum  
Pisum  
Psoralea  
Psoralidium  
Robinia  
Securigera  
Strophostyles  
Tephrosia  
Thermopsis  
Trifolium  
Vicia  
Wisteria

**GENISTA** Linnaeus **DYER'S GREENWEED** *Fabaceae* *Genista* Genis'ta (jen-IS-ta or gen-IS-ta) from a Latin name, the Plantagenet kings & queens of England took their name, *planta genesta*, from story of William the Conqueror, as setting sail for England, plucked a plant holding tenaciously to a rock on the shore, stuck it in his helmet as symbol to hold fast in risky undertaking; from Latin *genista* (*genesta*) -ae f, the plant broom. Alternately from Celtic *gen*, or French *genet*, a small shrub (w73). A genus of 80-90 spp of small trees, shrubs, & herbs native of Eurasia.

***Genista tinctoria*** Linnaeus 1753 **DYER'S GREENWEED**, aka **DYER'S BROOM**, **WOADWAXEN**, **WOODWAXEN**, (*tinctorius* -a -um tinctor'ius (tink-TORE-ee-us or tink-TO-ree-us) New Latin, of or pertaining to dyes or able to dye, used in dyes or in dyeing, from Latin *tingo*, *tingere*, *tinxi*, *tinctus*, to wet, to soak in color; to dye, & -orius, capability, functionality, or resulting action, as in tincture; alternately Latin *tinctorius* used by Pliny, from *tinctorum*, dyer; at times, referring to a plant that exudes some kind of stain when broken.)

An escaped shrub introduced from Europe. Shrubby, from long, woody roots. The whole plant dyes yellow, & when mixed with Woad, green. Blooms August. Now, where did I put that woad?

① Sow at 18-22°C (64-71°F) for 2-4 wks, move to -4 to +4°C (34-39°F) for 4-6 wks, move to 5-12°C (41-53°F) for germination (tchn).



*Genista tinctoria*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst - USDA-NRCS PLANTS Database - Not copyrighted image.

**GLYCINE** Willdenow 1802 **SOYBEAN, SOYA** *Fabaceae* *Glycine*, New Latin, irregular from Greek *glykys* sweet. A genus of about 10-20 spp of annual & perennial herbs native of Asia & Australia. Entire plant fuzzy; leaves 3-parted, pink flowers, pods inflated, fuzzy.

***Glycine max*** (Linnaeus) Merrill **SOYBEAN**, aka **WILD SOYBEAN**, **RESEEDING SOYBEAN** (*max* largest.)

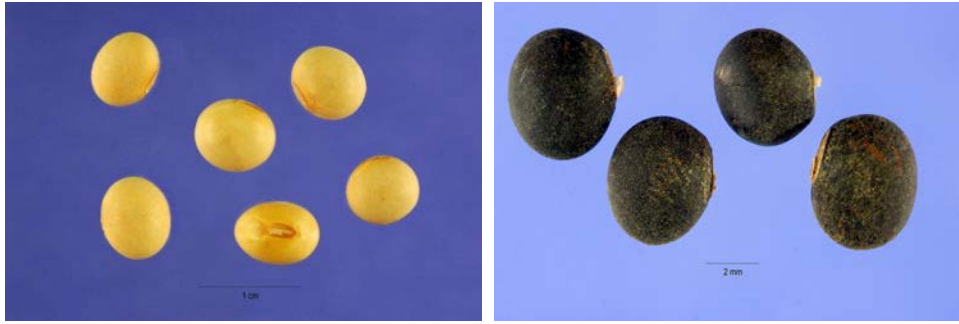
Habitat: Tolerating almost any soil. Introduced adventive annual, rarely persisting as a waif.

Culture: For cover crop, seed 2-3 lb per 1000 sq ft, or 50 lb per acre (Territorial).

C3. Good nitrogen fixer for hot summer months, fixing up to 130 available N per acre. For green manure, till under when one half of the plants have flowered. One of the most important legume crops in the world.

Associates: Sp is of some food value for large mammals, small mammals, & water birds, & provides food & cover for upland game birds.

VHFS: [*Dolichos soja* L, *Glycine gracilis* Skvortsov, *G hispida* (Moench) Maxim, *Phaseolus max* L, *Soja hispida* Moench, *S max* (L) Piper]



*Glycine max*

Seed photos Steve Hurst - USDA-NRCS PLANTS Database - Not copyrighted image.

**GLYCYRRHIZA** Linnaeus 1753 **LICORICE** *Fabaceae* New Latin, from Latin, licorice root, from Greek *glykyrrhiza*, from *glykys* sweet, & *rhiza* root. Common name is from Late Latin *liquiritia*, alteration of Latin *glycyrrhiza*. Widely distributed genus of about 10-20 spp annual & perennial herbs or subshrubs with odd-pinnate leaves, racemose or spicate flowers, & leathery, often-prickly pods, mainly Eurasian with isolated taxa in North America, South America, & Australia.

*Glycyrrhiza echinata* & *glabra*, sow at 20°C (68°F), germination slow (tchn).

**Glycyrrhiza lepidota** Pursh (or (Nuttall) Pursh) \*WI WILD LICORICE, aka AMERICAN LICORICE, (*lepidotus -a -um* with small scurfy scales.) Habitat: Dry prairies, typically railroad prairies. In Wisconsin, moist prairies & along railroads. Dry, sandy railroad prairie remnant near Nelson, Illinois. distribution/range: “Native to the w US; adventive in disturbed soil in the n ¾ of Illinois (m14). In Illinois, it is considered adventive from the west, but it is a rare native of Special Concern in Wisconsin? It is also considered native in central & eastern Iowa. Known but not mapped from a sandy railroad prairie near Nelson, Lee Co, Illinois.

Culture: ①Scarify & inoculate. No pre-treatment necessary other than cold, dry stratification. Seeds need scarification. Legume, requires appropriate rhizobial inoculum. (pm09) ②No pretreatment needed. Sow seeds just below the soil surface at 70°F & water. Slow to germinate. (ew11)

seed counts & rates: 57,344 (wns01), 62,400 (pm02), 72,000 (ew11), 3,024,000(?) seeds per pound.

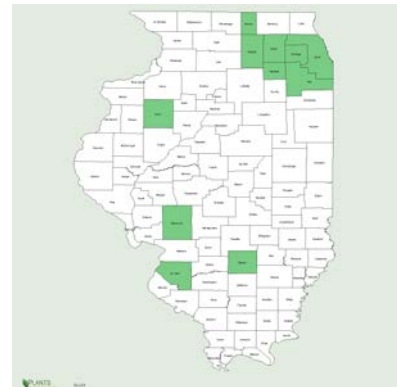
cultivation: Space plants 1.5-2.0'. Plants will form a loose colony. Full sun to partial shade, mesic to dry soils.

Description: Native, erect, herbaceous, perennial forb, younger parts & bottom of leaflets covered with dot-like glands; roots clone-forming, creeping roots; stems 1.5-3.5' tall; leaves odd pinnate, 11-19 leaflets, not toothed; inflorescence a dense, conical raceme of stalked flowers, clusters near or below the upper leaves; flowers pale yellow (yellowish white) to bluish, 5-merous, 0.50" long; fruit brown, inflated, 0.50" pod with hooked prickles; N. key features: ①Younger parts & bottom of leaflets covered with dot-like glands; flower clusters near of below the upper leaves; fruit pod with hooked prickles; odd pinnate leaves.

Comments: status: Special Concern in Wisconsin. phenology: Blooms May - July. C3. Aggressive, rhizomatous, adventive from west.

Associates: Numerous ethnobotanical uses.

VHFS: [*Glycyrrhiza glutinosa* Nutt, *G lepidota* Pursh var *glutinosa* (Nutt) S Watson, *G lepidota* Pursh var *lepidota*]





*Glycyrrhiza lepidota*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Second line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Illinois map courtesy plants.usda.gov.

**HYLODESMUM** H Ohashi & RR Mill 2000 **TICK-TREFOIL, WOODLAND TICK-TREFOIL** *Hylodesmum* New Latin from *hylo-*, wood, woods, referring to wood, medieval Latin *hȳlē*, from Greek ὕλο-, *hylo-* combining form of ὕλη, *hyle*, wood, material, matter & Greek δεσμός, *desmos* band, bond, from δεῖν, *dein* to bind, also an abbreviated form of *Desmodium*. About 14 (15) spp of perennial forbs or herbaceous subshrubs, 11-12 spp in east Asia, southeast Asia & India, & one of those extending to Arabia & Africa, & 3 disjunct spp in eastern North America. “This group has often been included in *Desmodium* as a section or subgenus, but is now shown to be amply distinct in morphology & also to form a monophyletic group based on molecular analysis” (w11). Formerly the section *Podocarpium* of *Desmodium*. Genus not recognized in Mohlenbrock (2014).

*Hylodesmum* differs from *Desmodium* by having large flat seeds lacking a rim-aril around the hilum; shallowly obtriangular articles; stipitate & deeply constricted pods that are pubescent exclusively with hooked hairs; monadelphous androecium; lax-flowered pseudoracemes; & ebracteolate calyx (Ohashi 1973). Also characteristic is the hypogeal mode of germination in some spp (Ambrose 1967, Ohashi 1973), the herbaceous habit, & the preference for forest habitats. (Ohashi & Mill 2000).

J. D Ambrose, 1967, The hypogeous seedling in *Desmodium* (Leguminosae). Michigan Bot. 6: 97–99

H Ohashi, 1973, The Asiatic spp of *Desmodium* & its allied genera. Ginkgoana 1. Tokyo: Academia Scientific Book Inc.

H Ohashi & R R Mill (2000). *Hylodesmum*, a new name for *Podocarpium* (Leguminosae). Edinburgh Journal of Botany, 57, pp 171-188.

Disjunct in eastern North America are *Hylodesmum glutinosum* (Muhl ex Willd) H Ohashi & RR Mill, *H nudiflorum* (L) H Ohashi & RR Mill, & *H pauciflorum* (Nutt) H Ohashi & RR Mill ).

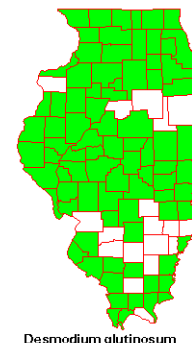
***Hylodesmum glutinosum*** (Muhlenberg ex Willdenow) H Ohashi & RR Mill **HEARTLEAF TICK-TREFOIL, aka CLUSTERLEAF TICKTREFOIL, POINTEDLEAF TICKTREFOIL, POINTER-LEAVED TICK TREFOIL,**

**Habitat:** Moist forests, especially nutrient rich forests; dry woods in rich soil; found in disturbed & high quality woods. distribution/range:

Culture: propagation:

Description: perennial, from a taproot; key features: ①Stems unbranched, leafy stalk, fruits with 2-3 rounded triangular segments, leaflets broadly oval. This is the only *Desmodium* sp with leaves obviously bunched in the middle of the stem.

Comments: status: phenology: Blooms June to August. Harvest seed August to October.



*Desmodium glutinosum*

Draft Beer not People. Uncopyrighted draught.



Associates: Larval host for *Epargyreus clarus* Silver-spotted Skipper & Eastern Tailed Blue. Bobwhite Quail & Wild Turkey eat the seeds. White-tailed Deer browse the foliage.

ethnobotany:

VHFS: In Britton & Brown (1913), this is known as *Meibomia grandiflora*. [*Desmodium glutinosum* (Muhlenberg ex Willdenow) A Wood, *Meibomia acuminata* (Michaux) Blake]



*Hylodesmum glutinosum*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy of ILPIN.

**LATHYRUS** Linnaeus 1753 **VETCHLING, WILD PEA, EVERLASTING PEA** *Fabaceae* *Lathyrus* La'thyrus (LA-thi-rus) New Latin, from Greek λάθυρος, *lathyros*, the old name for the pea or chickling or a kind of vetch, or *lathyros*, *lathuros*, a name for *Leontopodium*, *EIDELWEISS*, or *lathyris*, *lathuris*, WOLF'S MILK. A genus of about 150-160 spp, annual & perennial herbs, nearly cosmopolitan, including many peas & vetchlings, differing from members of the genus *Pisum* in having the style not sulcate. Twining perennial vines; leaves even-pinnate ending in vining tendril; flowers pink, purple or yellow in loose clusters; legume oblong, several-seeded.

**Lathyrus japonicus** Willd BEACH PEA, aka DOWNY BEACH PEA, *POIS -E-MER*, SEA PEA, SMALL FLOWER BEACH PEA, (*japonicus -a -um* New Latin Japanese.)

Habitat: Great Lakes shores in sandy soils. "A pale green creeping plant, resembling the common pea, found on sandy shores" (w73).

distribution/range: Circumboreal. Known from the shores of the Great Lakes. In Illinois, beaches along Lake Michigan, Cook, Lake, & Henry cos (m14 as *L. maritimus*).

Culture:

Description: Native creeping, herbaceous, perennial forb, up to 40" long, stout; from rhizomes; stems; leaves pinnately-divided into 3-6 pairs of slightly fleshy leaflets with symmetrical, leaf-like appendages at the base; inflorescence a stalked raceme of 5-10 stalked flowers; flowers purple & white, 5-merous, 0.5-1.0" long; fruit is a flat long pod; N. key features:

①Creeping; leaflets 3-6 pairs of fleshy leaflets with symmetrical leaf-like appendages; Great Lakes shores.

②"Leaves terminated by a tendril; calyx irregular; glabrous plants." (Ilpin) ③Stipules cordate hastate, nearly as large as the 8-12 ovate leaflets

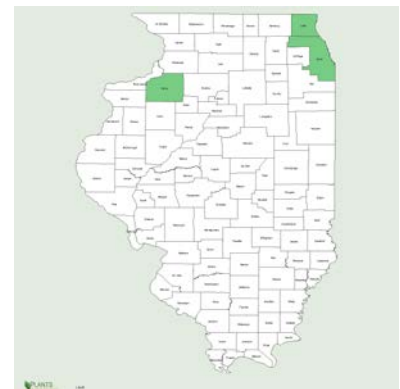
Comments: status: phenology: Blooms 6-8. C3.

Associates: ethnobotany: *Lathyrus japonicus* was present in 250-year-old Pic river site, near Heron Bay on north shore of Lake Superior.

VHFS: In Britton & Brown (1913), this is discussed as *Lathyrus maritimus* & *L japonicus*. In Mohlenbrock (2014), this is *L maritimus* (Linnaeus) Bigelow.

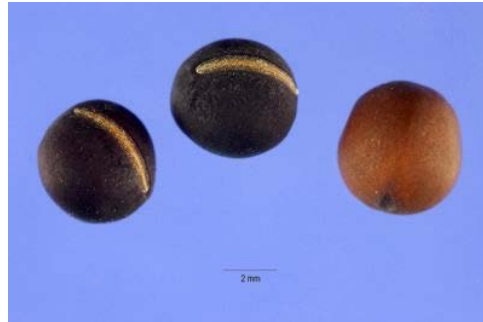
Variety *maritimus* (L) Kartesz & Gandhi. Trailing perennial forb to 3" tall; flowers red, 5- parted, native to shores, beaches, & inland sands.

[*Lathyrus japonicus* Willd subsp *maritimus* (L) PW Ball, *L japonicus* Willd var *glaber* (Ser) Fernald, *L japonicus* Willd var *glaber* (Ser) Fernald f *spectabilis* Fassett, *L maritimus* (L) Bigelow, *L maritimus* (L) Bigelow Draft Beer not People. Uncopyrighted draught.



var *glaber* (Ser) Eames, *Pisum maritimum* L, *P maritimum* L var *glabrum* Ser] W73 has *L maritimum* Bw, with synonym *Pisum maritimum* Ph.

Variety *pellitus* Fern [*Lathyrus maritimum* (L) Bigelow var *pellitus* (Fern) Gleason]



*Lathyrus japonicus*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2<sup>nd</sup> line drawing public domain from Hippolyte Coste - *Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes*, 1901-1906. Illinois map courtesy plants.usda.gov.

***Lathyrus latifolius*** Linnaeus EVERLASTING PEA, aka *CICERCHIA A FOGLIE LARGHE*, EVERLASTING PEAVINE, PERENNIAL PEA, PERENNIAL PEAVINE, PERENNIAL SWEET PEA, (*latifolius* -a -um (la-tee-FO-lee-us) broad leaved, from Latin *latus* -a -um, adj, broad, wide, -i-, connective vowel used by botanical Latin *folium*, leaf.)

**Habitat:** Disturbed areas, roadsides, railroads, fencerows, & fields, invasive.

**distribution/range:** Introduced - escaped; potentially invasive. "An occasional escape which often persists for years." (ewf55) Known from forty-six of the lower states.

**Culture: propagation:** ① Pour hot water over seeds, let soak 1-3 days until swelling noticeable. Sow at 20°C (68°F) for germination in more than two weeks. (tchn). Growth rate moderate. Seedling vigor low. Vegetative spread rate moderate..

**seed counts & rates:** Plant alone or in mixes with other legumes & grasses Seeded alone plant 8 oz per 1,000 sq ft (stock). 20 lbs per acre seeded alone (ecs). When planted alone, it takes 2 years for full coverage, so plant with nurse crop  
**seed counts & rates:** 8,000 (usda, ecs), 9,000 (stocks) seeds per pound.

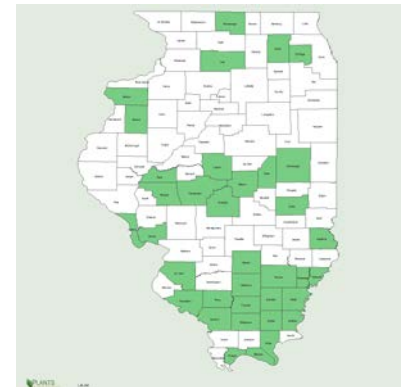
**cultivation:** Most well drained soil types. Adapted to ne USA & Great Plains. Anaerobic tolerance none. CaCO<sub>3</sub> tolerance high. Drought tolerance high. Fertility requirement medium. Salinity tolerance none. Shade intolerant. pH 5.8-7.5.

**Description:** Trailing or climbing, herbaceous, perennial, introduced forb, up to 6' long; from rhizomes, 12" minimum root depth; stems broadly winged, with numerous tendrils; leaves composed of 2 leaflets on broadly-winged stalks; oval to lance-shaped, symmetrical leaf-like appendages at the base; inflorescence a long-stalked raceme of 4-10 stalked flowers; flowers white to pink or purplish, 5-merous, 0.50-1.0" long; fruit is a long narrow, smooth pod with 10-15 seeds; N. **key features:** ① Trailing or climbing; smooth pod; broadly winged leaf stalks; symmetrical leaf-like appendages.

**Comments: status:** This plant is considered invasive in parts of the United States (SWSS 1998; Whitson et al 1996). **phenology:** Blooms June to September. Works well in trellises. Reportedly good for erosion control on steep slopes. Vining growth forms a mat of leaves.

**Associates:** Blossoms attract insects. Good food & cover for wildlife.

**VHFS:** [*Lathyrus latifolius* L var *splendens* Groenl & Rumpler] An improved variety is available.





*Lathyrus latifolius*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2<sup>nd</sup> line drawing public domain from Hippolyte Coste - *Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes*, 1901-1906. Illinois map courtesy plants.usda.gov.

**Lathyrus ochroleucus** Hook \*IL, IN, NJ, OH, PA CREAMY VETCHLING, aka CREAM PEA, CREAM PEA-VINE, PALE VETCHLING, PALE VETCHLING PEAVINE, WHITE PEA, YELLOW VETCHLING, (*ochroleucus* -a -um yellowish-white, very pale yellow-ochre.)

Habitat: Dry or moist woods, slopes & rocky banks. Dry mesic, mesic, & wet mesic savannas & woods. “Uncommon. It is likely to be found in woods that are rather dry as the edge of a woods on the north part of Shirland Twp.” (ewf55) “A small & delicate sp, rare, in shay places and on riverbanks” (w73). distribution/range: In Illinois, the northern cos of Cook, DuPage, Jo Daviess, Lake, McHenry, Ogle, & Winnebago; & St. Clair & Gallatin cos in southern Illinois.

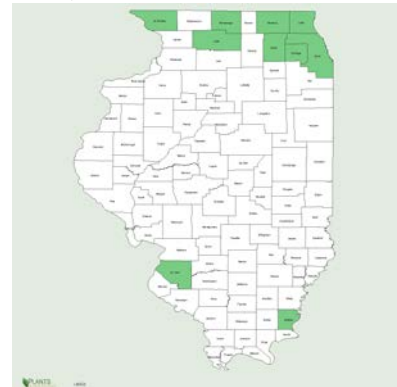
Culture: ①No pre-treatment needed, sowing outdoors in the spring is the easiest method, or seeds germinate after about 60 days of cold, moist stratification. Legume, requires appropriate rhizobial inoculum. (he99)

Description: Native trailing or climbing to erect, herbaceous perennial forb, smooth; root; stems 1-3' tall; leaves pinnately-divided into 3-5 pairs of leaflets with a tendril at the end; asymmetrical, rounded, leaf-like appendages at the base; inflorescence a stalked raceme of 5-10 stalked flowers; flowers cream to yellow, 5-merous, 0.75" long; N. key features: ①Erect; flowers cream to yellow; 3-5 pairs of leaflets, asymmetrical rounded leaf-like appendages. ②Peduncle 7-10 flowered, shorter than the leaves (w73).

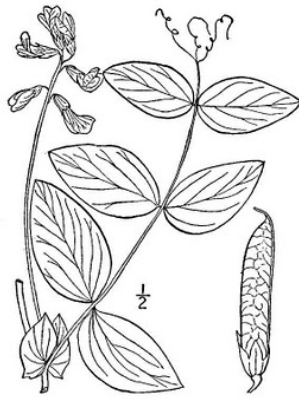
Comments: status: Threatened in Illinois, Ohio, & Pennsylvania. phenology: Blooms May - July. Collect seeds in se Wisconsin in August (he99).

Associates: ethnobotany: Rhizomes available in autumn? Rhizomes used for food by Iroquois (Parker 1910). Used as medicinal plant by Ojibwa (den28). Charm for success.

VHFS: [*L. glaucifolius* Beck.]







*Lathyrus ochroleucus*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov.

**Lathyrus palustris** Linnaeus MARSH VETCHLING, aka *CICERCHIA PALUSTER*, MARSH PEA, MARSH PEAVINE, MARSH VETCHLING, SLENDER-STEM PEA-VINE, WILD PEA, (*palustris* -tris -tre pa-LUS-tris marsh-living, of swamps, marshes, or growing in bogs, marsh loving, from Latin *paluster* -tris -tre marshy, boggy.)

Habitat: Wet to moist meadows, shores, & marshes. Wet mesic to wet prairies.

Humusy soils. distribution/range:

Culture: ①Further germination pretreatments not sure? (pm) ②No pre-treatment needed, sowing outdoors in the spring is the easiest method, or seeds germinate after about 60 days of cold, moist stratification. Legume, requires appropriate rhizobial inoculum. (he99) ③Pour hot water over seeds, let soak 1-3 days until swelling noticeable. Sow at 20°C (68°F) for germination in more than two weeks. (tchn)

Description: Native climbing, herbaceous, perennial forb, 1'-4' long; roots; stems often winged; leaves pinnately-divided into 2-4 pairs of leaflets with a tendril at the end; asymmetrical, sharp-pointed, leaf-like appendages at the base; inflorescence a long-stalked raceme of 2-6 stalked flowers; flowers red-purple & white, 5-merous, 0.75" long; fruit is a long pod; N. key features: ①Climbing, stems often winged, 2-4 pairs of leaflets, asymmetrical sharp-pointed appendages. ②“Stems are winged; plant is glabrous.” Var *myrtifolius* “Stems are unwinged; glabrous plant.” (Ilpin) ③Peduncle 3-5-flowered, longer than the leaves (w73).

Comments: status: phenology: Blooms 6-7(8). C3. Collect seeds in se Wisconsin in October (he99). Attractive wet meadow plant.

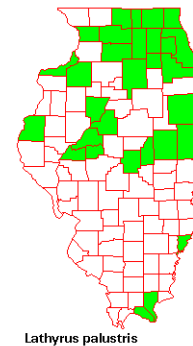
“*L myrtifolius* Muhl MARSH PEA. More common than *L palustris* & in the same wet places. The slough west of Shirland (*L palustris* L var *myrtifolius* (Muhl) Gray).” (ewf55)

“The stems are winged but it is otherwise very similar to *L myrtifolius*. The boggy places in Coon Creek bottom.” (ewf55)

Associates: ethnobotany: Seeds available in late summer. Used for food by Ojibwa & Iroquois (Gilmore 1928, Waugh 1916).

VHFS: [*Lathyrus myrtifolius* Muhl ex Willd, *L myrtifolius* Muhl ex Willd var *macranthus* TG White, *L palustris* L subsp *pilosus* (Cham) Hultén, *L palustris* L var *genuinus* Gren & Godr, *L palustris* L var *linearifolius* Ser, *L palustris* L var *macranthus* (TG White) Fern, *L palustris* L var *meridionalis* Butters & H St John, *L palustris* L var *myrtifolius* (Muhl ex Willd) A Gray, *L palustris* L var *palustris*, *L palustris* L var *pilosus* (Cham) Ledeb, *L palustris* L var *retusus* Fern & H St. John, *L pilosus* Cham, *Orobis myrtifolius* (Muhl ex Willd) A Hall]

Woods (1873 lists *β. myrtifolius* Gray.



*Lathyrus palustris*





294. *Lathyrus palustris* L.  
Marsh Pea; B.-P.

*Lathyrus palustris*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 3<sup>rd</sup> line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: [www.biolib.de](http://www.biolib.de). Illinois map courtesy of ILPIN.

***Lathyrus pratensis*** Linnaeus MEADOW PEA, aka *CICERCHIA DEI PRATI*, *ERBA GALLETTA*, *ERVILLHACA-DO-CAMP*, MEADOW PEA-VINE, MEADOW VETCHLING, YELLOW VETCHLING, (*pratensis* -is -e (prah-TAYN-sis) of or in meadows, from Latin *pratensis*, *pratensis*, *pratense*, adj, growing or found in meadows, from *pratum*, *prati*, meadow.) An introduced, rarely escaped perennial forb, Jackson Co



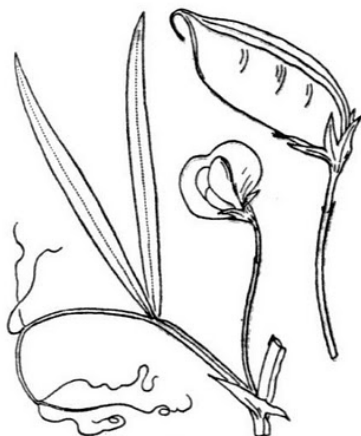
291. *Lathyrus pratensis* L.  
Meadow Pea; Y.

*Lathyrus pratense*

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***Lathyrus sativus*** Linnaeus CHICKLING PEA, aka *CECE NERO*, CHICKLING-PEA, CHICKLING VETCH, *CHÍCARO*, *CICERCHIA COMMUNE*, DOGTOOTH PEA, *GESSE COMMUNE*, GRASS PEAVINE, INDIAN PEA, *KHESARI*, *LENTILLE D'ESPAGNE*, *POIS CARRÉ*, RIGA PEA, WHITE PEA-VINE. (*sativus* -a -um (sa-TEE-vus) Latin cultivated, sown.)

“Native of S. Europe, where it has been sometimes cultivated for food: but it proves to be a slow poison, both to man & beast, producing ultimately entire helplessness, by rendering the limbs rigid, but without pain” (w73).



*Lathyrus sativus*

Line drawing public domain from Hippolyte Coste - Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes, 1901-1906. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

***Lathyrus sylvestris*** Linnaeus FLAT PEA, aka EVERLASTING PEA, FLAT PEA-VINE, NARROW-LEAF EVERLASTING-PEA, PERENNIAL PEA, (*sylvester*, *sylvestris*, *sylvestre* growing in woods, wild, from Latin from *sylvestris*, of or belonging to the forest or woods, more correctly: *sylvestris*, sometimes *sylvester*, as the letter Y is a late borrowing in the Roman alphabet.)

Habitat: Disturbed fields & thickets. distribution/range: Introduced, locally established.

Culture: Growth rate moderate. Seedling vigor low. Vegetative spread rate moderate. 40 lbs per acre seeded alone.

cultivation: Anaerobic tolerance none. CaCO<sub>3</sub> tolerance high. Drought tolerance high. Fertility requirement low. Salinity tolerance none. Shade tolerant. pH 5.0-7.8.

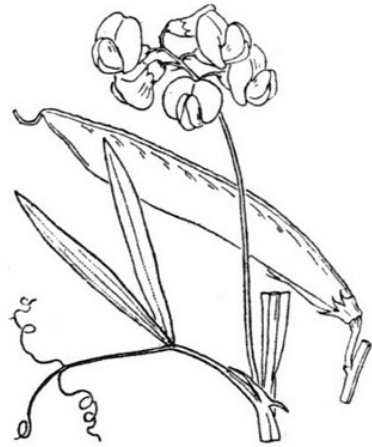
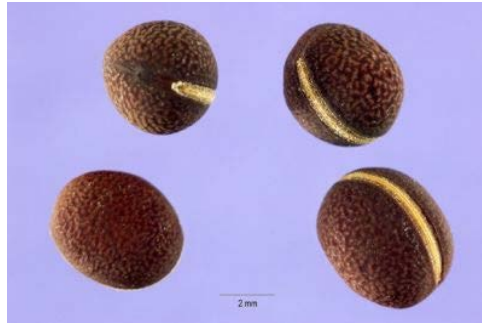
Description: Trailing or climbing, herbaceous, perennial, introduced vine; roots 12” minimum depth; stems leaves; flowers pink, white, or purple; N. key features:

Comments: status: May become weedy or invasive in some areas. phenology: Blooms July. 8,000 (usda, ecs) seeds per pound.

VHFS: Commercial release is available.



293. *Lathyrus sylvestris* L.  
Everlasting Pea; R.-P.



*Lathyrus sylvestris*

Line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: [www.biolib.de](http://www.biolib.de). Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2<sup>nd</sup> line drawing public domain from Hippolyte Coste - *Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes*, 1901-1906.

***Lathyrus tuberosus* Linnaeus** TUBEROUS SWEET PEA, aka DUTCH MICE, EARTH-CHESTNUT, EARTHNUIT-PEA, TUBEROUS PEA, TUBEROUS-SWEETPEA, TUBEROUS VETCH, TUBEROUS VETCHLING, (*tuberosus* -a -um (tew-be-RO-sus) from the Latin *tuberosus*, for the tuberous, or thickened root, related to the root words of *Typha*, Latin *tumere* to swell.)

Habitat: distribution/range: Introduced, escaped. Henderson & Kane cos.

Culture:

Description: Introduced, erect, herbaceous, perennial forb, to 32" tall; stems angled, wingless, from rhizomes with small tubers; stems; leaves 2 leaflets with a tendril at the end; symmetrical, lance-shaped, leaf-like appendages at base of the stalk; inflorescence a dense, long-stalked raceme of 2-10 stalked flowers; flowers red to purple, 5-merous, 0.50" long; fruit is a pod; N. key features: Stems wingless, 2 leaflets, symmetrical, lance-shaped leaf-like appendages.

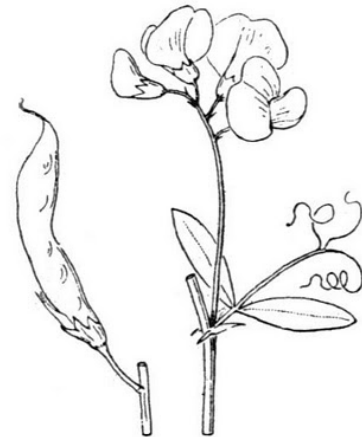
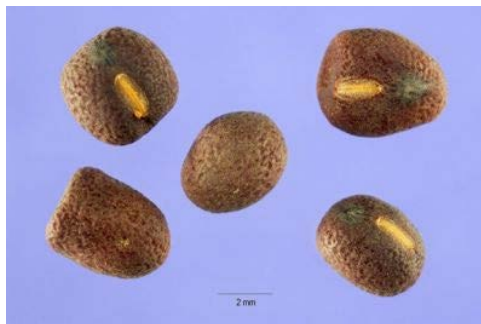
Comments: status: phenology: Blooms

Associates:

VHFS:



292. *Lathyrus tuberosus* L.  
Earth-nut Pea; P.



*Lathyrus tuberosus*

Line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: [www.biolib.de](http://www.biolib.de). Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2<sup>nd</sup> line drawing public domain from Hippolyte Coste - *Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes*, 1901-1906.

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**Lathyrus venosus** Muhlenberg ex Willdenow \*IN, KY, NJ, NY, OH VEINY PEA, aka FOREST PEA, PEA-VINE, ROUGH VEINY VETCHLING, SMOOTH VEINY PEA OR PEAVINE, VEINY PEAVINE, VEINY VETCHLING, VETCHLING, WILD PEA, *Mi'nisino'wuck*, island medicine (Ojibwa), (*venosus -a -um* having veins, veiny, veined, prominently veined, full of veins, from Latin *vena*, vein, &, *-osus* adjectival suffix noting plenitude, abundance, fullness.) [upl]

Habitat: Dry prairies & savannas, rich woods, thickets, stream banks, & dry or sandy soils. Wet mesic to mesic prairies & savannas. Recently burned prairies.

distribution/range: Native of north central & northeast Illinois & Jo Daviess Co.

“Our most common wild pea. It grows in woods, in brushy & in open places. Rock Cut Forest Preserve, C & NW row near Cherry Valley, & in the dunes north of Shirland where it at times forms large dense patches in dry sand in the open.”

(ewf55)

Culture: ① Legume, requires appropriate rhizobial inoculum. Further germination pretreatments not sure? (pm09). ② No pre-treatment needed, sowing outdoors in the spring is the easiest method, or seeds germinate after about 60 days of cold, moist stratification. Legume, requires appropriate rhizobial inoculum. (he99) ③ Pour hot water over seeds, let soak 1-3 days until swelling noticeable. Sow at 20°C (68°F) for germination in more than two weeks. (tchn).

seed counts & rates: 29,072 seeds per pound.

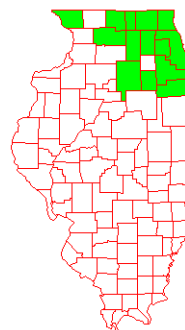
availability: Availability is limited to the extent this sp should not be part of any general seed mix.

greenhouse & garden: Scarify, inoculate, moist cold stratify (10 days) or dormant seed.

Description: Native, climbing, herbaceous, perennial vine; 2'-3' long, stout forb with a wingless stem; roots minimum depth; stems; leaves ovate, pinnate, 8-12 elliptical leaflets with a tendril at the end; asymmetrical, narrowly arrow-shaped, leaf-like appendages at the base; inflorescence a dense, stalked raceme of stalked flowers; flowers purple to red, 5-merous, 0.75" long; fruit a flat long pod; N. key features: ① Climbing wingless stem; 8-12 elliptical leaflets; asymmetrical, narrowly arrow-shaped, leaf-like appendages. ② “Leaves veiny beneath; hairy plants.” (Ilpin) ③ Stipules semi-sagittate, lanceolate, very small, leaflets 4-7 pairs (w73). Comments: status: Threatened in Indiana. Special concern in Kentucky. Endangered in New Jersey, New York, & Ohio. phenology: Blooms 5-7. Seeds ripe late summer. C3. Landscaping, naturalizing, rich borders. Energetically rhizomatous in good soils.

Associates: ethnobotany: Seeds available in late summer. Used for food by Ojibwa (den28). Used as medicinal plant by Ojibwa for convulsions & hemorrhaging from wounds (den28). Charm for success by Ojibwa (den28).

VHFS: [*Lathyrus oreophilus* Wooton & Standl, *L venosus* Muhl ex Willd subsp *arkansanus* (Fassett) CL Hitchc., *L venosus* Muhl ex Willd var *arkansanus* Fassett, *L venosus* Muhl ex Willd var *intonsus* Butters & H St. John, *L venosus* Muhl ex Willd var *meridionalis* Butters & H St. John]



Lathyrus venosus intonsus



*Lathyrus venosus*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy of ILPIN.

**LESPEDEZA** Michaux 1803 **BUSHCLOVER, LESPEDEZA** *Fabaceae* *Lespedeza* (les-pe-DEE-za) New Latin, irregular caused by misreading of the surname (as in Wood 1873) from VM de Zespedes or de Céspedes *fl* 1785

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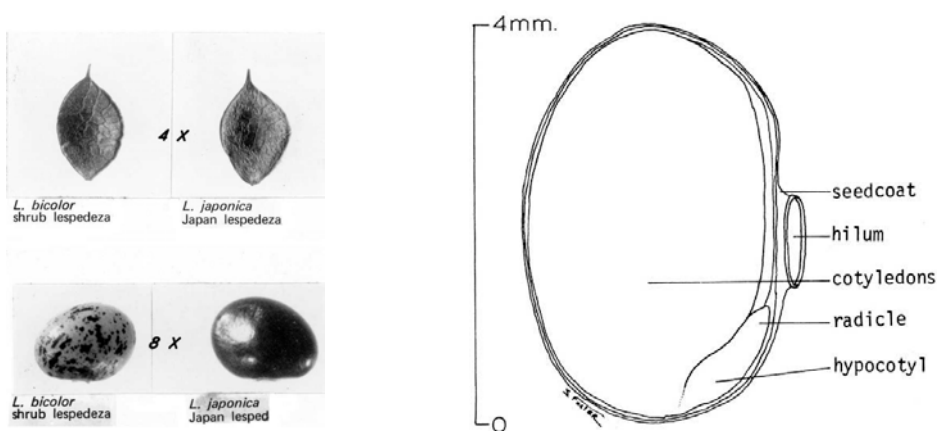
(or 1790), Spanish governor of East Florida. The governor protected Michaux on his travels in Florida, & Michaux honored him with a genus name.

From the International Code of Botanical Nomenclature (Saint Louis Code), Electronic version  
 CHAPTER VII. ORTHOGRAPHY & GENDER OF NAMES SECTION 1. ORTHOGRAPHY Article 60.  
 “The spelling of the generic name *Lespedeza* Michx (1803) is not to be altered, although it commemorates Vicente Manuel de Céspedes (see *Rhodora* 36: 130-132, 390-392. 1934).”

Many herbaceous & few (1) deciduous shrubby plants having exstipulate leaves, 3-parted end leaflet stalked, often both apetalous fertile & papilionaceous sterile flowers, white, pink, or purple, & one-jointed one-seeded pods covered by the calyx. Legume (loment) lenticular, compressed, small, unarmed, indehiscent, 1-seeded. Hull, scarify, moist cold stratify (10 days) or dormant seed, inoculate while replanting, easy from scarified, inoculated, moist stratified seed. The hulling process usually scarifies the seed. Successional restoration. Attracts upland game birds, songbirds, small mammals, & herbivores. Nitrogen fixing. Some spp are widely used for forage, soil improvement, & especially hay in the southern US. Several spp are used in restoration, erosion control, & wildlife habitat plantings.

A *Lespedeza* was one of Ralph Waldo Emerson’s favorite flowers (Maynard 2004). The genus was “taken from *Hedysarum*” (w73).

Short (1845) listed *Lespedeza* various species as “other common plants, which presented themselves at different places on our route through the prairies.”

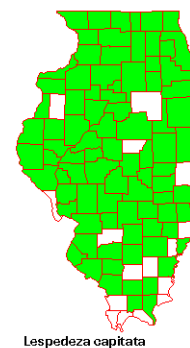


Pod & seed photo courtesy of the US Forest Service USDA-NRCS PLANTS Database. Line drawing Suzanne Foster courtesy of the US Forest Service USDA-NRCS PLANTS Database.

***Lespedeza capitata* Michaux** \*KY ROUND-HEADED BUSH CLOVER, aka BUR CLOVER, BUSH CLOVER, DUSTY CLOVER, ROUNDHEAD LESPEDEZA, TALL LESPEDEZA, (*capitatus -a -um* with a head, from Latin *caput*, noun, a head, & *-atus*, adjectival suffix, possessive of or likeness of something, or with, shaped, made.) facu

Habitat: Mesic, dry, hill, & sand prairies, sand savannas, dry, open woodlands. Dry to moderate moisture, prairies & open woods, often in sandy, loamy, or gravelly soils. distribution/range: “Common on high prairies & in sand areas” (ewf55).

Culture: ① “Very gently scarify seed then inoculate with EL inoculum or fall sow or spring direct sow” (mfd 1993). ② Seeds need scarification. 10 days cold moist stratification. Legume, requires appropriate rhizobial inoculum. (pm09) ③ “10 days moist stratification improves germination, but not needed for good greenhouse crop. Field sow fall, spring, early summer” (pnnd). ④ Seeds need scarification. Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 10 days of cold moist stratification. (he99) ⑤ Fall plant or cold stratify for up to 2 to 3 months for best results. Sow just below the soil surface at 70°F & water. (ew11) ⑥ Slow germinator - up to a year or more. Store seeds in layers of moist sand in the shade. Check seeds regularly in the spring, and sow them all as soon as radicles appear. (tchn) Growth rate slow. Seedling vigor low. Vegetative spread rate none.



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seed counts & rates: 65,000 (anon81), 116,304, 128,000 (pm02), 144,000 (ecs, ew11), 157,696 (wns01), 158,400 (aes10), 160,000 (pn02, jfn04, sh94), 168,398 (gna06), 171,320 (gnh02), 184,253 (gna04), 263,341 (gna05), 275,000 (usda) seeds per pound. Anon 1981 recommends 1-2 lbs per acre. In seed mixes use 0.63-0.125 lbs pls per acre.

“*Lespedeza capitata* Mesic to dry; sand; general prairie. Blooms mid August to early September; WHITE & PURPLE. Harvest late October. 3'; methods #1 & #2; SEEDLING TRANSPLANT, SPRING BROADCAST. Legume, inoculate. By seedling, flowers 2nd year. Seedlings tend to damp off in flats. Blooms 2nd year. Seedlings tend to frost-heave first winter.” (rs ma)

cultivation: Space plants 1.5-2.0'. Full sun to partial shade, mesic to dry soils. Tolerates clay soils. Anaerobic tolerance none. CaCO<sub>3</sub> tolerance medium. Drought tolerance high. Fertility requirement low. Salinity tolerance none. Shade intolerant, full to partial sun. pH 5.7-8.2. We have observed hulled seed installed with a Truax drill in mid June starting germination in 5 days.

bottom line: Genesis seed tests indicate this seed typically has a high percentage of hard seed and may strongly benefit or require dormant seeding to establish a good stand, but early spring drilling of inoculated scarified seed is necessary for rhizobia establishment. Dormant seed with inoculated, unscarified seed. Germ 43.4, 38, 44, sd 23.2, r15-95 (80)%. Hard 46.8, 51, na, sd 21.8, r4.0-77 (73)%. Test 21, 21, 21, r8-29 days. (#17).\*\*

greenhouse & garden: Works well by successional restoration method, sowing seeds on top of open ground in winter.

Description: Native, slender, erect, herbaceous, perennial forb; from deep taproots, 18” minimum depth; stems 2.5-4.0' tall, with dense, fine hairs, stout, almost woody, usually unbranched or with a few branches toward the top; leaves trifoliolate, variably pubescent, mostly oval, pointing upward; inflorescence a rounded, dense cluster of crowded, stalkless flowers turning dark brown when mature; flowers white to ochroleucous, or greenish-cream with a pinkish throat, purple spot at the base of the standard, 5-merous, 0.38" long; N. key features:  
① Inflorescence a rounded dense cluster (fh). ② Leaflets elliptical, silky beneath fascicles of flowers ovate, subcapitate, shorter than the leaves (w73).

Comments: status: Special concern in Kentucky. phenology: Blooms July - September. In northern Illinois, collect seeds in September - early November. Collect seeds in se Wisconsin in October - November (he99). Attractive dried seed heads, landscaping, adds winter texture, naturalized areas, wildlife plots. Provides good texture & structure with *Andropogon scoparius*. Deep tap-rooted, drought-resistant sp. 60 lbs per bushel. Seed source nursery production plots; genetic source Squaw Grove Twp, DeKalb Co & Lee, Whiteside, & Bureau cos.

“*Lespedeza longifolia* DC Uncommon on dry prairies. Rockton 5 miles north of Rockford, east of Ill Rt No 173 north of Harlem, the C & NW Ry east of Winnebago, & in the sand in the north part of Shirland Twp. (*L capitata* var *longifolia* (DC) T&G)” (ewf55)

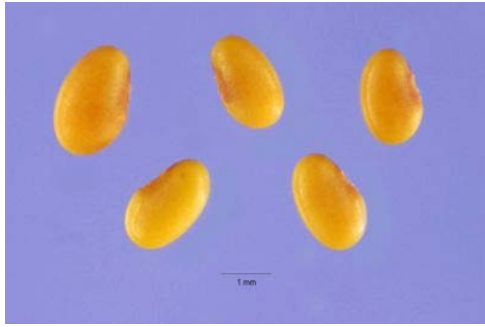
Associates: Pollinated by long-tongued bees, short-tongued bees, & *Lepidoptera*. Butterfly larval host *Everes comyntas* EASTERN TAILED-BLUE. Good nesting cover for upland gamebirds & songbirds. Songbirds eat seeds. Deer eat the plants, but also reported to be deer resistant. Readily grazed by livestock. N<sub>2</sub> fixing rhizobial bacteria.

ethnobotany: Called ‘rabbit-foot’ by the Pawnee for the resemblance of the shape of the seed head.

VHFS: [*Lespedeza bicknellii* House, *L capitata* Michx var *capitata*, *L capitata* Michx var *longifolia* (DC) T&G, *L capitata* Michx var *sericea* (Hook & Arn) T&G, *L capitata* Michx var *stenophylla* Bissell & Fern, *L capitata* Michx var *velutina* (Bickn) Fern, *L capitata* Michx var *vulgaris* T&G, *L longifolia* DC, *Lespedeza velutina* Bickn]

Woods (1873) lists *β angustifolia* Ph, lfts linear, smooth above, synonym *L angustifolia* Ell. [*L frutescens* Ell]

Add varieties



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*Lespedeza capitata*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

***Lespedeza cuneata*** (Dumont de Courset) G Don #CO, KS CHINESE LESPEDEZA, aka SERICEA, SERICEA LESPEDEZA, SILKY BUSH-CLOVER, (wedge shaped, from Latin *cuneatus*, adj, pointed, wedge shaped.)

Habitat: Fields, roadsides, & invasive in prairies. distribution/range: Introduced, escaped.

Culture: 350,000 (ecs) seeds per pound. For erosion control ?? seed 10-20 lbs per acre.

Description: Subshrub, perennial forb; roots up to 3' depth; stems; leaves; N. key features:

Comments: status: A list noxious weed in Colorado. Noxious weed in Kansas. This plant is considered invasive (Assorted authors. 200\_. State Noxious Weed Lists for 46 States; SEEPC 1996). phenology: Blooms August to September.

“Extensively planted in the south where it shows a marked tendency to go wild, being used for erosion control & for wildlife cover. We have found it as a roadside escape on Alpine road near Sandy Hollow. (*L sericea* (Thunb.) Benth)” (ewf55)

VHFS: [*Lespedeza juncea* (L f) Pers var *sericea* Forbes & Hemsley, *L sericea* Miq, *L sericea* (Thunb.) Miq] Many commercial varieties available.



*Lespedeza cuneata*, retaining some seed, March 14, 2012

Plant photos courtesy of James Tiberius Alwill. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

***Lespedeza daurica*** DAHURIAN LESPEDEZA  
Plants.usda.gov maps this from Illinois & Iowa.

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*Lespedeza daurica*

Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image.

***Lespedeza frutescens*** (Linnaeus) Hornem. SHRUBBY LESPEDEZA,

See *L. intermedia*. (from pugs16 & bonap16)

[*Hedysarum frutescens* L., *Lespedeza intermedia* (S. Watson) Britton, nom. inq, *Lespedeza violacea* auct. non (L.) Pers.]

***Lespedeza hirta*** (Linnaeus) Horn. NARROW HEADED BUSH CLOVER, aka CURTISS' LESPEDEZA, HAIRY BUSH CLOVER, HAIRY LEPEDA, (*hirtus*, *hirta*, *hirtum* Latin adj, hairy or shaggy, covered with hair or wool; thick growth of plants; rough or unpolished.)

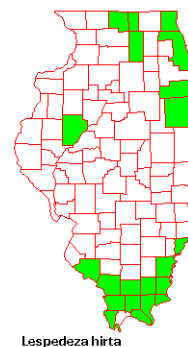
Habitat: Dry mesic to mesic savannas. Found in dry woods, rocky woods, upland oak forest. distribution/range: Dry woods, occasional in the extreme n & s cos, but virtually absent elsewhere (m14). Native south of Wisconsin.

Culture: ①Seeds need scarification. Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 10 days of cold moist stratification. (he99)  
②Slow germinator - up to a year or more. Store seeds in layers of moist sand in the shade. Check seeds regularly in the spring, & sow them all as soon as radicles appear. (tchn).

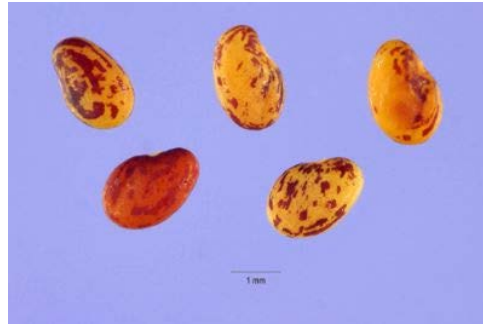
availability: Commercially available but limited. There is one commercial source for this sp, & its Middle Atlantic origin.

Description: Erect, herbaceous, perennial, native forb, 3-4' tall, flowers cream-yellow (reddish-white). key features: ①Leaflets roundish, oval, pubescent beneath, rac. longer than the leaves (w73). ②"Species has corolla with purple base" (Ilpin).

Comments: status: phenology: Blooms (7)8-9. C3. Collect seeds in se Wisconsin in October - November (he99). Species rarely has some cleistogamous flowers (Ilpin).



*Lespedeza hirta*



*Lespedeza hirta*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Photos courtesy RW Smith, Wildflower Center Slide Library. Unrestricted image. Illinois map courtesy of ILPIN.

**Lespedeza intermedia** (S Watson) Britton [revised name is *Lespedeza violacea* (Linnaeus) Persoon] BUSH CLOVER, aka WAND BUSH CLOVER, WAND LESPEDEZA, WAND-LIKE BUSH CLOVER, (*intermedius -a -um* intermediate between two forms, as in shape or color, indicating that a sp was halfway between two other spp in regard to one or more characteristics; a space between two parts; or in reference to a hybrid being intermediate between its parents.)

Sandy soil. In Michigan, “Oak-hickory forests; dry savannas, plains, & bluffs”

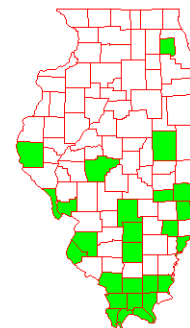
(rvw11). In se USA, woodlands & woodland borders (w11). distribution/range:

“Rare. The black oak woods in the sand west of Shirland.” (ewf55)

“Plant is straight stemmed with short branches. Species has two types of flowers; some are cleistogamous.” (llpin)

Blooms 8-9. C3. In se USA, flowers July-September; fruits August-November (w11).

The new nomenclature for this sp is *Lespedeza violacea* (Linnaeus) Persoon. Pugs16 & bonap16 place this sp as *L frutescens* (L.) Hornem.



Lespedeza intermedia



*Lespedeza intermedia*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy of ILPIN.

***Lespedeza leptostachya*** Engelman \*F, WI PRAIRIE BUSH CLOVER, aka PRAIRIE LESPEDEZA, (thin or slender spike, *leptos*, adj, thin, slender, delicate, narrow, -o- connective vowel in botanical Latin, & *σταχυς*, *stakhys*, noun, spike; ear of corn or grain.) upl

Habitat: Dry to dry mesic prairies, gravelly or sandy hillside prairies. “Very uncommon except in the sand in northern Shirland Twp” (ewf55). distribution/range:

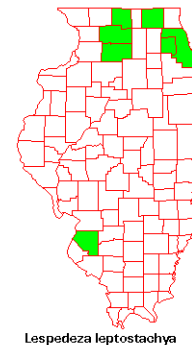
Culture: ①Seeds need scarification. Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 10 days of cold moist stratification. (he99) ②Slow germinator - up to a year or more. Store seeds in layers of moist sand in the shade. Check seeds regularly in the spring, and sow them all as soon as radicles appear. (tchn).

“*Lespedeza leptostachya* Dry prairie. No notes taken. Harvest October. 2’; little seed available, only method #1 used. Blooms 2nd year; grows weakly, susceptible to herbicides.” (rs ma)

“Grows with *Schizachyrium scoparium*, *Bouteloua curtipendula*, *Sorghastrum nutans*” (Ilpin)

Description: Erect to drooping, herbaceous, perennial, native forb, 1-2’ tall, silver-grey with silky hairs, roots; stems usually unbranched; leaves 1 or 3-parted with narrow, linear, entire leaflets; inflorescence a thin, sparse, cylindrical spike, separated clusters of stalkless flowers; flowers white to cream or pale pink, 5-merous, 0.25” long; also many cleistogamous pods; N. key features: Spike often of separated clusters.

Comments: status: Federally Threatened. Endangered in Illinois & Wisconsin. phenology: Blooms July - August, a short bloom season, chasmogamous flowers are seldom seen. Blooms 8-9. C3. Fruiting early August to early September. C3. In northern Illinois, collect seeds in October. Collect seeds in se Wisconsin in October - November (he99). *L leptostachya* is self compatible, but many flowers may drop unfertilized, & seed set may range from 2-20%. Ilpin notes cleistogamous flowers are rare.



*Lespedeza leptostachya*



*Lespedeza leptostachya*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy of ILPIN.

**Lespedeza repens** (Linnaeus) WPC Barton \*CT, NY CREEPING BUSH-CLOVER, aka CREEPING LESPEDEZA, SMOOTH TRAILING LESPEDEZA, TRAILING LESPEDEZA, (re'pens (REE-pens) creeping or creeping and rooting, from Latin, *repens*, participle of *repo*, *reperere*, *repsi*, *reptus*, crawl or creep; having creeping and rooting stems.)

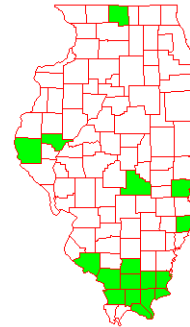
Habitat: "Species is distributed in fields, meadows; sandy or rocky soil" (Ilpin)

distribution/range:

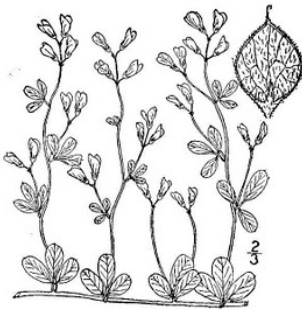
Description: Native, matting, herbaceous, perennial, vining forb, 1"-6" tall; flowers pink 5-merous, 0.38" long; in sandy or rocky soil. "Species is trailing; finely hairy to glabrate" (Ilpin)

Special Concern in Connecticut. Rare in New York. Blooms 6-9. C3.

VHFS: [*Hedysarum repens* L, *L repens* T&G]



Lespedeza repens







*Lespedeza repens*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. Photos courtesy San Antonio River Authority & Alan Cressler, Wildflower Center Slide Library. Unrestricted images. Illinois map courtesy of ILPIN.

**Move to *Kummerowia***

***Lespedeza stipulacea*** Maxim. KOREAN CLOVER, aka KOREAN BUSH CLOVER, KOREAN LESPEDEZA, (with stipules, from Latin *stipula*, noun, a stalk, stem, blade, & *aceus*, adj suffix, resembles, of..., ...like.)

Habitat: distribution/range: Introduced & rarely escaped.

Culture: Growth rate rapid. Seedling vigor high. Vegetative spread rate none. 50 lbs per acre seeded alone. 20-30 lbs per acre in mixes.

cultivation: Anaerobic tolerance low. CaCO<sub>3</sub> tolerance low. Drought tolerance medium. Fertility requirement low. Salinity tolerance low. Shade intolerant. pH 5.5-7.5

Description: Annual forb; roots 8" minimum depth; stems decumbent, to 1.5'; leaves; N. key features:

Comments: status: This sp is considered invasive (SEEP 1996). phenology: Blooms two months after seeding. Slight toxicity.

VHFS: [*Kummerowia stipulacea* (Maxim) Makino]



*Lespedeza stipulacea*

Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

***Lespedeza thunbergii*** (DC) Nakai SHRUBBY BUSH-CLOVER, aka TALL BUSHCLOVER, THUNBERG'S LESPEDEZA, (*thunbergii* for Carl Peter *Thunberg* (1743-1828), Swedish botanist & student of Linnaeus who sent back plants from Japan to Europe; professor at Uppsala, after the death of Linnaeus (There have been internet references saying Uppsala is in Holland, but many Swedes feel otherwise.)

Introduced escaped perennial shrub, introduced from east Asia. Known from Coles, Jackson, Johnson, & Wayne cos in Illinois. Impervious seed coats. Shake in dry sharp sand or nick carefully with a file. Sow at 20°C (68°F), germinates in less than 2 weeks. (tchn). Leaflets are whitish hairy beneath. Blooms 8-10. C3. [*Desmodium thunbergii* DC]



*Lespedeza thunbergii*

Photo Jimmy Carter Plant Materials Center courtesy USDA-NRCS PLANTS Database. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

**Lespedeza violacea** (Linnaeus) Persoon [revised as *Lespedeza frutescens* (Linnaeus) Hornemann] \*WI VIOLET BUSH-CLOVER, aka VIOLET LESPEDEZA, WAND LESPEDEZA, (*violaceus -a -um* referring to the color violet or the genus *Viola*.)

Habitat: Dry upland woodlands & glades, dry oak woodlands, degraded woodlands, dry woods, & dry prairies; in rocky, sandy soil. In Michigan, “Dry usually ± open forests (especially oak), thickets, banks, & prairies” (rvw11). In se USA, woodlands & woodland borders (w11). “Uncommon in the edge of woods west of Shirland. Also found in DeKalb Co Forest Preserve.” (ewf55) distribution/range:

Culture:

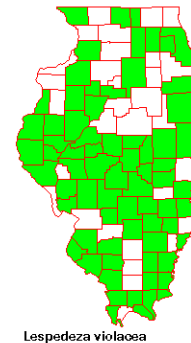
Description: Erect, herbaceous, perennial, native forb, 1'-4' tall, often with many branches, mostly hairless roots; stems; leaves 3-parted, stalks almost as long as the elliptical leaflets; inflorescence a loose cluster (raceme) of a few, stalked flowers; flowers pink to purple, 5-merous, 0.33" long, cleistogamous flowers also present; N.

key features: ① Many branches; inflorescence a loose raceme of stalked flowers; elliptical leaflets (fh) ② Plant sparingly pubescent, leaflets oval, varying to oblong and linear, mucronate. ③ Stem is upright (Ilpin)?

Comments: status: Special concern in Wisconsin. phenology: Blooms August, 7-9. In se USA blooms July - September, fruiting October - November. C3. 114,286 (gnind) seeds per pound. Seed source nursery plantings from Knox Co savannas.

VHFS: The revised nomenclature is *Lespedeza frutescens* (Linnaeus) Hornemann. Pugs16 & bonap16 maintain *L violacea* as a valid name. [*Hedysarum frutescens* L, *H violaceum* L, *Lespedeza frutescens* (L) Elliott, *L prairea* (Mack & Bush) Britt, *L violacea* (L) Pers var *prairea* Mack & Bush]

Wood (1873) lists 4 diverse extremes, including  $\beta$  *sessiflora* T&G [*L sessiliflora* Ph],  $\gamma$  *reticulata* [*L reticulata* Pers], &  $\delta$  *divergens* T&G [*L divergens* Ph].



Lespedeza violacea



*Lespedeza violacea*

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**Lespedeza virginica** (Linnaeus) Britton VIRGINIA LESPEDEZA, aka SLENDER BUSH-CLOVER, (*virginicus -a -um* of Virginia.)

Habitat: Dry woods; in sandy, rocky soil. distribution/range: Dry woods; occasional throughout the state but apparently more common in the s cos (m14).

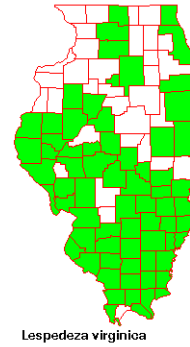
Culture: ☉Cold moist stratify for 10 days (Wade). Seeds need scarification. 10 days cold moist stratification. Legume, requires appropriate rhizobial inoculum. (pm09) 160,000 (pm02), 211,754 (gnhm14), 211,951 (gnhm11), 224,530 (gnam11), 225,310 (gna04), 253,417 (gnh02) seeds per pound.

bottom line: Genesis seed tests indicate this seed typically has a high percentage of hard seed & may strongly benefit or require dormant seeding to establish a good stand, but early spring planting inoculated scarified seed is necessary for rhizobia establishment. Dormant seed with inoculated, unscarified seed. Germ 39.9, 32.5, na, sd 18.8, r25-82 (57)%. Dorm 48.9, 55, na, sd 18.4, r15-74 (59)%. Test 23, 21, na, r14-36 days\*\*

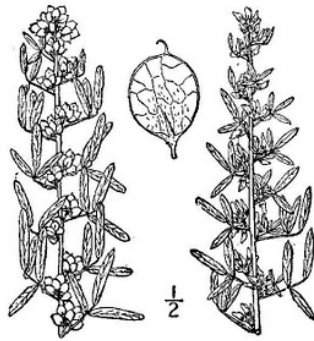
Description: Native erect, herbaceous, perennial forb, 1'-4' tall; roots; stems 1 to a few; leaves 3-parted, the leaflets narrow; pointing upward on long-stalks; inflorescence a small, leafy, crowded raceme of stalked flowers; flowers pink to purple, 5-merous, 3/8" long, irregular shape; leaves below the cluster longer than its stalk, cleistogamous flowers in small clusters; N. key features: "Plant is straight stemmed with short branches; leaves are very crowded; flowers are crowded on short peduncles." (Ilpin) Sp provides palatable & nutritious forage.

Comments: status: phenology: Blooms July, August, September. C3. Genetic source May Twp, Lee Co.

VHFS: [*Medicago virginica* L]



Lespedeza virginica



*Lespedeza virginica*

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**LOTUS** Linnaeus 1753 **DEER-VETCH, BIRDSFOOT-TREFOIL** *Fabaceae Lotus* Lo'tus (LO-tus) from the Latin & Greek name used for several plants; Latin *lotus, loti*, from Greek *λωτός, lōtos*, from Hebrew *lōt* myrrh, possibly in part from Egyptian. *Lotus* was the fruit in Greek legendary history eaten by the *Lotophagi* & supposed to cause a state of dreamy content & complete forgetfulness of home & friends. *Lotus* also referred to trees with hard, black wood (*Celtis australis*, *Diospyros Lotus*), various water-lilies of Asia & Egypt, the plant treated symbolically in Hindu & Buddhist thought, & a clover or trefoil eaten by horses mentioned by Homer. The genus of about 120-130 spp is composed of widely distributed (originally from temperate Eurasia in one source?) upright annual & perennial herbs or subshrubs with pinnate leaves & solitary, twin, or umbellate flowers. From the specific epithets below, the genus may have some gender identity issues. The genus is typically associated with several introduced spp, but it is composed of mostly North American spp. Locally, our plants are introduced herbaceous annual & perennial spp, with leaves 3-5 parted, flowers solitary or in dense umbels, yellow or cream to white & inflated pods.

***Lotus corniculatus*** Linnaeus BIRD'S-FOOT TREFOIL, aka BABY'S SLIPPERS, BACON & EGGS, BIRDFOOT DEERVETCH, BLOOMFELL, CAT'S CLOVER, COMMON BIRD'S-FOOT TREFOIL, CROWTOES, EGGS-& BACON, GARDEN BIRD'S-FOOT TREFOIL, GROUND HONEYSUCKLE, (*corniculatus -a -um* kor-nik-ew-LAH-tus horned, with small horns.)

Habitat: Wet & poorly drained sites, acid tolerant, cold hardy. Prominent on some saline roadsides, especially I-74 near Illinois Rt 78. Now (2012) appearing in the native plantings on I-80 north of Bettendorf & Davenport, Iowa. distribution/range: Introduced from Europe. More common than mapped.

Culture: Many natural area managers would ask why cultivate, but this is a reclamation sp, & people are still specifying it in jobs; it is widely available on the open market, is easily established, is easily spread by mowers, & is on the increase. It seems to be appearing in odd places away from highways.

⓪ Spring or fall seeding. No pretreatment needed; sow seeds just below the soil surface at 70°F & water (ew11). Sow at 20°C (68°F), germinates in less than two wks (tchn). Drill 5-6 lb per acre (stocks). Pure stand plant 4-6 lb pls per acre in spring (gran). Seeded alone plant 8-15 lbs per acre. Growth rate moderate. Seedling vigor low. Vegetative spread rate none. 368,000 (ew11), 369,840 (usda), 375,000 (stocks), 418,000 (gran, ecs) seeds per pound.

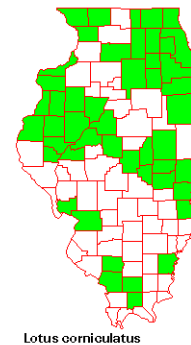
cultivation: Space plants (?? but why) 1.0-1.25' in your formal garden of invasives. Full sun, dry soils. Adapted to many soil types, from heavy loams to sandy & gravelly sites. Good salt tolerance Medium coarse to medium fine soils. Neutral to acidic soils, some base tolerance. Anaerobic tolerance medium. CaCO<sub>3</sub> tolerance medium. Drought tolerance medium. Fertility requirement medium. Salinity tolerance medium. Shade intolerant. pH 5.5-7.5.

Description: Introduced, erect to drooping, long-lived, deep-rooted, perennial forb, mostly smooth; from a large taproot; 14" minimum root depth, spreading rhizomatous habit; stems dense crown of stems, 6"-24" tall; leaves mostly stalkless, 5-parted with the lower 2 leaflets separated from the other 3 crowded leaflets; inflorescence a long-stalked, rounded umbel of 4-8 stalked flowers from the upper axils; flowers showy, small yellow flowers turning orange with brick-red marks, 5-merous, 0.33-0.50" long; N. key features: ⓪ Flowers yellow turning orange with brick-red marks, head-like umbel of 4-8 stalked flowers. Ⓜ "Sp has head-like umbels." (Ilpin)

Comments: status: This plant is considered invasive by authoritative sources (Uva et al 1997, Stubbendieck et al 1994. phenology: Blooms May to July, 6-9. C3. Cold hardy. Useful for erosion control & forage, saline roadsides, & alkaline sites. Does well in mixes & is bloat-resistant. Several commercial varieties are available, & characteristics may vary with the variety.

Some native consultants rightly advise clients to not plant natives on land where this or other aggressive, introduced legumes have been grown or are growing. This will germinate from the seed bank for 20 years. The very necessary prescribed burning invigorates these hard seeded legumes. This was an invasive at Nachusa Grasslands. If you must plant after invasive legumes, plant aggressive grasses that may be managed with broadleaf herbicides.

This sp is being spread by politically nepotistic, drooling, lowbrow, Neanderthalic, knuckle-dragging, IDOT & IaDOT mower jockeys. BIRD'S-FOOT TREFOIL forms a yellow ribbon on the roadside edge of the turf along several interstate highways. Sp is becoming widespread along I-74 in Davenport, Iowa, away from the verge.





Associates: Sometimes used as forage on poor or dry soils. Nodule-forming, N<sub>2</sub> fixing. Endomycorrhizal.  
VHFS: Four taxonomic varieties. [*Lotus corniculata* L var *arvensis* (Schkuhr) Ser ex DC]



*Lotus corniculatus*

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***Lotus unifoliolata* (Hook) Benth var *unifoliolata*** DEER-VETCH, aka AMERICAN BIRD'S FOOT TREFOIL, PRAIRIE TREFOIL, PURSH'S DEER-VETCH, SPANISH-CLOVER,

Habitat: Introduced, adventive from the west, annual forb in Illinois, where it is known from railroad rights of way. In Kansas, prairie plains, rocky hillsides, stream valleys, roadsides, dunes, waste areas; open, sandy soils.

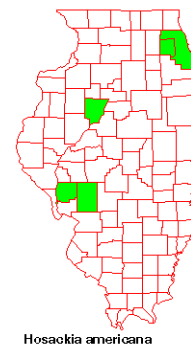
distribution/range: Native American sp, known from several Illinois cos (Cook, DuPage, Greene, Macoupin, & Peoria) that are very much associated more with institutes of botanical expertise than precise distributions, perhaps adventive from western USA, perhaps not. Considered adventive in Illinois (rare) & Wisconsin.

Description: Native, erect, annual forb; flowers white to cream, (or pink with darker veins, or white with pink veins, or red), 5-merous; N. key features:

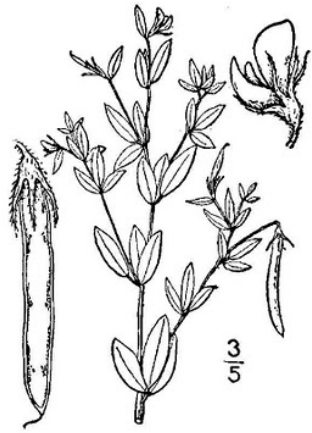
Comments: status: phenology: Blooms June-August. C3.

Associates: Quail eat the seeds.

VHFS: In Ilpin, this is *Hosackia americana*. [*Acmispon americanum* (Nutt) Rydb, *Hosackia americana* (Nutt) Piper, *H unifoliolata* Hook, *Lotus americana* (Nutt) Bisch, *L purshiana* Benth & EG Benth, *L purshiana* Benth & EG Benth var *glaber* (Nutt) Munz, *L purshiana* Benth & EG Benth var *purshiana*, *L sericea* Pursh, non Moench, *Trigonella americana* Nutt]



*Hosackia americana*



*Lotus unifoliolata*

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**LUPINUS** Linnaeus 1753 **LUPINE, LUPIN** *Fabaceae* *Lupinus* (lu-PEEN-us) New Latin, from Latin, *lupinus -a -um*, of or like a wolf, wolfish, & the name of the lupin, from *lupus*, a wolf, in reference to the belief the plants overruns fields & ‘wolves’ the soil, or devours the fertility. About 150-200 spp of annual & perennial herbs & shrubs of temperate & tropical regions of North America, the Mediterranean, Europe, South America, & Africa, with palmately digitate or unifoliolate leaves, & white, yellow, blue, or purple flowers in long racemes. Fruit is a coriaceous, compressed, few-seeded legume, coiling when open. The genus is very diverse in western North America & South America. The common name is spelled with or without the final -e.

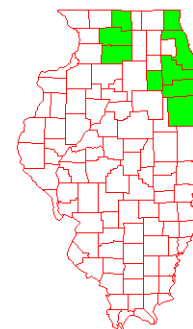
Seeds mature in summer & are forcibly expelled as the ripe pods shatter. They must be harvested slightly green. LUPINE seed has hard seed coats that must be nicked with a file or rubbed between two sheets of sandpaper for other than fall planting. Inoculate with rhizobium. Best planted in the spring in the garden (it kind of resents life in a pot). Code A, I. (cu00)

Lupines are the only known legume genus to be naturally mycorrhizal (Sprent 2001).

Our native lupine has (7)8-11 leaflets, (2-) 2.5-4.5 (-4.8) cm long, apex obtuse to rounded. The often planted, western *L polyphyllus* has (11-)12-14(-17) leaflets. (after fh & rvw11)

**Lupinus perennis** Linnaeus \*IA, ME, MD, NH, PA, VT **WILD LUPINE**, aka **INDIAN BEET**, **LUPIN**, **OLD MAID’S BONNET**, **PERENNIAL LUPINE**, **SUNDIAL LUPINE**, **WILD BLUE LUPINE**, **WILD LUPINE**, The common name **SUNDIAL** is in reference to the palmately compound leaves. (perennial, from Latin *perennis*, adj, remaining or lasting throughout the year.) upl

Habitat: Sand prairies, sand savannas, & dunes. Sandy woods & hills. In se USA, “Sandhills, sandy roadsides, other dry (and usually sandy and nutrient-poor) habitats” (w15). distribution/range: Sandy woods, occasional in the n ¼ of Illinois, absent elsewhere. Typical var *perennis* occurs s of Illinois. (m14) North central & northeast Illinois. “Frequent on the dunes north of Shirland but not found elsewhere in the co.” (ewf55) distribution/range: Known but not mapped from Putnam Co, Illinois. LUPIN has a curious distribution, with Illinois at the southern limit of its northern range. Cf bonap16.



*Lupinus perennis*

Culture: Fresh seed is reported to give some results. Easy from scarified, moist stratified, & inoculated seed. Scarify, moist cold stratify (10 days) or fall plant, inoculate.

①Seeds need scarification. 3 days cold moist stratification. Legume, requires appropriate rhizobial inoculum. (pm09) ②Seeds need scarification. Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 10 days of cold moist stratification. (he99) ③“10 days moist stratification required for germination. Field sow fall” (pnnd). ④Pour 180°F water over seeds, let soak 1 to 3 days. Sow seeds just below soil surface at 70°F & water. (ew11) ⑤Pour hot water over seeds, let soak 1-3 days until swelling noticeable.

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Sow at 20°C (68°F), if no germination in 3-4 wks, move to +2 to +4°C (34-39°F) for 12 wks, then return to 20°C (68°F) for germination (tchn). ©USDA Plant Guide recommends gentle scarification with sandpaper, soaking the seeds in tepid water overnight. Inoculate the seeds, sow in cells or flats, cover with ¼" soil.

seed counts & rates: 14,400 (aes10), 16,000 (pn02, jfn04), 17,214 (gnagr07), 17,600 (pm02, ew11), 18,531 (gnh06), 19,000 (ecs), 19,319 (gnh02), 21,300 (appl02), 22,400 seeds per pound.

cultivation: Space plants 1.5-2.0'. Dry soils, full sun to partial shade. Sands & loose, well-drained soil with slightly acidic pH. Transplant to garden or plug trays at 2-3 true leaf stage. Potted plants are subject to root rot & winterkill. Do not hold in green house to avoid root rot. Many plants begin flowering second growing season. Plants grown in rich soils will only live a relatively few years. Do not mulch lupines. The adult plants require fire to prosper, but seedlings should not be burned until after the 2<sup>nd</sup> or 3<sup>rd</sup> full growing season. Sp may be difficult to establish in soils that are not sandy & acidic. Drought tolerant.

bottom line: Genesis seed tests indicate this seed typically has a high percentage of hard seed and may strongly benefit or require dormant seeding to establish a good stand, but early spring planting inoculated scarified seed is necessary for rhizobia establishment. Dormant seed with inoculated, unscarified seed; but successful inoculation is unlikely. Greenhouse culture is easy, but LUPINE is best from seed sown in its permanent location. Scarify, inoculate & press or roll seeds into soil. Germ 58.8, 62, 62, sd 20.21, r8.0-86 (78)%. Hard 30.3, 23, 28, sd 22.7, r9.0-90 (81)%. Test 18, 14, 14, r12-35 days. (#19).\*\*

greenhouse & garden: Greenhouse culture is easy, but LUPINE is best from seed sown in its permanent location. Inoculate & press or roll seeds into soil.

Description: Erect, herbaceous, perennial, native forb, 0.7-2.0' tall; adult plants spread by rhizomes, producing ramets over 3 feet; stems; leaves palmately compound, 7-11 leaflets; inflorescence a 4"-8" tall, dense, terminal raceme of stalked flowers, sometimes almost verticillate; flowers deep blue, occasionally pink or white (blue, violet, pink to white), 5-merous, 0.50-0.75(-1.0)" long; fruit legume, pubescent, oblong, flattened, 1.2-2.0", explosively coiling when open; 2 to 7 seeds; N. key features: ①Palmately compound leaves, 7-11 leaflets. ②Minutely pubescent, 5-7-foliolate (w73).

Comments: status: Threatened in Iowa, Maryland, & New Hampshire. Possibly extirpated in Maine. Rare in Pennsylvania. Special Concern in Rhode Island. Endangered in Vermont. This plant is considered invasive in some areas (SWSS 1998). phenology: Blooms 5,6,7. C3. In northern Illinois, collect seeds in June. Collect seeds in se Wisconsin in August (he99). Attractive cut flowers, landscaping. Adult plants require fire, can be aggressive, sand, & contrary to the origin of the genus name, they build soil. The audibly exploding pods may throw seeds 3-16.4(20) feet. Seed source Amboy, Lee Co, Illinois, & Newaygo, Michigan.

"It is often called SUN-DIAL, from the circumstance of its leaves turning to face the sun from morning till night (w73).

Associates: Pollinated by honeybees, bumble bees, eastern carpenter bees, & butterflies including BLACK SWALLOWTAILS, CLOUDED SULPHURS, & KARNER BLUES. Attracts bees, butterflies, & moths. Butterfly host plant. *L perennis* is the only (?) larval host of *Lycaeides melissa samuelis*, the KARNER BLUE BUTTERFLY. Larval host *Glaucopsyche lygdamus* SILVERY BLUE BUTTERFLY, *Callophrys irus* FROSTED ELFIN, *Erynnis baptisiae* WILD INDIGO DUSKYWING, *Erynnis persius* PERSIUS DUSKYWING, *Plebejus melissa* MELISSA BLUE (inc. KARNER). Nectar source *Erynnis icelus* DREAMY DUSKYWING.

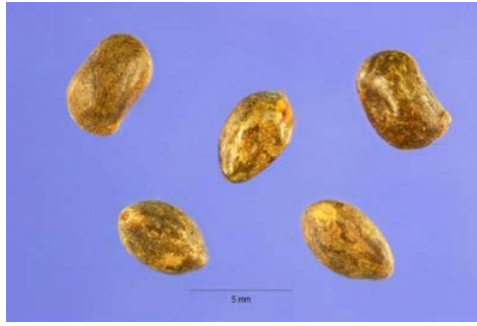
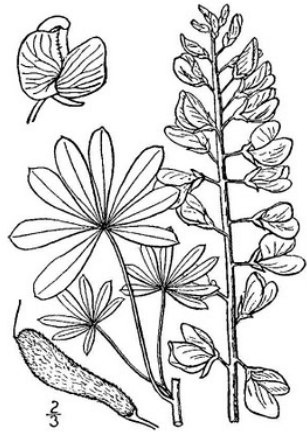
☞ The pods & seeds contain alkaloids, including d-lupanine. Children, horses, & sheep may be affected, with symptoms including breathing trouble, trembling, coma, & death.

ethnobotany: The tiny hairs from dried stems & pods are irritating to some people. Dot Wade was sensitive to the hairs when cleaning lupine seeds.

VHFS: By some sources the lupine that grows in Illinois is *Lupinus perennis* L ssp *perennis* var *occidentalis* S Watson, which also grows in Iowa, Minnesota, Wisconsin, Indiana, Michigan & east. Var *perennis* grows in Minnesota, Wisconsin, Michigan, & Ohio, & Kentucky.

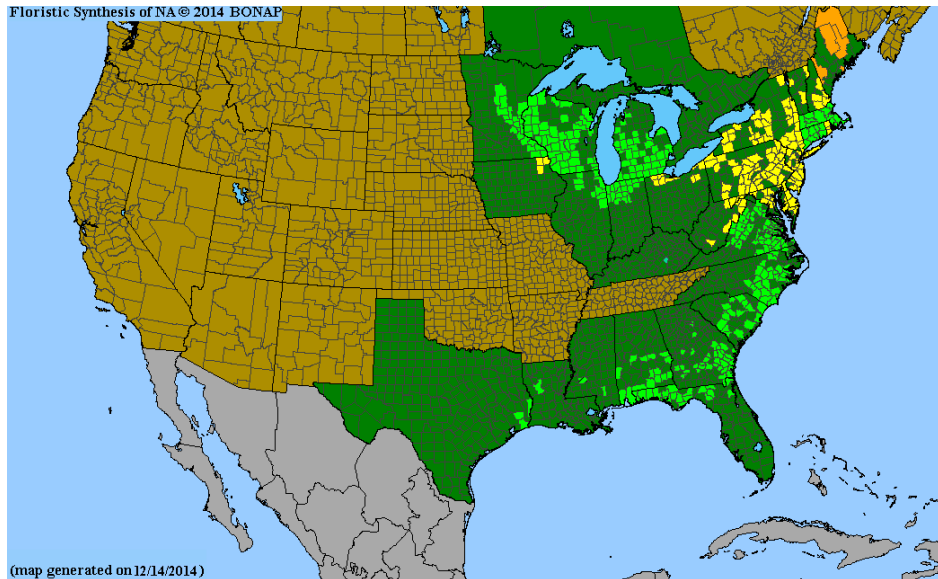
Ssp *gracilis* (Nutt) D Dunn grows from Texas to Georgia & Florida. [*Lupinus gracilis* Nutt, non JG Agardh, *L nuttallii* S Wats, *L perennis* L var *gracilis* (Nutt) Chapman]





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*Lupinus perennis*

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***Lupinus polyphyllus*** Lindley BIG-LEAF LUPINE, aka *ALTRAMUZ PERENNE*, GARDEN LUPINE, LARGE-LEAVED LUPINE, LUPINE, *LUPINE PÉRENNE*, *LUPINE VIVACE*, MARSH LUPINE, RUSSEL LUPINE, *STAUDENLUPINE*, STREAMSIDE LUPINE, *TREMOCEIRO-DE-GARDIM*, WASHINGTON LUPINE, (*polyphyllus -a -um* New Latin, many-leaved, from Greek *polys*, many, frequent, much, & *phyllon*, leaves.)

Habitat: Tolerates acidic soils. Native to western North America (what source). Introduced in northern Illinois.  
Culture: ☉Pour 180°F water over seeds, let soak 1 to 3 days. Sow seeds just below soil surface at 70°F & water. (ew11) 22,400 (ew11) seeds per pound.

Description: Introduced from Oregon & escaped. Erect perennial 3-5', leaf palmately divided into 11-17 leaflets, inflorescence 8" to 24" dense conical raceme; flowers blue, 5-merous. ☉Tall, 11-15-foliolate, calyx both lips subentire (w73).



*Lupinus polyphyllus*

Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

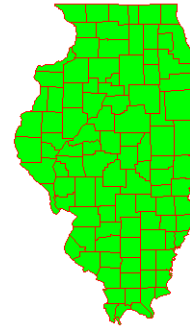
**MEDICAGO** Linnaeus 1753 **MEDICK, BUR-CLOVER, SNAIL-CLOVER** *Fabaceae Medicago* New Latin, from Latin *medica*, *medic-*, & Latin *-ago* (as in *plantago*, plantain) from Greek *μεδική*, *medike*, lucerne, from feminine of *medikos*, Median, from *Media*, Media, (nw Iran & sw Turkey) said to be the native country of the plant, & *-ikos -ic*; or *Medike*, *medick* is the Greek name for alfalfa which came to Greece from Media. 80 spp of annual & perennial herbs of Eurasia & Africa that resemble typical clovers & have pinnately trifoliolate leaves with tiny, forward-pointed teeth, end leaflet stalked, yellow or blue flowers in dense round to conical clusters, calyx not 2-lipped & spirally twisted seedpods. Legume variously curved, spirally coiled or twisted.

***Medicago lupulina*** Linnaeus BLACK MEDICK, aka BLACK MEDIC, HOP MEDICK, NONE-SUCH, (*lupulinus* -a -um New Latin hop-like, for the similarity to the inflorescence of *Humulus lupulus*, from Latin *lupulus*, *lupuli*, hops, (lit. small wolf), from plants' old name willow-wolf, from its habit of climbing over willows.)

Habitat: Disturbed sites, meadows, lawn weed. distribution/range: Ubiquitous, in every Illinois county, introduced & naturalized throughout northern North America. "A forage plant that escapes frequently" (ewf55).

Culture: Why?

Description: Sprawling to erect, herbaceous, annual/biennial introduced forb, up to 32" tall; root minimum depth; stems; leaves 3-parted with oval leaflets, the end leaflet stalked; inflorescence a dense, up to 1/3" roundish head with 10-50 stalkless flowers; flowers yellow, 5-merous, 0.13" long, keel (top petal) smooth, calyx not 2-lipped; fruit black, kidney-shaped pod with 1 seed; N. key features: ①Keel smooth, inflorescence up to 1/3"; oval leaflets, the end leaflet stalked; ②"Pod is pubescent, not coiled" (Ilpin).



Medicago lupulina

Comments: status: This sp is considered weedy & invasive by many authorities. phenology: Blooms May – September, 5-7. C3. Similar to the HOP CLOVERS, *Trifolium aureum* & *T. campestre*, which have larger, flower heads.

Associates: Endomycorrhizal. Reported to form nodules.

VHFS: [*Medicago cupianiana* Guss, *M. lupulina* L var *cupianiana* (Guss) Boiss, *M. lupulina* L var *glandulosa* Neilr]



237. *Medicago lupulina* L.  
*Black Medick, Nonsuch; Y.*

*Medicago lupulina*

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***Medicago sativa*** Linnaeus ALFALFA, aka *ERBA MEDICA*, *ERBA SPAGNA*, *MEDICA*, *LUCERNE*, LUCERNE MEDICK, PURPLE MEDIC, YELLOW ALFALFA, (*sativus -a -um* (sa-TEE-vus) Latin cultivated, sown.)

Habitat: Disturbed sites. Coarse to moderately fine soils. Neutral to basic soils.

distribution/range: Ubiquitous, in every Illinois county, introduced from Asia.

Culture: ☉ Sow at 20°C (68°F), germinates in less than two wks (tchn). For a pure stand plant 8-15 lb pls per acre in spring or fall (gran). Best seeded in spring with a nurse crop of oats.

seed counts & rates: 200,000 (star02), 210,000 (gran) seeds per pound. For cover crop, 1-1.5 lb per 1000 sq ft or 25 lb per acre (Territorial).

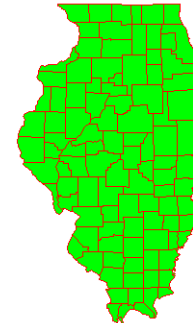
Description: Erect, herbaceous, perennial, introduced forb, 1'-3' tall; from deep tap roots; stems slender stems; leaves stalked, 3-parted, long & narrow; inflorescence a stalked, rounded to cylindrical, head-like cluster (raceme) of short-stalked flowers; flowers purple to cream; 5-merous, 0.25-0.50" long, calyx not 2-lipped; fruit is a finely-hairy pod.; N. key features: Calyx not 2-lipped; leaf long & narrow.

Comments: status: phenology: Blooms June – September, 5-10. C3. Introduced perennial, medium to tall, marginally cold hardy, individual plants ling-lived. Fixes up to 200 lb of nitrogen per acre. 60 lb/bushel. “A common forage plant that escapes freely & tends to persist.” (ewf55)

Associates: “This is the number one legume forage crop, grown for hay & pasturage; also for silage & feed concentrate. Species may cause hayfever(?)” (Ilpin)

VHFS: Subsp *falcata* (L), YELLOW ALFALFA [*Medicago falcata* L]

Subsp *sativa* BLUE ALFALFA.



Medicago sativa



*Medicago sativa*



236. *Medicago sativa* L.  
*Lucerne*; P., B.

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***Medicago X varia*** Martyn HYBRID ALFALFA, *Medicago sativa* L subsp *falcata* (L) Arcang. X *M sativa* L subsp *sativa*) Introduced, escaped, perennial forb.

VHFS: [*Medicago sativa* L subsp *varia* (Martyn) Arcang] This maybe synonymous with *Medicago sativa* L ssp *sativa*.



*Medicago X varia*

Photos by Leo Michels - Source: <http://www.imagines-plantarum.de/> Public domain images. Seed photo Tracey Slotta USDA-NRCS PLANTS Database (as *Medicago sativa* ssp *varia*). - Not copyrighted image.

**MELILOTUS** P Miller 1754 **SWEET CLOVERS, MELILOT, SOURCLOVER** *Fabaceae Melilōtus* New Latin, from Latin *melilōtos*, *melilōtum*, from ancient Greek μελίλωτος, λελίλωτον, *melilotos*, *melliloton*, melilot, a sp of clover, from Greek μέλι, *meli*, honey, & λωτός, *lotos*, *lotus* (which see), a leguminous plant (but also one of various Old World plants of note, see *Lotus*), also Latin *mel*, honey, & *lotus*, sweetness in reference to the plant ‘exhaling’ a sweet odor while drying. *Melita*, *domi adsum!* One may also see *milotis*. A genus of 20 spp of annual or biennial erect temperate Eurasian leguminous herbs that comprise the sweet clovers, have trifoliolate leaves, small white or yellow flowers in axillary racemes, & short straight one-seeded or two-seeded pods, & are widely cultivated & naturalized as escapes. Wood (1873) notes the genus was taken from *Trifolium*. Formerly *Melilotus* Tourn.

Leaves pinnately trifoliolate with tiny, forward-pointed teeth, veins of leaves simple or forked. Yellow or white flowers in many long, branched clusters; legumes rugose, longer than the calyx, 1 to few-seeded. There is some confusion with the gender of the genus name.

“*M albus* & *M officinalis*, nearly identical except in flower color, are apparently incompatible (Isely 1998), they should not be synonymized, as was done by Kartesz (1999). Other differences useful in the determination of faded herbarium specimens are given by Isely (1998): corolla 3.5-5 mm long, the wing petals about as long as the keel (*M albus*) vs. corolla 5-7 mm long, the wing petals generally longer than the keel (*M officinalis*).” (w11)

“The only consistently reliable way to distinguish the two is by flower color. Some yellow is usually detectable even in old dry corollas of *M officinalis*. The racemes in *M albus* at peak of flowering are often much longer (8–15 times as long as wide) than in *M officinalis*, where they are rarely more than 6 times as long as wide. In *M albus*, the standard often distinctly exceeds the wings, while in *M officinalis* it is usually about the same length, but there are many exceptions. The leaflets of *M officinalis* tend to be broader, usually no more than about twice as long as broad, while in *M albus* they are often narrower (ca 2.5–3.5 times as long as broad).” (rvw11)

It is said that Native Americans found the scent of SWEET CLOVERS pleasingly similar to that of SWEET GRASS, & adopted the plants for similar uses. The aroma of both SWEET CLOVERS & SWEET GRASS is caused by the high content of the fragrant organic benzopyrone Coumarin. Coumarin is a precursor molecule in the synthesis of anticoagulants such as warfarin, trade name “Coumadin” and certain anticoagulant rodenticides. Coumarin has the sweet scent of new mown hay. *Anthoxanthum odoratum*, *Galium odoratum*, *Verbascum spp*, & *Panicum clandestinum* are also high in Coumarin. *Cinnamon cassia*, or CASSIA CINNAMON, contains over 60X coumarin than *C verum*, Ceylon or TRUE CINNAMON, and be linked to liver damage.

☞ All above ground plant parts should be considered somewhat toxic. Consumption may lead to bruising & spontaneous bleeding. SWEET CLOVER varieties high in coumarin may cause “sweetclover or bleeding disease” of livestock.

Duane Isley, 1998. Native & naturalized *Leguminosae* (*Fabaceae*) of the United States (exclusive of Alaska & Hawaii). Monte L Bean Life Science Museum, Brigham Young Univ, Provo, UT.

***Melilotus albus*** Medikus WHITE SWEET CLOVER, aka *MELIOTO BIANCO*, SWEET-SCENTED CLOVER, WHITE Draft Beer not People. Uncopyrighted draught.



MELILOT, (*albus -a -um* from Latin white, *albus*, adj, white, dead white; pale; bright.)

Habitat: Dry disturbed sites. In Michigan, “Characteristic of recently disturbed places in dry, open, often calcareous ground, such as sand dunes, prairies, & roadsides, as well as fields, railroads, & shores” (rvw11). distribution/range: Ubiquitous, in every Illinois county, introduced from Eurasia.

Culture: Easily established, cold hardy.

seed counts & rates: 260,000 (gran) seeds per pound. Pure stand plant 10-15 lb pls per acre in spring or summer (gran).

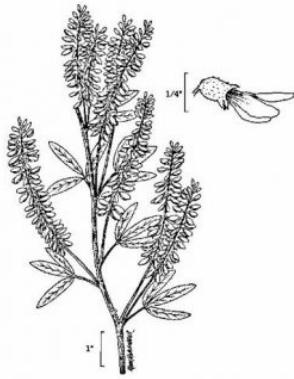
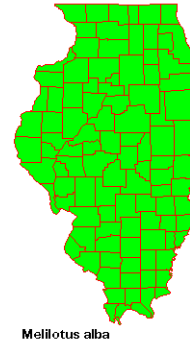
cultivation: Best on medium coarse to medium fine soils. Neutral to basic soils, some acid tolerance. Drought, saline, & alkaline tolerant.

Description: Introduced annual/biennial/short-lived perennial forb, 1'-6' tall, with many, widely branching stems; taprooted; stems; leaves 3-parted, oblong leaflets; flowers white; 5-merous; fruit is a pod; N. key features:

Comments: status: phenology: Blooms 5-11. C3. Useful for reclamation of disturbed sites. Plant is very fragrant when dried. “Very common escape” (ewf55 as *M alba* Dear.).

Associates: Flowers provide nectar for *Satyrrium edwardsii* EDWARD’S HAIRSTREAK. Valuable for honey production. “Used as a green manure for hay and pasture; may be toxic if not cured properly” (Ilpin). May cause bloating. Endomycorrhizal. Reported to form nodules.

VHFS: [*Melilotus alba* orthographic variant, *M alba* Lam, *M albus* Medik var *annuus* Coe]



*Melilotus abla*

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***Melilotus altissima*** Thuiller TALL YELLOW SWEET-CLOVER, aka TALL MELILOT, (*altissimus -a -us* (al-TIS-i-mus) highest, very high, very tall, tallest, superlative of *altus*, & *-issimus*, superlative adjectival suffix; most so, to the greatest degree.)

A rare introduced adventive annual/biennial/perennial forb. Known from Champaign & Lake cos in Illinois. Introduced from Eurasia. Resembles *M officinalis*. “Crushed leaves are fragrant; pubescent pods” (Ilpin). Blooms 6-9. C3.



*Melilotus altissima*

Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

Draft Beer not People. Uncopyrighted draught.

***Melilotus indicus*** (Linnaeus) Allioni INDIAN SWEET-CLOVER, aka ANNUAL YELLOW SWEETCLOVER, SMALL MELILOT, SOUR-CLOVER, (*indicus -a -um* New Latin, Indian, the subcontinent, of or from or referring to India.) An introduced adventive annual forb.

[*Trifolium melilotus-indica* L, *Melilotus indica* (L) All orthographic variant.]



*Melilotus indicus*

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***Melilotus officinalis*** (Linnaeus) Lambert YELLOW SWEET CLOVER, aka SWEET-SCENTED CLOVER, WHITE MELILOT, (*officinalis -is -e* official, medicinal, of the shops, sold as an herb, sold in the marketplace;, from *officina*, noun, Modern Latin, workshop, laboratory, or herb pharmacy, & *-alis*, of or pertaining to.)

Habitat: Disturbed habitats, Best on medium coarse to medium fine soils..

Culture: Easily established.

260,000 (gran) seeds per pound. Pure stand plant 10-15 lb pls per acre in spring or summer (gran). 0.5 lb per 1000 sq ft (pots). 1 lb per 1000 (territorial 2001) after last frost.

Neutral to basic soils, some acid tolerance. Drought tolerant when planted early in year. Cold hardy.

Description: Erect, annual/biennial, or short-lived perennial introduced forb, 1'-6' tall; from a deep taproot; stems many, widely branching stems; leaves 3-parted; inflorescence of many, tall, long-stalked, raceme of stalked flowers; flowers yellow, 5-merous, 0.13-0.25" long; N. key features: Crushed leaves are fragrant (Ilpin).

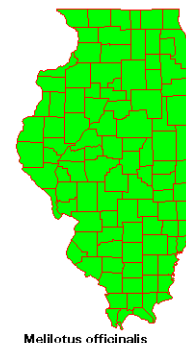
Comments: status: Introduced - naturalized; ecologically invasive. phenology: Blooms May – September, 6-10. C3. In Michigan sp starts to bloom several days before *M albus* (rvw11). Cool-season. To 6' with adequate moisture. Useful for reclamation of disturbed sites that will not planted with native forbs. Deep rooted, drought, saline, & alkaline tolerant. May cause bloating. On poor soils of fields & vegetable gardens, can be used as a summer-sown cover crop. Deep roots pull nutrients, including potassium & phosphorus, from the subsoil, makes good green manure & compost. Long taproot helps break up compacted soils. The whole plant is sweet scented.

“An escape that is less common than the preceding (*M albus*).” (ewf55)

Associates: Major honey plant. “Species is valued as a bee plant for honey production” (Ilpin). Nitrogen fixing legume, fixing up to 125 lb N per acre. “Species is used as a green manure, for hay, and pasture; may be toxic if not cured properly” (Ilpin).

ethnobotany: This plant is a source of the blood thinner Coumadin. The fragrance is due to the high coumarin content in the leaves.

VHFS: Plants.usda.gov synonymize *M albus* into this sp. [*Trifolium melilotus-officinalis* L]



*Melilotus officinalis*



*Melilotus officinalis*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy of ILPIN.

**ONOBRYCHIS** Mill. **SANFOIN** *Fabaceae Onobrychis* New Latin, from Greek *onobrychis*, a leguminous plant, from *onos* ass & *brycho*, *-brychis*, from *brykein*, *brykhein* to eat greedily, gnash the teeth, referring to its use as hay. A genus of Old World herbs of the family *Leguminosae* having odd pinnate leaves, dense, conical racemose clusters of rosy-red, pink, or white flowers, & flat, rounded, unjointed pods, closed when mature with toothed or spiny edges.

***Onobrychis viciifolia*** Scop **SAINFOIN**, (*viciifolius -a -um* leaves like the genus *Vicia*)

Introduced perennial forb, rarely escapes from cultivation. Known from Alexander Co in s Illinois.

Habitat: Tolerant of poor soils & some drought.

Culture: Sow in fall or early spring for spring germination. 2-3 lb per 1000 (pots).

Description: Short-lived, perennial, nitrogen-fixing legume with beautiful pink flowers. key features: “Species has dense, axillary racemes” (Ilpin).

Blooms 6-7. C3.

May be plowed under for green manure at any time, or used as hay or forage (does not cause bloat). “Species was introduced for its forage value which turned out to be lower than expected” (Ilpin)

VHFS: [*Hedysarum onobrychis* L, *Onobrychis sativa* Lam, *O viciaefolia* Scop, orth var]





*Onobrychis viciifolia*

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**ORBEXILUM** Rafinesque 1832 **SCURFPEA, SAMPSON'S SNAKEROOT** A genus of about 9 spp of perennial herbs of southern North America & Mexico.

**Orbexilum onobrychis** (Nuttall) Rydberg *Onobrychis* is a noun in apposition to *Orbexilum* and does not agree in gender, the epithet was historically capitalized.

**OXYTROPIS** DC **LOCOWEED** *Fabaceae* *Oxytropis* from *oxus*, sharp, & *tropis*, a ship's keel, in reference to the pointed keel of the corolla. A large widely distributed genus of often-shrubby herbs having odd-pinnate leaves & racemose or spicate flowers each of which has a pea-like corolla with a clawed petal. Erect perennial; leaves odd-pinnate; inflorescence dense, conical cluster; flowers pink-purple; legumes inflated.

**Oxytropis campestris** (Linnaeus) DC var **chartacea** (Fassett) Barneby \*F, WI COLD MOUNTAIN CRAZYWEED, aka FASSETT'S LOCOWEED, NORTHERN YELLOW LOCOWEED (?),

Habitat: Sandy lakeshores with fluctuating water levels in full sun. distribution/range: Portage & Waushara cos in central Wisconsin.

Culture: ☉ Sow at 18-22°C (64-71°F) for 2-4 wks, move to +2 to +4°C (34-39°F) for 4-6 wks, move to 5-12°C (41-53°F) for germination (tchn).

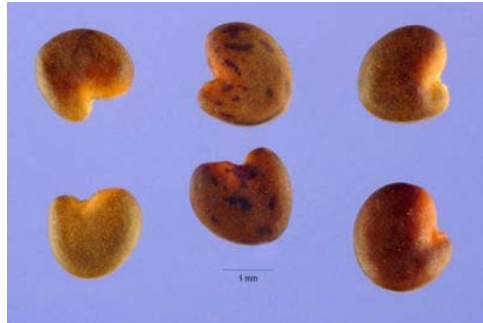
Description: Erect, herbaceous, perennial native forb, fuzzy; thick taproot; stems; leaves odd pinnate, 15-31 lance-shaped leaflets; inflorescence a 1/2"-1" dense, long-stalked raceme of stalkless flowers lengthening when in fruit; flowers purple, 5-merous, 0.33-0.50" long; fruit a stalkless thin papery beaked pod; N. key features: papery pod; oddly pinnate leaflets

Comments: status: Native. Federally threatened. Endangered in Wisconsin. phenology: Blooms

Associates:

VHFS: [*Oxytropis chartacea* Fassett]





*Oxytropis campestris*

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***Oxytropis lambertii*** Pursh PURPLE LOCOWEED, aka LAMBERT'S CRAZYWEED, LAMBERT LOCO, STEMLESS LOCO, WHITE WOOLLYLOCO, WHITEPOINT LOCOWEED,

Habitat: Full sun, dry soils. distribution/range: Native west of our area.

Culture: ① No pre-treatment necessary other than cold, dry stratification (pm09). ② Sow seeds just below moist soil surface at 70°F for 1 month. Move to 30°F for 1 month, then bring back to 50°F. (ew11). ③ Although germination was only 10% & seed was not ripe when harvested, Butler & Frieswick (2001) found 24-hour presoak had no effect; no other treatments used. ④ Bb02 found germination occurs at 36°D/15°N C alternating temperature cycle, with seeds exhibit physical dormancy. Growth rate moderate. Seedling vigor low. Vegetative spread rate none. Seed spread rate slow.

seed counts & rates: 192,000 (pm11), 200,000 (ew11), 209,000 (usda) seeds per pound.

cultivation: Space plants 0.5-1.0'. Tolerant of coarse & medium textured soils. Anaerobic tolerance none. CaCO<sub>3</sub> tolerance high. Drought tolerance medium. Fertility requirement low. Fire tolerance low. Salinity tolerance low. Shade intolerant. pH 6.4-9.0.

Description: Semi-erect, herbaceous, perennial, native forb, to 1.4'; from a single crown; minimum root depth 10"; flowers purple (red), key features:

Comments: status: Native. This plant can be weedy in some parts of its range. (Stubbenieck et al 1994.)

phenology: Blooms 4-6. "The single feature that distinguishes PURPLE LOCOWEED from other American *Oxytropis* spp is the hairs attached by their middle to a short stalk forming a miniature teeter-totter, a feature seen only with a lens & even then sometimes escaping notice" (Ibj)

Associates: Legume, nitrogen fixation low.

VHFS:

J Butler & C Frieswyk, 2001, Propagation protocol for production of *Oxytropis lambertii* seeds; USDI NPS - Rocky Mountain National Park, Estes Park, Colorado. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 28 March 2011). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

CC Baskin & JM Baskin, 2002, Propagation protocol for production of container *Oxytropis lambertii* Pursh plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 28 March 2011). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.



*Oxytropis lambertii*

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**PEDIOMELUM** Rydberg 1919 **BUCKROOT, PRAIRIE-TURNIP** *Fabaceae* See also *Psoralea Pediomelum* from Greek for apple of the plains, ancient Greek *πεδίον*, *pedion*, a plain, a flat surface, & *μήλον*, *melon*, apple. A genus of about 22 (20) spp of perennial herbs of North America.

#### Move into Dalea or not?

**DALEA** Linnaeus **PRAIRIE CLOVER, INDIGO BUSH** After English apothecary Samuel Dale, 1659-1739.

**PETALOSTEMUM** (*Dalea* in part) Also *Petalostemon* Mx. **PRAIRIE CLOVER** *Fabaceae* *Petalostemum* also spelled *Petalostemon*. New Latin, from the union of the petals & stamens, *petalo-*, from Greek *πέταλον*, *petalon* leaf, & Greek *στήμων*, *stemon*, warp, thread, similar to Old Irish *sessam* act of standing, Sanskrit *sthama*n station, & deriving from Greek *histanai* to cause to stand, set, place meaning standing upright. Perennial glandular herbs of the central & western United States & Mexico having odd pinnately compound leaves, leaflets glandular-dotted, & flowers pea-like, pink, purple, or white, in close heads or spikes & exhibiting a superficial resemblance to clovers. Fruits are legumes, 1-2 seeded, enclosed in the calyx, indehiscent, 1-seeded. Attracts small mammals, butterfly larvae, butterflies, upland game birds & songbirds. Foliage is sought out by herbivores. Nitrogen fixing, tap-rooted legumes. *Petalostemon* is variously seen as grammatically masculine or neuter. Formerly *Kuhnistera* Lamarck.

Northern Illinois is in a nomenclatural time warp. Except for our botanical backwater, this genus is known as *Dalea* Linnaeus, rightly so or not (m14, w12). W15 uses *Dalea*.

Hull, scarify, inoculate, moist cold stratify 10 days or fall plant. Bottom heat may help in greenhouse. Successional restoration & direct sowing are also successful. Mature plants second year. Inoculation of fall planted legumes is, at least, controversial. Code A, I. (cu00)

“Gently scarify seed then inoculate with F inoculant, or fall sow. It is sometimes suggested to moist cold treat seeds for 10 or 30 days after scarification, but in my experience this has not been necessary.” (mfd 1993). Drill or broadcast unscarified seed 0.25” deep in fall or scarified seed in the spring. Seed should be inoculated on sites where prairie clover has not grown in the very recent past. Plant 1 to 3 lbs pls per acre. Easily established from transplants or scarified, inoculated, & moist stratified seed. Like almost all Midwest herbaceous legumes, PRAIRIE CLOVERS require endomycorrhizae as well as rhizobia.



**Dalea candida** Michaux ex Willdenow (or (Willd) Michaux) long known as *Petalostemum candidum* (Michaux ex Willdenow) Michaux \*TN WHITE PRAIRIE CLOVER, aka SLENDER WHITE PRAIRIE CLOVER, WHITE TASSEL-FLOWER, (New Latin *candidus* -a -um, very white, from *candidus*, glistening, dazzling white, white, clear, bright, from *candere*, to shine, be white; akin to Late Greek *kandaros* ember, Sanskrit *candra*, shining, moon. Similar to *candidatus* -a -um, clothed in white, referring to the white toga worn by candidates for office in ancient Rome, as a symbol of their purity. Is this why McCain, Romney, & Obama wear dark suits?) upl

Habitat: Mesic, dry, hill, & sand prairies, dry savannas, dry upland woods. Mesic or dry gravelly soils. Limestone glades & barrens (we11).

distribution/range: Adventive in Wisconsin. "Less common than the following (*P purpureum*) but found in the same places." (ewf55 as *Petalostemum candidum*) Known but not mapped from Bureau County.

Culture: ①Seeds need scarification. No additional pre-treatment necessary other than cold, dry stratification. Legume, requires appropriate rhizobial inoculum. (pm09) ②Seeds need scarification, no further pre-treatment needed. Sowing outdoors in the spring is the easiest method. Legume, requires appropriate rhizobial inoculum. (he99) ③"10 days moist stratification improves germination, but not needed for good greenhouse crop. Field sow fall, spring, early summer" (pnnd). ④No pretreatment needed. Sow seeds on the soil surface at 70°F & water. Slow to germinate. (ew11) ⑤Sow at 20°C (68°F), germination slow (tchn). Growth rate moderate. Seedling vigor medium. Vegetative spread rate none.

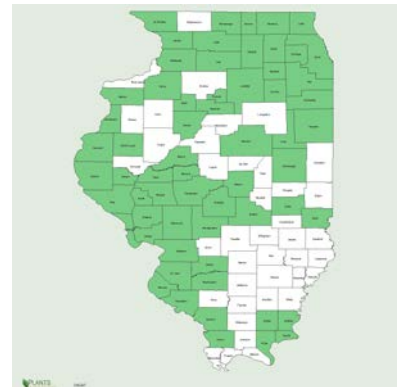
seed counts & rates: 240,000 (pn02), 254,400 (aes10), 278,000 (usda), 281,027 (gnhk03), 304,000 (pm02), 354,000 (gran), 361,600 (ew11), 369,152 (wns01), 384,000 (stock), 400,352 (gnhk03), 403,376 (gna05), 414,233 (gnhm02), 420,000 (jfn04), 451,292 (gnak04), 481,442 (gn06) seeds per pound. In single sp plots, plant 2.6 oz per 1,000 sq ft (stock). Pure stand plant 8 lb per acre (gran). In mixes plant 0.63-0.5 lbs pls per acre (gni).

availability: Most commercial seed is hulled & scarified. Seed supply is generally good, but specific ecotypes will be in short supply. Plant plug supply is good, but may sell out late season.

"*Petalostemum candidum* Mesic to dry prairie. Blooms early July to early August: WHITE. Harvest late September. 20"; seedlings damp off in method #1; #2 is best, SEEDLING TRANSPLANT, SPRING BROADCAST, & NISBET DRILL, with plants often blooming late 1st summer if planted early! Legume, inoculate." (rs ma)

cultivation: Space plants 1.25-1.5'. Mesic to dry soils, full sun to partial shade. Low to moderate water requirements. Coarse to moderately fine soils. Neutral to basic soils. Anaerobic tolerance none. CaCO<sub>3</sub> tolerance medium. Drought tolerance medium. Fertility requirement medium. Salinity tolerance low. Shade tolerance intermediate. pH 6.0-8.0.

bottom line: Genesis seed tests indicate this seed usually has a high percentage of hard seed & may strongly benefit or require dormant seeding to establish a good stand, but early spring planting inoculated scarified seed is necessary for rhizobia establishment. Dormant seed with inoculated, unscarified seed. Germ 67.5, 79, 91, sd 25.6, r10-93 (83)%. Dorm 23.4, 11, 2.0, sd26.4, r1.5-76 (74.5)%. Test 19, 15, 13, r11-32 days.\*\*





**greenhouse & garden:** Damping off problems with seedlings. In open ground with fire, WHITE PRAIRIE CLOVER will slowly self-sow.

**Description:** Native erect perennial forb [or subshrub (usda)], 1'-3' tall smooth; roots 14" minimum root depth; stems; leaves small, odd pinnate, 5-9 leaflets, noticeably wider than *D purpurea*; inflorescence up to 2" long, dense; flowers white, 5-merous, 0.25" long; fruits are tiny, one-seeded, indehiscent pods; N. **key features:** ① White flowers; odd pinnate, wide leaflets. ② Bracts longer than the white petals. ③ 5-7 leaflets.

**Comments:** **status:** Endangered in Tennessee. **phenology:** Blooms 6,7,8. In northern Illinois, collect seeds in late August through October. Collect seeds in se Wisconsin in September (he99). Attractive cut flowers, cylindrical spikes of white flowers, blooming from the base up. Useful in landscaping, wild gardens, attractive in mass when combined with short grasses, or with PURPLE PRAIRIE CLOVER. With patience & fire, colonies slowly self sow on sands & rich soils. Seed source nursery production plots originally from Clarion Twp, Bureau Co & Milton Twp, DuPage Co.

"Other common plants, which presented themselves at different places on our route through the prairies" (Short 1845).

**Associates:** Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera*, *Diptera*, & *Lepidoptera*. Attracts butterflies. Foliage eaten by deer, rabbits, & groundhogs. Highly palatable to livestock & wildlife, but USDA says this is slightly toxic.

**VHFS:** Formerly *Petalostemum candidum* (Michaux ex Willdenow) Michaux or (Willd) Michx).

[*Dalea Candida* Willd. Sp. Pl. 3: 1337. 1803. *P. candidum* Michx. Fl. Bor. Am. 2: 49. 1803. *Kuhnistera Candida* Kuntze, Rev. Gen. Pl. 192. 1891.] ① Ours is variety *candidum* or *candida*. [*Petalostemon candidum* (Michx ex Willd) Michx]

② Var *oligophylla* (Torr) Shinners occurs in Iowa, Wisconsin, & states northwest & southwest. [*Dalea occidentalis* (Heller) Isely, *D oligophylla* (Torr) Shinners, *Petalostemon candidus* Michx var *oligophyllus* (Torr) FJ Herm, *P occidentalis* (Heller) Fern, *P oligophyllus* (Torr) Torr ex Smyth]



*Dalea candida* aka *Petalostemum candidum* aka *Petalostemon candidus*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov.

**Dalea foliosa** (A Gray) Barneby Long known as **Petalostemum foliosum** A Gray \*F, IL, TN LEAFY PRAIRIE CLOVER, aka CEDAR GLADE PRAIRIE CLOVER, (*foliosus -a -um* leafy, many-leaved, full of leaves, clothed with leaves, well covered with foilage, New Latin from *foliosus*, leafy.) upl

**Habitat:** Dry prairies. Calcareous glades (w11). **distribution/range:** Illinois, Mississippi, Tennessee, & Wisconsin.

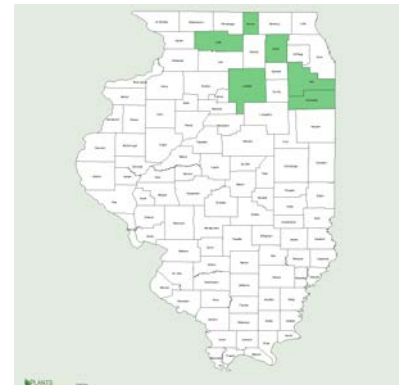
**Culture:** 266,832 seeds per pound.

**Description:** Erect perennial, 1.0-2.0', flowers purple.

**Comments:** **status:** Endangered in the United States, Illinois, & Tennessee.

**phenology:** Blooms 7,8,9. In northern Illinois, collect seeds in September. Calcareous soils.

**VHFS:** Formerly known as *Petalostemum foliosum* A Gray [*Dalea foliosa* (A Gray) Barneby, *Kuhnistera foliosa* Kuntze, *Petalostemon foliosus* A Gray, *Petalostemum foliosum* A Gray]



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*Dalea foliosa* aka *Petalostemum foliosum*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov.

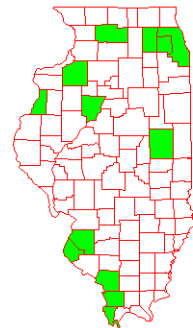
***Dalea leporina*** (Aiton) Bullock FOXTAIL PRAIRIE CLOVER, aka FOXTAIL DALEA, HARE'S-FOOT DALEA,

Habitat: Fields & roadsides. Introduced from western states. Some consider sp native to Illinois, & adventive eastward.

7-20 leaflets? Tiny whit or bluish flowers in dense spikes; key features: Species has dense spikes; numerous leaflets (Ilpin).

Blooms 7-9. C3.

[*Dalea alopecuroides* Willd, *Dalea lagopus* (Cav.) Willd, *Parosela alopecuroides* (Willd.) Rydb, *Psoralea lagopus* Ca, *P leporina* Aiton]



*Dalea leporina*



*Dalea leporina*

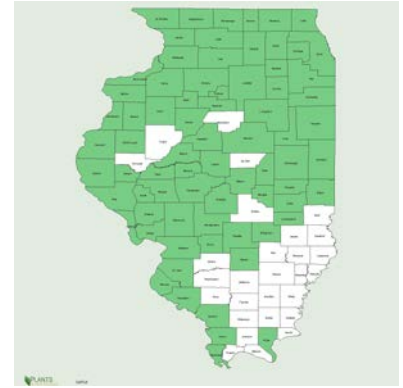
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society as *D. alopecuroides*. Seed photos Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted images. Illinois map courtesy of ILPIN.

***Dalea purpurea*** Ventenat Long known as *Petalostemum purpureum* (Vent) Rydb \*KY, MI, OH, TN PURPLE PRAIRIE CLOVER, aka THIMBLEWEED, RED TASSLE-FLOWER, VIOLET PRAIRIE CLOVER, (*purpureus* -a -um (pur-PEWR-ree-us) purple, from Latin *purpureus* -a -um, adj, purple colored, dark red, dark brown, clad in purple, gleaming, bright, beautiful, for the purple flowers; alternately from Greek for purple.) upl

Habitat: Mesic, dry, hill, gravel, & sand prairies. In the se USA, "Prairies, glades, & open woodlands" (w11). distribution/range: Native to tall grass prairie, mid grass prairie & the Great Plains.

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**Culture: propagation:** ①Seeds need scarification. No additional pre-treatment necessary other than cold, dry stratification. Legume, requires appropriate rhizobial inoculum. (pm09) ②Seeds need scarification, no further pre-treatment needed. Sowing outdoors in the spring is the easiest method. Legume, requires appropriate rhizobial inoculum. (he99) ③“10 days moist stratification improves germination, but not needed for good greenhouse crop. Field sow fall, spring, early summer” (pnnd). ④No pretreatment needed. Sow seeds just below the soil surface at 70°F & water. (ew11) ⑤Sow at 20°C (68°F), germination slow (tchn). ⑥Soak seeds 6-8 hours in hot water & sow in spring (pots00). ⑦Use inoculated stratified seed in the spring & inoculated, unstratified seed in the fall (us97).



**seed counts & rates:** 210,000 (gran), 260,000 (ecs), 275,000 (cci), 283,307 (gna06), 286,435, (gnh01), 280,000 (ew11), 288,000 (pm02), 290,000 (stock), 292,800 (aes10), 292,992 (sh94), 293,000 (appl02), 313,600 (wns01), 300,000 (usda), 320,000 (pn02, jfn04), 395,126 (gna05) seeds per pound. In native Midwest mixes, GNI recommends 0.063 to 0.50 lb pls per acre. Drill 2 lbs pls per acre for production in 36” rows, or drill 6 lbs pls per acre for a solid stand. For single sp plot, plant 3.2 oz per 1,000 sq ft (stock). Pure stand plant 8 lb per acre (gran). Commercial varieties are available.

“*Petalostemum purpureum* Mesic to dry prairie. Blooms early July to late August; PURPLE. Harvest October. 20”; seedlings damp off in method #1; #2 is best. SEEDLING TRANSPLANT, SPRING BROADCAST. Legume, inoculate. Flowers 2nd year. A good garden ornamental, no problems after seedling stage.” (rs ma)

**cultivation:** Space plants 1.25-1.5’. Well-drained, mesic to dry soils, full sun to partial shade. Low to moderate moisture requirements. Moderately drought tolerant. Tolerates coarse sands & gravels to clay soils. AES (2010) reports some salt tolerance. Neutral soils.

**bottom line:** Genesis seed tests indicate this seed typically has a high percentage of hard seed & may strongly benefit or require dormant seeding to establish a good stand, but early spring planting inoculated scarified seed is necessary for rhizobia establishment. Dormant seed with inoculated unscarified seed. Germ 74.2, 75.5, 74, sd 16.9, r29-97 (68)%. Dorm 16.9, 13, 1.0m sd 15.6, r1.0-64 (63)%. Test 17, 18, 20, r11-30 days.\*\*

**greenhouse & garden:** Use inoculated scarified seed in the spring & inoculated unscarified seed in the fall. The success of fall inoculation in the upper Midwest is questionable. The failure of dormant broadcast inoculants is obvious.

**Description:** Native erect, herbaceous, perennial, leguminous forb, 12-24” tall, slender, airy, mostly hairless nitrogen fixing; deep rooted, very drought tolerant; stems usually several branched stems; leaves medium, green, finely-compound leaves, with many, very narrow leaflets (5), that roll backward when dry; inflorescence up to 2” long elongated cylindrical spike, blooming from the base up; flowers rose-purple or red-purple, 5-merous, 0.25” long; fruit is a tiny, one-seeded indehiscent pod; N. **key features:** ①Mostly hairless; inflorescence up to 2” long; very narrow oddly pinnate leaflets. ②The unhulled seed has a definite pinkish-gray color, compared to the darker brownish calyx of *D candida*. ③Bracts shorter than the violet petals (w73).

**Comments: status:** Special concern in Kentucky. Probably extirpated in Michigan & Ohio. Endangered in Tennessee. **phenology:** Blooms from June to August. Good cut flowers & attractive dried seed heads.

Landscaping, useful in roadside plantings, wildlife habitat, pollinator gardens, & prairie restoration. Plants are largely cross-pollinated. Seed source nursery production plots original seed source Arlington & Wyandot, eastern & central Bureau Co & Squaw Grove Twp, DeKalb Co.

“There are, indeed, comparatively speaking, but few plants, except the grasses, (which are gregarious every where and are intermixed in greater or less degree and variety among all the other plants of the prairie,) which may be considered as indigenes of the prairie region generally. ---Among these we may mention, as occurring most constantly, and under greater diversity of soil and situation than any others, ...” “The roots of *Petalostemum violaceum* have a warm pungent quality, which suggested in its employment, among the thousand other articles, in the treatment of cholera, and the plant is now known as ‘cholera-weed. ???’ as *Petalostemum violaceum* Michx. ” (Short 1845).

**Associates:** Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera*, *Diptera*, *Lepidoptera*, *Coleoptera*, & *Hemiptera*. Attracts butterflies. Good wildlife plant, provides food & cover attracts butterflies & other beneficial insects. Highly palatable & nutritious to livestock.

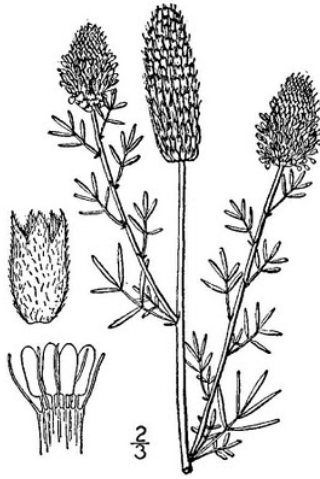
**ethnobotany:** Used as medicinal plant by Ojibwa for heart trouble (den28).

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VHFS: Our Illinois material is the widespread variety *purpurea*. *Var arenicola* (Wemple) Barneby grows in the central & southern Great Plains.

[*Dalea purpurea* Vent, *D violacea* Willd, *Kuhnistera purpurea* MacM, *Petalostemon molle* Rydb, *P purpureum* Rydb, *P purpureus* (Vent) Rydb, *P violaceum* Michx, *Petalostemum purpureum* (Vent) Rydb, *P purpureum* (Vent) Rydb f *pubescens* (A Gray) Fassett, *P purpureum* (Vent) Rydb f *purpureum*, *P purpureum* (Vent) Rydb var *molle* (Rydb) B Boivin]



*Dalea purpurea* aka *Petalostemum purpureum*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov.

***Dalea villosa*** (Nuttall) Sprengel long known as *Petalostemon villosum* Nuttall \*AR, IA, WI DOWNY PRAIRIE-CLOVER, aka SILKY PRAIRIE-CLOVER, (*villosus -a -um* with hairs, villous, soft-hairy.)

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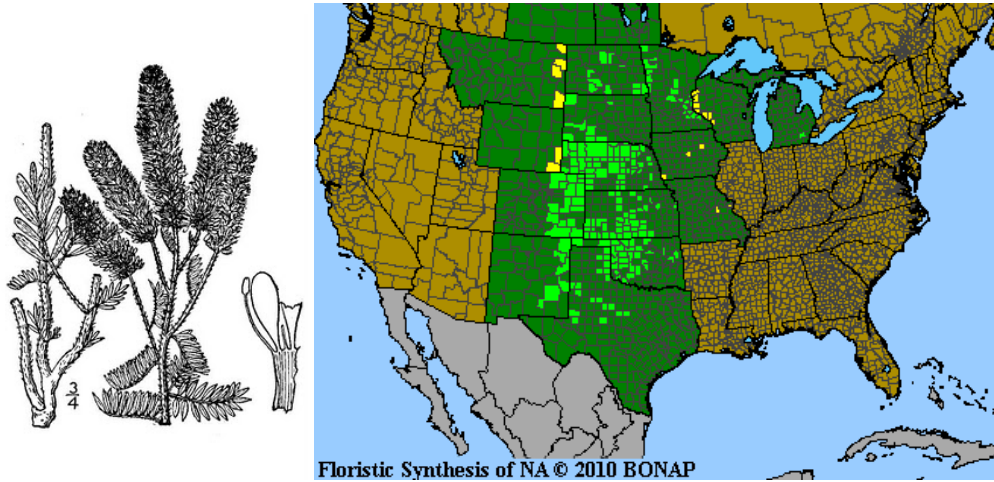
Habitat: Dry prairies, sandy soil. distribution/range: Next, but not in Illinois. Native in northwest Wisconsin. Culture: ①Seeds need scarification. No additional pre-treatment necessary other than cold, dry stratification. Legume, requires appropriate rhizobial inoculum. (pm09) ②Seeds need scarification, no further pre-treatment needed. Sowing outdoors in the spring is the easiest method. Legume, requires appropriate rhizobial inoculum. (he99) ③Sow at 20°C (68°F), germination slow (tchn).

Description: Native, erect, herbaceous, perennial forb, 8"-20" forb, soft hairy, appearing bluish; root minimum depth; stems; leaves many, narrowly-elliptical, odd pinnate, 11-17 leaflets, with the end leaflet smallest; inflorescence a 0.5-4.5" long, dense spike blooming from the bottom upward; flowers pale purple-lavender, 5-merous, 0.25" long; fruit is a tiny, one-seeded indehiscent pod; N. key features: Soft hairy; inflorescence 0.50-4.5" long; 11-17 odd-pinnate leaflets.

Comments: status: Endangered in Arkansas & Iowa. Special concern in Wisconsin. phenology: Blooms July - August. Collect seeds in se Wisconsin in October (he99).

Associates:

VHFS: [*Dalea villosa* (Nuttall) Spreng var *villosa*, *Petalostemum villosum* Nuttall, *Petalostemon villosus* Nuttall]

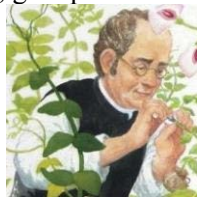


*Dalea villosa* aka *Petalostemon villosum*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society.

**PISUM** Linnaeus 1754 **PEA** *Fabaceae* *Pisum* (PEE-sum) From English pea, French *pois*, Celtic *pis*, Latin name, *pisum*, from Greek *pisos*, *pison*. The plural of *pisum* gives rise to the common name peas. Small genus of 2 spp Eurasian (Mediterranean) annual herbaceous vines distinguished from *Lathyrus* by the enlarged summit of the style. Legume oblong, tumid, many-seeded; seeds globose, with an orbicular hilum.

“All we are saying is, give peas a chance” Gregor Mendel.



***Pisum sativum*** Linnaeus FIELD PEAS, aka PEA, GARDEN PEA, ENGLISH PEA, (*sativus -a -um* (sa-TEE-vus) Latin cultivated, sown, planted; that which is sown or planted for crops.)

Habitat: Alkaline tolerant. distribution/range: This sp has been cultivated from time immemorial, so that its native country is obscured.

Culture: Sow in early spring. 2-4 lb per 1000 sq. ft.

Comments For green manure, turn under in late spring, or after a full growing season. Also an important element in fall gardens. Good fodder. Good creamed with new potatoes, in goulash, or in macaroni salad. One of the most valuable legumes.

**PSORALEA** Linnaeus *Fabaceae* *Psoralea* Psora`lea leprous, scabby, or scaly, New Latin from Linnaeus, from ancient Greek ψωράλειος, *psoraleos*, leprous, scaly, scabby, itchy, mangy, from ψώρα, *psora*, itch, & -αλέος, -

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*aleos*, adj suffix, an allusion to the glandular dots. Widely distributed herbs & shrubs with glandular compound leaves, 3-5-merous, silvery & spicate or racemose purple or white flowers. Legumes as long as the calyx, 1-seeded (1-2), indehiscent. This genus has been split into *Orbexilum*, *Pediomelum*, & *Psoralidium*, the last not recognized by some authors.

Hull, scarify, moist cold stratify (10 days), & inoculate,

### Move into *Pediomelum*

***Pediomelum argophyllum*** (Pursh) JW Grimes Long known as *Psoralea argophylla* Pursh. \*WI SCURVEY PEA, aka SILVERLEAF INDIAN BREADROOT, SILVER-LEAVED SCURF PEA, PSORALEA, *Gi'ziso'bugons*, sun, little leaf (Ojibwa), (*argophyllus -a -um* with shining or silvery-whitish leaves, silver-leaved, from Greek *αργος*, *argos*, bright, glistening; swift footed (flashing feet) or light footed, *-o-*, & *φυλλον*, *phyllon*, & *-us*, Latinizing suffix.)

Habitat: Dry prairies & plains. Sandy soils. distribution/range: East of the Mississippi, known from DuPage Co, Illinois; Polk & Grant cos, Wisconsin. Mapped from most states between the Mississippi River & the Rocky Mountains. Illinois is the easternmost limit of the species distribution.

Culture: ①Seeds need scarification. Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 10 days of cold moist stratification. (he99) ②Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn). ③Seeds exhibit physical dormancy. Seeds are scarified. Germination occurs at 24° C. Germination was equal in light & dark.” (bb02)

seed counts & rates: 144,000 (sh94) seeds per pound.

Description: Erect, herbaceous, perennial, native forb, 1.5'-3.0' tall, with many branches & dense, silvery hairs; roots from woody rhizomes; stems densely hairy; leaves; inflorescence a spike with 1-5 separated, dense clusters of stalkless flowers; flowers dark blue, 5-merous, 0.25" long; fruit is a densely hairy pod; N key features: Plant is densely hairy with silvery hairs; separated dense clusters of flowers.

Comments: status: Native. Special concern in Wisconsin. phenology: Blooms June - August. C3. Collect seeds in se Wisconsin in September - October (he99).

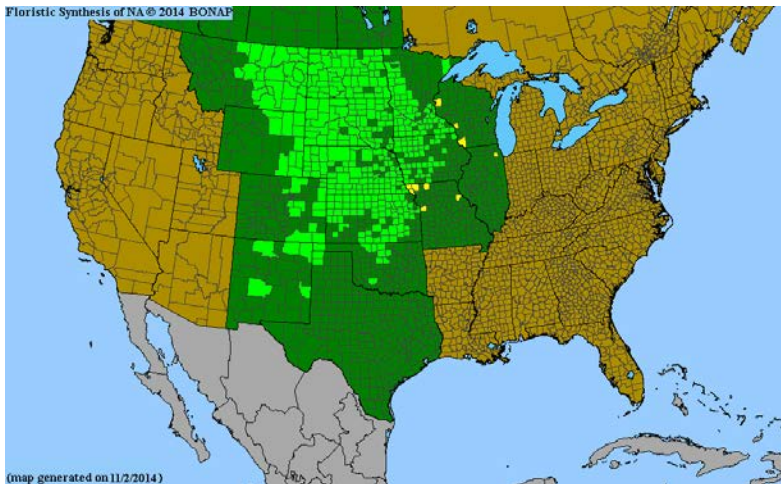
Associates: Reported to form nodules. ethnobotany: Seeds are poisonous. Used as medicinal plant by Ojibwa for diseases of horses. Leaves & roots of several *Psoralea* spp are mild stimulating tonic (den28).

VHFS: Formerly *Psoralea argophylla* Pursh. [*Pediomelum argophyllum* (Pursh) JW Grimes, *Psoralea argophylla* Pursh, *P collina* Rydb, *Psoralidium argophyllum* (Pursh) Rydb]

JM Baskin & CC Baskin, 2002. Propagation protocol for production of Container (plug) *Pediomelum argophyllum* (Pursh) J. Grimes plants In: Native Plant Network. URL: <http://www.NativePlantNetwork.org> (accessed 2016/02/12). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.







*Pediomelum argophyllum* aka *Psoralea argophylla*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov. North American genus map courtesy of BONAP (2016)

***Pediomelum esculentum*** (Pursh) Rydb Formerly *Psoralea esculenta* Pursh \*WI PRAIRIE-TURNIP, aka BREADROOT, BREADROOT SCURFPEA, BREADROOT SCURF-PEA, INDIAN BREADROOT, INDIAN TURNIP, LARGE INDIAN BREADROOT, *POMME BLANCHE*, *POMME-DE-PRAIRIE*, PRAIRIE-APPLE, PRAIRIE-POTATO, PRAIRIE-TURNIP, SHAGGY PRAIRIE-TURNIP, WHITE APPLE, (*esculentus -a -um* esculen'tus Latin adj *esculentus*, edible, eatable, fit for food, fit to be eaten.)

**Habitat:** Dry prairies & plains, in sand soils. Dry open hillsides & prairies. Calcareous sands. **distribution/range:** West of the Mississippi, & western Wisconsin & New York. Sp is known from the Driftless Area in sw Wisconsin, immediately north of the Illinois border, and from west of St Louis.

**Culture:** ①Cold moist stratify 10 days. Seeds need scarification. (Wade nd) ②Seeds need scarification. Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 10 days of cold moist stratification. (he99) ③Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn). ④“Seeds exhibit physical dormancy. Seeds are scarified. Germination occurs at 24° C. Germination was greater in dark than light.” (bb02) 16,000 (wns2001) seeds per pound.

**Description:** Erect, herbaceous, perennial, native forb, 4"-16" tall, with many branches & spreading hairs; **root** thickened into an edible tuber; stems; inflorescence a 1.0-3.0" tall, dense, conical spike of sessile flowers; leaves palmately 5-parted on stalks 0.50-4.0" long; flowers blue, 5-merous, 0.50" long; fruit is a hairy pod; N. **key features:** Many branches & spreading hairs; leaves palmately 5-parted (fh).

**Comments:** **status:** Native. Special Concern in Wisconsin. **phenology:** Blooms May - July. Collect seeds in se Wisconsin in September (he99).

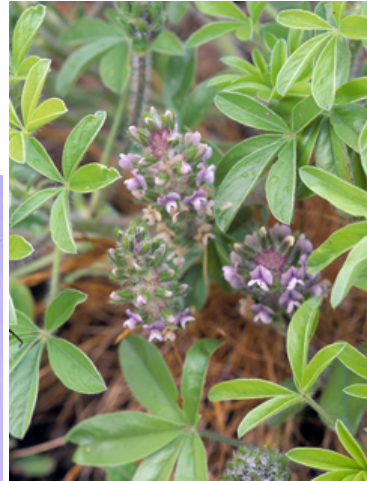
**Associates:** **ethnobotany:** The root had many medicinal uses, from head to toe. Sp was a very important food item where native. The roots were used fresh, eaten raw, roasted, or boiled, in soups, stews, puddings, breads, & cakes, or dried for winter use. Whole, dried roots were often braided & hung up.

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“POMME BLANCHE. (Fr) WHITE APPLE. A native of the prairies & mountains, oval-shaped & about three & a half inches in circumference. It is encased in a thin fibrous tegument, which, when removed, exposes a white pulpy substance, & in taste resembles a turnip. --*Scenes in the Rocky Mountains*, p. 107.” Bartlett, 1848, Dictionary of Americanisms. Cf the discussion of the closely related *P canescens* in w15.

**VHFS:** Forever known as *Psoralea esculenta* Pursh. [*Pediomelum esculentum* (Pursh) Rydb, *Psoralea esculenta* Pursh]

CC Baskin & JM Baskin, 2002, Propagation protocol for production of container *Pediomelum esculentum* (Pursh) Rydb plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 8 June 2011). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.



*Psoralea esculenta*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. Photo courtesy Sally & Andy Wasowski, Wildflower Center Slide Library. Unrestricted image.

### Move to *Orbexilum*

***Orbexilum onobrychis*** (Nuttall) Rydberg Formerly *Psoralea onobrychis* Nuttall \*IA FRENCH GRASS, (*onobrychis* (on-oh-BRY-kiss) New Latin, from Greek *onobrychis*, a leguminous plant, from *ovos*, *onos*, ass, & *brycho*, *-brychis*, from *brykein*, *brykhein*, to eat greedily, gnash the teeth, referring to the plants use as hay.) The specific epithet is a proper noun & was formerly capitalized. As a noun in apposition to the genus name, it does not have to agree in gender or number. upl

**Habitat:** Dry prairies & dry savannas. Low grounds & thickets (Woods 73).

**distribution/range:** Ohio to Iowa, south to Virginia, South Carolina, west to Arkansas. Known from Red Oak, Bureau Co, & dry railroad prairie, south of Putnam, Putman Co. Northern Illinois is at the north limit of the sp range.

**Culture:** ①Seeds need scarification. 10 days cold moist stratification. Legume, requires appropriate rhizobial inoculum. (pm09) ②Fall plant or cold stratify for 1 to 2 months for best results. Sow just below the soil surface at 70°F & water. (ew11) 12,432; 19,200 (pm, ew11) seeds per pound.

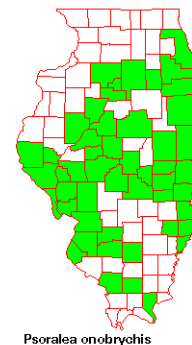
**cultivation:** Space plants 1.0-3.0'. Zone 4a-6b. Full sun, dry soils.

**Description:** Erect, herbaceous, perennial, native forb; 1.5-3.0' tall; rhizomatous, forms clones; leaves alternate, trifoliate, broad; flowers blue (blue & white; purple), 5-merous; followed by clusters of rough, wrinkled pods, each with a single black seed. **key features:** “Fruits are wrinkled; broad leaves” (Ilpin).

**Comments:** **status:** Endangered in Iowa. **phenology:** Blooms 6,7,8. C3. Landscaping. Can spread aggressively by rhizomes in a planting, but it may not persist. Sp does not like aggressive competition.

**Associates:** **ethnobotany:**

**VHFS:** Forever known as *Psoralea onobrychis* Nuttall. New nomenclature this will be *Orbexilum onobrychis* (Nutt) Rydb.



*Psoralea onobrychis*



*Psoralea onobrychis*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy of ILPIN.

**Orbexilum pedunculatum** (Miller) Rydberg var **pedunculatum**, SAMPSON’S SNAKEROOT, aka WESTERN SAMPSON’S SNAKEROOT,

Habitat: Open woodlands. distribution/range: Southern Illinois is the northern limit of sp range.

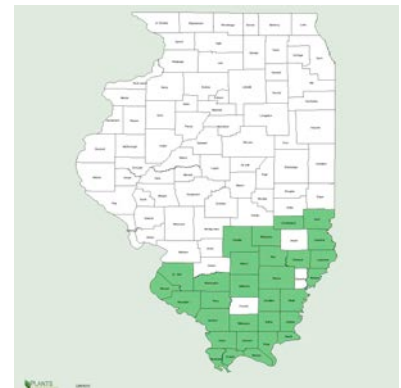
Culture: ☉Seeds need scarification. 10 days cold moist stratification. Legume, requires appropriate rhizobial inoculum. (pm09)

key features: “Wrinkled fruits; narrow leaves” (Ilpin).

Blooms 6-7. C3.

VHFS: Formerly *Psoralea psoralioides* (Walter) Cory. [*Hedysarum pedunculatum* Mill, *Orbexilum pedunculatum* (Mill) Rydb var *eglandulosum* (Elliott) Isely, *Psoralea pedunculata* (Mill) Vail, *P psoralioides* (Walter) Cory var *eglandulosa* (Elliott) Freeman]

Variety *psoralioides* (Walter) Isely occurs primarily on the Atlantic Coastal Plain in the se USA.



*Psoralea psoralioides*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society as *Psoralea pedunculata*. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy plants.usda.gov.



**move to *Psoralidium* or *Pediomelum***

***Psoralidium tenuiflorum*** (Pursh) Rydb Formerly *Psoralea tenuiflora* Pursh. Alternately *Pediomelum tenuiflorum* AN Egan. \*IN SCURFY PEA, aka GRAY SCURF PEA, SCURF-PEA, SCURFY PSORALEA, SLENDER-FLOWERED SCURF-PEA, SLIMFLOWER SCURFPEA, (*tenuiflorus-a -um* with slender flowers, from Latin *tenuis -is -e*, thin, slender, or narrow, & *flos, floris*, flower.) upl

Habitat: Dry prairies, hill prairies, & oak openings. Alluvial soils, Ill (Mead as *P floribunda* Nutt.). distribution/range: Northern Illinois is the ne limit of the species range.

Culture: ①Seeds need scarification. 10 days cold moist stratification.

Legume, requires appropriate rhizobial inoculum. (pm09) ②Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn).

22,016 seeds per pound.

“*Psoralea tenuiflora* Mesic to dry prairie. Blooms mid June to early July; BLUE. Harvest early September. 20"; method #1, SEEDLING TRANSPLANT, though seedlings tend to damp off. Legume, inoculate; flowers 2nd year. Shoots come up very late in spring. Seeds hard to get.” (rs ma)

Description: Erect perennial, 1.5-3.0'; flowers blue. ①Leaflets 3, rarely 5, dotted, oblong=ovate, varying to linear. ②Fruits glandular dotted (llpin).

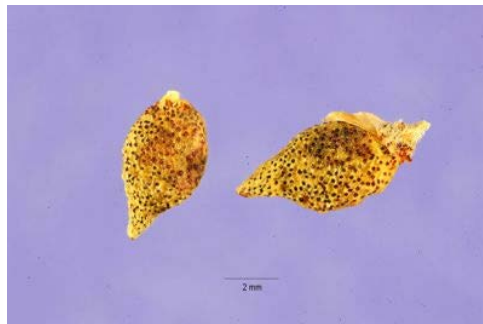
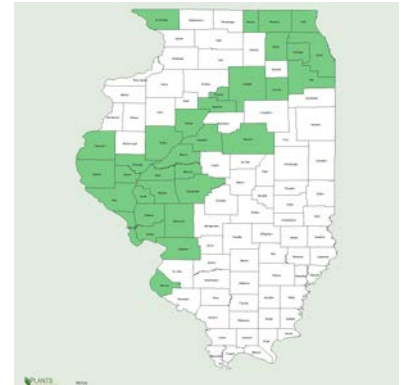
Comments: status: phenology: Blooms 6,7,8,9. C3. Landscaping, specimens, a very open, airy-textured plant. Group several near a path to appreciate. Interesting single-seeded pods.

Other common plants, which presented themselves at different places on our route through the prairies.”

As *Psoralea floribunda* Nutt. in Torr. & Gray. (Short 1845).

Associates: Sp is of special value to bumblebees. Potentially poisonous to mammals. Reported to form nodules.

VHFS: Long known as *Psoralea tenuiflora* Pursh. Weakley (2011, 2015) & Bonap16 place this in *Pediomelum*. Pug16 uses *Psoralidium*. [*Lotodes tenuiflora* (Pursh) Kuntze, *Psoralea floribunda* Nutt ex T&G, *P obtusifolia* T&G, *P tenuiflora* Pursh, *P tenuiflora* Pursh var *bigelovii* (Rydb) JF Macbr, *P tenuiflora* Pursh var *floribunda* (Nutt ex T&G) Rydb, *Psoralidium batesii* Rydb, *P tenuiflorum* (Pursh) Rydb]





*Psoralea tenuiflora*

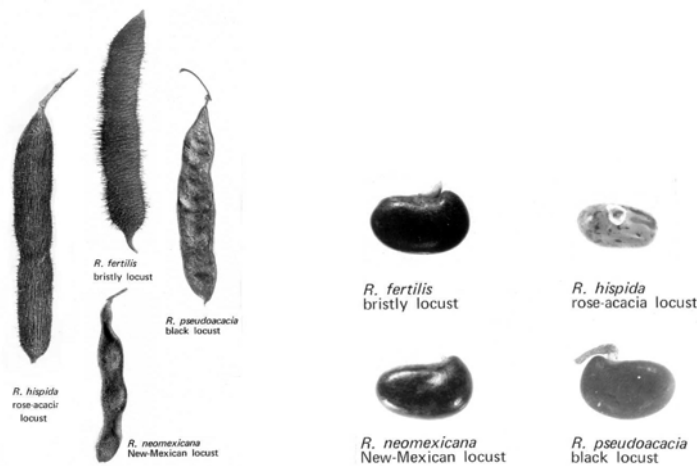
Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy plants.usda.gov.

**PSORALIDIUM** Rydberg **SCURFPEA, BREADROOT** *Psoralidium* small *Psoralea*, New Latin, from the genus name *Psoralea* meaning scabby, itchy, & *-idius*, small, from post-classical Latin & scientific Latin *-idium* & its etymon ancient Greek *-ιδιον*, *-idion*, diminutive suffix. 3 spp in plants.usda.gov16 & www.itis.gov.

Weakley (2011) places *Psoralidium tenuiflorum* in *Pediomelum*. Bonap does not recognize the genus.

***Pueraria* DC Kudzu**

**ROBINIA** Linnaeus 1754 **LOCUSTS** *Fabaceae Robinia* in honor of Jean Robin (Vespasian?) (1550-1629), French herbalist & gardener to Henry IV & Louis XIII of France (*herbalist to Louis XIV in one source*). Robin was the first to cultivate the plant in the 16<sup>th</sup> century in Europe from plants originating in Canada. (“*Canada*” might be a general reference to ne North America, as the USDA considers the genus *Robinia* introduced in Canada. <http://plants.usda.gov>) A genus of 5-8 spp of trees & shrubs of eastern & southwestern North America. Medium to large trees, & small, colonial shrubs; leaves odd-pinnate; flowers axillary, long racemose, white or rose-pink; legumes compressed, elongated, indented between seeds, many seeded. “The Southern Appalachians are a center of diversity of *Robinia*, with active hybridization, introgression, & formation of local (sterile) races involved, a fully satisfying taxonomic treatment of such a situation is not possible” (w12). The group is known for important reclamation, ornamental, & invasive spp, which, locally, are one & the same.



Pod & seed photos courtesy of the US Forest Service USDA-NRCS PLANTS Database.

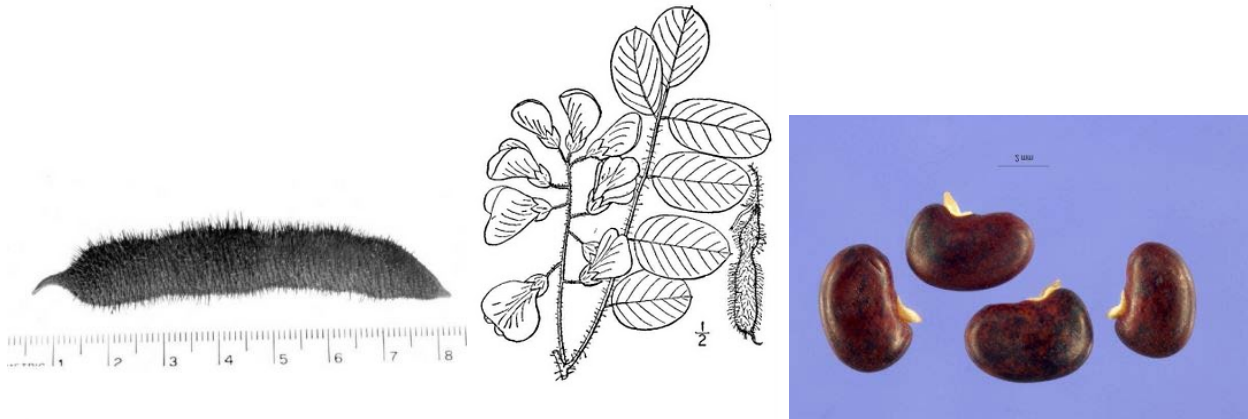
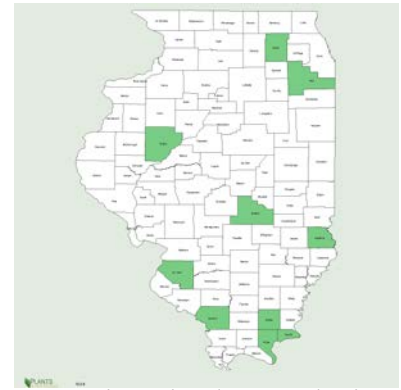
***Robinia hispida*** Linnaeus BRISTLY LOCUST, aka ROSE ACACIA, (*hispidus -a -um* (HIS-pi-dus) bristly, fine hairy, hairy rough, for the shoots & possibly the pods.)

Native to the southeast United States, adventive in Illinois, occasional in old cemeteries & conservation plantings. Shrub, occasionally a small tree. A good reclamation and erosion control plant in its native range, & a beautiful ornamental. Rare in the wild, occasionally cultivated as cultivars & hybrids. Zones 5-8. In a burned planting, it is only a waist-high shrub, but the clones are dense enough to shade most prairie plants. Very weedy, aggressively rhizomatous, persistent, & spreading, but drop dead gorgeous in bloom with clusters of pink (deep rose), sweet-pea flowers, contrasting with purple-pink bristly stems. Flowers are inodorous & 2X larger than COMMON LOCUST.

key features: Shrub, mostly hispid (w73). Old wood flowers emerge before the leaves. It may be impossible to have just a few BRISTLY LOCUST. Shoots are top killed by prescribed burns, but sp grows back with a vengeance. Burning & mowing stimulates suckering. Sp blooms almost exclusively on old wood, so after-burn suckers have little to no color. Locally known from McCune Sand Prairie, Bureau Co, & Munson Cemetery Prairie, Henry Co (neither populations mapped). Several varieties & escaped horticultural selections are known in its native range.

key features: “Branchlets are bristly” (Ilpin). Blooms 5-6. C3.

“A beautiful shrub, native of the Southern States, much cultivated in gardens for the sake of its numerous, large, deep rose-colored and very showy fls” (w73).

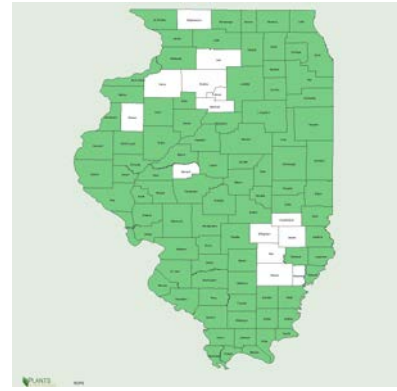


*Robinia hispida*

Pod photo courtesy of the US Forest Service USDA-NRCS PLANTS Database. Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy plants.usda.gov.



***Robinia pseudoacacia*** Linnaeus NOX CT, MA BLACK LOCUST, aka FALSE ACACIA, LOCUST, LOCUST ACACIA, POST LOCUST, ROBINIA, SHIPMAST LOCUST, YELLOW LOCUST, (*pseudoacacius -a -um* (sood-a-kay-see-us, properly sood-a-kay-kee-us ) false *Acacia*, from Greek ψεύδος, *pseudos*, falsity, falsehood, & ακακία, *akakia*, *Acacia*. The epithet was formerly capitalized.)



**Habitat:** Woodlands, disturbed woods, thickets, roadsides, an invader on acid mine spoil banks & old fields, often spreading from plantings.

**distribution/range:** Native to the central & southern Appalachians, from central Pennsylvania & s Ohio south to n Georgia, ne Alabama, & nw South Carolina with a secondary native population in the Ozark Plateau of s Missouri, n Arkansas, ne Oklahoma, & the Ouachita Mountains of central Arkansas & se Oklahoma, with outliers in s Indiana, s Illinois, Kentucky, Alabama, & Georgia ( Now widespread far beyond its native range in eastern & central North America & escaped in Europe. In Woods (1873), considered native in Penn & the more Southern & Western States, & abundantly naturalized in New Eng. SHIPMAST LOCUST was said to be native to Long Island.

**Culture:** Propagation is by seed, root cuttings, & by grafting. Growth rate rapid. Seedling vigor high. Vegetative spread rate moderate. Seed spread rate moderate.

**seed counts & rates:** 25,500 (usda) seeds per pound.

**availability:** Routinely commercially available.

**asexual propagation:** Commercial propagation is usually from cuttings.

**cultivation:** Easily transplanted & grown. Prefers full sun. Tolerant of most soils, can perform well in dry, sterile sandy soils. Tolerant of coarse, medium, & fine textured soils. Anaerobic tolerance low. CaCO<sub>3</sub> tolerance high. Drought tolerance high. Fertility requirement low. Fire tolerance high. Salinity tolerance medium. Shade intolerant. pH 4.6-8.2. Hardy to zone 4 (3-8). Fixes nitrogen. Tolerant of salt, heat, pollution, a very tough plant. Prune in late summer to avoid "bleeding".

**Description:** Medium, deciduous, native tree, 40-60', up to 70(96)' in favorable sites, upright tree with a somewhat narrow crown that is widest near the top, branching is upright to irregular, trunk is long & straight, upper trunk & branches curved & contorted, often suckering forming pure stands; young trunks with scaly ridged bark, older trunks with bark dark gray, distinctive, heavy, rope-like interlacing ridges with deep furrows; twigs brittle, zigzag, thorns to 0.5", winter twigs zigzag, twisted, pods often persisting; leaves alternate, odd pinnately compound, 6.0-14" long, 7 to 19 leaflets, leaflets 1.5" long, elliptic in shape, color dark, dull, blue-green, underleaf paler green; fall color unimpressive, leaves drop a yellowish-green (minimum yellow) to gray-green; inflorescence pendulous clusters, 4.0-8.0" long; pea-like flowers, creamy white, very fragrant, blooms in late April to early June, after the leaves, effective display for a week ±, relatively showy in bloom; fruit is a flattened pod, 2.0-4.0" long, matures in October & persists as dry brown fruits into winter, some opening showing whitish interior; **key features:** ① "Pinnately compound blue-green leaves; narrow crown widest near the top, white pendulous clusters of pea-like flowers, fragrant; rope-like, thick, gray bark; persistent flat brown pods; stems glabrous with thorns around the buds on vigorous shoot." (Uconn) ② Raceme pendulous, smooth (w73). ③ "Branches are not bristly, glandular, but have spines in pairs" (Ilpin).

**Comments:** **status:** Invasive, not banned in Connecticut. Prohibited in Massachusetts. Considered invasive by some authors (CIPC 2006, Uva et al 1997) **phenology:** Blooms mid- to late-May - early June. Blooms 5-6. C3. Flowers emerge with the leaves. Pods ripen in October. This tree seldom attains appreciable size north of Peoria, or away from the upper or middle Illinois River or the Mississippi. Sp performs better in the shelter of cities than in rural northwest Illinois. Male & female flowers are on separate plants. Used in landscaping used for difficult sites, for shaded areas, for erosion control, for the flowering affect. Some consider the branching unique & picturesque. In mass plantings & large naturalized stands, as in Silvis & Peoria, BLACK LOCUST is stunning in bloom. Also used to revegetate strip mines & coal mine slag heaps. The downside is the sp is somewhat unkempt at times. Young trees are armed with thorns, which disappear in maturity. Sp use should be tempered in most residential landscapes, especially in those near natural areas. It can spread by seed & root suckers. The suckers

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may be as large in diameter as the tree trunks. It may escape from cultivation & naturalize in minimally managed areas.

“It is said to not be native in northern Illinois but it is abundant & grows to large size in spite of the borers. Used somewhat in erosion control & spontaneously it is of use as a sand binder in the dunes area north of Shirland.” (ewf55)

Alphonso Wood (1873) was somewhat enamored with the tree. “The pinnate lvs have a beautiful symmetry of form, each composed of 8 to 12 pairs of lfts, with one at the end. These are oval, thin, nearly sessile, & very smooth, closing as if in sleep by night. Fls in numerous, pendulous clusters, diffusing an agreeable fragrance.”

Large, straight trees with no lower branches are sometimes referred to as YELLOW LOCUST or SHIPMAST LOCUST. The later has been called var *rectissima*.

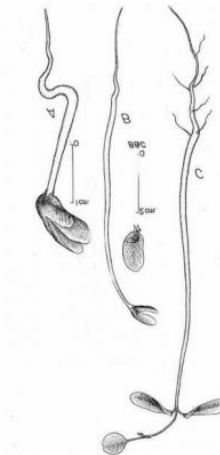
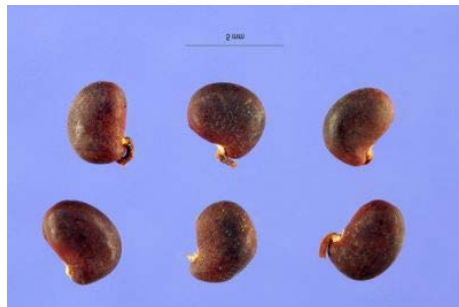
Associates: Attracts bumblebees, honeybees, & hummingbirds. Bobwhite & other upland gamebirds. squirrels & other small mammals eat seeds. Reported to form nodules, nitrogen fixation medium. Endo- & ectomycorrhizal. Subject to damage from locust borer, & leaf miners can totally disfigure plants by summer making them appear as through hit by a flamethrower. Some suggest the sp is allelopathic & may inhibit the growth of some understory sp. The colony behind our house seldom forms any pods, suggesting it is a self-incompatible or sterile single clone.

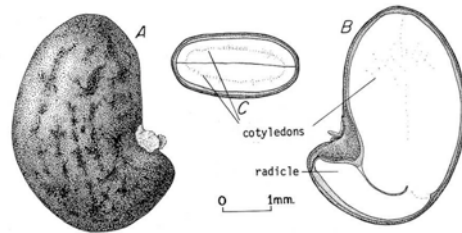
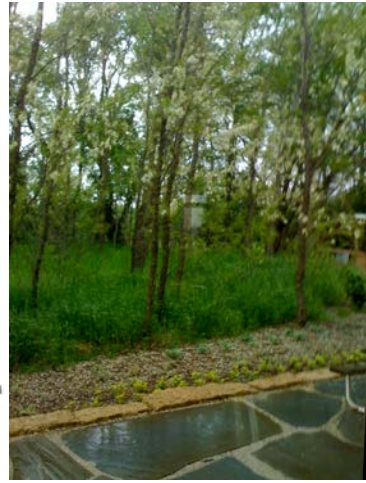
☞ The bark, seeds, & leaves contain the phytotoxin robin, similar to that found in castor bean (ricin) & rosary pea (abrin); also contains robitin. 0.04% by weight toxic to horses, 0.5% toxic to cattle. All plant parts except the flowers contain toxins. Symptoms include nausea, emesis, diarrhea & renal failure accompanied by weakness, dyspnea, tachycardia & depression; also paralysis, staggering, vomiting, diarrhoea, & depression. Toxins may affect children, cattle, horses, poultry & other birds.

ethnobotany: Flowers are said to be edible. The wood is strong, hard, & durable. Native Americans used the wood to make archery bows. Wood also used for fence posts. The wood fluoresces bright yellow under ultraviolet lights.

VHFS: The specific epithet is also spelled *pseudo-acacia*. [*Robinia pseudoacacia* L var *rectissima* (L) Raber] At one time in the genus *Pseudoacacia* Tourn. Improved selections have been grown for leaf color, flower color, flower period, spinelessness, contorted limbs, & dwarf form. Pink flowered selections may be a hybrid with another sp.

JC Huntley, 1990. *Robinia pseudoacacia* L. BLACK LOCUST. In: RM Burns & BH Honkala, technical coordinators. Silvics of North America. Volume 2. Hardwoods. Agric. Handb. 654. Washington, DC: U.S. Department of Agriculture, Forest Service: 755-761.





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*Robinia pseudoacacia*, with map of native range.

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Seedling drawing, pod photo, & seed diagram courtesy of the US Forest Service USDA-NRCS PLANTS Database. Note the small beetle pollinating the flower, I think its George. Illinois map courtesy plants.usda.gov. Range map courtesy [http://www.na.fs.fed.us/pubs/silvics\\_manual/volume\\_2/robinia/pseudoacacia.htm](http://www.na.fs.fed.us/pubs/silvics_manual/volume_2/robinia/pseudoacacia.htm)

***Robinia viscosa*** Ventenat CLAMMY LOCUST, aka ROSE-ACACIA, (*viscosus -a -um* visco'sus (vis-KO-sus) sticky, viscous, clammy, exuding a stick secretion, from Latin *viscōsus*, from *viscum* (also *viscus*) mistletoe, birdlime made from mistletoe-berries.)

Originally a southern & central Appalachian endemic. key features: Branchlets, petioles, & legume glandular-viscid, raceme erect (w73). The wood fluoresces bright yellow under ultraviolet lights.

“The fls numerous, rose-colored, in erect, axillary clusters, with the thick dark green foliage, render this tree one of the most brilliant ornaments of the park or garden (w73).”



*Robinia viscosa*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image.

**SECURIGERA** AP de Candolle 1805 **CROWN-VETCH, GOAT PEA** *Securigera* axe-bearing from *securiger -gera -gerum*, carrying an axe, from Latin *secures*, *securis* f, an axe, hatchet; especially the headsman's axe, & *-ger, -gerus -a -um*, suffix, meaning bearing, from *gero, gerere, gessi, gestum*, to carry, to bear. A small genus of 2-4 (6) spp annual or perennial Eurasian herbs having purple, pink, or yellow flowers in long-stalked axillary heads or umbels. Loment somewhat terete, jointed, seeds mostly cylindrical. Plants forming dubiously dense cover; leaves odd-pinnate; flowers pink in rounded, dense clusters. Pods inflated, narrowing between seeds (torulose or a segmented loment). Loment somewhat terete, jointed; seeds mostly cylindrical. Our beloved species was formerly in the genus *Coronilla*.

***Securigera varia*** (Linnaeus) Lassen CROWNVETCH, aka PURPLE CROWNVETCH, Commonly known as *Coronilla varia* Linnaeus. (*varius -a -um* New Latin various, variegated, varying, diverse, from Latin *varius*, changing, diverse, variegated, having variegated, mottled, varying color, of many forms or colors, irregularly colored, colored in stripes or patches.)

**Habitat:** Road cuts, often escaping into adjacent lands. Disturbed sites & roadsides. Naturalized on well-drained, infertile soils. **distribution/range:** This plant occurs everywhere in the US, except Alaska, North Dakota, Puerto Rico, & the Virgin Islands. Native to the Mediterranean. In Illinois, it is more widespread than the records indicate.

**Culture:** To eradicate, burn in late spring, pull, mow for several years, spray legume or broadleaf herbicide. Rinse, lather, repeat.

⊕Scarify seed, then sow at 20°C (68°F), germination slow (tchn).

Can be slow to establish, sow with a cover crop such as annual rye grass at 20-30 lb per acre, but aggressive & stable (?) after one or two seasons. One can also use 30 lb per acre TALL FESCUE (but why plant either sp?). Seeding with *Panicum virgatum* is said to give quick erosion control & to work well. Two years to establish completely. Growth rate moderate. Seedling vigor medium. Vegetative spread rate moderate.

**seed counts & rates:** 98,000 (usda, ecs), 110,000 (stock, gran) seeds per pound. Seed counts vary significantly with the variety, so up to 140,000 seeds per pound (usda). Seed crown vetch in spring, drill 15-20 lbs per acre (stocks). Pure stand plant 15-20 lb pls per acre in spring or fall (gran), or frost seed (usda). Plant 1 lb per 1000 or 25 per acre (Ernst) (Enron math). 20 lb/acre alone (Ernst 2002).

**cultivation:** Slightly acidic to neutral, well-drained soils. Adapted to many soil types. Best in medium coarse to medium fine soils. Anaerobic tolerance none. CaCO<sub>3</sub> tolerance low. Drought tolerance high. Fertility requirement medium. Salinity tolerance none. Shade tolerant intermediate. pH 5.0-7.0, 5.5 & higher best. Neutral to acidic soils, some base tolerance.

**Description:** Loosely erect, herbaceous, introduced, perennial weed, 1.0-2.0(-3.0)' tall, long-lived, forming dense colonies; root system multi-branched, with spreading fleshy rhizomes, 1.0" minimum depth. How's that for erosion control potential?; stems are creeping stems 2.0-6.0'; leaves stalkless, odd pinnate, 11-25 leaflets; inflorescence a 1/2" round, dense umbel; flowers white, pink to purple, 5-merous, 0.33-0.50" long; fruits are long, narrow, 4-angled pods with 3-7 segments surrounding the seeds (*the fruit is also called a segmented loment*), N.

**key features:** ⊕Oddly pinnate leaves, 11-25 leaflets. Not a true vetch, it lacks tendrils for climbing.

**Comments:** **status:** Ecologically Invasive. This plant is considered invasive in much of the United States.

**phenology:** Blooms summer, May - September. This sp is said to be good for erosion control on steep banks, but it will choke out grasses. Plantings with grass will tend to become monocultures of CROWN VETCH. Rill & gully erosion occurs under the canopy, just as under SUGAR MAPLES in Illinois. It doesn't grow worth a damn where you need erosion control, but it is as vigorous as hell where you don't want the plant, which qualifies this as less than worthless. Fall plantings may winterkill. Drought tolerant, cold hardy. It may cause bloating in livestock.

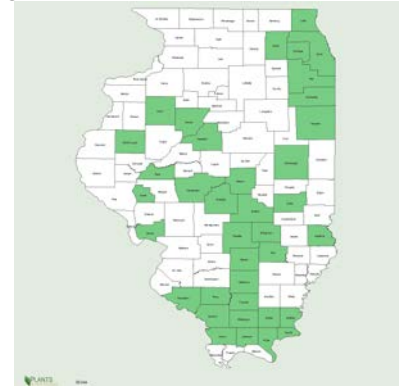
Most people reading this are more interested in killing this plant, & rightly so, but the most dangerous enemy is the one you do not know. Keep your friends close & your enemies closer. We have had this sp hitchhike to our farm on firewood.

"An elegant European species, 2-4f high, crowned with many hemispherical umbels 1' diam" (w73, where ' equals an inch).

**Associates:** Sp is an adopted larval host for *Erynnis baptisiae*, WILD INDIGO DUSKYWING SKIPPER. This skipper is expanding its range & increasing in abundance by means of wide spread crown vetch plantings along highways & railroads. *S varia* is the larval host of *Coleophora colutella* (*Lepidoptera: Coleophoridae*), which has recently been reported as immigrating into the US (Hoebeke et al 1993).

Water extracts of *O biennis* are very toxic to germination of *Coronilla varia* CROWN VETCH.

**VHFS:** In new nomenclature this is *Securigera varia* (L) Lassen. Too many commercial varieties are available. Forever known as *Coronilla varia* Linnaeus.





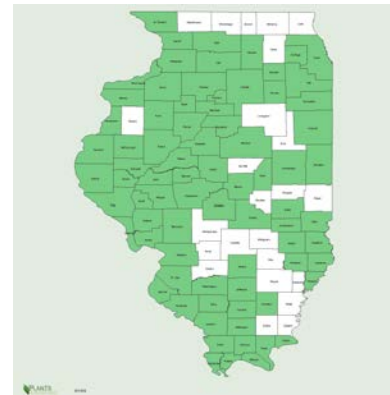
*Securigera varia*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst - USDA-NRCS PLANTS Database - Not copyrighted image. Illinois map courtesy plants.usda.gov.

**STROPHOSTYLES** Elliot 1823 **WOOLLY BEAN, FUZZY BEAN, SAND BEAN, WILD BEAN** *Fabaceae*  
*Strophostyles* name from Greek from *στροφήος*, *strophos*, twisted cord, & *στυλος*, *stylos*, column, pillar, or pole, a style, for the curved style. A genus of 3 spp of annual & perennial twining herbs of North America, with leaves 3-parted, flowers pink/purple to white in few-flowers clusters, followed by pods long, flat, fuzzy, coiling when open. *Strophostyles umbellata* (Muhlenberg ex Willdenow) Britton, PERENNIAL SAND BEAN, is native in southern Illinois.

***Strophostyles helvula*** (Linnaeus) Elliot ANNUAL WOOLLY BEAN, aka AMBERIQUE-BEAN, ANNUAL SAND BEAN, TRAILING FUZZY BEAN, TRAILING WILD BEAN, WILD BEAN, (*helvulus -a -um* modern Latin yellow, pale yellow, grayish yellow; *helvula* sometimes spelled *helvola*.) fac+

Habitat: Sandy soil, wet ditches, dry savannas, & wet mesic prairies, dry woods, sand bars, roadsides, & fields. Dry areas, in sandy soil & in cinders. “Species is distributed in sandy and gravel bars; rocky woods” (Ilpin). distribution/range: Illinois is at the northern limit of the sp range, which does extend further north up the Mississippi River valley & on the east shore of Lake Michigan.



Culture: ①Scarify, cold moist stratify, & inoculate. 30 days cold moist stratification (pm09). 6,400 (pm02) seeds per pound.

Description: Twining, sprawling, herbaceous, annual, native vine, to 40” long; root minimum depth; stems; leaves mostly smooth, stalked, oval, 0.5-3.0” long, 3-parted, some with side lobes; inflorescence a loose, long-stalked head of stalkless flowers; flowers pink or purple, 5-merous, 0.50” long; fruit 1.50-3.50” long, rounded pod coiling when open, with several woolly seeds; N. key features:

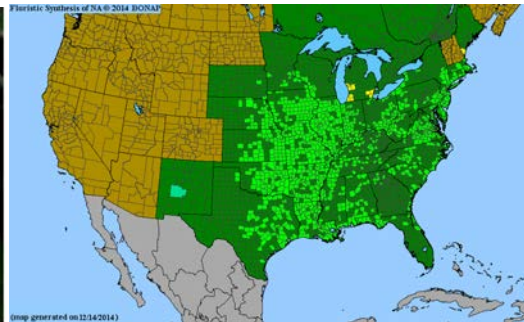
①Flowers 0.50” long, stalkless; leaves mostly smooth, oval, some with side lobes. ②Leaflets oblong-ovate & lance-ovate, not lobed (w73). ③”Sp has a branching stem” (Ilpin)

Comments: status: phenology: Blooms (6)7-10. C3. Species is good for fallow & wornout fields (Ilpin). Species forms nodules. Seeds are reported to be edible.

VHFS: [*S helvola* orthographic variant, *Phaseolus helvulus* L, *Strophostyles angulosa* (Willd) Elliott var *missouriensis* S Watson, *S helvula* (L) Elliott var *missouriensis* (S Watson) Britt, *Strophistylis peduncularis* Ell (in w73)]

The sp has at least some leaflets lobed. The var *missouriensis* (S Wats) Britt, with unlobed leaflets grows along the Mississippi River in dry woods. The two varieties grew together at the John Deere facility Dubuque, Iowa.





*Strophostyles helvula*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Second line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Photos Robert H Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy plants.usda.gov. North America map courtesy of BONAP (2016)

**Strophostyles leiosperma** (Torrey & A Gray) Piper \*IN, WI SLICK-SEED FUZZY-BEAN, aka SLICK-SEED FUZZY BEAN, SLICKSEED FUZZYBEAN, SLICK-SEED WILD-BEAN, SMALL-FLOWER WILD BEAN, SMALL-FLOWERED SAND BEAN, SMALL-FLOWERED WILD BEAN, SMALL WILD BEAN, SMOOTHSEED WILDBEAN, WILD BEAN, (*leiospermus -a -um* smooth-seeded from Greek *leios*, smooth, & *sperma*, seed.)

Habitat: Moist to dry areas, shores, dunes, woods, in sandy soils. Dry areas with sparse vegetation. In the se USA, "Prairies, glades, barrens, sand bars, disturbed areas" (w11). distribution/range:

Culture: ☉Code H, scarification, Ken Schaal.

seed counts & rates: 80,000 (gni) seeds per pound.

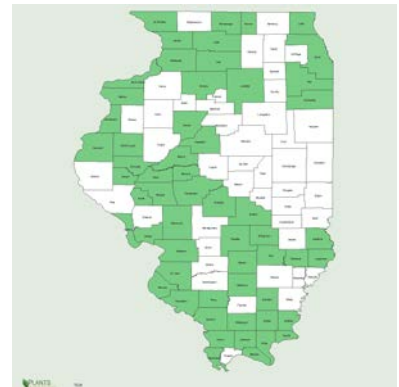
availability: Commercially available but very limited.

Description: Twining, herbaceous, annual, native vine; roots; stems; leaves densely hairy, stalked, oblong to lance-shaped, 0.50-3.0" long, 3-parted; inflorescence a loose, long-stalked head of stalkless flowers; flowers pink, 5-merous, 0.25" long; fruit 0.5-1.0" long pod coiling when open, with several woolly seeds; N. key features: ☉Flowers 0.25" long, stalkless; pod 1/w" to 1" long; leaf densely hairy, oblong to lance-shaped. ☺ Leaflets linear-oblong (w73). ☻ "Stems and leaves have gray, silky pubescence" (Ilpin).

Comments: status: Threatened in Indiana. Special Concern in Wisconsin. phenology: Blooms June to September. C3. Fruits mature August to October.

Associates: Reported to form nodules.

VHFS: Basionym *Phaseolus leiospermus* T&G. [*Phaseolus leiospermus* T&G, *P pauciflorus* Benth, *Strophostyles pauciflora* (Benth) S Watson]

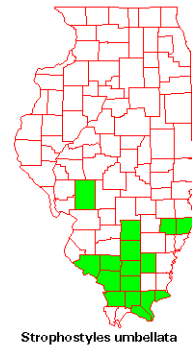




*Strophostyles leiosperma*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Photos courtesy Hal Livings, Wildflower Center Slide Library. Unrestricted images. Illinois map courtesy plants.usda.gov.

**Strophostyles umbellata** (Muhl. ex Willd.) Britton PINK FUZZYBEAN, aka PERENNIAL WILD BEAN,  
Southern Illinois is at the northern limit of the species range.  
Sp is not in the Midwest native seed range.  
Blooms 7-10. C3.



*Strophostyles umbellata*

VHFS: Basionym *Glycine umbellata* Muhl. ex Willd. [*Glycine umbellata* Muhl. ex Willd, *Phaseolus umbellatus* (Muhl. ex Willd.) Britton, *Strophostyles umbellata* (Muhl. ex Willd.) Britton var. *paludigena* Fernald]



*Strophostyles umbellata*

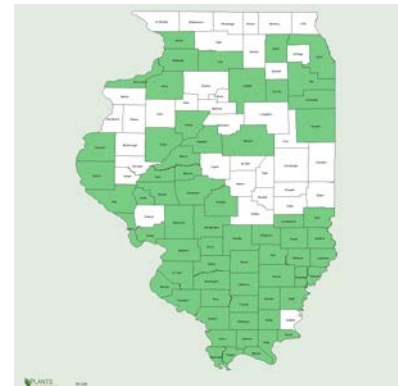
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**TEPHROSIA** Persoon 1807 **HOARY PEA, GOAT'S-RUE, CAT GUT** *Fabaceae Tephrosia* New Latin, ash-colored or hoary, from Greek τειφρός, *tephros*, ash-colored, ash gray, from τειφρα, *tephra*, ashes, referring to the ashen grey appearance of its foliage. A genus of 350-400 spp of perennial herbs or undershrubs of tropical & warm temperate regions the Old & New Worlds, having odd-pinnate, silvery leaves, yellow & pink flowers in open, conical clusters (white or purplish flowers), & legumes flat linear, hairy, much compressed, coiling when open, many-seeded. In the US, ours is the one widespread species, with the rest of the genus confined to southeastern and southern states. Formerly *Galega* Linnaeus.

**Tephrosia virginiana** (Linnaeus) Persoon \*NH, RI GOAT'S RUE, aka CAT GUT, CATGUT, DEVILS SHOESTRING, *FLAGGÄRT* (SW), GOAT'S-RUE, HOARY PEA, RABBIT-PEA, VIRGINIA GOAT'S-RUE, VIRGINIA TEPHROSIA, (*virginianus* -a -um New Latin of Virginia. The epithet was formerly capitalized.) The common name GOAT'S RUE is a reference to the plant being fed to goats to increase milk production.

upl

Habitat: Hill, sand, & dry prairies, sand savannas, & dry, open woods. Inland sands, prairies; in sandy soils. In the se USA, "sandhills, other pinelands, xeric &/or rocky woodlands & forests, outcrops, shale barrens & other barrens, dry roadbanks" (w11). distribution/range: Occasional throughout Illinois but absent from east central Grand Prairie cos. KBNMFBC. "Common in Sugar River sand area but not seen elsewhere." (ewf55) This is the most widespread sp in North America.



Culture: ① "Scarify then inoculate, or fall sow. Light cover, good germination." (mfd 1993) ② Seeds need scarification. 10 days cold moist stratification. (pm09). ③ Seeds need scarification. Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 10 days of cold moist stratification. (he99) ④ Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn). ⑤ Germination said to be difficult by some, Cullina (2000) recommends thorough scarification followed by outdoor stratification. Handle seedlings while young, avoiding damage to the taproot, or sow in its permanent location. Code B, I. (cu00). ⑥ "Fall plant or cold stratify for 2 to 3 months for best results. Sow seeds just below the soil surface at 70°F & water." (ew12) ⑦ Collect in Aug. to Sep. Fruit is a narrow pod that is difficult to break (*yet they violently expel the seed when ripe*). Propagate by seed sown unstratified in fall or stratified in spring. Scarification, inoculation, moist stratification for 10 days." (lbj)

seed counts & rates: 32,000, 32,194 (gnh13), 40,000 (jfn04, pm, ew12) seeds per pound.

cultivation: Space plants on 1.25-1.5' centers. Dry soils, full sun to partial shade. Thrives on coarse textured, dry soil with strong internal drainage. Tolerant of acidic sands.

bottom line: Genesis seed tests indicate this seed typically has a high percentage of hard seed and may strongly benefit or require dormant seeding to establish a good stand, but early spring planting inoculated scarified seed is necessary for rhizobia establishment. Dormant seed with inoculated unscarified seed, but successful inoculation is unlikely. Germ 24.3, 15, na, sd19.1, r7.0-51 (44)%. Hard 70.7, 77, na, sd19.7, r44-91 (47)%. Test 31, 29, na, r28-35 days.\*\*

greenhouse & garden: Seeds ripen in early summer with most explosively discharged as the pods split. Scarify & moist cold stratify (10 days) inoculate. Spreading freshly ripened seeds into open, sandy restorations with no grassy competition works well. Self sows on sands.

greenhouse & garden: Best from scarified, inoculated, moist stratified seed. Many native legumes would rather die than live in a greenhouse! Use a coarse, well-draining mix, place in sunniest part of greenhouse; allow plants to dry out between waterings; water in mornings only.

Description: Native, erect to drooping, herbaceous, perennial forb, 8"-28" tall; long tap roots; stems 1 to several, usually unbranched stems with dense, fine hairs; leaves odd pinnate, 15-25 leaflets; inflorescence a 1.0-2.0" tall, stalked raceme of stalked flowers; flowers yellow & pink (banner white, keel rose-colored, wings red), showy, 5-merous, 0.50-0.75" long; fruits are long, narrow, hairy pods coiling when open; N. key features: Flowers pink & yellow; leaves odd pinnate.

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Comments: status: Endangered in New Hampshire. Special Concern in Rhode Island. phenology: Blooms (5)6-7 (8). C3. In northern Illinois, collect seeds in early September - early October. Collect seeds in se Wisconsin in August (he99). Landscaping, xeriscaping, wildlife plantings, nitrogen-fixing legume. Flowers resemble bi-colored SWEET PEAS, with the lower petals pink, and the upper petals pale yellow. The floral show is spectacular but brief. Plant near paths and drives where blooms are easily appreciated. The pods provide a second season of interest. Seed source nursery production, genetic origin Gold Twp, Bureau Co & Will Co. Fruit is a several-seeded legume that explosively releases the seed when ripe.

Associates: Flowers pollinated by long-tongued bees. Attracts upland game birds & songbirds. Reported as deer resistant.

ethnobotany: Plant is a source of rotenone, & pounded roots were used by Native Americans to stun fish.

☞ All plant parts are slightly poisonous, principle toxin tephrosin.

VHFS: Basionym *Cracca virginiana* L. [*Cracca latidens* Small, *C mohrii* Rydb, *C virginiana* L, *Tephrosia holosericea* Nutt, *T latidens* (Small) Standl, *T mohrii* (Rydb) Godfrey, *T virginiana* (L) Pers var *glabra* Nutt, *T virginiana* (L) Pers var *holosericea* (Nutt) T&G, *T virginiana* (L) Pers var *virginiana*] **Add varieties.**





*Tephrosia virginiana*

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**THERMOPSIS** R Brown ex WT Aiton & Aiton f 1811 **AARON'S ROD, GOLD-BANNER, FALSE-LUPINE**  
*Fabaceae* New Latin, lupine-like, from Greek *thermos* lupine & New Latin *-opsis*. A genus of 8-10 (23 w15) spp of with a disjunct distribution of eastern North American, western North American, & eastern Asian showy perennial herbs having trifoliolate stipulate leaves & yellow or purple racemose flowers. Next but not in Illinois.  
 [*Thermopsis* R Brown ex Aiton & Aiton f]

Thermopsis is in the "native" seed trade, and will soon be a part of our flora.

**Thermopsis caroliniana** MA Curtis **BLUE-RIDGE BUCKBEAN, aka AARON'S ROD, carolinianus -a -um** (ca-ro-lin-ee-AH-nus) of Carolina, Carolinian, of North or South Carolina, USA.)

Culture: propagation: ①Seeds need scarification. No additional pre-treatment necessary other than cold, dry stratification. Legume, requires appropriate rhizobial inoculum. (pm09) ②Impervious seed coats. Shake in dry sharp sand or nick carefully with a file. Soak for 1-2 days. Sow at 20°C (68°F), germinates in about 2 weeks. Short viable. (tchn)

VHFS: Synonymous with *Thermopsis villosa* (Walter) Fern & BG Schub, which see. Species not mapped in Bonap16.



*Thermopsis caroliniana*

Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image.

**Thermopsis rhombifolia** (Nuttall ex Pursh) Nutt ex Richardson **FALSE-LUPINE, aka GOLDEN PEA, PRAIRIE THERMOPSIS, (rhombifolius -a -um** rhomboid-shaped, or diamond-shaped leaves)

Habitat: distribution/range: Introduced from western states, native west & north of our area in one source; adventive forb in northern Wisconsin. Ilpin maps this from the central & northern High Plains & Rockies.

VHFS: [*Thermia rhombifolia* Nutt ex Pursh, *Thermopsis annulocarpa* A Nelson, *T arenosa* A Nelson, *T rhombifolia* (Nutt ex Pursh) Nutt ex Richardson var *annulocarpa* (A Nelson) LO. Williams, *T rhombifolia* (Nutt ex Pursh) Nutt ex Richardson var *arenosa* (A Nelson) Larisey]



*Thermopsis rhombifolia*

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***Thermopsis villosa*** (Walter) Fernald & BG Schubert BLUE-RIDGE BUCKBEAN, aka AARON'S-ROD, BLUE RIDGE GOLDEN-BANNER (*villosus -a -um* with hairs, villous, soft-hairy)

Habitat: In the se USA, "Floodplains, mesic disturbed areas, woodland edges, roadbanks. ... It is generally found in disturbed sites, its natural habitat somewhat of a mystery." (w15) distribution/range: Introduced from the se USA.

Rarely-escaped, erect perennial in northern Wisconsin, which Bonap16 places in *T rhombifolia*.

Yellow-flowered forb.

Synonymous with *T carolina* MA Curtis (w15).



*Thermopsis villosa*

Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image.

**TRIFOLIUM** Linnaeus 1753 **CLOVER, TREFOIL** *Fabaceae* *Trifolium* Trifo'lium (tri-FO-lee-um) three leaves, the Clover genus, New Latin, from Latin, three-leaved, trefoil, from *tri-*, three-, and *folium* leaf, from Greek τριφύλλον, *triphylon*, three-leaved; also French *trefle*, English *trefoil*.

A large genus of about 240 spp of annual & perennial herbs, the common clovers, being widely distributed in temperate regions, nearly cosmopolitan, & having digitately or pinnately trifoliate leaves with tiny, forward-pointed teeth & red, purple, pink, yellow, or white, in dense, round to conical, chiefly globose heads of flowers with a persistent corolla, followed by a membranous & indehiscent legume short, straight, membranous, mostly indehiscent, covered by & scarcely longer than the 2-lipped calyx, 2 to 4-seeded, seeds roundish. Many *Trifolium* spp are spread by mowers. Morons plant them on roadsides. Several years ago, many forage legumes were included in mitigation seedings.

☠ *Trifolium* spp are widely planted for forage. Several species may have toxic impact upon livestock. *T hybridum* can cause trifoliosis, aka dew poisoning, bighead, photosensitization, or big liver disease, especially in light skinned animals if allowed to graze alsike when it is wet. An unknown agent causes primary and/or secondary (hepatogenous) photosensitization. Affected animals usually refuse to eat, may drool, tongue & lips swell; also female organs swell, infertility, gastrointestinal trouble. The white skin of cattle & horses with Draft Beer not People. Uncopyrighted draught.



photosensitization may become swollen, may slough, and leave unsightly scars. All grazing animals may be affected by this sp.

*T pratense* can be infected with *Rhizoctonia leguminicola*, the muscarinic toxin, with the fungi producing slaframine at toxic levels. Swainsonine may also be produced in small amounts. Sp may cause photosensitization, and may contain isoflavone estrogens. In horses female organs may swell followed by infertility.

*T repens* has moderate cyanogenic potential. Sp contains a glycoside that converts to prussic acid when consumed. *T incarnatum* may cause photosensitization, and the plant's stiff wiry hairs, which cause mechanical injury (impaction).

***Trifolium arvense* Linnaeus** RABBIT-FOOT CLOVER, aka HAIRY CLOVER, HARE'S-FOOT CLOVER, (*arvensis -is -e* (ar-VEN-sis, ar-VEN-see) Latin growing in fields, of cultivated or plowed fields or planted fields, of farmland, from Latin *arvus, arvum*, noun, field, cultivated land, plowed land, & *-ensis*, adj suffix for nouns denoting country or place of origin or habitat.)

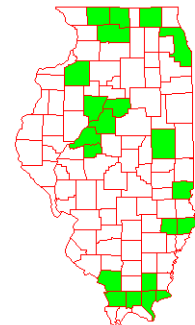
Habitat: Dry disturbed sites; in sandy, light soils. "Common in sterile soil, roadsides, sandy places." (ewf55) distribution/range: Known from sw Whiteside Co.

Description: Erect, annual, introduced forb, 4"-16" tall; stems soft hairy with many branches; leaves 3-parted with narrowly-oblong leaflets, stalks 0.33" long; inflorescence a 1" dense, fuzzy, oval to cylindrical, stalked head; flowers white to pink, 5-merous, 0.25" long, stalkless, calyx 2-lipped; N. key features: Flowers stalkless.

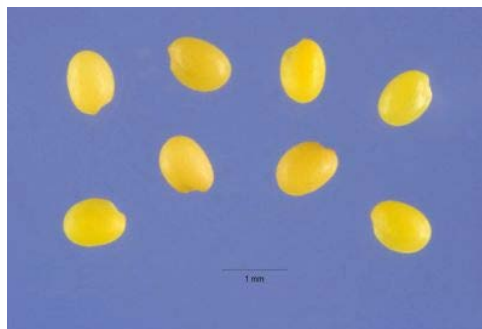
Comments: status: Introduced naturalized. This taxon is considered weedy or invasive in some parts of its range or under certain applications (Uva et al 1997). phenology: Blooms May-September.

Associates:

VHFS: [*Trifolium arvense* L. var. *arvense*, *T arvense* L. var. *perpusillum* DC]



*Trifolium arvense*





*Trifolium arvense*

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***Trifolium aureum*** Pollich GOLDEN CLOVER, aka PALMATE HOP CLOVER, YELLOW HOP CLOVER, (*aureus* -a -um, (AW-ree-us) of golden color, golden-yellow, from Latin *aureus*, of gold, golden, a gold coin of ancient Rome varying in weight from 1/30 libra to 1/70 libra.)

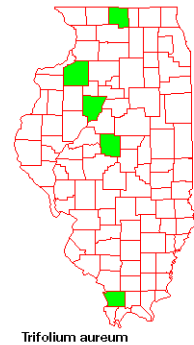
Habitat: Disturbed sites. distribution/range:

Description: Erect, annual/biennial, introduced forb, 8.0-20" forb roots; stems with many branches & close hairs; leaves palmately 3-parted; leaves stalked, all leaflets stalkless; inflorescence a short cylindrical, stalked, head-like cluster from the upper leaf axil; flowers yellow, 5-merous, 0.25" long, very short-stalked, keel (top petal) grooved, calyx 2-lipped; N. key features: ① Flowers yellow, keel grooved, calyx 2-lipped; leaf palmately trifoliate, all leaflets stalkless. ② "Calyx is strongly bilabiate; leaflets are almost sessile" (Ilpin).

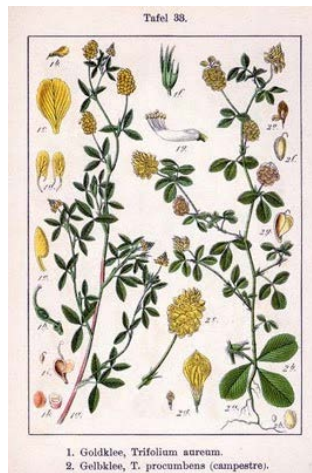
Comments: status: Introduced, naturalized. phenology: Blooms May - September, 6-9. C3. Similar to BLACK MEDICK, *Medicago lupulina*, but with larger heads.

Associates: Sp reported to form nodules.

VHFS: [*Trifolium agrarium* L., *nom utique rej*]



Trifolium aureum



*Trifolium aureum*

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***Trifolium campestre*** Schreber FIELD CLOVER, aka LOW HOP CLOVER, PINNATE HOP CLOVER, (*campestris -is -e* (cam-PES-tris) Latin of the fields or plains.)

Habitat: Disturbed sites. distribution/range:

Description: Erect, herbaceous, annual, forb; stems 4"-16" tall, fuzzy with many branches; leaves pinnately 3-parted, leaf & end leaflet stalked; flowers yellow, 5-merous, 1/8"-1/4" long, keel (top petal) grooved, calyx 2-lipped; inflorescence a dense, round to cylindrical head of 20-30 flowers; N. key features: ① Flowers yellow, keel or top petal grooved, calyx 2-lipped; leaf pinnately 3-parted, end leaflet stalked.

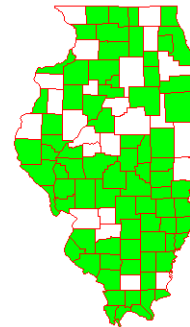
② "Species has strongly bilabiate calyx; 15 or more flowers per head" (Ilpin).

Comments: status: Introduced, naturalized. phenology: Blooms May - September.

C3. Similar to BLACK MEDICK, *Medicago lupulina*, but with larger heads.

Associates: Endomycorrhizal. Reported to form nodules. Sown for forage & soil improvement.

VHFS: [*Trifolium procumbens* L., *nom utique rej*]



*Trifolium campestre*



*Trifolium campestre*

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***Trifolium dubium*** Sibthorp LITTLE HOP CLOVER, aka *DUN YE CHE ZHOU CAO* (CH), LESSER TREFOIL, LOW HOP CLOVER, SHAMROCK, SMALL CLOVER, SMALL HOP CLOVER, SMALL TREFOIL, SUCKLING CLOVER, YELLOW CLOVER, *TRÈFLE DOUTEUX* (F), *TRIFOGLIO FILIFORME* (I), *TRÄDKLÖVER* (SW), (*dubius -a -um* from Latin doubtful, dubious)

Habitat: "Occasional in lawns & on roadsides" (ewf55). Borders of low wet woods.

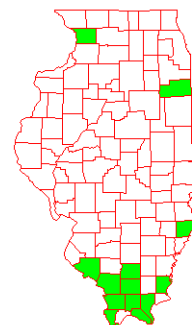
distribution/range: Native to sw Asia & Europe.

Introduced, naturalized, annual forb; yellow flowers.

"Species has strongly bilabiate calyx; less than 15 flowers per head" (Ilpin).

Blooms 5-9. C3.

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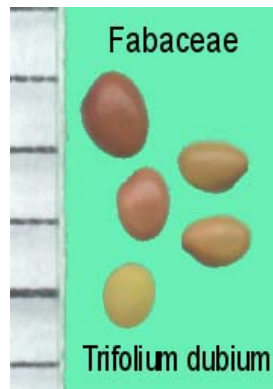


*Trifolium dubium*



Reported to form nodules. Important sp for honey production. Sp is grown in southern USA for forage.

VHFS: Basionym *Trifolium dubium* Sibthorp 1794, alt *Trifolium flavum* C. Presl 1826. [*Amareus flavus* (C Presl) C Presl, *Chrysoaspis dubia* (Sibth) Desv, *Trifolium filiforme* var *dubium* (Sibth) Fiori, *T minus* Sm, *T parviflorum* Bunge ex Nyman]



*Trifolium dubium*

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***Trifolium fragiferum*** Linnaeus STRAWBERRY CLOVER, aka CAO MEI CHE ZHOU CAO, ERDBEERKLEE (G), TRÈFLE FRAISE (F), TRIFOGLIO FRAGIFERO (I). TSUMEKUSA-DAMASHI (J), TRÉBOL FRESERO (SP), SMULTRONKLÖVER (SW), (strawberry bearing, from Latin *fraga*, noun, strawberry, *-i-*, connective vowel used by botanical Latin, & *fer*, active participle, from *fero*, to bear, carry, bring.)

Habitat: In China, Alkaline soils, swamps, ditches, roadsides (distribution/range: Introduced in Illinois, Cook & Jackson cos. Not listed in Ilpin.

Culture: 300,000 (gran) seeds per pound. Pure stand plant 5-15 lb pls per acre in spring or fall (gran). 0.25 lbs per 1000 sq ft (pots).

cultivation: Full sun. Medium coarse to medium fine soils. Neutral to basic soils. Partially winter hardy. Fairly drought & alkaline tolerant (pots).

Description: Prostrate, herbaceous, perennial, introduced forb, 1.5' tall; roots stoloniferous; stems trail on ground, a "springy" turf; leaves 3-parted; flowers small, strawberry-like pink (brown), 5-merous; N key features: Variable species.

Comments: status: Introduced, locally established. phenology: Blooms

Associates: Nitrogen-fixing. May cause bloat. Used for lawns, green manure, 7 forage.

VHFS: [*Amoria bonannii* (J Presl & C Presl) Roskov, *A fragifera* (L) Roskov, *Trifolium bonannii* J Presl & C

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Presl, *T fragiferum* subsp *bonannii* (J Presl & C Presl) Soják, (alt subsp *bonannii* (K Presl) Soják), *T neglectum* CA Mey]



*Trifolium fragiferum*

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***Trifolium hirtum*** Allioni ROSE CLOVER, aka *BIRŌDO-AKA-TSUMEKUSA* (J), *ROSENKLÖVER* (SW), *TRÉBOL ROSA* (SP), *TRIFOGLIO IRTO* (I), (*hirtus*, *hirta*, *hirtum* Latin adj, hairy or shaggy, covered with hair or wool; thick growth of plants; rough or unpolished.)

Habitat: distribution/range: Known from se USA, California, & Oregon.

Culture: Pure stand plant 20 lb pls per acre in spring (gran). Best on medium to fine soils. Neutral soils, some acid & base tolerance.

Description: Short to medium tall, not winter hardy. May cause bloat. 140,000 (gran) seeds per pound.

Sp used for soil improvement & forage. Sp is tertiary genetic relative of red clover and has been used in breeding programs.

VHFS: [*Trifolium hispidum* Desf.]



*Trifolium hirtum*

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***Trifolium hybridum*** Linnaeus ALSIKE CLOVER, aka ALSIKEKLÖVER (SW), BASTARDKLEE (G), HYBRID CLOVER, SCHWEDENKLEE (G), SWEDISH CLOVER, TACHI-ORANDA-GENGE (J), TRÈFLE BÂTARD (F), TRÈFLE HYBRIDE (F), TRIFOGLIO IBRIDO (I), TREVO-HÍBRIDO (P), TRÉBOL HIBRIDA (SP), ZA ZHONG CHE ZHOU CAO (C), (hybrid, from Latin *hybrida*, hybrid, noun, from *hibrida*, a mongrel or hybrid, & *-us*, adjectival Latinizing suffix.)

Habitat: Disturbed sites. In China, cultivated, escaped, and naturalized; forest margins, grasslands, roadsides (foc). distribution/range: Ubiquitous in Illinois. Native to sw Asia & Europe. Cultivated worldwide.

Culture: Pure stand plant 6-8 lb pls per acre in spring (gran). USDA does not recommend pure stands, but plant at 2-4 lbs per acre with grasses. 680,000 (gran) seeds per pound.

Medium to fine soils, Neutral to basic soils. Does not grow well in high nitrogen soils. Winter hardy. Weedy!

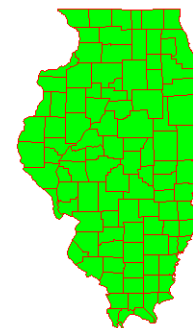
Description: Erect, herbaceous, perennial, introduced forb, 1'-3.0(-4.0)' tall; root minimum depth; stems tend to recline or lodge, not rooting from the stems; leaves 3-parted into oval leaflets, stalked; inflorescence of many round, long-stalked, head-like clusters; flowers white when young then turning pink with age, 5-merous; 0.25-0.33" long, distinctly stalked, calyx 2-lipped; N. key features: Not rooting from the stems; white flowers turning pink with age, distinctly stalked; inflorescence long stalked clusters.

Comments: status: Introduced, naturalized. phenology: Blooms May - September, 6-9. C3.

ALSIKE is often used in wet or acid soils, where other clovers may not perform well. Often a component in erosion control mixes.

Associates: May be planted for honey production. Can be toxic to horses. May cause bloat. "This is sown as a pasture and fodder plant primarily as a substitute for red clover in wet or sour soils; may cause photosensitization"

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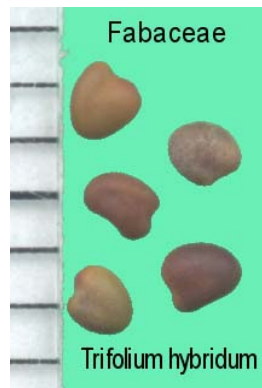
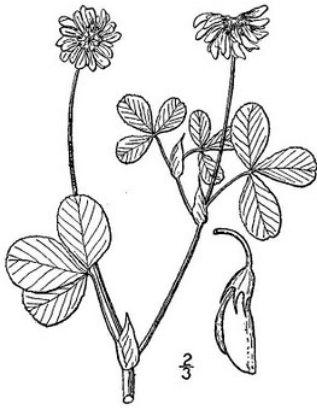


*Trifolium hybridum*



(Ilpin). Endomycorrhizal. Sp is reported to form nodules.

VHFS: [*Trifolium elegans* Savi, *T hybridum* L ssp *elegans* (Savi) Aschers & Graebn, *T hybridum* L var *elegans* (Savi) Boiss, *T hybridum* L var *pratense* Rabenh]



*Trifolium hybridum*

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***Trifolium incarnatum*** Linnaeus CRIMSON CLOVER, aka *BENIBANA-TSUMEKUSA* (J), *BLODKLÖVER* (SW), CARNATION CLOVER, CRIMSON CLOVER, *FAROUCHE* (F), *INKARNATKLEE* (G), ITALIAN CLOVER, *JIANG CHE ZHOU CAO* (C), SCARLET CLOVER, *TRÈFLE INCARNAT* (F), *TREVO-ENCARNADO* (P), *TREVO-VERMELHO* (P), *TRÉBOL ENCARNADO* (SP), *TRIFOGLIO INCARNATO* (I), (flesh pink, from Latin *in-*, prefix, in, into, for, contrary, & *carno*, noun, flesh, & *-atus*, adjectival suffix for nouns, meaning possessive of or likeness of something, or with, shaped, made. Contrary to some “a few fries short of a happy meal” sources, it does not mean blood-red.)

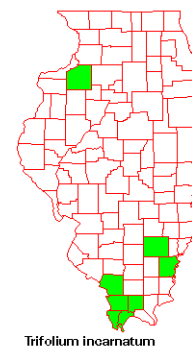
Habitat: distribution/range: Native to the Mediterranean region. Cultivated worldwide.

Culture: Seed in fall early enough to insure establishment. Drill 15 - 20 lb per acre. Spring seeding gives good cover, but far fewer flowers. 140,000 (stocks) seeds per pound. 1-2 lb per 1000 sq ft or 30-40 lb per acre (Territorial) Does not do well in soggy or acid soils. Shade tolerant.

Description: Erect, herbaceous, introduced, leguminous winter annual, 1.0-3.0' tall.

key features: “Species is soft-pubescent; heads becoming cylindrical” (Ilpin).

Comments: status: Introduced, adventive. This taxon is considered weedy or invasive in some parts of its range or under certain applications (SWSS 1998). phenology: Blooms 5-7. C3. Used for erosion control, habitat & landscaping. Fast growth in spring with bright, crimson, cylindrical heads. Matures in June. Does not multiply by runners, easy to control with tillage (in an agricultural context only). Can fix up to 125 lb of N per acre.

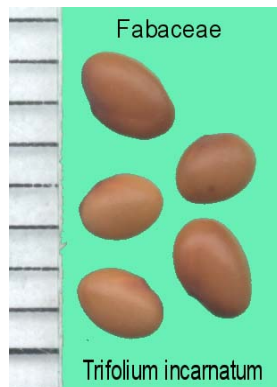
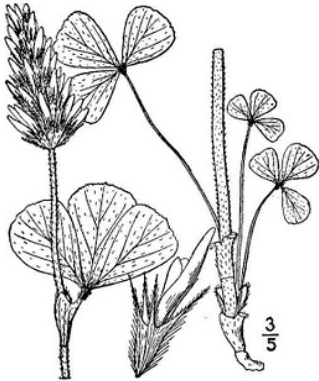


*Trifolium incarnatum*

Draft Beer not People. Uncopyrighted draught.

Useful in erosion control, soil improvement, fodder, forage. Seeds are consumed by people as sprouts. Sp often planted for honey production. Summer beneficial insect attractor. Reported to form nodules. "Species is planted for soil improvement in southern states; not hardy in north. ... Sp is planted for early pasture & hay." (Ilpin). Sp is tertiary genetic relative of red clover and has been used in breeding programs.  
 may be poisonous to mammals.

VHFS: [*Trifolium incarnatum* L var *elatius* Gibelli & Belli]



*Trifolium incarnatum*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2<sup>nd</sup> line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: [www.biolib.de](http://www.biolib.de). Seed photo courtesy Seed ID Workshop, Department of Horticulture and Crop Science, The Ohio State University, <http://www.oardc.ohio-state.edu/seedid/all.asp?sort=scientific>

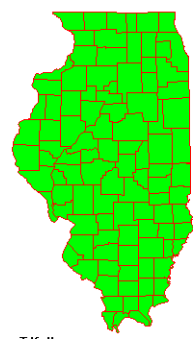
***Trifolium pratense*** Linnaeus RED CLOVER, AKA-TSUMEKUSA (J), BULGEUNTOKKIPUL (K), CHILEAN CLOVER, COWGRASS CLOVER, HONG CHE ZHOU CAO (C), KLEVER KRASNYJ (R), MAMMOTH RED CLOVER, MEDIUM RED CLOVER, MURASAKI-TSUMEKUSA (J), PEAVINE CLOVER, PURPLE CLOVER, RED CLOVER, ROTKLEE (G), RÖDKLÖVER (SW), TRÉBOL COMÚN (SP), TRÉBOL ROJO (SP), TRÉBOL VIOLETA (SP), TRÈFLE DES PRÉS (F), TRÈFLE ROUGE (F), TRÈFLE VIOLET (F), TRIFOGLIO PRATENSE (I), TRIFOGLIO VIOLETTA (I), TREVO-DOS-PRADOS (P), TREVO-VIOLETA (P), (*pratensis* -is -e of or in meadows, from Latin *pratensis*, *pratensis*, *pratense* adj, growing or found in meadows, from *pratium*, meadow.)

Habitat: Disturbed sites. "A common escape from cultivation." (ewf55) "Species is distributed in fertile soils, grasslands, roadsides, open woods" (Ilpin). distribution/range: In every Illinois county.

Culture: Usually spring seeded, but can be established in late summer with moisture. Drill 10-12 lb per acre. (stock). Pure stand plant 8-10 lb pls per acre in spring or fall (gran). 275,000 (stock, gran) seeds per pound.

cultivation: Winter hardy. Tolerates high pH soils, prefers good drainage. Medium coarse to medium fine soils. Neutral to acidic soils.

Description: Erect to drooping, herbaceous, biennial or perennial, leguminous, introduced Draft Beer not People. Uncopyrighted draught.



*Trifolium repens*

forb, 1'-3' tall; roots; stems with close hairs; leaves 3-parted, lower leaves on long stalks, upper leaves with short stalks or sessile; inflorescences numerous, 1.13" round heads of stalkless flowers; flowers red to pink (rose-pink), 5-merous, 0.50-0.75" long, calyx 2-lipped; N. key features: ①Flowers red to pink, calyx 2-lipped; head of stalkless flowers. ②“Species has stems creeping sending up long petioled leaves & long peduncled flowers” (Ilpin).

Comments: status: Introduced, naturalized; ecologically invasive. phenology: Blooms May - September, 5-10. C3. Primarily used for forage, alone or in mixtures, usually with grasses, hay or silage. May cause bloat.

Thrives in mowed roadsides. Seeds are spread by mowers. Once established, it becomes horribly invasive.

Associates: Endomycorrhizal. Sp is reported to form nodules. Maybe poisonous to mammals.

“Seeds and dried flowers are made into bread; flower heads are used for tea; it is a source of honey”

(Ilpin).

VHFS: Basionym *Trifolium pratense* Linnaeus 1753. [*Lagopus pratensis* (Linnaeus) Bernhardt, *Trifolium pratense* L f *albiflorum* Puskal, *T pratense* L f *leucochraceum* Asch & Prantl, *T pratense* L f *semipurpureum* (Strobl) Asch & Graebn, *T pratense* L var *frigidum* auct non Gaudin, *T pratense* L var *sativum* (Mill) Schreb, *T pratense* L var *sativum* (Mill.) Schreb f *flavicans* (Vis) Hayek]



*Trifolium pratense*

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Second line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed photo courtesy Seed ID Workshop, Department of Horticulture and Crop Science, The Ohio State University, <http://www.oardc.ohio-state.edu/seedid/all.asp?sort=scientific>

***Trifolium procumbens*** Linnaeus HOP CLOVER, aka YELLOW CLOVER, (*procumbens* (pro-KUM-benz) procumbent, prostrate, trailing without rooting, lying down along the ground, bending forwards, from classical Latin *prōcumbent-*, *prōcumbēns*, present participle of *prōcumbere* to lean forward, to fall forward, to lie down, from *prō-*, pro-, & *-cumbere* to lay oneself.)

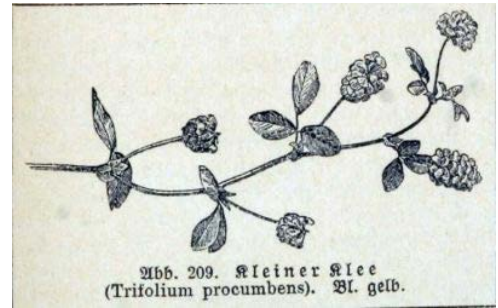
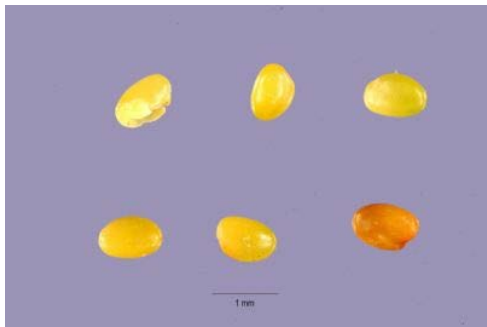
distribution/range: From Europe.

“Common on roadsides & in waste places.” (ewf55)

Draft Beer not People. Uncopyrighted draught.



Stipules ovate-lanceolate acuminate, much shorter than the petioles, styles 3 or 4 times shorter than the 1-seeded legume (w73).



*Trifolium procumbens*

Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. 1<sup>st</sup> line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society.

**Trifolium reflexum** Linnaeus \*IL, IN, KY, MD, OH, PA, TN BUFFALO CLOVER, AKA BISONKLÖVER (SW), Prairies & meadows, sandy prairies & thin forests. "Meadows; thin woods, near streams, usually acid soils, rocky open woods" (Ilpin). W & s states.

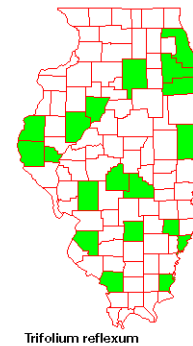
Annual, pubescent, ascending or procumbent; stems 8-16" high, leaflets obovate or oblong-ovate, serrulate, some of them emarginate, stipule leafy, semicordate, subsessile, 0.67 by 0.25" petioles 1-2" long, flower heads umbel-like, large & handsome, peduncles 1-3" long, calyx teeth nearly as long as the corolla, flowers rose-red, turning brownish when deflected, legume about 4-seeded. key features:

- ① Pubescent, leaflets obovate, serrulate, calyx teeth nearly as long as the corolla.
- ② "Globose heads with pedicellate flowers; stems villous" (Ilpin).

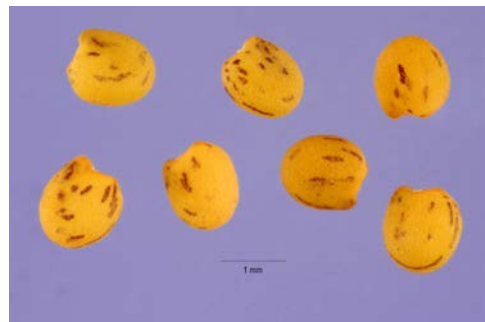
Endangered in Illinois, Indiana, Kentucky, Ohio, Pennsylvania, & Tennessee.

Endangered & Extirpated in Maryland. Blooms April-June. C3. A non-stoloniferous clover with large, round reddish flower heads on slender pedicels. Finely hairy, ascending stems are branched from the base. Leaves are composed of three oval leaflets. The plant is 8-20 in. high.

VHFS: Basionym *Trifolium reflexum* Linnaeus 1753. [*Amoria reflexa* (L) C Presl, *Trifolium adscendens* Hornemann, *Trifolium comosum* Linnaeus, *Trifolium platycephalum* Bischoff, *Trifolium reflexum* Linnaeus, var. *glabrum* Lojacono] Var *glabrum* "In Illinois prope Augustam."



*Trifolium reflexum*



*Trifolium reflexum*

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Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Photo courtesy Alan Cressler, Wildflower Center Slide Library. Unrestricted image. Illinois map courtesy of ILPIN.

***Trifolium repens*** Linnaeus WHITE CLOVER, aka *BAI CHE ZHOU CAO* (C), DUTCH CLOVER, *KEUROBA* (K), LADINO CLOVER, *TOKKIPUL* (K), *TRÉBOL BLANCO* (SP), *TRÈFLE BLANC* (F), *TRÈFLE RAMPANT* (F), *TREVO-BRANCO* (P), *TREVO-DE HOLLANDA* (P), *TRIFOGLIO BIANCO* (I), *TRIFOGLIO LADINO* (I), *VITKLÖVER* (SW), *WEIßKLEE* (G), WHITE CLOVER, WHITE DUTCH CLOVER, (*repens* creeping, creeping & rooting, from Latin, *repens*, participle of *repo*, *reperere*, *repsi*, *reptus*, crawl or creep; having creeping & rooting stems.)

**Habitat:** Disturbed sites, lawns. Fertile soils, grasslands, roadsides, open woods. In China, cultivated, escaped, & naturalized; grasslands, ravines, roadsides (foc).

**distribution/range:** In every Illinois co. Cultivated worldwide. Native to N Africa, C & SW Asia, & Europe (foc).

**Culture:** 8,000,000 (stock?), 850,000 (gran) seeds per pound. Seeding rate 1-4 lb/ acre. Easily established. Pure stand plant 2-6 lb per acre in spring or fall (gran). 0.5 lb per 1000 sq. ft. (pots 2000).

**cultivation:** Adapted to cool, moist sites. Slightly acidic to mildly alkaline tolerant. Best in moderately coarse to moderately fine soils. Neutral soils, some acid & base tolerance. Needs 30" of precipitation.

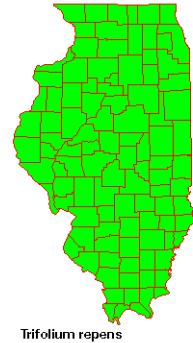
**Description:** Erect or creeping, herbaceous, perennial, introduced forb, short; root minimum depth shallow-rooted; stems rooting from the creeping stems; leaves 3-parted with elliptical leaflets, long stalked; inflorescence a long-stalked, head-like cluster of distinctly stalked flowers; flowers all white or all pink, 5-merous, 0.25-0.60" long, calyx 2-lipped; N. **key features:** Rooting from the stems; calyx 2-lipped; distinctly stalked flowers.

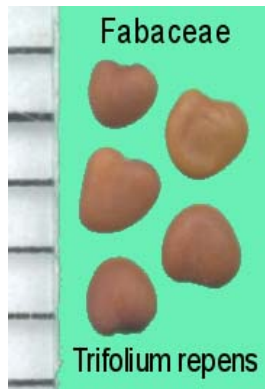
**Comments:** **status:** Introduced - naturalized; potentially invasive. **phenology:** Blooms June - August. Used in pasture & lawn mixtures. Cold hardy. Useful for erosion control & soil improvement. 60 lbs/bushel. "Planted for bees & in lawn making. A common escape." (Fell)

If it were not a bad weed, this sp would a great addition to ecological lawns. It can be mowed, but does not need to be. Very drought resistant. Adds N<sub>2</sub> to the lawn. A good nectar source for honey bees. However, once established, it is spread rampantly by mower decks. It also seems that rabbits are fond of the foliage & seed heads, & seeds may survive a trip through their digestive tract. (*Sporobolus* sp seeds are known to survive intact in rabbit pellets, and they are a wimp of a seed compares to a hard-seed-coated legume).

**Associates:** Bees attracted to abundant flowers. Marsh birds, shorebirds, upland game birds, & songbirds eat foliage & seeds, & may utilize cover. Aquatic & terrestrial furbearers eat foliage & plants. Small mammals eat pods & foliage, utilize cover. Deer eat plants. Relished by livestock. May cause bloat.

**VHFS:**





*Trifolium repens*

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***Trifolium repens*** Linnaeus *latum* LADINO CLOVER, (*repens* as above; from Latin *latus -a -um*, broad, extensive, wide, or diffuse, probably in reference to the wide, cloning plants.)

Habitat: distribution/range: Best in moderately coarse to moderately fine soils. Neutral soils, some acid & base tolerance.

Culture: Pure stand plant 2-6 lb per acre in spring or fall (gran).

Description: Medium tall, winter hardy, may cause bloat, variety distinguished by thicker stems & stolons, large growth form, & fewer flowers & seeds. 800,000 (gran) seeds per pound.

***Trifolium resupinatum*** Linnaeus PERSIAN CLOVER, aka ANNUAL STRAWBERRY CLOVER, BIRD-EYE CLOVER, REVERSED CLOVER, REVERSED TREFOIL, SHAFTAL CLOVER, STRAWBERRY CLOVER, *TRÉFLE RENVERSÉ* (F), *PERSISCHER KLEE* (G), *SHAFTAL* (IN), *TRIFOGLIO RESUPINATO* (I), *TREVO-DA-PÉRSIA* (P), *TRÉBOL PERSA* (SP), (*resupinatus -a -um* from Latin *resupīnus*, bent back, put on its back, lying on the back, inclined backwards, applied to organs turned upside down by a twist in their support, in reference to the inverted corolla.)

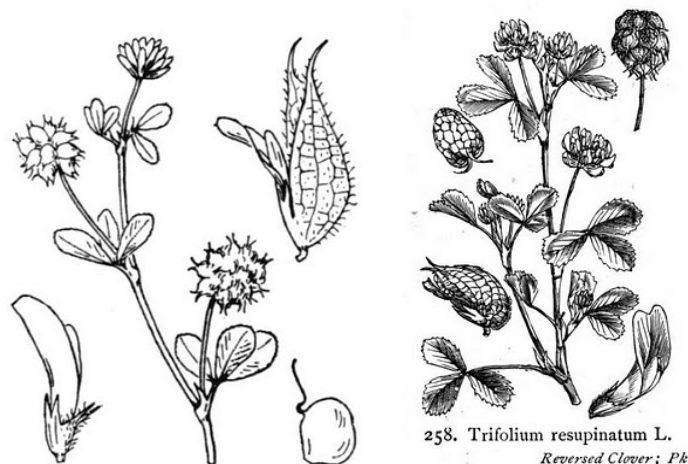
Grassy lawns & railroads distribution/range: Known from Cook Co. Introduced from the Mediterranean & western Asia.

key features: “Corolla is inverted so standard is turned outward” (Ilpin).

blooms 6-9. C3.

Reported to form nodules. Planted as a soil improver, fodder, & forage. “This is a minor forage crop in southern U.S. with high food value for hay & pasture” (Ilpin).

Basionym *Trifolium resupinatum* Linnaeus. [*Galearia resupinata* (Linnaeus) C. Presl, *Trifolium folliculatum* Lamarck, *Trifolium bicornis* Forsskål]

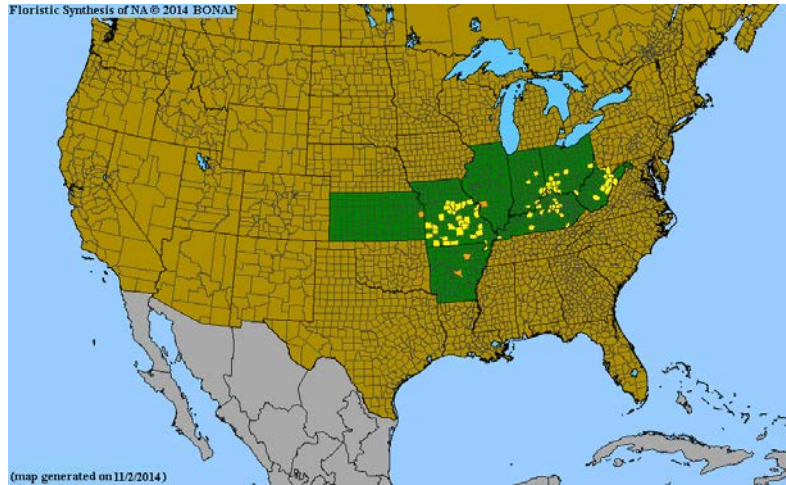
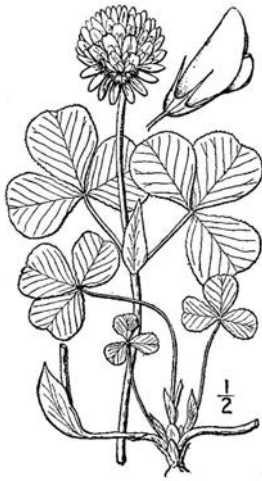


*Trifolium resupinatum*



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 Source: [www.biolib.de](http://www.biolib.de). 2nd line drawing Hippolyte Coste - Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes, 1901-1906 Not copyrighted image.

**Triflorum stoloniferum** Muhlenberg (or Muhl ex Eaton) RUNNING BUFFALO CLOVER  
[http://www.centerforplantconservation.org/collection/cpc\\_viewprofile.asp?CPCNum=4331](http://www.centerforplantconservation.org/collection/cpc_viewprofile.asp?CPCNum=4331)



*Triflorum stoloniferum*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. North America map courtesy of BONAP (2016)

**Trifolium subteraneum** Linnaeus SUBTERRANEAN CLOVER,

Habitat: Warm dry climate with mild winters. distribution/range:

Culture: Seed in fall 0.25-0.50 inch deep, 0.5-2.0 lb per 1000 sq ft or 20-30 lb per acre.

Description:



259. *Trifolium subteraneum* L.  
*Subterranean Clover.*



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### *Trifolium subteraneaneum*

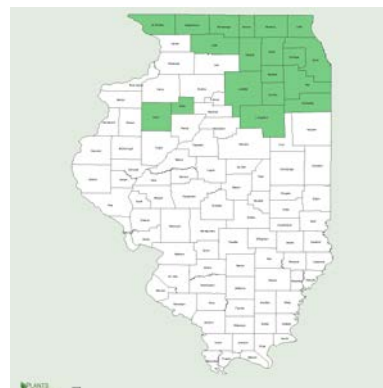
Line drawing Hippolyte Coste - Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes, 1901-1906 Not copyrighted image. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2<sup>nd</sup> line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: [www.biolib.de](http://www.biolib.de). Seed photo courtesy Seed ID Workshop, Department of Horticulture and Crop Science, The Ohio State University, <http://www.oardc.ohio-state.edu/seedid/all.asp?sort=scientific>

**VICIA** Linnaeus 1753 **VETCH, TARE** *Fabaceae* *Vicia* from Celtic *gwig*, Latin *vicia*, *viciae*, vetch, Greek βικίον, *bikion*, French *vesce*, English *vetch*; akin to Old English *wicga* insect, Middle High German *gewige* antlers, Gothic *waihsta* corner; alternately Latin *vincire*, to bind, tie, Greek *eikein* to yield, retreat, Sanskrit *vejate*, *vijate* he flees from, retreats. Widely distributed genus about 150 spp of often climbing annual, biennial, or perennial herbs of temperate Eurasia & North America, having pinnate leaves terminating in a tendril & blue, purple, or yellow flowers either solitary or in axillary racemes, the style usually beaked or tufted, & the ovary containing numerous ovules, including valuable fodder & soil-building plants as well as a few that are toxic. Leaves even-pinnate with end vining tendrils; flowers solitary or in long clusters, purple to pink either, followed by pods oblong, either flat or rounded, several seeded.

Formerly *Ervum* L.

**Vicia americana** Muhlenberg ex Willdenow \*MD AMERICAN VETCH, aka PEAVINE, PURPLE VETCH, TARE (*americanus* -a -um (a-me-ri-KAH-nus) of the New World, American.) upl

Habitat: Mesic prairies, woodland borders, disturbed woods & disturbed prairies. Moist woods & meadows. “A native plant found not uncommonly in brushy places along railroads & in fence rows.” (ewf55) In Michigan, “in a diversity of moist to dry, open to shaded habitats: swamps and borders; oak, pine, or mixed forests & clearings; rocky thickets, bluffs, & open forests; river banks; roadsides & railroads” (rvw11). distribution/range: Disturbed woods & disturbed prairies; occasional in northern 1/3 of Illinois, absent elsewhere (m14). KBNMFBC. Known from the Canal Barrow Pit Prairie, Gold Twp, Bureau Co, but not mapped. Northern Illinois is the southern limit of the sp range.



Culture: ① Legume, requires appropriate rhizobial inoculum. Seeds germinate after about 60 days of cold, moist stratification, or no pre-treatment needed, sowing outdoors in the spring is the easiest method. (he99) ② Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn). Growth rate moderate. Seedling vigor low. Vegetative spread rate slow. Spreads slowly from seed.

seed counts & rates: 32,833 (usda), 33,000 (ecs), 80,000 (sh94) seeds per pound.

availability: AMERICAN VETCH was available as seed for about a decade. As of 2009, this sp became very difficult to obtain.

cultivation: Tolerant of coarse & medium soils textured soils. Anaerobic tolerance none. CaCO<sub>3</sub> tolerance low. Drought tolerance high. Fertility requirement high. Salinity tolerance none. Shade intolerant. pH 5.9-7.2. Slow to spread from seed. Climbing or trailing by tendrils at end of pinnate leaves. Can be short-lived.

greenhouse & garden: Scarify, moist cold stratify (10) inoculate

Description: Herbaceous, climbing or trailing, perennial, native vine, up to 3' long; roots; stems; leaves pinnately-divided into 4-8 pairs of elliptical leaflets, leaf tips with tendrils; inflorescence a loose, stalked raceme with 2-9, stalked flowers; flowers bluish purple, 5-merous, 0.50-1.0" long, style tip hairy all around, calyx base mostly not swollen; N. key features: ① “Sp has sparsely flowered raceme, shorter than the subtending leaves.” (Ilpin). ② Plant climbing or trailing; style tip hairy all around, 2-9 stalked flowers; 4-8 pairs of elliptical leaves. ③ “With showy flowers unusually large for the genus, this plant resembles many species of *Lathyrus* but is distinguished by the distribution of the hairs at the tip of the style. In *Vicia* the hairs usually surround the tip, resembling a shaving brush; in *Lathyrus* they are generally on the upperside, like a little hairbrush.” (lbj) ④ Peduncle shorter than the leaves, stipules semi-sagittate, deeply dentate, leaflets 10-14 (w73).

Comments: status: Native. Endangered, extirpated in Maryland. phenology: Blooms 5,6, or 7-8 C3. Collect seeds in se Wisconsin in September (he99).

Associates: Sp is of special value to native bees. Provides food & cover for wildlife. Nitrogen fixing, nodules reported.

Draft Beer not People. Uncopyrighted draught.

VHFS: Synonyms for subsp *americana* [*Vicia americana* Muhl ex Willd subsp *oregana* (Nutt) Abrams, *V a* Muhl ex Willd subsp *truncata* (Nutt) A&D Löve, *V a* Muhl ex Willd var *americana*, *V a* Muhl ex Willd var *oregana* (Nutt) A Nelson, *V a* Muhl ex Willd var *truncata* (Nutt) Brewer, *V a* Muhl ex Willd var *villosa* (Kellogg) FJ Herm, *V californica* Greene, *V c* Greene var *madrensis* Jeps, *V oregana* Nutt, *V sparsifolia* Nutt ex T&G var *truncata* (Nutt) S Watson, *V truncata* Nutt]



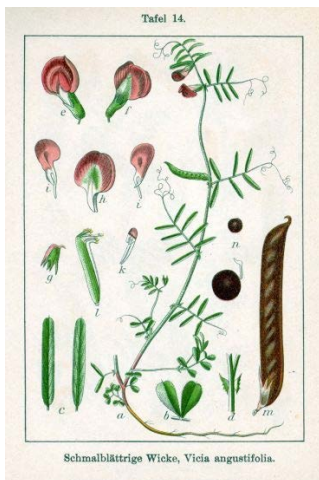
*Vicia americana*, Schulenberg Prairie

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Second line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Fruit & seed images from Robert J Gibbons; USS National Seed Herbarium, <https://npgsweb.ars-grin.gov/gringlobal/ImageDisplay.aspx?type=taxonomy&id=4238> Illinois map courtesy plants.usda.gov.



*Vicia angustifolia* (L) Riech “An escape from cultivation common on the C & NW Ry east of Winnebago.” (Fell 1955)

Now included in *V sativa* L ssp *nigra* (L) Ehrh. Fell recognized both taxa.



*Vicia angustifolia*

***Vicia caroliniana*** Walter \*NJ CAROLINA VETCH, aka PALE VETCH, WOOD VETCH, (*carolinianus* -a -um (ca-ro-lin-ee-AH-nus) of Carolina, Carolinian, of North or South Carolina, USA.)

Habitat: Moist woods & thickets. In Michigan, “Oak & oak-hickory forests, borders of forests, dry open ground & clearings; less often in moist places, banks of streams & lakes” (rvw11). In the se US, “forests, woodlands, & disturbed areas” (w12). distribution/range: Northern Illinois is at a limit in the sp distribution. Sp is native north of & south of, but “largely” absent from the Prairie Peninsula.

Culture: “The Quicksand Plant Materials Center has been unsuccessful in producing seed of this species. Attempts to propagate seed were made in 1991 and 1992. Seeds were successfully germinated in the greenhouse in plug trays. Seedlings were transplanted to the field where growth was slow. Plants were susceptible to hot sun and warm temperatures. Attempts to cover plants with shade cloth in the field have been successful in keeping the plants alive, but growth has been slow and no seed has been produced. Scarified seed planted to the field germinated, but plant growth was slow and no seed has been set.” (Anonymous 2001)

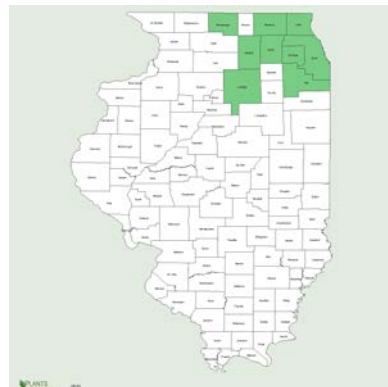
Description: Climbing or trailing, herbaceous, perennial, native forb, up to 3' long; roots; stems; leaves pinnately-divided into 5-10 pairs of elliptical leaflets, leaf tips with tendrils; flowers 5-merous, white, pink, or blue (white with pinkish or bluish tips); N. key features: ①Plant climbing or trailing; 7-20 stalked flowers; 5-10 pairs of elliptical leaflets (fh). ②Peduncle 6-10 or 12-flowered, stipules lance-linear, entire, leaflets 8-12, smoothish (w73). ③“Flowers are tipped with purple” (Ilpin).

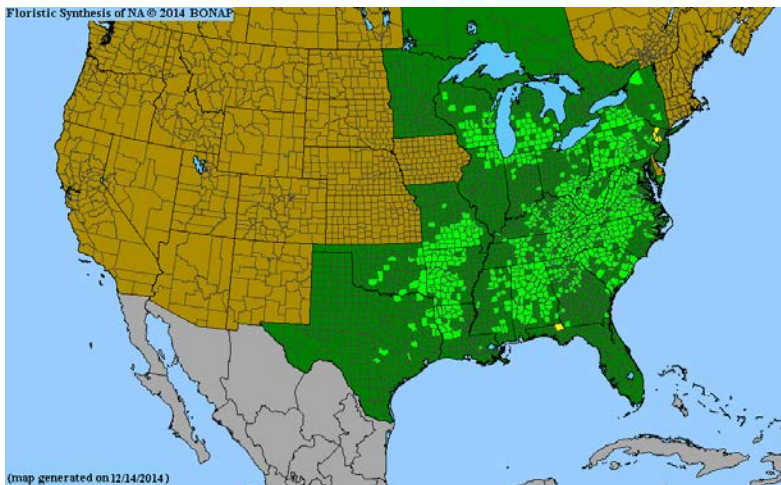
Comments: status: Native. Endangered in New Jersey. phenology: Blooms May - June, 4-6. C3.

Associates: Sp is of minor food value to small mammals, large mammals, & terrestrial birds.

VHFS: [*Cracca caroliniana* (Walter) Alefeld, *Vicia caroliniana* Walter var *caroliniana*, *V c* var *texana* T&G, *V hugeri* Small, *V parviflora* Michx]

Anonymous, 2001. Propagation protocol for production of *Vicia caroliniana* seeds; Natural Resources Conservation Service - Quicksand Plant Materials Center, Quicksand, Kentucky. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 28 June 2014). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.





*Vicia caroliniana*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. Photo courtesy George H Brusco, Wildflower Center Slide Library. Unrestricted image. Illinois map courtesy plants.usda.gov. North America map courtesy of BONAP (2016)

***Vicia cracca*** Linnaeus BIRD VETCH, aka CANADA-PEA, CISIRÃO (PB), COW VETCH, ERVILHACA-DOS-PASSARINHOS (PB), GOROŠEK MYŠINYJ (R), KRÁKVICKER (SW), TUFTED VETCH, (*cracca* Latin *cracca*, *craccae* f, kind of wild vetch, from Latin name applied by *Rivinius* to *Vicia cracca*, the Italian name *Cracca* & French name *Vesce craque*.)

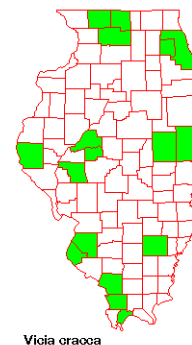
**Habitat:** Fields, roadsides, & meadows, disturbed grassy areas. In Michigan, “Roadsides, fields, railroads, often forming large tangled patches. First collected in 1892 in St. Clair Co. Although the species is sometimes thought to be native in northern North America as well as Eurasia, our plants appear recently introduced.” (rvw11) **distribution/range:** Introduced from Europe. “A common escape from cultivation & also at times planted for erosion control.” (ewf55)

**Culture:**

**Description:** Climbing or trailing, herbaceous, perennial, introduced forb, up to 3' long; roots; stems; leaves pinnately-divided into 5-11 pairs of linear leaflets, leaf tips with tendrils; inflorescence a crowded, long-stalked cluster (raceme) with 20-50 stalked flowers; flowers blue. 5-merous, 0.50" long, calyx base not swollen; fruit is a legume; N  $2n = 12, 14, 21, 22, 24, 28$ . **key features:** ① Plant climbing or trailing; calyx base not swollen; inflorescence a crowded raceme of 20-50 flowers; 5-11 pairs of linear leaflets. ② “Calyx is rounded at the base, not swollen” (Ilpin).

**Comments:** **status:** Introduced, naturalized. **phenology:** Blooms June-August, 5-8. C3.

**Associates:** Endomycorrhizal. Reported to form nodules. Planted as a soil improver & for fodder. Potential contaminant in other crops.



*Vicia cracca*

Draft Beer not People. Uncopyrighted draught.

VHFS: *Ervum cracca* (Linnaeus) Trautvetter;

Synonym for subspecies *cracca*: [*Vicia cracca* L var *cracca*] Synonyms for subspecies *tenuifolia* (Roth) Gaudin: [*Vicia cracca* L var *tenuifolia* (Roth) Beck, *Vicia tenuifolia* Roth] (known from Wisconsin)



*Vicia cracca*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2<sup>nd</sup> line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: [www.biolib.de](http://www.biolib.de). Illinois map courtesy of ILPIN.

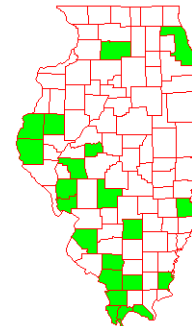
***Vicia dasycarpa* Ten** HAIRY-FRUITED VETCH,

Introduced from Europe.

Stem has sparse, appressed hairs.

Blooms 5-7. C3.

See *Vicia villosa*.



*Vicia dasycarpa*

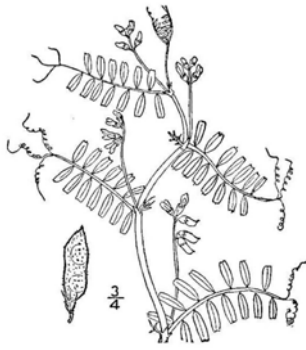
***Vicia hirsuta* (Linnaeus) SF Gray** HAIRY VETCH, aka TINY VETCH, aka *alverjón* (SP), *cigerão* (P), *duvvicker* (SW), *ers lentille* (F), *ers velu* (F), *ervilhaca-pilosa* (PB), Hairy Tare, Hairy Vetch, *Rauhhaarwicke* (G), Tare Vetch, Tiny Vetch, *vesce hérissée* (F), *vesceron* (F), *vika volosistaja* (R), *Zitterwicke* (G), (*hirsutus -a -um* (hir-SOO-tus) hirsute, with straight hairs, stiffly hairy, from Latin for rough, shaggy, bristly, prickly, hirsute, or rude, unpolished.)

Introduced, adventive climbing/trailing annual forb. Grown as fodder.

VHFS: *V. hirsuta* Koch and *Ervum* L as genus synonym in w73. Basionym *Ervum hirsutum* Linnaeus 1753.

[*Ervum hirsutum* L, *Ervum terronii* Ten, *Vicia hirsuta* var. *terronii* (Ten.) Burnat]





*Vicia hirsuta*

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***Vicia sativa* L** COMMON VETCH, *Ackerwicke* (G), *arveja* (SP), *alverja* (SP), *ervilhaca-comum* (P), *jiu huang ye wan dou* (C), *Saatwicke* (G), Tare, *veccia angustifolia* (I), *veccia commune* (I), *vesce commune* (F), *vesce fourragère* (F), *veza común* (SP),

**Habitat:** In China, cultivated & possibly naturalized, forests, hedges, hill slopes, grasslands, dry pastures, creek banks, farms, orchards, fields, cultivated land, margins of cultivation, wastelands, roadsides; sea level to 3000 m (foc).

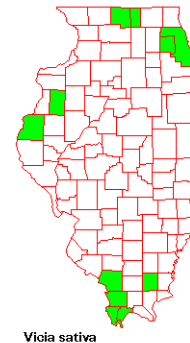
**distribution/range:** Introduced from Europe. Exact native distribution uncertain; widely cultivated and naturalized (foc).

**N 2n = 10, 12. key features:** Species has pubescent stems (Ilpin).

Blooms 7-9. C3.

Grown as a soil improver & for forage. Seeds and foliage are eaten by domestic animals (Ilpin).

[*Vicia alba* Moench, *V communis* Rouy, *V globosa* Retz, *V leucosperma* Moench, *V sativa* L var *leucosperma* (Moench) Ser, *V sativa* L var *linearis* Lange, *V sativa* L var *obovata* Ser]



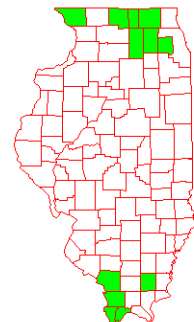
*Vicia sativa*



*Vicia sativa sativa*

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy of ILPIN.

***Vicia sativa* L subsp *nigra* (L) Ehrh.** COMMON VETCH, aka Draft Beer not People. Uncopyrighted draught.



NARROW-LEAVED VETCH,  
SPRING VETCH,  
TARES,

black-pod vetch (Source: Dict Rehm) - English  
narrow-leaf vetch (Source: Leg Tex) - English  
schmalblättrige Wicke (Source: Dict Rehm) - German  
averijilla (Source: Dict Rehm) - Spanish  
liten sommarvicker (Source: Vara kulturvaxt namn) - Swedish  
stor sommarvicker (Source: Vara kulturvaxt namn) - Swedish  
zhai ye ye wan dou (Source: F ChinaEng) - Transcribed Chinese  
gorošek uzkolistnyj (Source: F Armenia) - Transliterated Russian

(*sativus -a -um* (sa-TEE-vus) Latin cultivated, sown; *nigr-, nigra, nigrum* referring to the color black, from Latin for shiny black.)

Habitat: Disturbed sites with moderate moisture. distribution/range: “A common escape from cultivation.” (ewf55). Native of Africa, SW Asia, Europe; introduced & naturalized in temperate regions elsewhere.

Culture:

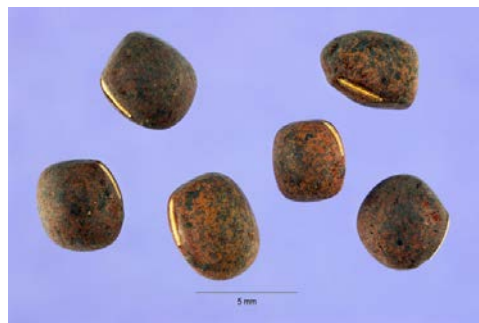
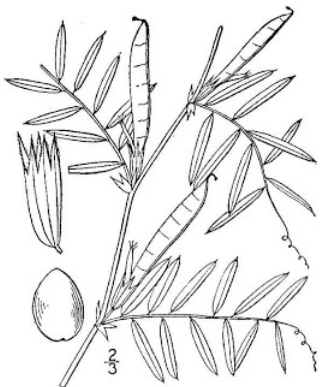
Description: Erect to drooping, often-climbing, herbaceous, annual, up to 40” long forb; roots; stems; leaves pinnately-divided into 4-8 pairs of oblong leaflets, leaf tips with tendrils; flowers purple, 5-merous, 1" long, style tip hairy on the outer side only; inflorescence of 1 or usually a pair of nearly stalkless flowers from the upper leaf axils; fruit is a flattened, light brown pod with 4-12 seeds; N key features: ①Often-climbing; style tip hairy on the outer side only; 4-8 pairs of oblong leaflets.

Comments: status: phenology: Blooms July - September.

Associates:

VHFS: [*Vicia angustifolia* L, *V angustifolia* L var *segetalis* (Thuill) WDJ Koch, *V angustifolia* L var *uncinata* (Desf ex Nyman) Rouy, *V sativa* L var *angustifolia* (L) Ser, *V sativa* L var *nigra* L, *V sativa* L var *segetalis* (Thuill) Ser, *V segetalis* Thuill, *V uncinata* Desf ex Nyman] **Cf Tropicos.**

The synonym for subspecies *sativa*: [*Vicia sativa* L var *linearis* Lange]





*Vicia sativa*

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***Vicia tetrasperma*** (L) Moench LENTIL VETCH, aka FOUR-SEED VETCH, (*tetraspermus -a -um* four-seeded, from Greek τετρα-, *tetra-*, four, & σπέρμα, *sperma*, seed, germ, & *-us*, Latinizing suffix.)  
 Introduced & locally established in Wisconsin annual vine. distribution/range:



*Vicia tetrasperma*



279. *Vicia tetrasperma* Moench.  
*Slender Vetch; B.*

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***Vicia villosa*** Roth HAIRY VETCH, aka *BIRŌDO-KUSA-FUJI* (J), FODDER VETCH, *LUDDVICKER* (L), *TEOLGALKWIDEONGGUL* (K), *VESCE DE CERDAGNE* (F), *VESCE VELUE* (F), WINTER VETCH, WOOLLY VETCH, (*villosus -a -um* Latin for with hairs, villous, soft-hairy.)

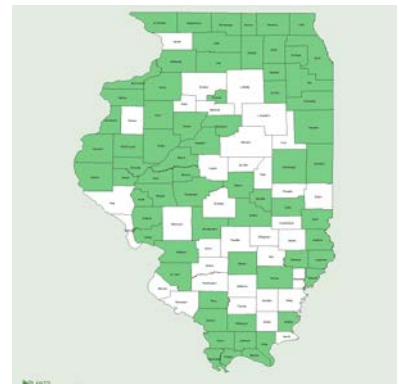
Habitat: Disturbed sites, roadsides. distribution/range:

Culture: Needs to be fall seeded for bloom the next year. Drill 20-25 lb per acre (stocks). Pure stand plant 25-35 lb pls per acre in spring or fall (gran). Plant early fall to establish before cold weather. 20,000 (stock, gran) seeds per pound. 2 lb per 1000 sq ft (pots).

Cultivation: Better in moderately coarse to moderately fine soils, will stand coarse soil & clay. Neutral soils, some acid & base tolerance. Adaptable.

Description: general form: Nitrogen-fixing legume, winter annual or biennial, hairy, up to 3' long, flowering vine with purple flowers, 1.0-2.0';

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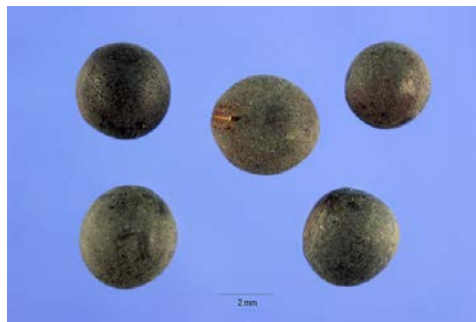


roots; stems with spreading hairs; leaves pinnately divided into 5-10 pairs of thinly, oblong leaflets; leaf tips with tendrils; inflorescence dense long stalked, one-sided raceme with 10-40 stalked flowers; flowers purple, 5-merous, 0.75" long; calyx base very swollen; N ; key features: ① Plant climbing, hairy; 5-10 pairs of narrowly-oblong leaflets; one-sided raceme of 10-40 flowers; calyx base very swollen. ② Species has spreading pubescence on stems (Ilpin).

Comments: status: Introduced, naturalized. This taxon is considered weedy or invasive in some parts of its range or under certain applications (Uva et al 1997, SWSS 1998, Whitson et al 1996). Phenology: Blooms June-August. C3. Most of growth occurs in late spring. Pots 2000 catalog calls sp is a perennial. Said to be good cover crop for wildflower & prairie grasses. Good for hay & pasture. Good soil builder, erosion control, & habitat.

Associates: Reported to form nodules. Sp is sown as a forage crop.

VHFS: [*Cracca dasycarpa* (Tenore) Alefeld, *C varia* (Host) Grenier & Godron, *C villosa* (Roth) Grenier & Godron, *Ervum villosum* (Roth) Trautvetter, *Vicia dasycarpa* Tenore, *V villosa* Roth subsp *villosa*]



*Vicia villosa*

Line drawings Hippolyte Coste - Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes, 1901-1906 Not copyrighted image, a *V villosa ambigua*, *V villosa elegantissima*, & *V villosa varia*. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy plants.usda.gov.

**WISTERIA** Nuttall 1818 **WISTERIA, WISTARIA, LA GLYCINE, ZI TENG SHU (CH)** *Fabaceae* *Wisteria* (wis-TE-ree-a) named in 1818 by Thomas Nuttall in honor of Dr Casper Wistar (1761-1818) a University of Pennsylvania professor of anatomy, medical doctor, distinguished botanist, & president of the American Philosophical Society. "In memory of Caspar Wistar, MD late professor of Anatomy in the University of Pennsylvania, & for many years president of the American Philosophical Society; a philanthropist of simple manners, & modest pretensions, but an active promoter of science" (Nuttall 1817 v2). Wistar tutored Meriwether Lewis in medicine & paleontology in preparation for his expedition. Unfortunately, Nuttall misspelled Wistar's name as Wister, hence there are two spellings of the genus name, with the spelling error conserved. Alternately

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spelled WISTARIA. The genus was originally called *Glycinia*, from a Greek word for sweet in reference to the sweet scent of some sp. GLYCINE or GLICINE is still used as a common name by some.

*Sensu lato*, about 6 spp of deciduous lianas (woody vines), shrubs, & small trees, with a relictual distribution of temperate east Asia & eastern North America. Some authorities (m14) place the Asian spp into a separate genus, *Rehsonia* Stritch. (*Phaseoloides* Duhamel). Legumes torulous, seeds many, native seeds are reniform, introduced seeds are orbicular or lenticular. Formerly *Glycine* Willdenow, *Thyosanthes* Ell, &c.

Deciduous, twining shrubs (climbers or lianas). The twining direction is determined by looking at the vine from the base, circling clockwise is dextrorse, circling counter clockwise is sinistrorse. Some Asian spp are separated in part on the direction the vines twine, left to right or right to left. Most WISTERIAS sold are Chinese, Japanese, or hybrid in origin. In is common to see references to FORMOSAN WISTERIA, from *W X formosa*, but the epithet is from Latin *formosus -a -um*, finely formed, beautiful, handsome, while *formosanus -a -um* is of Taiwan or Formosa. Hmmm. Some Asian spp bloom before the leaves emerge, with all blooms simultaneous, but these plants in the Midwest are subject to frost damage, & may not bloom every year. American spp bloom (with jingoistic pride!) annually, after the leaves emerge, & sequentially within the cluster. They are much hardier, if a bit less showy. CHINESE & JAPANESE WISTERIAS are considered invasive.

☞ The flowers, pods, seeds, & leaves contain the poison wistarine, which causes nausea, repeated vomiting, intense stomach pains, severe diarrhoea, dehydration, & collapse. 1-2 seeds may cause serious poisoning in a child.



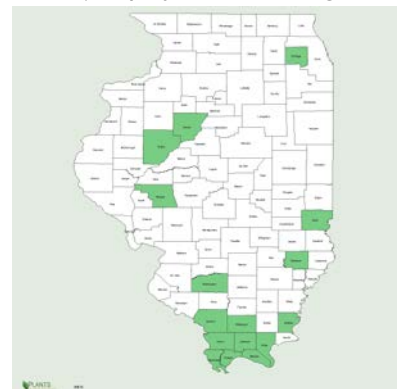
Seeds of *Wisteria sinensis* & *W floribunda*

Seed photos Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted images.

***Wisteria frutescens*** (Linnaeus) Poiret Formerly known as *Wisteria macrostachya* (Torrey & A Gray) Nuttall ex BL Robinson & Fernald \*IN, MI KENTUCKY WISTERIA, aka AMERICAN WISTERIA, AMERIKANSKT BLÅREGN (SW), ATLANTIC WISTERIA, CAROLINA KIDNEY-BEAN TREE, KENTUCKY WISTERIA, SWAMP WISTERIA, TEXAS WISTERIA, (*macrostachya* with a large or long spike, from Greek μακρος, *macros*, long, large, big, & Latin *stachys* from Pliny, from Greek στάχυς, *stakhys*, from Dioscorides, a transferred use of στάχυς, *stakhys*, ear of grain or corn.) [upl]

Habitat: A very rare adventive in the wild in northern Illinois, becoming more available as landscape material. In se USA, native sp of swamps, bottomland forests, & wet thickets (w12). Native to swampy woods.

distribution/range: Swampy woods, generally confined to the s 1/3 of Illinois, but extending north to Clark & Richland cos, adventive in Peoria & Washington cos, & northward (m14). It is considered native in s Illinois. Reznicek et al (2011) consider it a rare, possibly native, sp in southern Lower Michigan.



Culture: Steeping seed helps, but nicking seed may be better. Plant in greenhouse late winter, germination may extend over several months. Growth rate rapid. Seedling vigor high. Vegetative spread rate moderate. Seed spread rate slow. Several years to flower from seed.

Softwood cuttings may also be used.

cultivation: KENTUCKY WISTERIA is the hardiest taxon. Commercial stock may winterkill in Whiteside Co. Older genetic stock may outlive the one who plants it. Blooms 3-5 years after planting one-gallon plants. Easy to grow & drought tolerant, very low maintenance. Plants must have well-drained, rich soil. Tolerant of Draft Beer not People. Uncopyrighted draught.

coarse, medium & fine textured soils. Anaerobic tolerance medium. CaCO<sub>3</sub> tolerance low. Drought tolerance low. Fertility requirement medium. Salinity tolerance none. Shade tolerant. pH 4.0-7.0' <6.8, circum neutral pH 6.8-7.2. Zone 4.

Blooms on new wood. If you must, prune after flowering.

“Prefers a good loamy soil in a sunny south or southwest facing position, sheltered from cold winds and from early morning sun on frosty mornings. Plants can become chlorotic on alkaline soils. Prefers a rich soil, but some gardeners feel too rich a soil results in too much leaf growth. Tolerates seasonal flooding.” (Ibj)

Description: Tall twining, native woody vine, or liana; with compound leaves; purple blue flowers, occasionally white, at the cane terminals, blooming on new wood; followed by 6-10” long, tan, hairless, torulose bean pods persisting through the winter, dehiscing in the spring, or occasionally in very dry falls following maturation; seeds are reniform, spotted, & ☞ poisonous. key features: Species has 7-13 leaflets; ovary and legumes are glabrous (Ipin).

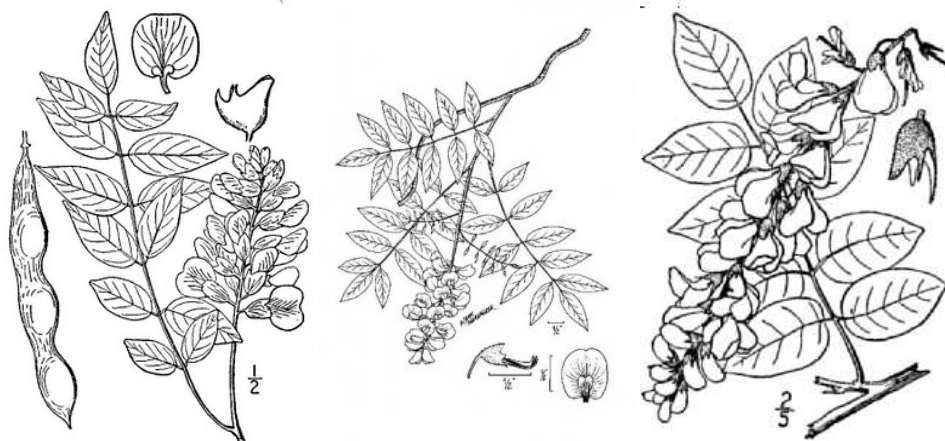
Comments: status: Rare in Indiana. Threatened in Michigan. phenology: Blooms 5,6 or 6-7. C3. Pods persist through winter, & generally can be harvested at your leisure. Intact pods persist until June (2012). Our material comes from a landscape planting, climbing on a trellis on the house I grew up in Manlius, Bureau Co, which has persisted since around the turn of the 20<sup>th</sup> century, & has bloomed, to our knowledge, consistently for the last 55 years (2014). The planting has received only benign neglect. Clusters of spotted tan-brown pods persist until the following spring, providing winter interest, but some pods may shatter early in very dry falls. Flowers are aromatic, plant near garden paths. Sp can be trained on arbors, columns, & walls.

Associates: Larval\_host *Leptotes marina* Marine Blue, Zarucco Duskywing, and skippers. Nectar source. Deer resistant.

VHFS: Long known as *Wisteria macrostachya* (Torrey & A Gray) Nuttall ex BL Robinson & Fernald. Basionym *Glycine frutescens* L 1753. Sp was historically known as *Apios frutescens* (L) Pursh, *Bradlea (Beadlea) frutescens* (L) Britton, *Beadlea macrostachya* (Torrey & A. Gray) Small ex Britton, *Diplonyx elegans* Rafinesque, *Glycine frutescens* L, *G. frutescens* Willd, *Kraunhia frutescens* (L) Raf ex Greene, *K macrostachya* (Torrey & A Gray) Small, *Phaseolodes (Phaseoloides) frutescens* (L) Kuntze, *Phaseolus frutescens* (L) Eaton & Wright, *Thyrsanthus floridanus* Croom, *T frutescens* (L) Elliott, *Wisteria frutescens* DC, *W speciosa* Nutt, with numerous varieties & forms not listed. Mohlenbrock lumps *W macrostachya* into *W frutescens*, the AMERICAN WISTERIA, aka SWAMP WISTERIA, ATLANTIC WISTERIA. Weakley (2008, 15) places *W macrostachya* in synonymy with *W frutescens*, but notes their distinctiveness needs further study.

In Britton & Brown (1913), this is called *Kraunhia frutescens* & *K macrostachya*. [*Kraunhia frutescens* (L) Greene, *K macrostachya* (T&G) Small, *Wisteria frutescens* (L) Poir var *macrostachya* T&G, *W macrostachya* (T&G) Nutt ex BL Rob & Fern].

Ann Wied, 1998, This Pretty Planting Is Mighty Vine, Birds & Blooms, Vol 4, No 2, May 1998, pp 53-53.







*Wisteria macrostachya*

1<sup>st</sup> & 3<sup>rd</sup> line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed photos Tracey Slotta & Steve Hurst, respectively USDA-NRCS PLANTS Database. - Not copyrighted images. 1<sup>st</sup> Inflorescence Photo Robert H Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image. Last 2 photos from horticultural sourced plant of dubious parentage.

Selected legume sources are in the main bibliography in the closing section.

‘Ἦν οἶδα ὅτι οὐδὲν οἶδα (*Hen oida hoti ouden oida.*) I know one thing, that I know nothing." (Socrates, paraphrased from Plato's Apology)

End of Beans Section Two

Endnotes & abbreviations. The following math functions violate Abbey's 1<sup>st</sup> Law, which see.

++ The listed numbers are seed count mean, seed count median, seed count mode, seed count standard deviation, seed count max, seed count min, seed count range.

\*\* The listed numbers are Germ mean, germ median, germ mode, germ standard deviation, germ range (range); Dorm mean, dorm median, dorm mode, dorm standard deviation, dorm range (range); Test mean, test median, test mode, test range. (#germ test : tz etc)

Reference abbreviations May 04 2014

CEPPC California Exotic Pest Plant Council  
 CIPC California Invasive Plant Council  
 SEPPC Southeast Exotic Pest Plant Council  
 SWSS Southern Weed Science Society  
 RBG Kew RBG Kew, Wakehurst Place  
 aes10 (AES 2010)

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afvp (Atlas of Florida Vascular Plants)  
 anef (Angelo & Boufford: Atlas of New England flora)  
 apl (Applewood)  
 asfg (Audubon Society Field Guide)  
 wade (Alan Wade, nd, various years, 95, &c)  
 bsh (Baker Seed Herbarium, California)  
 bb02 (Baskin & Baskin 2002, 2001, &c.)  
 nlb05 Britton 1905  
 cb03 (CC Baskin 2003, 2001, &c.)  
 crfg California Rare Fruit Growers  
 csvd (Currah, Smreciu, & Van Dyk 1983)  
 tchn tomclothier.hort.net (-4°C 24°F stratification being corrected)  
 cu00 (or cu02, &c, Cullina 2000, 2002, 2008)  
 nd91 (Norm Deno, 1991, 1993)  
 den28 (Densmore 1928)  
 do63 (Dobbs 1963)  
 mfd93 (Mary Fisher Dunham 1993)  
 dh87 (Dirr & Heusser 1987)  
 drwfp (Directory of Resources on Wildflower Propagation)  
 ecs (Ernst Conservation Seeds catalog)  
 ew12 (Everwilde 2012) also ew11  
 ewf55 (Egbert W Fell 1955)  
 ewf59 (Egbert W Fell 1959)  
 fh (Robert W Freckmann Herbarium)  
 fna (Flora of North America project)  
 foc (Flora of China online)  
 fop (Flora of Pakistan online)  
 gni (Genesis Nursery, Inc)  
 gc63 (Gleason & Cronquist 1963, 1991)  
 gran (Granite Seeds)  
 he99 (Heon et al 1999)  
 hk83 (Hartman & Kester 1983)  
 hpi (Hill Prairies of Illinois  
 (Hilty website))  
 Ilpin (Illinois Plant Information network)  
 jf55 (Jones & Fuller 1955)  
 jlh (JL Hudson, Seedsman, (if the phone doesn't ring its me))  
 kpw (Kansas Prairie Wildflowers)  
 krr (Kenneth R Robertson)  
 lbj (Lady Bird Johnson Wildflower Center Native Plant Information Network)  
 m14 (Mohlenbrock 2014) also m86, m99, m02, m05, m06, &c  
 mbg (Missouri Botanic Garden)  
 msue (Michigan State University Extension)  
 nae Native American Ethnobotany (Moerman, University of Michigan Dearborn)  
 now36 (Nowosad et al 1936)  
 nyfa (New York Flora Atlas)  
 orghp (Ontario Rock Garden Hardy Plant Society)  
 ppc (Philips Petroleum Company)  
 pots (Plants of the Southwest 2000)  
 pm09 (Prairie Moon 2009) also pm02, pm11, &c  
 pnnd (Prairie Nursery no date)  
 pph (Prairie Propagation Handbook)  
 ppi (Prairie Plants of Illinois)  
 psdg (Plants of South Dakota Grasslands)

pug13 (plants.usda.gov accessed 2013, 2014)  
oed Oxford English Dictionary online  
rain (Ranier Seeds)  
rrn97 (Reeseville Ridge Nursery 1997)  
rvw11 (Reznicek et al 2011)  
rs ma (Ray Schulenburg Morton Arboretum)  
rhs Royal Horticultural Society  
sh94 (Shirley Shirley 1994) & don't call me Shirley  
sk08 (Stuppy & Kessler 2008)  
sm23 (Smith 1923) also sm32, sm33, sm28, &c.  
sw79 (Swink & Wilhelm 1979)  
sw94 (Swink & Wilhelm 1994)  
tlp (Time Life Perennials)  
tlw (Time Life Wildflowers)  
tpg The Prairie Garden  
uconn (UConn Plant Database)  
us97 (USDA 1997)  
w12b (Weakley Nov 2012 ) also w07-12  
wfatp (Vance & Vance 1979)  
wfn (Wildflowers of Nebraska)  
wfnp (Wildflowers northern prairies)  
ws92 (Wilhelm & Swink 1992)  
w73 (Alphonso Wood 1873)  
ry64 (Richard Yarnell 1964)  
yy92 (Young & Young 1992)  
KBNMFBC. (Known but not mapped from Bureau Co.)  
*Reliquum etiam non scriptum est.*

*“Melita, domi adsum.”*