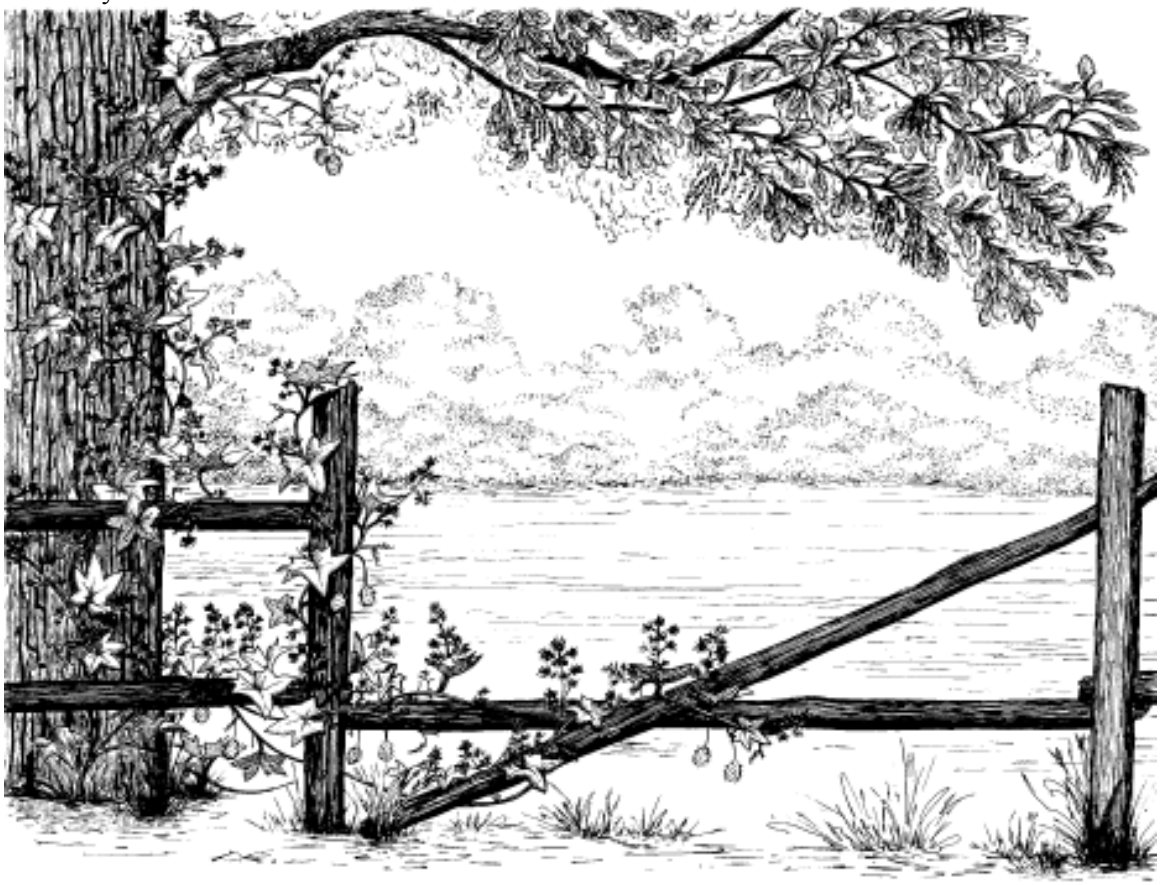
Labiatae

Revised 14th July 2015



MINTS

LABIATAE

Acinos
Agastache
Ajuga
Ballota
Blephilia
Calamintha
Chaiturus
Clinopodium
Collinsonia
Dracocephalum
Elsholtzia
Galeopsis
Glechome
Hedeoma
Hysoppus
Isanthus
Lamium
Leonurus
Lycopus
Marrubium
Mentha
Monarda
Nepeta
Ocimum
Origanum
Physostegia
Prunella
Pycnanthemum
Salvia
Scutellaria
Stachys
Teucrium
Trichostema

LABIATAE AL de Jussieu 1789 or **LAMIACEAE** Lindley 1836 **MINT FAMILY** The mints are a cosmopolitan family of about 230-250 genera & 6700-7170 spp of herbs, shrubs, vines, & trees, with opposite leaves & square

stems. The flowers are axillary, with tubular corollas, 5 petals usually with 2 flaring lips, the upper notched or 2-lobed, lower 3-lobed. The ovary is deeply 4-lobed; 4 stamens, 2 long, 2 short. Many spp have tiny oil glands that produce a distinctive mint odor. Many species are cultivated & used for seasonings & flavorings.

"If someone offers you a breath mint, accept it."
H Jackson Brown, Jr.

ACINOS Mill **ACINOS, BASIL THYME, *STEIN-BERGMINZE*,** *Lamiaceae* or *Labiatae* (*acinos* an aromatic herb mentioned by Pliny, variously ascribed to be wild basil, basil-thyme; a grape) Herbaceous annuals & perennials with blue axial flowers, all lips about equal, 4 stamens shorter than lips, with 1 to 3 flowers in loose clusters at spaced along stem in the axils. Often included in *Clinpodium*

Acinos alpinus, ①sow at 20ºC (68ºF), if no germ in 4 wks, move to +2 to +4ºC (34-39ºF) for 4 wks (tchn).

Acinos arvensis (Lamarck) Dandy (Alternate nomenclature ***Clinopodium acinos*** (L) Kuntze) BASIL-THYME, aka BALM, FIELD CALAMINT, MOTHER OF THYME, (*arvensis -is -e* arven'sis (ar-VEN-sis, ar-VEN-see) Latin, of cultivated or plowed fields or planted fields, of farmland, by usage growing in fields from Latin *arvus, arvum*, noun, field, cultivated land, plowed land, and *-ensis*, adj suffix for nouns denoting country or place of origin or habitat.)
Habitat: Disturbed areas, roadsides; cultivated. distribution/range: Not known from Illinois. Introduced from Europe, naturalized, rarely escaping or persisting.
Culture:
Description: Erect, herbaceous, annual/perennial forb; 4"-8" tall; stems square, finely hairy, usually branched from the base; leaves opposite, oval to elliptic, usually less than 3 times as long as wide; inflorescence a widely-separated whorl of 1-3 flowers from the upper leaf axils; flowers blue to pale purple, 5-merous, 0.33" wide, irregular tube shape, on short stalks directly from the stem, lower lip divided into 2 equal parts, upper lip with 2 small teeth flower drawing; N. key features: "This little blue-flowered annual closely resembles *Hedeoma pulegioides*, but differs in stamen number (4), larger flowers, and having all 5 calyx lobes ciliate. *H hispida* has all 5 calyx lobes ciliate, but has narrower, entire, sessile leaves." (rvw11).
Comments: status: Introduced. phenology: Blooms June to September.
Associates:
VHFS: In some newer taxonomies, this is *Clinopodium acinos* (L) Kuntze. [*Acinos thymoides* (L) Moench, *Calamintha acinos* (L) Clairv ex Gaudin, *Clinopodium a* (L) Kuntze, *C arvensis* Lam, *Satureja acinos* (L) Scheele, *Thymus acinos* L]

Acinos arvensis

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Photo by Enrico Romani http://luirig.altervista.org/photos

AGASTACHE Clayton ex Grovonius 1762 **GIANT HYSSOP** *Lamiaceae* or *Labiatae* *Agastache* (classically a-GA-sta-kee or a-GA-sta-she, or ag-OST-ach-ee) from Greek *agan*, much, or very much, & σταχυς, *stakhys*, a spike, or an ear of wheat, referring to the numerous flower spikes; alternately, pleasantly spiked from αγα, *aga,* & σταχυς, *stakhys*. With the exception of *A foeniculum,* which is grammatically neuter (? or probably a noun in apposition), the specific epithets are feminine. A genus of about 22 spp of herbs of central & east Asia & North America with toothed ovate leaves, & dense, terminal cylindrical spikes of blue, yellow, or pale purple flowers, with lower lip longer & the 4 protruding stamens; in usually shorter than rest of plant. Formerly included in *Hyssopus* L. Cullina (2000) code A seeds will germinate within 4 weeks sown at 70ºF. Seeds mature late summer to early fall.

Agastache foeniculum (Pursh) Kuntze *IA ANISE HYSSOP, aka WONDER HONEY PLANT, BLUE GIANT HYSSOP, LAVENDER GIANT HYSSOP, LAVENDER HYSSOP, LICORICE MINT, *Weza'wunuckwuk,* yellow plant (Ojibwa) (*foeniculum -a -um* New Latin from *foenum, foeni*, hay, & *-ulum*, Latin adj diminutive suffix meaning little, -tending towards, hence, little hay, because of the perceived hay-like smell. A name used by Pliny from *foenum*, hay, for the smell of the plant being similar to hay; or with a similar odor to fennel in one source, compare classical Latin *faeniculum, faeniculi*, n, fennel.)

Habitat: Mesic prairies & open woodlands, dry mesic to mesic prairies, prairies & savannas. Boreal forest. distribution/range: Sp is not listed in Mohlenbrock (2014), a transient introduction perhaps. This is not a plant for prairie restoration in Illinois! "Native west of Michigan, but presumably recently spread (perhaps from cultivation) into the Upper Peninsula, where first collected in 1934 in Houghton Co. Later collected in dry fields & openings in other counties. Bruised foliage has a strong anise-like aroma." (rvwll)

Culture: ①No pre-treatment necessary other than cold, dry stratification, or 60 days cold moist stratification. Seeds are very small or need light to naturally break dormancy & germinate (pm09). ②"10 days moist stratification improves germination, but not required, Field sow fall or spring." (pnnd) ③Sow seeds outdoors in fall or 90 days cold moist stratification (he99). ④No pretreatment needed. Sow seeds on the soil surface at 70ºF & water. Slow to germinate. (ew11) ⑤Sow at 20ºC (68ºF), germination slow (tchn). No treatment, moist cold stratify may help some seed lots. Fresh seed germs best with GA3 & cool treatment with light. Seed cold dry stored 6 months 70ºF germs best at cool temperatures, then GA3, then light. This is becoming a commercialized sp with seed dormancy being breed out of many "commercial" types.

seed counts & rates: 1,040,000 (pn02, jfn04), 1,128,358 (ghha14), 1,240,000 (ew11), 1,429,921 (gnaa11), 1,440,000 (pm02, aes10), 1,538,000 (appl), 1,584,642 (gnam09) seeds per pound.

asexual propagation: Division of mature plants

cultivation: Space plants 1.0-3.0' centers. Dry to medium sands & loams, full sun to partial shade. Clay soil tolerant. Zones 2-6.

bottom line: Most lots are nondormant or nearly so. 50% may be significantly dormant. Probable wild strains & known commercial strains are sold. Possible crossover species. Germ 66, 75.5, na, sd 31.4, r21-99 (78)%. Dorm 27.2, 15.5, 0.0, sd 29.6, r0.0-72 (72)%. Test 22, 24, na r16-26 days. (#7).**

greenhouse & garden: No treatment, moist cold stratify may help some seed lots. Fresh seed germs best with GA3 & cool treatment with light. Seed cold dry stored 6 months 70ºF germs best at cool temperatures, then GA3, then light. This is becoming a commercialized sp with seed dormancy being breed out of many "commercial" types

Description: Erect perennial (biennial), 1.0-4.0'; aromatic, strong minty-anise scented leaves; flowers bluish purple (blue/violet, bright purple).

Comments: status: phenology: Blooms 6,7,8,9. Collect seeds September. May bloom first year from seed. Attractive cut & dried flowers. Spreads aggressively from seed & may be too weedy for small gardens. Remove the seed heads before the color fades.

Planted by the biogeographically challenged. More of an ornamental sp, or even a boreal forest sp, & not a restoration sp in Illinois. This sp has one old herbarium record in Illinois (Mason Co), with the next closest records from Dane Co, Wisconsin, which are based on cultivated plants. This sp is certainly not an Illinois prairie plant, but perhaps it is justified as a quick-color. short-lived perennial, bee food, or to economize a seed mix. Its use should be classed as 'annual, short-lived perennial'. Genetic source upper Midwest & commercial sources. Cheap, commercial sources are known.

Associates: Pollinator friendly. Bee forage. Good butterfly nectar plant. Attracts hummingbirds & seed eating birds, especially goldfinches are fond of seed. Deer resistant.

ethnobotany: Used as medicinal plant by Ojibwa for coughs & pains in the chest (den28). Fresh or dry leaves used as tea or seasoning.

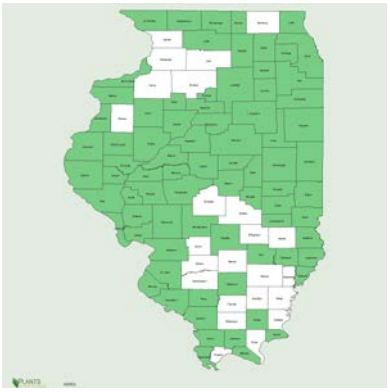
VHFS: [*Agastache anethiodora* (Nutt) Britt, *Stachys foeniculum* Pursh]

Agastache foeniculum

Illinois map courtesy plants.usda.gov. Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Photo by permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de. Illinois map courtesy plants.usda.gov.

Agastache nepetoides (Linnaeus) Kuntze *WI YELLOW GIANT HYSSOP, aka CATNIP GIANT HYSSOP, GIANT HYSSOP, (*nepetoides* resembling catnip, from Latin *Nepeta,* catnip, a name for an aromatic plant, & *-oides* classical & post-classical Latin *oīdēs,* & its etymon ancient Greek -οειδής, *-oeides,* adj suffix indicating having the form or likeness of.) facu

Habitat: Wet savannas, mesic woods, dry savannas, woodland edges, & low woods. Dry mesic, mesic, wet mesic prairies & savannas. Open woods or hedges. Forests. In Michigan "upland ± open deciduous forests (oak, beech-maple), also meadows, fencerows, thickets, lowland forests" (rvw11). distribution/range: Open woods, occasional throughout Illinois (m14). Known but not mapped from Bureau Co.



Culture: ①"Moist cold treatment or fall sow. Light to very light cover. Good germination." (mfd93) ②60 days cold moist stratification. Seeds are very small or need light to naturally break dormancy & germinate (pm09). Sow seeds outdoors in fall, or 90 days cold moist stratification (he99). ③No pretreatment needed. Sow seeds on the soil surface at 70ºF & water. Slow to germinate. (ew11) ④Sow at 20ºC (68ºF), germination slow (tchn).

seed counts & rates: 947,848 (gnh02), 1,170,103 (gna07), 1,255,878 (gna11), 1,440,000 (pm02, jfn04, ew11, aes10), 1,512,000 seeds per pound.

asexual propagation: Division of mature plants.

cultivation: Space plants 2.0-3.0'. Full sun to partial shade. Tolerates clay soils.

bottom line: This species is successful by spring seeding most years, but 1 in 3 lots may be strongly dormant. Flipflop species. Germ 52.7, 58, 58, sd 33, r6.0-94 (88)%. Dorm 26.2 10, 0.0, 32.7, r 0.0-88 (88)%. Test 23, 22, 21, r18-28 days. (#9) **

greenhouse & garden: Moist cold stratify (120 days) or dormant seed, photoblastic, seeds need light to germinate, sow on top of medium, very light cover. GA3 helps.

Description: Erect, herbaceous, perennial, native forb, aromatic; stems 3-9', acutely 4-angled, branched at the top; leaves opposite, simple, margins coarsely serrate, venation pinnate; inflorescence dense whorls of flowers forming cylindrical spikes up to 8"; flowers yellow to yellow-green, 5-merous, 0.33" long, slightly irregular, not hairy; N. key features: Yellow to green flowers, not hairy; flower spikes up to 8"; leaves finely hairy beneath.

Comments: status: Threatened in Wisconsin. phenology: Blooms 7,8,9. C3. Seeds mature mid to late fall; collect seed in October. A wildflower only its mother could love. Interesting cut flowers & dried seed heads, which evoke thoughts of radioactive, mutagenic catnip. Landscaping, shady herbaceous borders & backdrops, naturalizing, shaded pollinator gardens, & aroma gardens. A towering specimen in the shade garden, not for the meek & timid. Do not plant near desirable mid & low height plants. Do plant near that jackass neighbor. Seed source nursery plantings, genetic source Shabbonna, De Kalb Co.

"Common in damp places on roadsides & the edges of woods." (ewf55)

"Not infrequent in, or on the borders of, rich moist, or often low, wet woodlands. Section 9 & 12, Hanna Twp; Sections 8 & 18, Weller Twp; Section 11, Cambridge Twp; two miles southwest of Atkinson. A single flowering plant was once found on the wet border of an old shallow roadside ditch in Section 32, Yorktown Twp, with the stem & upper surface of the leaves glabrous, or essentially so, & the lower surface of the leaves densely pubescent." (do63)

Associates: Pollinator friendly, highly desirable to plant. Good bee plant. Attracts butterflies & birds. Possibly deer resistant. Walnut tolerant.

VHFS: [*Hyssopus nepetoides* L]

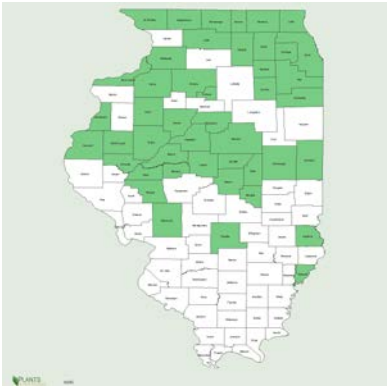




Agastache nepetoides

Illinois map courtesy plants.usda.gov. Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed & calyx photos Jose Hernandez. Seed heads by James Arborius Alwill. Illinois map courtesy plants.usda.gov.

Agastache scrophulariaefolia (Willdenow) Kuntze PURPLE GIANT HYSSOP, aka FIGWORT GIANT HYSSOP, LAVENDER HYSSOP, (*scrophulariaefolius -a -um* figwort-leaves, *Scrophularia* leaves, from the genus name New Latin *Scrophularia* & Latin *folium*, a leaf**,** referring to figwort-like leaves.) upl



Habitat: Mesic & dry savannas. Edges of clearings, dry upland woods. Mesic to wet mesic. Dry to wet woods. In Michigan, "forest borders, clearings, moist forests and floodplains" (rvw11). distribution/range: "Open woods; occasional in the n ⅔ of Illinois; also Wabash Co" (m14).
Culture: ①"Moist cold treatment or fall sow. Light to very light cover. Good germination." (mfd93). 60 days cold moist stratification. Seeds are very small or need light to naturally break dormancy & germinate. (pm09) Sow seeds outdoors in fall, or 90 days cold moist stratification (he99). No

pretreatment needed. Sow seeds on the soil surface at 70ºF & water. Slow to germinate. (ew11) Sow at +2 to +4ºC (34-39ºF) for 8 wks, move to 20ºC (68ºF) for germination (tchn).

seed counts & rates: 952,000 (jfn04), 1,014,525 (gnam06), 1,134,000; 1,240,000 (ew11), 1,426,415 (gnh11), 1,488,000 (pm02) seeds per pound.

asexual propagation: Division of mature plants.

cultivation: Space plants 18-24" centers. Full sun to partial shade.

bottom line: Genesis seed tests indicate dormant seed/cold moist treatment may not be necessary 4 out of 5 years. Plant spring or dormant. Flipflop species? Possible crossover species. Germ 64, 70.5, na, sd 24.7, r22-92 (70)%. Dorm 22, 2.5, 0.0, sd 30.1, r0.0-75 (75)%. Test 27, 27, 27, r19-33 days. (#10).**

greenhouse & garden: Moist cold stratify (120 days) or dormant seed. Dry storage (180 days) 70º. Small seeds require light to germinate. GA3 may help.

Description: Erect, herbaceous, perennial native forb, aromatic; roots minimum depth; stems 3.0-5.0', obtusely 4-angled, branched towards the top; leaves opposite, simple, margins serrate, mostly hairless beneath; inflorescence dense whorls of flowers forming a 6" cylindrical spike; flowers white or pinkish, occasionally purple, 5-merous, 0.50" long, slightly irregular, not hairy; fruit is a one-seeded nut; N. key features: "The calyx lobes, besides running a little longer than in *A. nepetoides*, are also more narrowly lance-acute, less veiny, and less firm in texture; however, these are rather subjective characters" (rvwll).

Comments: status: phenology: Blooms 8,9,10. C3. Collect seed September to October. Landscaping, shade gardens. Attractive cut flowers & dried seed heads. Seed source Leepertown Twp, Bureau Co & Kane Co.

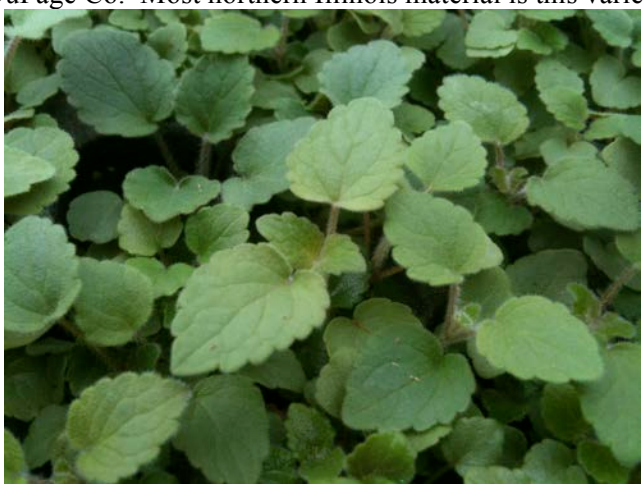
"Less common than the above (*A nepetoides*). Roadside near Freedlund farm west of Roscoe, creek bottom in Calvin Park, East Rockford." (ewf55)

"Very rare. My only specimens were found in a dry open woodland bordering railroad tracks between Briar Bluff & Warner, September 24, 1944." Variety *molle* (Fernald) A Heller "Frequent to common in, & on the borders of, rich moist, or often dry open, woodlands. Section 9 & 24, Hanna township; Sections 13 & 19, Colona Twp; Section 30, Atkinson Twp; Section 14, Phenix Twp; six miles northeast of Geneseo; three miles northwest of Kewanee; near Hoopole. (do63)

Associates: Attracts butterflies & hummingbirds. Reported to be deer resistant.

VHFS: [*Agastache scrophulariaefolia* (Willd) Kuntze var *mollis* (Fernald) A Heller, *Hyssopus scrophulariaefolius* Willd, *Lophanthus scrophulariaefolius* (Willd) Benth *L scrophulariaefolius* (Willd) Benth var *mollis* Fernald]

Var *molle* (Fern) A Heller is noted from DuPage Co. Most northern Illinois material is this variety.

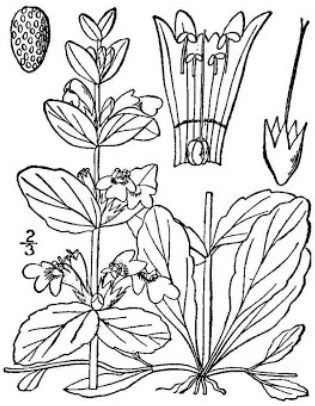


Agastache scrophulariaefolia

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

AJUGA Linnaeus **BUGLE, BUGLEWEED** *Lamiaceae* or *Labiatae* *Ajuga* New Latin, from *a-* & *-juga*, from Latin *jugum* yoke, or from medieval Latin *ajuga*, a variation of Latin *abiga* (in Pliny, *abigo*, to drive away), a plant that has the power to induce abortions; or from Scribonius Largus' corrupted Latin for an aborifacient. Scribonius Largus was court physician & pharmacologist to Emperor Claudius. Scribonius was the father of electroshock therapy, as he recommended treating patients with electric eels. *reptan**s*** same as *repens,* creeping, having creeping and rooting stems, from Latin *reptans,* from *repto, reptare, reptavi, reptatus*, creep over, crawl along. A genus of about 40-50 spp of herbs of the temperate Old World. Commonly used in landscaping as a ground cover, locally escaped or persisting-from-cultivation, ground-hugging herbs with erect spikes of blue flowers, with the lobes about same length as tube, upper lip very short, lower lip wide & long, & the 4 stamens shorter than lower lip. 2 spp in Illinois, infrequently to seldom escaped, mostly in the ne cos. Many selections are available.

*Ajuga genevensis & reptans, s*ow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks (tchn).




Ajuga reptans

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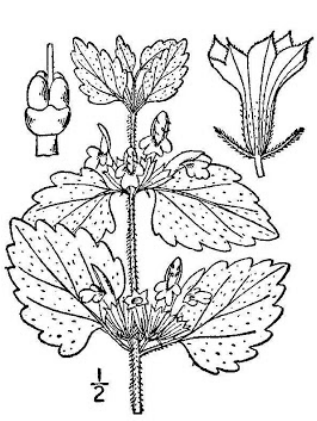
BALLOTA HOREHOUND, BLACK HOREHOUND, *MARRUBIO BASTARDO*, *SCHWARZNESSEL*, *STINKANDORN*, STINKING HOREHOUND, *Lamiaceae* or *Labiatae* *Ballota* New Latin, alteration of Pliny's Classical Latin *ballōtē, ballotes* f, black horehound, from Greek *ballōtē* of uncertain origin. Alternately, Dioscorides' Greek name βαλλοτη, *ballote,* for *Ballota nigra*, BLACK HOREHOUND.) A genus of about 30 spp of herbs & small shrubs of Africa & Eurasia (Mediterranean area & Asia). Perennial forb with axillary whorls of large pink flowers, upper lip helmet-like & 4 stamens shorter than lips. Escaped in DuPage & Will cos.

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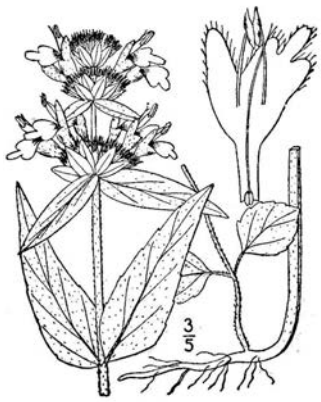
BLEPHILIA Rafinesque 1819 **WOODMINT, PAGODA-PLANT** *Lamiaceae* or *Labiatae* *Blephilia* Greek βλεφαρις, *blepharis*, eyelash, for the resemblance of the bracts & calyx teeth. A genus of three spp of herbs of eastern North America. Erect perennials with "pagoda-like" dense axial whorls of white, red-spotted, or purple flowers, upper lip helmet-like & the 2 protruding stamens. The third sp is *B subnuda* RW Simmers, endemic to the Cumberland Plateau of northeastern Alabama. Seeds are tiny nutlets.

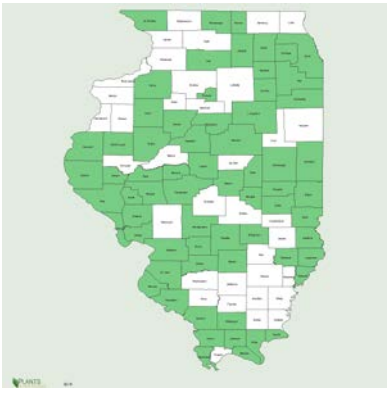
Blephilia ciliata (Linnaeus) Bentham (or (L) Bernh) DOWNY WOOD MINT, aka DOWNY PAGODA PLANT, OHIO HORSE MINT, PAGODA PLANT, (*ciliatus -a -um* (ki-lee-AH-tus) New Latin ciliate, with marginal hairs, fringed with hairs like an eyelash or eyelid, from *cilium, cilii* n, Latin noun, upper eyelid; edge of upper eyelid; eyelid, lower eyelid.) upl

Habitat: Dry prairies, dry savannas, & dry woods. "Common in dry woods, being more frequent than the next (*B hirsuta*)." (ewf55 as *B ciliata* (L) Raf) In Michigan, "Oak savannas and borders; thickets, banks, and clearings; meadows and barrens, borders of fens, thin soil over limestone" (rvw11). In the se USA, "woodlands, meadows, forests, usually in circumneutral soils (over diabase, limestone, etc.), uncommon" (w12). distribution/range: "Open woods, fields, prairies, occasional throughout the state" (m14).
Culture: ①Surface sow, seeds are very small or need light to naturally break dormancy & germinate. (pm09). "Moist cold treatment, or fall sow. Light to very light cover. Good germination." (mfd93) Seeds germinate after about 60 days of cold moist stratification (he99). Sow at +2 to +4ºC (34-39ºF) for 12 wks, move to 20ºC (68ºF) for germination (tchn).
seed counts & rates: 47,300 (aes12), 5,040,130 (gnhm12), 6,400,000 (pm02) seeds per pound.
availability: This sp is rare in the seed & plant trade. It has been discontinued from several catalogues in recent years. Listed in AES handbook. Because this is so rare in the trade, *B ciliata* should not be listed as part of a general seed mix, especially in restoration for hire.
bottom line: For field establishment, dormant seed on top of the ground. For greenhouse crops, moist cold stratify 60 days or dormant seed, very light cover. Germ 63, 63, na, r44-82 (38)%. Dorm 30, 30, na, r7.0-52 (45)%. Test 34, 34, na, r 30-37 days.**
Description: Native, erect perennial forb; not rhizomatous; 1.5-2.0' erect, downy stems; flowers blue-purple (blue/violet), aromatic, attractive "pagoda-like" dried seedheads. key features: "The broad appressed bracts in the inflorescence are suggestive of *Prunella vulgaris*, which (besides having 4 stamens) tends to have longer petioles and the upper lip of the calyx only shallowly 3-toothed instead of cleft into long copiously ciliate teeth" (rvw11).
Comments: status: phenology: Blooms 6-8. In northern Illinois, collect seeds in July. Collect seeds in se Wisconsin in October (he99). More drought tolerant than many mint spp. Genetic source Ogle County, Windrift Prairie Nursery.
Associates: Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera, Diptera, Lepidoptera, Coleoptera, & Hemiptera*.



Blephilia ciliata, Dot Wade's production beds, Windrift Prairie Nursery, early 1980's
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov.

Blephilia hirsuta (Pursh) Bentham (or (Pursh) Bernh) WOODMINT, aka HAIRY PAGODA PLANT, HAIRY WOOD MINT, (*hirsutus -a -um* (hir-SOO-tus) hirsute, hairy, covered with hair, with straight hairs, having long distinct hairs, rough, stiffly hairy; from Latin for rough, shaggy, bristly, prickly, hirsute, or rude, unpolished.) facu-



Habitat: Mesic to wet-mesic savannas & woodlands. In Michigan, "rich forests, swamps, floodplains" (rvw11). In the se USA, rocky or alluvial forests, montane forests up to at least 5000 feet elevation; common" (w12).
distribution/range: Rich woods, occasional throughout Illinois (m14).
Culture: ①60 days cold moist stratification. Surface sow, seeds are very small or need light to naturally break dormancy & germinate. (pm09) ②Seeds germinate after about 60 days of cold moist stratification (he99).

seed counts & rates: 3,736,624 (jfn04), 3,840,000 (pm02), 4,536,000, 5,973,684 (gnhe14) seeds per pound.

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

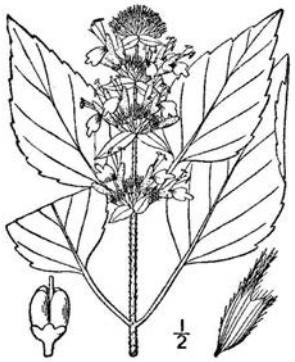
cultivation: Space plants 12-18". Part sun to woodland, medium soils.

bottom line: For field establishment, dormant seed on top of the ground. Germ 18, 15, na, sd 14.5, r2.0-44 (42)%. Dorm 54.2, 49, na, sd15, r33-77 (44)%. Test 33, 31, na, r26-43 days.**

greenhouse & garden: Easy from seed, moist cold stratify 30 days or dormant seed in an unheated coldframe for insurance, have prop stock germ tested before planting untreated seed in greenhouse. Very light cover.

Description: Erect, herbaceous, perennial forb; 2.0-3.0'; flowers white; attractive "pagoda-like" dried seed heads; key features: Leaves widely ovate, stalked. key features: "If the number of stamens is not evident, one using the keys might confuse this species with *Clinopodium vulgare*, which has shorter petioles" (rvw11).
Comments: status: Native. phenology: Blooms 6,7,8, 9. In northern Illinois, collect seeds in early October. Collect seeds in se Wisconsin in October (he99). Landscaping, shade gardens, aromatic, scent gardens. Genetic source Pawpaw Twp, DeKalb Co.

"Much less common, a taller plant & more likely to be in moist places; edges of woods in Kishwaukee River Forest Preserve, & south of Rock Cut." (ewf55)

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

CALAMINTHA *Lamiaceae* or *Labiatae* *Calamintha* (ka-la-MIN-tha) **CALAMINT, LESSER CALAMINT.** *Calamintha* (ka-la-MIN-tha) calamint, from Greek mythological figure *Kalamos*, the son of *Maiandros* (*Meander*), god of the Meander River; alternately from "Latin *calaminthe*, from Greek καλαμίνθη, καλάμινθος, *kalaminthe, kalaminthos*, applied to the same or some similar plant. The Greek is explained from καλός, *kalos,* beautiful, & μίνθη, μίνθος, *minthe, minthos*, mint: but this is perhaps only popular etymology. The English word was subsequently assimilated to the Latin form, & to *mint.*" (OED) Common name from Middle English *calament*, from French *calament* (14th cent in Littré), from Medieval Latin *calamentum*. Native to Europe, rarely escaped in 1 Illinois co. Included in part in *Clinopodium* by some authors, which see.

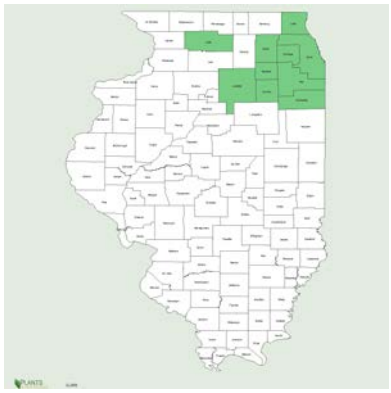
Calamintha grandiflora, sow at 18-22ºC (64-71ºF) for 2-4 wks, move to +2 to +4ºC (34-39ºF) for 4-6 wks, move to 5-12ºC (41-53ºF) for germination. *C nepeta & sylvatica*, sow at 20ºC (68ºF), if no germ. in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks. (tchn).

CHAITURUS Willdenow 1787 **HOREHOUND, MOTHERWORT, LION'S-TAIL** *Lamiaceae* or *Labiatae* *Chaiturus* from Greek χαιτη, *khaite*, bristle, long hair, & ὀυρά, *oura,* tail. *marrubiastrum* an inferior or wild sort of *Marrubium*, from *Marrubium*, which see, & *-astrum*, Latin diminutive suffix with derogatory implications, indicating inferiority or an incomplete resemblance, or wildness, often applied to a wild relative of a cultivated plant. *Marrubium* Marru'bium (mar-OO-bee-um) New Latin, from Classical Latin, horehound, a name for a familiar cough remedy based on an ancient Hebrew word for bitter. The common name LION'S TAIL is from the old genus name *Leonurus*, literally loin's tail.

A monotypic genus of one herb, *C marrubiastrum*, HOREHOUND MOTHERWORT, native of Europe & north Asia; formerly part of a broadly defined *Leonurus*. Occasionally adventive in disturbed soil in the n ⅔ of Illinois. In Michigan, riverbanks and nearby disturbed ground (rvw11). Sow at 20ºC (68ºF), germinates in less than two wks (tchn).

Chaiturus marrubiastrum
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society.

CLINOPODIUM Linnaeus 1573 **CALAMINT, DOGMINT, WILD BASIL** *Lamiaceae* or *Labiatae* *Clinopodium*
Clinopo'dium (kly-no-PO-dee-um) bed-foot, from Greek, said to be in reference to the flowers resemblance to bed casters. From Latin name *clinopodium, clinopodi(i)*, for WILD BASIL, *Calamintha clinopodium*. Very similar to *clinopus, clinopodos/is*, n, foot of a bed. Cf Greek κλίνη, *kline*, bed, κλίνειν, *klinein*, to slope, slant, ἀκλινής, *aklines*, unbent. A genus of about 20? spp of herbs & shrubs of temperate & subtropical areas of the Western & Eastern Hemispheres. Broadly defined about 100 spp, this includes *Acinos, Calamintha,* & *Satureja.* C3.



Clinopodium arkansanum (Nuttall) House LOW CALAMINT, aka ARKANSAS CALAMINT, LIMESTONE CALAMINT, LIMESTONE SAVORY, *arkansanus -a -um* of Arkansas, USA.
Calcareous fens, rocky soil, sand flats; occasional in the n ¼ of Illinois (m14). In Michigan, "Locally abundant in moist or springy flats and hollows or hummocks (depending on high or low water levels) among dunes and on rocky shores or edges of thickets, seldom far from the shores of Lakes Michigan and Huron, although rarely at inland lakes. From calcareous places in northern Michigan, ranges mostly south and southwest, to Texas." (rvw11). In the se USA, dry limestone glades, rare (w12). distribution/range: "There appears to be confusion about the identities & distributions of this taxon & *C. glabellum"* (w12).
Stolons
Endangered in Indiana as *S glabella angustifolia*. Threatened in Ohio as *C arkansana*. Blooms May-October. C3.
"An aromatic tea can be prepared from the fresh or dried plant. The fresh plant is used to repel mosquitoes & other insects." (Ilpin)
VHFS: [*Calamintha arkansana* (Nutt) Shinners, *C glabella* (Michx) Benth var *angustifolia* (Torr) DeWolf, *Clinopodium glabrum* (Nutt) Ktze, *Hedeoma arkansana* Nutt, *H glabra* Nutt, *Micromeria glabella* (Michx) Benth var *angustifolia* Torr, *Satureja arkansana* (Nutt) Briq, *S glabra* (Nutt) Fernald, *S glabella* (Michx) Briq var *angustifolia* (Torr) Svens]

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

Clinopodium vulgare L (**C vulgare** (L) Fritsch in rvw11) WILD BASIL, aka DOGMINT, (*887* vulgar'is (vul-GARE-is, or vul-GHA-ris) common, ordinary, usual, vulgar, from Latin adjective *vulgāris*, usual, common, commonplace, everyday; of the common people; shared by all; from *vulgus, vulgi,* common people, general public, multitude, common herd, rabble, crowd, mob; flock.)
Habitat: Woods, rare, introduced in DuPage & Kendall cos in ne Illinois. In Michigan, "deciduous or pine forest and savanna, sometimes in swamps but especially in dry sandy or rocky clearings, trails, or otherwise disturbed areas; gravel ridges, dunes, & shores; old fields, roadsides, gravel pits, & other disturbed ground; often somewhat weedy" (rvw11) Disturbed shaded areas. distribution/range: Native to Europe in some sources (m14) or native in others (fh). "Usually considered to be a native circumpolar species; North American plants are the weakly distinguished var *neogaea* (Fern) CF Reed" (rvw11).
Culture: ①Sow at 22-24ºC (71-75ºF), germination in less than 2 weeks (tchn).
key features: "The leaves have short petioles (all or mostly less than 7 mm). These, and the more evident pedicels in the inflorescence, will readily distinguish this species from *Blephilia hirsuta*, with which it might be confused if the number of stamens is not obvious. The corolla is white rather than pink-purple." (rvw11)
Blooms 6-9. C3
VHFS: [*Clinopodium vulgare* L var *diminutum* Simon, *C v* L var *neogaea* (Fern) CF Reed, *Satureja vulgaris* (L) Fritsch, *S v* (L) Fritsch var *diminuta* (Simon) Fern & Wiegand, *S v* (L) Fritsch var *neogaea* Fern]

Clinopodium vulgare
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society.

COLLINSONIA Linnaeus 1753 **HORSEMINT, RICHWEED, STONEROOT** *Lamiaceae* or *Labiatae* *Collinsonia* named for Peter Collinson, 1694-1768, an early English botanist, a friend of Benjamin Franklin, & financier of John Bartram. A genus of about 4 spp of perennial herbs of eastern North America, with inflorescence of pairs

along stems of widely spaced terminal panicle of yellowish-white flowers, with a fringed lower lip & 2 much protruding stamens like Martian antennae.

Collinsonia canadensis Linnaeus *WI CANADA HORSE-BALM, aka CITRONELLA HORSE BALM, NORTHERN HORSE-BALM, RICHWEED, STONEROOT, (*canadensis -is -e* canaden'sis (kan-a-DEN-sis, kan-a-DEN-see) of or from Canada or the north-east USA, of Canadian origin.)

Habitat: Woods in rich soil. In Michigan, "oak-hickory and sassafras or, more often, rich beech-maple or even deciduous swamps" (rvw11). In the se USA, "cove forests, rich forests, especially over calcareous or mafic substrates; common" (w12). distribution/range: Rocky woods, occasional in the s tip of Illinois; also Champaign, Clark, Crawford, & Edgar cos.
Culture: cultivation: Part shade, humus-rich soil, circumneutral (pH 6.8-7.2). Easy to care for & pest free. Benefits from wintercover. Foliage is sensitive to frost.
Description: Native, erect, perennial, 20"-40" tall, aromatic forb; stems square, branched above; from thick, woody rhizomes; leaves opposite, toothed; inflorescence branched spikes of paired flowers; flowers yellow to white, 5-merous, 0.5" long, irregularly tube-shaped, lower lip fringed, 2 stamens; fruit is a 1-seeded nutlet. key features: ①Paired flowers, lower lip fringed (fh). ②"A stout plant (to 1.5 m tall), large-leaved, from a large hard rhizome. The flowers and crushed foliage have a strong lemon-like fragrance. *Perilla frutescens* is sometimes mistaken as this species, but is annual and has white to pink corollas (not yellow), with 4 stamens (not exserted), large bracts, and generally shorter pedicels." (rvw11).
Comments: status: Endangered in Wisconsin. phenology: Blooms July-September. C3.
Associates: ethnobotany: Root has been used to treat kidney & urinary problems; flower have a lemon odor (Ilpin). Tea can be brewed from the leaves, & the rhizome was formerly used as a diuretic, tonic, & astringent (lbj).

Collinsonia canadensis

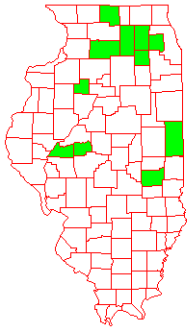
Photos courtesy RW Smith & GH Bruso, Wildflower Center Slide Library. Unrestricted images. Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov.

DRACOCEPHALUM Linnaeus 1753 **DRAGON'S-HEAD, DRAGONHEAD** *Lamiaceae* or *Labiatae*
Dracocephalum a dragon's head, referring to the flowers, New Latin, from Latin *draco, draconis*, dragon, from Greek δάχον, *drakhon,* and New Latin *-cephalum*, neuter of *cephalus*, head, from Greek κεφαλή, *kephale*, head; from the form of the corolla. A genus of about 40-75 spp of herbs of Eurasia & North America, with inflorescence of dense conical spikes along upper sten. small blue-purple flowers, upper lip straight, lower lip 3-lobed- central one longer & sometimes 2-cleft, 4 stamens shorter than lips.

Dracocephalum argunense, canescens, grandiflorum, nutans, ruyschianum, & speciosum, sow at max 5ºC (41ºF), germination irregular, often several months. *Dracocephalum botryoides*, sow at 20ºC (68ºF), if no germ. in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks. (tchn)

Dracocephalum parviflorum Nuttall *NY, VT DRAGONHEAD, aka AMERICAN DRAGONHEAD, DRAGON'S-HEAD, (*parviflorus -a -um* parviflor'us (par-vi-FLOR-us) with small flowers, or having flowers smaller than the type,

from *parvus -a -um,* small, little, insignificant, *-i-,* and scientific Latin *-florus -a -um,* from *floreo, flōrēre, florui,* flourish, blossom, be prosperous; be in one's prime.)


Dracocephalum parviflorum

"Rare, being known only in a small sand area south of Rock Cut " (ewf55). "Species is distributed along railroads; rocky or gravelly calcareous soils often in recent clearings; meadows; gardens" (Ilpin). In Michigan, "A northern species native in rocky openings on Isle Royale & some other sites in the western Upper Peninsula & in the jack pine plains, but also finding suitable habitat in the fields, roadsides, & other disturbed ground generated by settlement elsewhere in Michigan" (rvw11). In the se USA, "cultivated ground; rare, native west of the Appalachians" (w12). distribution/range: Northern sp. "Native to the w US. Dry soil along railroads, not common; confined to the n ½ of Illinois." (m14)

Culture: propagation:

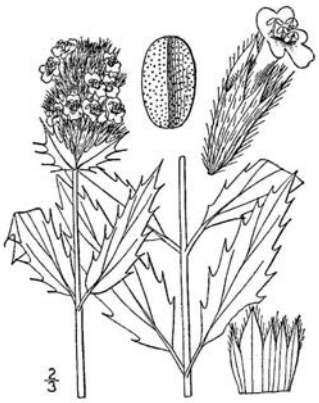
Description: Seeds brownish-black, barely 3 mm long, within calyx, round on one side & ridged on the other, calyx 4-seeded. key features: ①"The spiny floral bracts and calyx lobes, with nearly concealed flowers, give the heads a forbidding appearance. The calyx lobes have prominent cross-veins between the nerves in this genus, unlike *Nepeta*, which has no evident cross-veins on its small calyx." (rvw11)

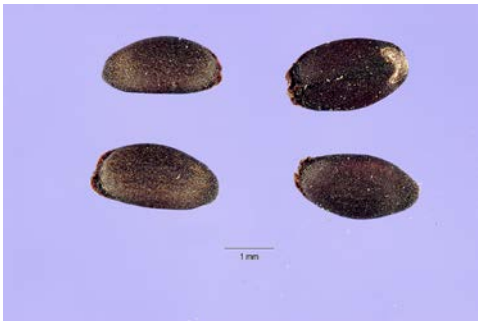
Comments: status: Endangered in New York. Threatened in Vermont. phenology: Blooms May-August

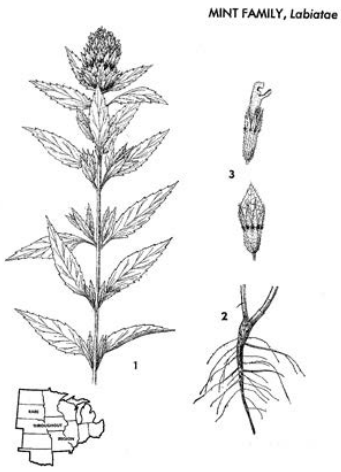
Associates:

ethnobotany:

VHFS: [*Moldavica parviflora* (Nutt) Britton]





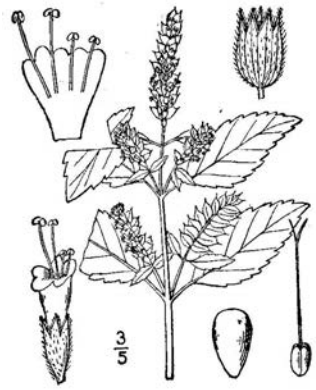


Dracocephalum parviflorum

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Jose Hernandez USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing http://extension.illinois.edu/~vista/html_pubs/WEEDS/intro.html . 2nd Seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp . Illinois map courtesy of ILPIN.

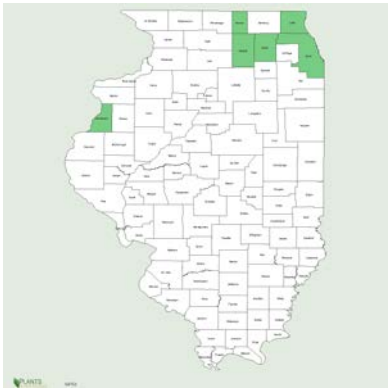
ELSHOLTZIA Willdenow 1790 **CRESTED LATE-SUMMER MINT** *Lamiaceae* or *Labiatae* *Elshotzia* for JS Elsholtz, 17th century German physician & botanist. A genus of about 35-40 spp of herbs of the temperate Eastern Hemisphere. Introduced from Asia. Not in Illinois (m14), adventive north & east of our area.

Elsholtzia ciliata (Thunberg) Hylander CRESTED LATESUMMER MINT
"The inflorescence structure is unique in this species; the flowers are arrayed in narrow terminal and lateral spike-like racemes and subtended by ± orbicular to reniform bracts, with an apical awn and ciliate margins, that are essentially uniform in size and shape from bottom to top of the inflorescence" (rvw11).
Potentially invasive & banned in Connecticut. This taxon is considered weedy or invasive in some parts of its range or under certain applications (Assorted authors. 200_. State noxious weed lists for 46 states).



Elsholtzia ciliata
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society.

GALEOPSIS Linnaeus 1753 **HEMP-NETTLE** *Lamiaceae* or *Labiatae* *Galeopsis* New Latin, from Latin, a nettle, from Greek *galēopsis*, from *galē*, *galeē,* weasel, & *-opsis,* resemblance, in reference to the similarity of corolla to the head of a weasel. A genus of about 10 spp of herbs of Eurasia.

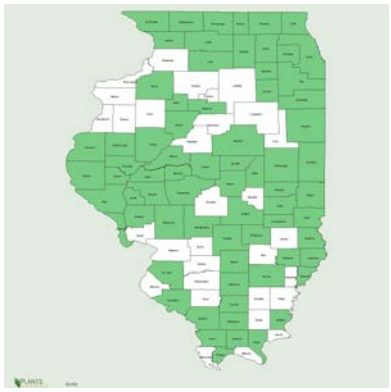


Galeopsis tetrahit Linnaeus *AK WI BRITTLESTEM HEMPNETTLE, aka COMMON HEMPNETTLE, *tetrahit* four angled or 4-parted, probably for the ovary, from Greek τετρα-, *tetra*-, four, and ? "The name *Tetrahit* was apparently used as a generic name by French physician and botanist Matthias de l'Obel (1538-1616), but I have no further information on its derivation or meaning" (Charters 2003-08). Each flower produced a cluster of 4 seeds.
Habitat: In Michigan, "Especially common in the northern part of the state, in moist forests and thickets, particularly in logging trails, borders, and clearings; also along rivers, streams, and gravelly shores; yards, refuse heaps, and other disturbed ground" (rvw11). distribution/range: "Native to Europe & Asia; naturalized in waste places in Boone, Cook, DeKalb, DuPage, Henderson, Kane, & Lake cos" (m14).
Noxious weed in Alaska. Restricted in Wisconsin. This taxon is considered weedy or invasive in some parts of its range or under certain applications (Assorted authors. 200_. State noxious weed lists for 46 states).
Blooms June-September.

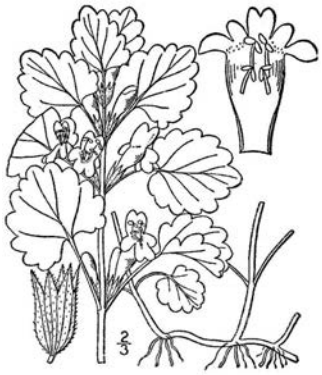
Galeopsis tetrahit

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Jose Hernandez USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp Illinois map courtesy plants.usda.gov.

GLECHOMA Linnaeus 1753 **CREEPING CHARLIE, GILL-OVER-THE GROUND, GROUND IVY, HEDGE MAIDS**
Lamiaceae or *Labiatae* *Glechoma* New Latin, irregular from Greek *glēchōn, blēchōn* pennyroyal or thyme, also *Glecoma*??? A genus of about 4-10 spp of temperate Eurasia, our spp with lax stems, open whorls in the upper leaf axils of purple flowers, having the lower lip large with middle lobe of lower lipped clefted, 4 stamens only slightly longer than upper lip; loose whorls from leaf axils distinctly spaced along lax stem. Sometimes seen as *Glecoma*.



Glechoma hederacea Linnaeus GILL-OVER-THE-GROUND, aka CREEPING JENNY, GILL-ALL-OVER-THE-GROUND, GROUND IVY, LARGE-FLOWERED GROUND IVY, (*hederacae* of or pertaining to Ivy, *Hedera*, from Latin *hedera,* ivy)
Corolla more than 1.5 cm long……var *hederacea*
Corolla up to 1.5 cm long……var *micrantha* (after m14)
Glechoma hederacea L var ***hederacea*** GROUND IVY, CREEPING JENNY, GILL-ALL-OVER-THE-GROUND,
Introduced from Eurasia; lawns, gardens, &c. "Native to Europe; naturalized in moist soil, not common; DuPage, Lawrence, & Peoria cos" (m14).
"This, the large flowered form, is the less common but abundant where found, as on Rock River bank near Blackhawk Park in Rockford. Also known at Castle Rock in Ogle Co.' (ewf55)
"Rare. The few plants I have seen were found on the borders of Geneseo lawns." (do63)
Blooms April-July.
[*Nepeta hederaceae* (L) Trevisan]



Glechoma hederacea

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

G hederacea Linnaeus var ***micrantha*** Moricand (formerly *Glechoma heterophylla* Waldst & Kit) GROUND IVY, (*micranthus -a -um* micran'thus (my-KRAN-thus) with minute small flowers, from Greek μικρο- *micro-*, small, and ἄνθος, *anthos*, flower.)

"Native to Europe; naturalized in moist soil & lawns; occasional throughout Illinois, becoming more abundant northward" (m14).

Blooms April-July.

"Our common ground ivy with the small flowers & is, like the above, a garden escape. It is doubtfully distinct, the two forms tending to intergrade. In a mild season, the leaves stay green all winter. Its usefulness as a ground cover is marred by a marked tendency to run wild. (*G hederacea* var *micrantha* Moricand)" (ewf55)

G hederacea var *micrantha* Moricand [*Nepeta hederacea* var *parviflora* Druce.] SMALL-FLOWERED GROUND IVY, CREEPING CHARLEY, GILL-OVER-THE GROUND. Generally distributed throughout as a common weed in open woodlands, on the borders of gardens, & in waste places, occasionally a usurper in moist shaded lawns.

This plant & the preceding are both old time medicinal plants & still said to be of some commercial importance, the herb being used & they are both known to be poisonous to livestock." (do63) Some authors (w12, pug14) do not recognize the varieties.

HEDEOMA Persoon 1807 **AMERICAN PENNYROYAL** *Lamiaceae* or *Labiatae* *Hedeoma* Hedeo'ma (hee-dee-OH-ma) from the Greek Ἡδύοσμον, *Hedyosmos*, a sweet-smelling herb, probably from this family (Gray 1886), from *hedus*, *hēdys,* sweet, and *osmē*, odor, smell, a classical name for a strongly aromatic mint. A genus of 38-42 spp of herbs of the Americas, our spp somewhat weedy annuals with axial whorls of small bluish flowers, having lips almost equal, the upper erect, toothed, 2 stamens shorter than lips.

Hedeoma hispida Pursh ROUGH PENNYROYAL, aka GRASSLEAF PENNYROYAL, (*hispidus -a -um* his'pidus (HIS-pi-dus) bristly, fine hairy, hairy rough, with stiff hairs or bristles, from Latin adjective *hispidus –a -um*, rough, shaggy, hairy; bristly; dirty) upl

Habitat: Disturbed sand prairies, dry & dry-mesic prairies. "Common in sand, dry open woods & dry places elsewhere as on prairies & railroads." (ewf55). In Michigan, "sandy fields (often in quite bare patches), clearings, roadsides, gravel pits, and banks; railroad beds; prairie remnants; usually associated with some disturbance" (rvw11). In the se USA, "disturbed areas, pastures, granitic flatrocks; rare, apparently adventive from farther south & west" (w12). distribution/range: "Rocky woods, prairies; occasional in the n ½ of Illinois, less common in the s ½" (m14).

Culture: ①No pre-treatment needed. Sowing outdoors in the spring is the easiest method (he99). Dormant seed or moist cold stratify.

availability: Sp is not in the native seed trade.

Description: Erect annual, 1-16", violet-blue flowers, 0.25-.75'; key features: ①"In linear leaves and a distended (gibbous) calyx, this species might be confused with *Clinopodium arkansanum*, which has 4 stamens, much larger flowers, & glabrous foliage" (rvw11).

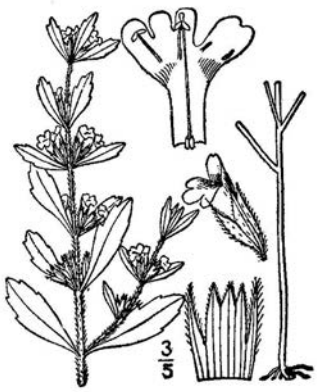
Comments: status: phenology: Blooms 5,6,7. In northern Illinois, collect seeds in September. Collect seeds in se Wisconsin in October (he99). Annual.

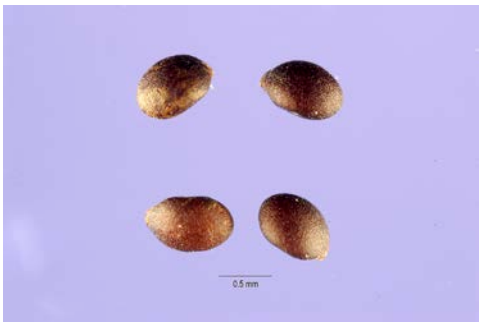
Hedeoma hispida

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

Hedeoma pulegioides (Linnaeus) Persoon AMERICAN PENNYROYAL, aka *AMERIKANISCHE PENNYROYAL* (G), *HÉDOÉMA FAUX POULIOT* (F), *MOSKITOPFLANZE* (G), PENNYROIL, PENNYROYAL, *POLEO AMERICANO* (SP), (*pulegioides* New Latin, resembling Penny-royal or Flea-mint, *Mentha pulegium*, from Latin *pulegium, pulegii*, *pulegum, -ii* n fleabane, pennyroyal, from Cicero, and Greek -οειδες, *-oeides*, adjective suffix for nouns: like, resemble.) upl

Habitat: Dry oak woods. In Michigan. "Moist or dry fields and pastures; savannas (oak or beech-maple), especially in openings and sometimes abundant after logging or other disturbance" (rvw11). In the se USA, "dry soils of woodlands, roadbanks, woods-roads, especially common in shaly parts of the VA & WV mountains; common (uncommon in NC & SC)" (w12).
distribution/range: "Rocky woods, fields, roadsides; occasional throughout Illinois" (m14).
Culture: ①Dormant seed or moist cold stratify.
availability: Sp is not in the native seed trade.
Description: Erect, annual, native forb; 0.25-.75'; flowers blue; key features: "The 3 calyx lobes forming the upper lip are not only essentially without cilia but also more triangular-acute than the ciliate, strongly narrowed lobes in the superficially similar *Clinopodium acinos*" (rvw11).
Comments: status: phenology: Blooms 6-8. Annual, strongly aromatic. Often scented before seen.
"Less common than the above being usually in open oak woods but not in the sand area. Mulford woods on Kishwaukee River, Freelund woods west of Roscoe & the woods east of Rock Cut." (ewf55)
Associates: "The fragrant oil is apparently very similar to that of EUROPEAN PENNYROYAL, *Mentha pulegium* Linnaeus. The oil is a powerful insect repellent & insecticide, often used on pets to repel fleas. It is also poisonous to humans, however, at least in substantial quantities. It is sometimes used as a tea; Native Americans are reputed to have used it as an abortion inducer. This plant should be used with caution, if at all." (w12)





Hedeoma pulegioides

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

HYSSOPUS Linnaeus 1753 **HYSSOP** *Lamiaceae* or *Labiatae* *Hyssop, hyssopus* from Latin *hyssōpus, hyssōpum*, from Greek Ὕσσωπος, ὕσσωπος, ὕσσωπον, *Hýssōpos, hyssopos, hyssopon*, an ancient name for an aromatic herb, an eastern word, represented in Old Hebrew by *esob*, *ēzōb,* majarom, cognate Arabic *azzufa*, the hyssop. *officinalis -is -e* officina'lis (oh-fis-in-AY-lis) of the shops, sold in (apothecaries') shops, sold as an herb, sold in the marketplace, of practical use to man; used in medicine, medicinal, official, from *officina*, noun, Modern Latin, workshop, laboratory, or herb pharmacy, and *-alis*, of or pertaining to. A genus of 2-5 spp of herbs from southern Europe to central Asia, occasional escapes from cultivation. Not in Illinois (m14).

Hyssopus officinalis

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Jose Hernandez.

ISANTHUS Michaux *Lamiaceae* or *Labiatae* *Isanthus* from Greek ἴσος, *isos,* equal, & ἄνθος, *anthos,* flower, having regular flowers, having the parts of the flower equal or alike, as opposed to the irregular flowers of most mints. *Isanthus* is sometimes included in *Trichostema*. "Morphology, pollen, & phytogeography suggest the plausible recognition of *Trichostema* section *Orthopodium* (which includes this sp & several from w North America) as *Isanthus*, a genus distinct from section *Trichostema* (which includes all other eastern North American spp)" (w12).

Isanthus brachiatus (Linnaeus) Britton, Sterns, & Poggenburg FALSE PENNYROYAL, aka BLUE GENTIAN, FLUXWEED, GLADE BLUE CURLS, *brachiatus -a -um* from Greek βραχιων, *brakhion*, the arm, & Latin *bracchium*, fore-arm; alternately *Latin brachiatus -a -um,* having branches as a tree, branched; like arms, crossed arms; branched at right angles, when branches spread & diverge widely

Habitat: "Locally abundant on gravel ridges, dry prairies, limestone fields, & dry sand. Also in Boone Co." (ewf55) In Michigan "a calciphile of limestone areas, as at Drummond Island & Thunder Bay Island, & also very local in sandy fields or other sterile ground. The foliage has an aromatic, almost lemon-like fragrance." (rvw11). In the se USA, "shale barrens, outcrops of calcareous or mafic rock, diabase barrens, calcareous dry prairies, disturbed rocky areas" (w12). distribution/range: Rocky woods, prairies; occasional throughout Illinois" (m14).
key features: Numerous branches, flowers almost regular, inflorescence axial, 1-3 flowers (fh). Blooms July-October.
VHFS: Placed in *Isanthus* by M14, in *Trichostema* by fh, w12, & pug14. [*Isanthus caerulus* Mx, *Tetraclea viscida* Lundell, *Trichostema braciata* L]

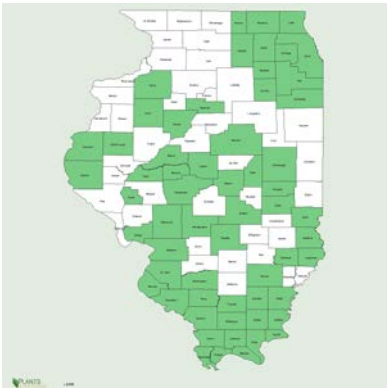
Isanthus brachiatus

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

LAMIUM Linnaeus 1753 **DEAD-NETTLE, HEN-BIT** *Lamiaceae* or *Labiatae* *Lamium* Lam'ium (LAM-ee-um) New Latin, from an old Latin name *lāmium* dead-nettle (adopted as a genus name by Linnaeus), from (assumed) Greek *lamion*, diminutive of *lamia* devouring monster, *lamyros*, gluttonous; alternately from Greek λάμια, *lamia*, gaping mouth, in reference to the shape of the flowers. A genus of about 17-40 spp of herbs of North Africa & Eurasia. The genus is known from cultivation or as weeds, with horizontal to ascending stems, regularly spaced axial whorls of pink flowers, upper lip helmet-like, lower lip 2-parted & occasionally spotted, 4 stamens shorter than lips. Weeds & ornamentals.

Lamium purpureum

Seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp

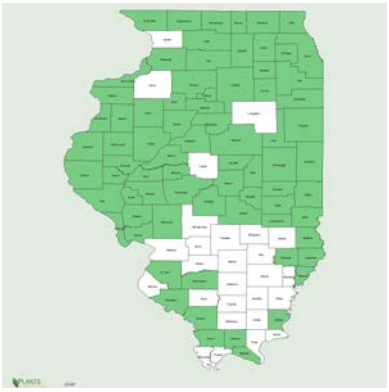


Lamium amplexicaule Linnaeus, HENBIT, aka DEAD-NETTLE, (*amplexicaulis -is -e* amplexicau'lis (am-plex-i-KAW-lis) Modern Latin, clasping or encircling the stem, embracing the stem, or stems clasped, when the leaf is dilated at the base and embraces the stem; from Latin *amplexus, amplexus,* m, an embrace, from *amplector*, *amplecti, amplexus sum,* surround, encircle, embrace, clasp; esteem; cherish; surround, include, grasp, *-i-,* connective vowel used by botanical Latin, & Latin noun *caulis, caulis* m., from the Greek καυλος, *kaulos,* the stem or stalk of a plant; or from Greek αμπλεκτος-καυλος, *amplektos-kaulos*)
An introduced, pink-flowered, winter annual, known from Whiteside (not mapped) & Henry cos, growing on the edge of corn & soybean fields, blooming late April to early May (Feb-Nov), quite showy in mass. "Native to Europe, Asia, & Africa: naturalized in disturbed soil; occasional to common throughout Illinois (m14).
This taxon is considered weedy or invasive in some parts of its range or under certain applications (Haragan 1991, Uva et al 1997, Stubbendieck et al 1994, SWSS 1998, Whitson et al 1996).

Lamium amplexicaule

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.

LEONURUS Linnaeus 1753 **MOTHERWORT, LION'S-TAIL** *Lamiaceae* or *Labiatae* *Leonurus* like a lion's tail, from New Latin, from Greek *leōn,* lion & New Latin *-urus,* from Greek *oura,* tail. A genus of about 25 spp of herbs of temperate Eurasia. leaves long & often with deep sharp teeth, with regularly spaced, tight axial whorls of whitish tiny flowers with 2 stamens slightly protruding. One sp has been placed in *Chaiturus.*



Leonurus cardiaca Linnaeus MOTHERWORT, aka LION'S-TAIL, (*cardiacus -a -um* relating to the heart, from Latin adjective *cardiacus -a -um*, of heart or stomach; suffering in stomach.)
"Native to Europe & Asia; naturalized in disturbed, shaded areas; occasional in the n ½ of Illinois, less common in the s ½" (m14). Species often found in ruderal, partial shade. Introduced from central Asia.
①Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks (tchn).
"A common weed of disturbed soil, fields, &c." (ewf55)
"Not infrequent in open woodlands & waste places. Section 21, Colona Twp; Section 2 Clover Twp; Section 35, Annawan Twp; near Galva." (do63)



Leonurus cardiaca

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.

LYCOPUS Linnaeus 1753 **BUGLE-WEED, WATER-HOREHOUND** *Lamiaceae* or *Labiatae* *Lycopodium* New Latin, from *lyc-*, & *-podium,* or Greek *lykos,* wolf, & *pous, podes*, foot; in reference to the resemblance of the branch tips to a wolf's paw**.** A genus of about 10-14 spp of herbs of temperate Eurasia, North America, & Australia. Herbaceous perennials with leaves long & often with deep sharp teeth, with regularly spaced, tight, axial whorls of whitish tiny flowers with 2 stamens slightly protruding.

"The corky borders of the nutlets doubtless contribute to their buoyancy, & dense rows of seedlings are a common sight on shores & banks where the fruits have been washed" (rvw11).

Lycopus americanus Muhlenberg ex WPC Barton COMMON WATER HOREHOUND, aka AMERICAN BUGLEWEED, AMERICAN WATER-HOREHOUND, (*americanus -a -um* america'na (a-me-ri-KAH-nus, or am-er-ik-AY-na) of the New World, from the Americas, American.) obl

Habitat: Fens, marshes, & moist ground. Wet to wet mesic prairies & agricultural wetlands. In Michigan, "very common throughout Michigan, nearly always in moist to wet places: shores, edges of marshes and ponds, fens and springy areas, ditches and swales, river and stream margins, swamps, wet gravel pits and other excavations (or filled ground)" (rvw11).
distribution/range: " Wet ground, common; in every Illinois county" (m14).
Culture: ①No pre-treatment necessary other than cold, dry stratification. Surface sow, seeds are very small or need light to naturally break dormancy & germinate (pm09). ②Seeds germinate after about 60 days of cold moist stratification (he99). ③No pretreatment needed. Sow seeds on the soil surface at 70ºF & water. (ew11).

seed counts & rates: 2,080,000 (pm01), 2,040,449 (gna06), 2,082,586 (gnhm03), 2,928,000 (ew11), 3,492,304 (agr07), 3,661,290 (gnaag04), 3,691,057 (gna07), 3,721,331 (gnhg12), 3,760,000 (jfn04), 3,916,992 (agr04) seeds per pound.

asexual propagation: Stem cuttings.

cultivation: Space plants 0.5-1.0'. AES (2010) report some salt tolerance.

bottom line: Spring planting works 2 years out of 3, with 1/3 of lots significantly to strongly dormant (31.5-86%). Dormant seed for insurance. Flipflop species. Germ 57, 70.5, 83, sd 34.8, r2.0-96 (94)%. Dorm 29.6, 5.0, 0.0, sd 34.3, r0.0-87 (87). Test 27, 28, 19, 12-44 days. (#21).**

greenhouse & garden: Dormant seed or moist cold stratify

Description: Erect, herbaceous, perennial, native forb; 1.0-2.0'; rhizomes without tubers; leaves with deep, coarse, irregular teeth; flowers white, 4 lobed. Non-aromatic. key features: "Variable in leaf form, pubescence, and other characters. The stems are ± densely hairy at the nodes that lack flowers, but the internodes vary from glabrous to hairy. The upper surface of the leaves is usually glabrous, often scabrous, but may have a few hairs especially toward the base, a feature normally associated with *L. europaeus*. Both species have a very sharply 4-angled stem and nutlets usually 1.2–1.7 mm long. Both lack surficial runners, though they are rhizomatous, while all our other species except *L. asper* frequently produce slender elongate runner." (rvw11).

Comments: status: This taxon is considered weedy or invasive in some parts of its range or under certain applications (Stubbendieck et al 1994). phenology: Blooms 7,8,9. In northern Illinois, collect seeds in September - early November. Collect seeds in se Wisconsin in October (he99). Attractive cut flowers. Used in rain gardens. Seed source nursery production, genetic source farmed wetlands, Hannaman Twp, Whiteside Co.

Species behaves like an agricultural wetland seed bank sp. When crops in such soils are drowned-out, BUGLEWEED may appear in great numbers, but populations decline in a decade or so.

"Common on streambanks & in other very wet places. The incised lower leaves are distinctive." (ewf55)
Associates: Reported as deer resistant.




Lycopus americanus

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Lycopus asper Greene ROUGH WATER HOREHOUND, aka BUGLE WEED, CROW POTATO, ROUGH BUGLEWEED, *Ande'gopin,* crow plant (Ojibwa) (*asper -era -erum* as'per (AS-per, AS-pir) as'pera (AS-per-a, AS-pir-a, AS-pir-um) rough to the touch, from Latin *asper, asperi*, adjective, rough, in usually reference to the surface texture.) [facw]
Habitat: Marshes & wet shores, wet mesic portions of Spring Slough, Whiteside Co. In Michigan. "A species native west of the Great Lakes, first noted in Michigan in 1892, around grain elevators at Port Huron, St. Clair Co. It is now frequent in the western Lake Erie area and local elsewhere in wet ground, especially ± disturbed shores and ditches" (rvw11).
distribution/range: " Usually in stagnant water, rare; confined to the n ¼ of Illinois" (m14). Known but not mapped from Whiteside Co. East of the Great Plains, this sp is considered adventive. CROW POTATO is known from northern Illinois, near the Rock River, Fox River, & Lake Michigan & eastward in many counties bordering the Great Lakes east to New York (some of

these records are recent). This Native American food item was undoubtedly traded eastward from the plains at an early time, so native, adventive, or former crop? to-MAY-to, to-MAH-to? See *Artemisia dranunculus* in New Amsterdam. Locally, our population occurs in wet mesic soil in Spring Slough, a highly conservative, spring-fed, groundwater wetland in an ancient cut off meander of Rock River, with, seemingly, little chance of recent introduction. Look that up in your Funk & Wagnall.

Culture: propagation: ①No pre-treatment necessary other than cold, dry stratification (pm11).

seed counts & rates: 240,000 (pm11), 922,764 (gnh11) seeds per pound.

asexual propagation: Division of mature plants in spring. Move tubers late fall or spring (if moving in spring, mark plant location in fall).

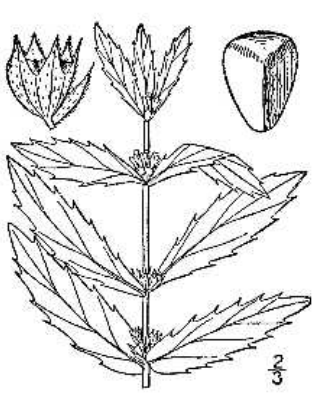
bottom line: Genesis limited test data indicate dormant seeding for field establishment or cold moist stratification for greenhouse production is required. Germ 9.0%. Dorm 85%. Test 19 days.**

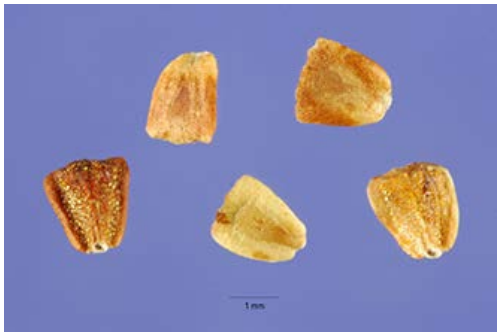
Description: Erect herbaceous, perennial, native forb, aromatic; roots with tubers; stems square, spreading hairy; leaves with more than 6 teeth per side; 2.0-3.0'; flowers white; key features: "*Lycopus asper* has leaves with usually more than 6 teeth per side & is a coarse sp with the stem spreading hairy" (rvw11).

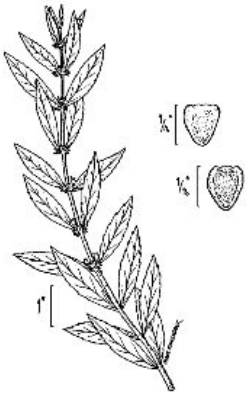
Comments: status: phenology: Blooms 6-8. In northern Illinois, collect seeds in mid-October - mid-November. Genetic source Spring Slough, Rock Falls, Hume Twp, Whiteside Co.

Associates: ethnobotany: Tubers are available in late autumn to spring. Tubers used as food by Ojibwa & Chippewa, dried & boiled. (den28) The plant was used medicinally as a laxative for children, but it was also considered poisonous ☠.

VHFS: [*Lycopus lucidus* auct pro parte, non Turcz ex Benth, *L lucidus* Turcz ex Benth subsp *americanus* (A Gray) Hultén, *L l* Turcz ex Benth var *americanus* A Gray]







Lycopus asper

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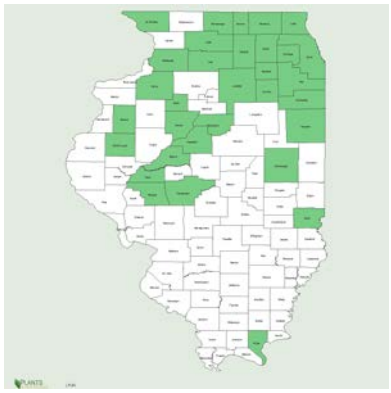
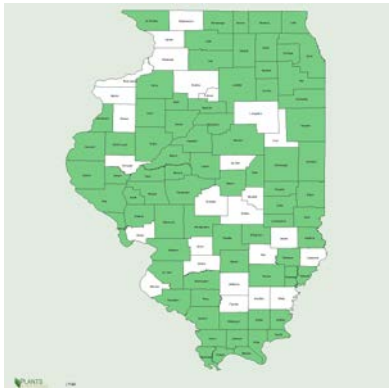
Lycopus uniflorus Michaux NORTHERN BUGLEWEED, aka NORTHERN WATER-HOREHOUND, **(***uniflorus -a -um* uniflor'us (yoo-ni-FLOR-us) New Latin single-flowered, with one flower.**)**



"Marshes, calcareous fens, around lakes; occasional in the n ½ if Illinois; also Clark Co" (m14). In Michigan, "usually in habitats similar to those of our other common species, *L. americanus*, and often growing with or near it; shores, swamps (cedar, tamarack, hardwoods), wet prairies, fens, bogs; ditches, borrow pits, ponds; wet thickets, meadows, stream banks" (rvw11).
Not available as seed or plants.
Evergreen, aromatic; from a soft, corm-like tuber; flowers small, inconspicuous;

"This seems to be limited to boggy places in Coon Creek bottom where it is common. The leaves are serrate & the root & the stolons have tubers." (ewf55)
VHFS: [*Lycopus virginicus* L var *pauciflorus* Benth].
Illinois map courtesy plants.usda.gov.

Lycopus virginicus Linnaeus BUGLE WEED, aka BUGLEWEED, EGYPTIAN'S HERB, GIPSYWEED, HOREHOUND, SWEET BUGLE, VIRGINIA BUGLEWEED, VIRGINIA(N) WATER HOREHOUND, WATER BUGLE, WATER HOREHOUND, (*virginicus -a -um* virgin'icus (vir-JIN-i-kus) pertaining to, of, or from Virginia, USA, Virginian.) obl

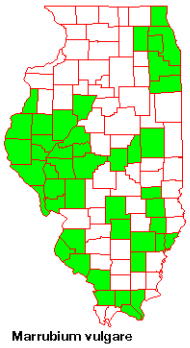


The common names GIPSYWEED & EGYPTIAN'S HERB originated from a black dye extracted from *L europaeus*, used to permanently color wool & silk, which the gipsies & people calling themselves Egyptian's used to stain their skin darker (M Grieves, 1980. *A Modern Herbal*. London: Penguin).
Habitat: Wet meadows. In Michigan, "our collections, all fruiting, are from forested floodplains" (rvw11). distribution/range: "Wet ground, occasional; scattered throughout Illinois" (m14).
Culture: propagation: ①Dormant seed or moist cold stratify. ②Sow at 4ºC (40ºF) for 6 wks, move to 20ºC (68ºF) for germination (tchn).
availability: Not available as seed or plants.
Description: Erect perennial, 1.0-2.0'; slightly aromatic; flowers white; key features: "This is a much more robust species than *L. uniflorus*, with dense and nearly spherical infructescences nearly or quite concealing the bracts and calyces. The nutlets are larger than in *L uniflorus*. The leaves are sometimes reddish tinged." (rvw11).
Comments: status: phenology: Blooms 8,9. "Less frequent than *L americanus* in the same wet places. The leaves are serrate. The root & the stolens (sic), which may be long & numerous, are usually without tubers." (ewf55)
ethnobotany: The plant is said to be sedative, astringent & mildly narcotic.
Illinois map courtesy plants.usda.gov.

MARRUBIUM Linnaeus 1753 **HOREHOUND** *Lamiaceae* or *Labiatae* *Marrubium* New Latin, from Classical Latin, horehound, a name for a familiar cough remedy based on an ancient Hebrew word for bitter. A genus of 30-40 spp of herbs of Mediterranean Europe & Asia.

Marrubium vulgare Linnaeus HOREHOUND, aka COMMON HOREHOUND, (*vulgaris -is -e* (vul-GHA-ris) common, vulgar, of the *vulgus,* or common people)
Habitat: Waste ground, barnyards, & stockyards. In Michigan, "An Old World sp escaped to pastures, fields, roadsides, yards, old homesites, & disturbed places" (rvw11). distribution/range: "Native to Europe & Asia; naturalized in fields & pastures & along roads; occasional to common throughout Illinois" (m14). Introduced from Europe.

"I have often seen & occasionally collected this plant along gravelly trails in the mountains of southern California where it is a common evergreen weed up to at least the 3,000 foot level, & although to be expected in Henry Co, my only specimens were found in a Geneseo city lot, October 30, 1939, where probably planted.



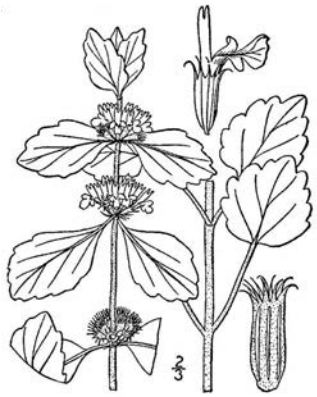
One of the many old time medicinal plants, so officially recognized more than a hundred years ago, & still said to be of some commercial importance, the leaves & tops being used." (do63)

①Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks (tchn).

Description: Perennial; leaves opposite, simple, margins crenate; flowers white 5-merous; N. key features:

Comments: status: phenology: Blooms 5-9. C3. An old fashion herb that is now infrequently grown.

Associates: ethnobotany: Used in cough syrups in folk remedies (w07). Used as a flavoring for candy, medicines, & beverages. Inflorescence & dried leaves are used as a stimulant, tonic or laxative (Ilpin).



Marrubium vulgare

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.

MENTHA Linnaeus 1753 **MINT** *Lamiaceae* or *Labiatae* *Mentha* (MEN-tha) a very old plant name from the Latin name, mint, from the Greek nymph *Mentha* who was turned into a plant. A genus of about 20-25 spp of perennial herbs of temperate Eurasia & northern North America. Herbaceous, highly aromatic, colonial perennial forbs, with long creeping rhizomes, toothed leaves, & axial whorls & terminal spike of small blue to white flower, short tube, usually 4-lobed; upper lobe fusion of 2, usually wider than others; 4 protruding stamens; whorls at leaf axils or in terminal spikes. The genus has a long record of cultivation, with names referring to different plants at different times. Hybrids persist & spread vegetatively. Many European taxa are adventive in Illinois (m14).

Mentha aquatica & longifolia, sow at 20ºC (68ºF), germination slow (tchn).

Mentha spicata & *M x piperita* are commonly used in Mint Juleps

Mentha arvensis Linnaeus (alternate nomenclature **Mentha canadensis** Linnaeus (rvw11) WILD MINT, aka FIELD MINT, COMMON MINT, CORN MINT, [obl]

Habitat: Marshes, agricultural & other disturbed wetlands mostly on gravels. Sp is found in meadows, in pastures, along ditches & shores, mostly on damp, open gravel. Seedbank sp in agricultural wetlands. In Michigan, "our only native species of *Mentha*. Moist ground & wet places generally, whether disturbed or undisturbed: marshes and wet shores, borders of rivers and streams, fens and wet prairies, swamps (hardwood, cedar, tamarack), thickets (often with willows and alder), beach pools, ditches and swales, meadows and pastures." (rvw11).

distribution/range: " Marshes, low ground; occasional to common in most of Illinois" (m14).

Culture: propagation: ①No pre-treatment necessary other than cold, dry stratification. Surface sow, seeds are very small or need light to naturally break dormancy & germinate (pm09). ②Fall plant or cold stratify for 2 to 3 months for best results. Sow on the soil surface at 70ºF & water. (ew11)

seed counts & rates: 2,820,512 (gna07), 3,748,760 (gnhm11), 4,800,000 (pm01), 4,928,000 (ew11), 5,040,000 (jfn04), 5,120,000 (aes10), 5,820,512 (gn07) seeds per pound.

availability: Seed production is far exceeded by demand, therefore the seed is high priced & sells out early. There is a perpetual shortage of WILD MINT seed, with never enough to satisfy the demand. Availability is limited to the extent this sp should not be part of any general seed mix. Buy early & buy often. Plugs are more cost effective to use in restorations than seed.

asexual propagation: Division of mature plants, stem cuttings.

cultivation: Space plants 1.0-1.25'. Sp is strongly rhizomatous & may overwhelm small plantings. Drink many Mint Juleps or plant this sp as you would any aggressive culinary mint species!

bottom line: Dormant seeding is best, with most lots significantly dormant. Spring works most years. Near flipflop species. Germ 27.3, 31.5, na, sd 14.7, r3.0-43 (40)%. Dorm 44.2, 41, na, sd 34.4, r3.0-93 (90)%. Test 32, 31, na r28-36 days. (#6)**

Description: Erect perennial, 1.0-2.0', rhizomatous; flowers white; fruits are nutlets less than 0.06 inch (1.5 mm) long, smooth, light brown, each with an irregular dark line on the convex side. key features: Flowers in whorled clusters distinctly separated along the stem (fh).

Comments: status: phenology: Blooms 7,8,9. Highly aromatic, often found by sense of smell before it is seen. Used in rain gardens, aroma gardens, bog gardens, wetland restoration, & erosion control. Genetic source, Hume & Prophetstown Twps, Whiteside Co & farmed wetlands & drainage ditches Bureau Co.

WILD MINT is often found by scent before sight.

"*M canadensis* L Mint. Common on stream banks & in other wet places. There is a marked variation in pubescence & in size & shape of the leaves. Flowers are axillary. (ewf55 as *M canadensis*)

Associates: Reported as deer resistant.

ethnobotany: Leaves available spring to fall. Used by Ojibwa, Menominee, & Pottawatomie for beverage, flavoring & medicine (sm32, 23, 33). Leaf tea used by Ojibwa, Menominee, & Pottawatomie (sm32, 23).

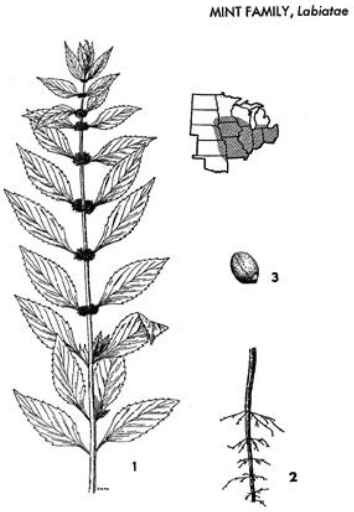
VHFS: Variety *villosa* (Benth) SR Stewart is native. Variety *arvensis*, FIELD MINT, is introduced from Europe, & is rarely adventive in Illinois, known from Crawford Co.

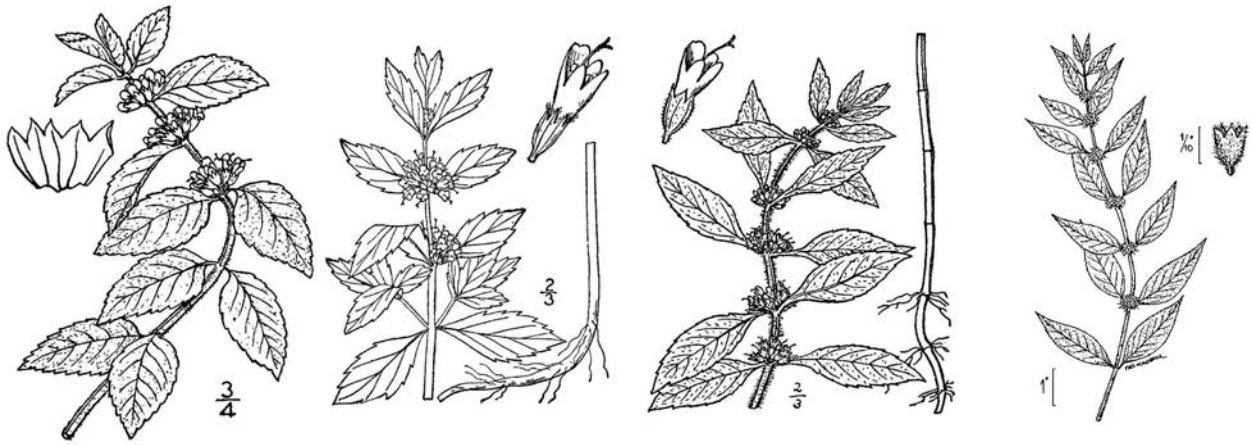
Reznicek et al (2011) list the native taxa as *M canadensis* L. "North American plants are apparently derived from ancient hybridization of the European *M arvensis* & *M longifolia* (Tucker & Chambers 2002). Morphologically, they differ from *M arvensis* in usually being more stiffly upright plants with narrower, & usually more acute and sharply toothed leaves, and narrower and more acute calyx lobes." (rvw11)

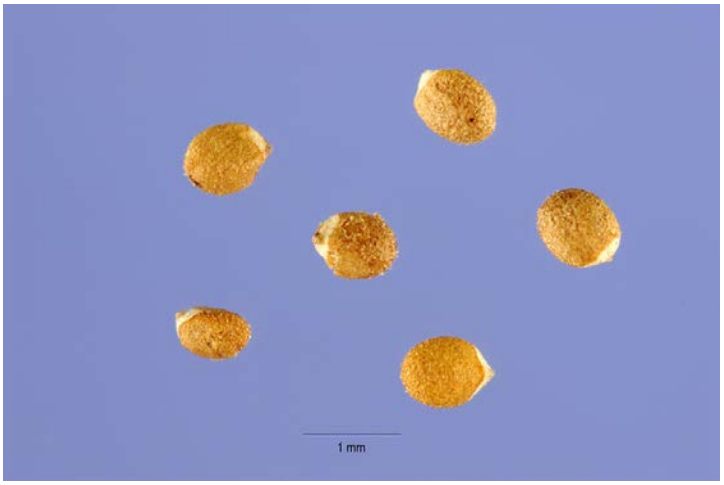
Leaves rounded at the base, the petioles longer than the clusters of flowers……..var *arvensis*

Leaves cuneate at the base, the petioles equaling or shorter than the clusters of flowers…var *villosa*

[*Mentha arvensis* auct non L, *M a* L subsp *borealis* (Michx) Roy L Taylor & MacBryde, *M a* L subsp *haplocalyx* Briq, *M a* L var *glabrata* (Benth) Fern, *M a* L var *lanata* Piper, *M a* L var *sativa* auct non Benth, *M a* L var *villosa* (Benth) SR Stewart, *M a* L var *villosa* (Benth) SR Stewart f *glabrata* (Benth) SR Stewart, *M canadensis* L, *M glabrior* (Hook) Rydb, *M penardii* (Briq) Rydb]







Mentha arvensis

Illinois map courtesy plants.usda.gov. Line drawing Bull 772, U of I, DOA http://extension.illinois.edu/~vista/html_pubs/WEEDS/intro.html . 2nd – 4th line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 5th[h] line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS. *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Illinois map courtesy plants.usda.gov.

Mentha x piperita Linnaeus (pro sp) PEPPERMINT,
"Native to Europe; occasionally adventive in moist waste ground. Reputed to be a hybrid between *M aquatica* L & *M spicata* L." (m14) "Common along streams & in other wet places. The leaves are petioled & the flowers are mostly in thick terminal spikes." (ewf55)

Mentha spicata Linnaeus SPEARMINT,
"Native to Europe; frequently planted & occasionally escaped into disturbed areas; throughout Illinois" (m14), Introduced from Europe. "Common in the same places as the above. Leaves sessile; terminal spiked slender.' (ewf55)

MONARDA Linnaeus 1753 **BEE BALM, MOUNTAIN-BALM, WILD BERGAMONT, YES LOOK AT THE N FOLKS,** aka **WILD BERGAMOT** *Lamiaceae* or *Labiatae Monarda* (mo-NAR-da) after Nicholas *Monardes*, 1493-1588, Spanish botanist & physician. The common name BERGAMOT irregularly reflects the Germanic roots of German *Bergminze*, Norwegian *bergmynte*, Icelandic *bergminta*, & the neighboring, but unrelated Finnish *mäkimeirami*, "mountain mint", hence *bergamonta,* irregular from *bergminta*. Properly the common name is BERGAMONT, as BERGAMOT has several other meanings, including the bitter orange (*Citrus aurantium* ssp *bergamia*, originally of Turkey) that is the source of OIL OF BERGAMOT used in Earl Grey tea. One source says the common name is from the fact the native mint smells like the bitter orange. OIL OF BERGAMOT was probably beyond the cultural experience of my German & Scandinavian peasant farmer/carpenter forbearers that settled in the prairies of Illinois & Iowa & first experienced the native BERGAMONT, but the Old World *bergmint, Mentha citrata*, & other similar spp, were already a rare part of their Old World cultural experiences. BERGAMOT is easier to pronounce than BERGAMONT, & languages typically have been dumbed down for less for millennia. See the appendix With *Mālus* Toward None on our website or DVD for the related *pergamena, pergamonto* & *Origanum*.

A chance specimen, local ecotype production plot.

"BERGAMOT" is mentioned in Thoreau's Wild Apples.

"It is an old notion, that, if these wild trees do not bear a valuable fruit of their own, they are the best stocks by which to transmit to posterity the most highest prized qualities of others. However, I am not in search of stocks, but of the wild fruit itself, whose fierce gust has suffered no "inteneration." It is not my

"highest plot to plant the bergamot"

From The Harp of Andrew Marvel, by Theodore Tilton.

"And if we would speak true, much to the man is due"

"who from his private gardens, where he lived reserved & austere (as if his highest plot to plant the bergamot)."

"could by industrious valor climb to ruin the great work of time & cast the kingdoms old into another mould."

Marvels Grand Ode to Cromwell

In reference to the above: "The bergamot may mean a variety of the pear, of the quince, or of the lime or lemon. Besides this there are one or two mints (italic.) called bergamot. Probably the bergamot pear is intended."

------- American Notes & Queries, Volume 6, edited by William Shepard Walsh, Henry Collins Walsh, Samuel R Harrison.

American Notes & Queries
A
Medium of Intercommunications
For
Literary Men, General Readers, etc.
Vol.VI
Nov 1890 - April 1891

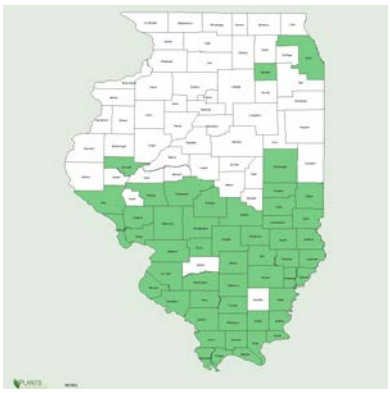
The West Minister Publishing Co
619 Walnut Street
Philadelphia

A genus of 12-20 spp of coarse North American annual, biennial, & perennial herbs having a tubular many-nerved calyx & whorls of variously colored flowers. Local spp are aromatic, herbaceous, perennial & biennial forbs with tight axial clusters or one terminal cluster, with flowers lavender, pink, deep red, or white, with the upper lip 2-lobed, narrow, lower lip broad, 3-lobed, 2 protruding stamens; tight round clusters. Fruits are nutlets. Many spp, especially *M didyma*, have cultivated forms. Many cultivated selections are of hybrid origin.

Seeds ripen summer to late summer. Easy from cold moist stratified seed. Code B. 2-3 node stem cuttings root easily. Older, hollow stems will rot. Some spp cuttings will not form perennating buds. (cu00)

Monarda spp are larval host for *Pyrausta orphali* ORANGE MINT MOTH, *Sphinx eremitus* HERMIT SPHINX MOTH, & nectar source for *Battus philenor* PIPEVINE SWALLOWTAIL, *Hemaris thysbe* HUMMINGBIRD CLEARWING MOTH, & *Hyles gallii* BEDSTRAW HAWKMOTH.

Many *Monarda* spp have the common name BEEBALM. This is in reference to the crushed leaves used as a poultice for bee stings.



Monarda bradburiana Beck *IN BRADBURY'S MONARDA, aka EASTERN BEEBALM, (*bradburianus -a -um* for John *Bradbury* (1768–1823), English naturalist, collector for the Liverpool Botanic Garden in the Missouri Territory (1810–1811).)
Habitat: Dry & dry mesic savannas & woodlands. distribution/range: "Dry woods, bluffs, roadsides; occasional in the southern ⅗ of Illinois; also DuPage Co" (m14). Native to the southern ½ of Illinois & south & west of Illinois.
Culture: propagation: ①(Code A, D Ken Schaal) ②60 days cold moist stratification? (pm11). ③Sow at 20ºC (68ºF), germ in less than two wks thin cover, needs light (tchn).

seed counts & rates: 560,000 (pm02), 2,368,000 (gn) seeds per pound.
Comments: status: Endangered in Indiana. phenology: Blooms 6-7, exquisite flowers, blooming several weeks before *M fistulosa*. Our plants from Ken Schaal survived a decade plus of neglect & SMOOTH BROME, but they slowly diminished. A few more Republican presidencies (or one Tea Party), & this sp will thrive 150 miles north of its range. Until then, only the strong survive.
VHFS: [*Monarda fistulosa* Sims, nom inq, *M rigida* Raf, *M villosa* M Martens]

Monarda bradburiana

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

Monarda citriodora Cervantes ex Lagasca y Segura LEMON MINT, aka LEMON BEEBALM OR BALM, LEMON BERGAMOT, LEMON HORSEMINT, LEMON MINT, LEMON MONARDA, PLAINS HORSEMINT, *PRÄRIEBERGAMOT* (G), PURPLE HORSEMINT, (*citriodorus -a -um* (kit-ree-o-DO-rus) lemon-scented.)
Habitat: distribution/range: Native to the western US; rarely escaped from cultivation; Cook Co, Illinois (m14). Native of south-central USA.

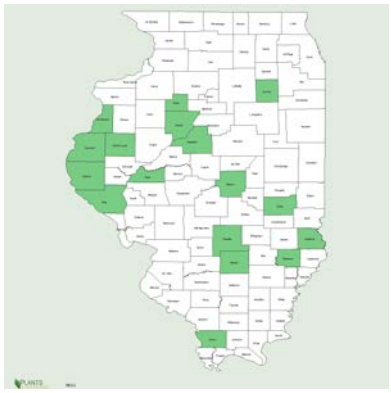
Culture: propagation: ①No pre-treatment necessary other than cold, dry stratification (pm09). ②No pretreatment needed. Sow seeds on the soil surface at 70ºF & water. (ew11) ③Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks (tchn). ④Easy from seed. Seed in the fall in the south & in the spring in the north (pots).

seed counts & rates: 711,245 live seeds (s&snysstl01), 820,000 (gran), 889,058 (s&s nysst001), 1,003,315 (gna07), 1,012,000 (appl), 1,200,000 (ew11) seeds per pound. Pure stand plant 3 lb pls per acre.

cultivation: Space plants 1.5-2.0'. Low to moderate water requirement, full sunlight, mesic soils, but adapted to different soil types. Moderately coarse to moderately fine soils. Neutral soils. Likes limestone soils (pots).

Description: Western native annual forb; 12-36"; flowers white to lavender; dotted with purple;
Comments: status: phenology: Blooms May to August. Used for quick color in native mixes; seems to not persist in northern Illinois. Aromatic lemon scented foliage & fragrant flowers. Seed sources commercial sources.
Associates: Attracts butterflies & hummingbirds. Reported as deer resistant.
Illinois map courtesy plants.usda.gov.

Monarda clinopodia Linnaeus *NJ, NY WHITE BERGAMOT, aka BASIL BEEBALM, BEE BALM, CLINOPOD BERGAMOT, WHITE BASIL-BALM, WILD BERGAMOT, *clinopodium* clinopo'dium (kly-no-PO-dee-um) bed-foot, from Greek, said to be in reference to the flowers resemblance to bed casters. From Latin name *clinopodium, clinopodi(i)*, for WILD BASIL, *Calamintha clinopodium*. Very similar to *clinopus, clinopodos/is*, n foot of a bed.

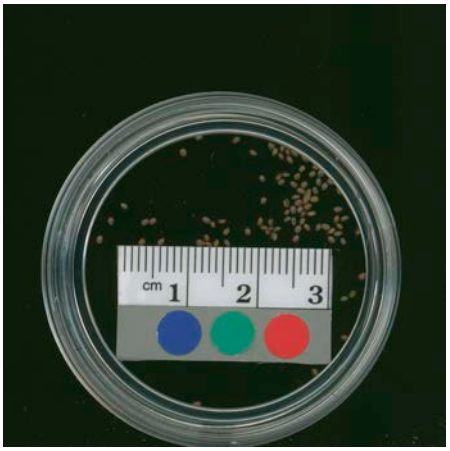


Habitat: In Michigan, " known only from Warren Woods, Berrien Co, it grows in moist floodplain forests, a habitat quite different from the upland & mostly sunny sites of the similar *M fistulosa*" (rvw11). distribution/range: Woods, scattered in the s ½ of Illinois, also Grundy, Kendall, & LaSalle cos(m14). Illinois is at the sp nw limit of its range.
Culture: propagation: ①Kew Storage Behaviour: Orthodox. Storage Conditions: 100 % viability following drying to mc's in equilibrium with 15 % RH and freezing for 52 days at -20C at RBG Kew, WP Germination 100 % germination; ; germination medium = 1% agar; germination

conditions = 15°C, 8/16;100 % germination; ; germination medium = 1% agar; germination conditions = 20°C, 8/16; 75 % germination; ; germination medium = 1% agar; germination conditions = 25°C, 8/16; (RBG Kew, WP)
Description: key features: ① "The petioles of *M clinopodia* are usually longer than those of *M fistulosa*, the longest usually ca 2–3.5 cm versus ca 1–2.4 cm. Petioles of *M clinopodia* typically have only sparse, spreading hairs, the longest more than 1 mm long, in *M fistulosa* the petioles are usually finely and densely pubescent, sometimes with longer straight hairs, but these usually less than 1 mm long. Leaves are broader in *M clinopodia*, ± ovate, and often wider than 4 cm; *M fistulosa* usually has narrower leaves, rarely more than 4 cm wide. The flowers of *M clinopodia* are paler, often nearly white, in contrast to the lavender flowers usual in *M fistulosa*. (rvw11)
Comments: status: Endangered in New Jersey & New York. phenology: Blooms June-July
Associates: Species is of special value to bumble bees and other native bees.
ethnobotany: Used as a tea substitute.
VHFS: [*Monarda allophylla* Michx, *M clinopodifolia* L, *M clinopodioides* A Gray, *M fistulosa* L var *clinopodia* (L) Cooperr]



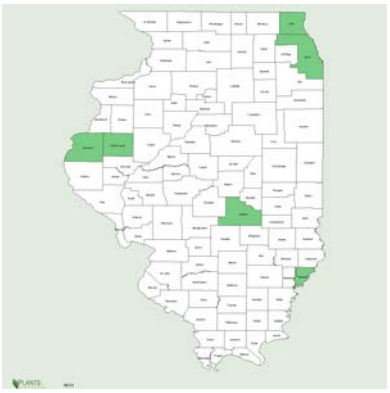


Monarda clinopodia

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society Photos courtesy RW Smith & Thomas L Muller, Wildflower Center Slide Library. Unrestricted images. Seed image courtesy of National Plant Germplasm System, M. Cashman, USDA, ARS, GRIN. Illinois map courtesy plants.usda.gov.

Monarda didyma Linnaeus *MI, NY OSWEGO TEA, aka BEE BALM, BERGAMONT, CRIMSON BEEBALM, FIRECRACKER PLANT, FRAGRANT BALM, *GOLDMELISSE* (G), *HESTE-MYNTE* (D), *MONARDE ÉCARLATE, MONARDE ÚCARLATE*, MOUNTAIN MINT, OSWEGO-TEA, SCARLET BEE BALM, SCARLET MONARDA, WILD OREGANO, (*didymus -a –um* did'ymus (DID-ee-mus) from modern Latin *didymus*, from Greek δίδυμος, *didymos*, twin; in pairs, as of stamens, or two-lobed, &c.**)** OSWEGO TEA refers to the use of the leaves for a tea by the Oswego Indians of New York, but Oswego is the name of a river, a fort, & a city in New York, from the native American *Oshwakee,* the flowing out of the waters. Other than in herbals, the Oswego Indians are very elusive.



Habitat: Mesic to wet mesic prairies & savannas. In Michigan, "long known (since 1840 in Macomb Co) and possibly even native in rich forests on banks and floodplains of the Clinton and Black rivers in Macomb and St Clair Cos. Clearly an escape from cultivation elsewhere in the state, along roadsides and in thickets." (rvw11). In the se USA, "seepage slopes, periglacial boulderfields with abundant seepage, streambanks, boggy places, usually in strong to moderately filtered sunlight; common" (w12). distribution/range: Native to the e US; occasionally escaped from cultivation into woodlands; Cass, Cook, DuPage, Hancock, Lake, Macon, McDonough, Shelby, & Wabash cos in Illinois (m14). Introduced in Wisconsin. Native to eastern North America.

Culture: propagation: ①No pre-treatment needed. Sowing outdoors in the spring is the easiest method. (he99) ②Sow at 20ºC (68ºF), germ in less than two wks thin cover, needs light (tchn). ③"Seeds mature 1-3 weeks after flowering. Bend the stem over and tap the fruiting heads. If brown seeds fall out readily, they are mature. Air-dry, clean and store in sealed, refrigerated containers." (lbj)

availability: Widely commercially available, but apparently exclusively as "improved selections". We have not seen the straight species offered, only selections.

asexual propagation: Division of mature clumps in early spring before growth starts. Softwood cuttings in late spring. Root cuttings?

cultivation: Space plants 1.0-1.5'. Full sun to partial shade, wet to mesic soils. Rich, moist acid soils, pH <6.8. Colonizes by rhizomes, divide every 3 years

bottom line:

greenhouse & garden:

Description: Erect perennial, 2.0-5.0(6.0)', aromatic. key features: Flowers red.

Comments: status: Probably Extirpated in Michigan. Exploitably vulnerable in New York. phenology: Blooms 6-8. Collect seeds in se Wisconsin in October (he99). Numerous selections are cultivated. Ornamental, specimen plantings, & rain gardens.

Associates: Attracts butterflies, hummingbirds, & bees, nectar source. Sp is if special value to bumble bees and other native bees. Moderately deer resistant. Juglone tolerant. Some varieties ar susceptible to powdery mildew.

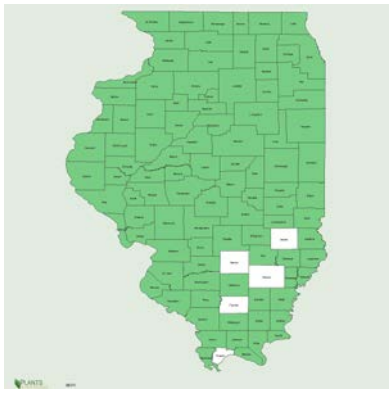
ethnobotany: Leaves used for tea by Native Americans, hence the common name. Leaves contain Thymol, a natural antiseptic. The name "Oswego tea" comes from the American botanist John Bartram (1699-1777), who discovered Indians & white settlers near Oswego, New York, making tea from the leaves of this species. The leaves are said to have a fragrance similar to the bergamot orange (*Citrus bergamia*) which is grown almost exclusively in southern Italy and used to flavor Earl Grey Tea. Monarda didyma is aid to be occasionally used in Earl Grey Tea(?), undoubtedly by those who do not know the source of oil of bergamot.



Monarda didyma cvs

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

Monarda fistulosa Linnaeus *RI Formerly *Monarda mollis* L WILD BERGAMONT, aka BEE BALM, BERGAMOT, *BERGAMOTTE* (G), *HESTE-MYNTE* (D), HORSEMINT, MINTLEAF BEEBALM, MINTLEAF BERGAMOT, *MONARDE FISTULEUSE*, OSWEGO-TEA, PURPLE BEEBALM, WILD BERGAMOT BEE BALM, WILDBERGAMOT BEEBALM, WILDBERGAMOT HORSEMINT, *Bibi'gwunukuk' Wabino'wuck,* resembling a flute, eastern medicine (Ojibwa) (*fistulosus -a -um* (fist-ew-LO-sus) Tubular, dude! Hollow, pipe-like, hollow like a pipe, but closed at both ends, hollow throughout as the leaf of a garden onion; full of holes, New Latin from *fistula*, a water-pipe; a reed-pipe, shepherd's pipe, tube, hollow reed or stalk, or Pan pipe, & *-osus*, adj suffix for nouns indicating plenitude or notable development. A reference to the hollow stems or the long tubular flowers. Cf the tubular leaves of Egyptian onions.) facu



Habitat: In most native communities, hill prairies, dry to wet mesic prairies & savannas, edges of woods, dry thickets, clearings, & borders of woods. Roadsides, woods, dry fields & thickets. Frequent in calcareous soils. In Michigan, "usually in dry, open, sandy, gravelly, or rocky ground such as oak or jack pine savanna, prairies, fields, and roadsides; occasionally in sedge meadows or other moist places; often at edges of forests and thickets, on open stream and lake banks and stabilized dunes; spreading into disturbed places" (rvw11). distribution/range: Most of the US east of the Rockies, except the Piedmont & Coastal Plain. In most Illinois counties.

Culture: propagation: ①"Cold treatment, or no pretreatment, or fall sow. Very light to light cover. Excellent germination. " (mfd93). ②No pre-treatment necessary other than cold, dry stratification (pm11). ③No pretreatment needed. Sow seeds on the soil surface at 70ºF & water. (ew11) ④Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-

39ºF) for 2-4 wks (tchn). ⑤"30 days moist stratification improves germination, but not needed for good greenhouse crop. Field sow fall, spring, early summer" (pnnd). ⑥Seed laboratories may use a 10-day prechill before a germination test. Germinates best with light at warm temperatures. Dry store seed. No treatment necessary. Established readily from seed. Easy from moist stratified seed, light or GA3, no treatment, successional restoration. Growth rate moderate. Seedling vigor medium. Vegetative spread rate slow.

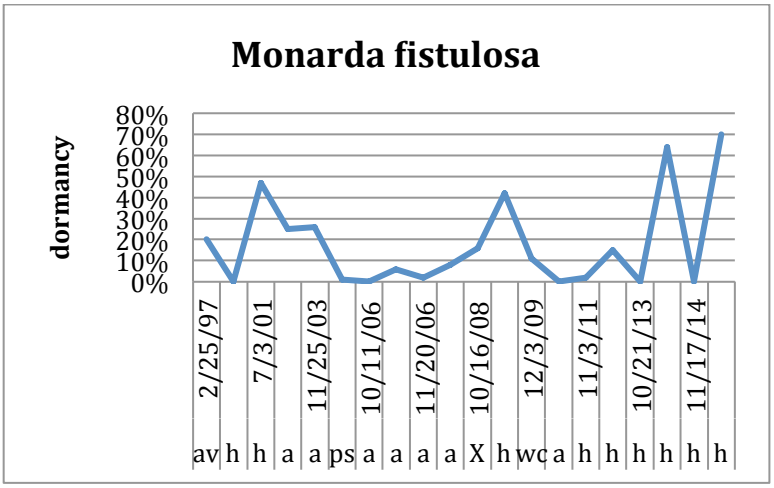
seed counts & rates: 1,007,769 (gna03), 1,080,952 (gnh02), 1,120,000 (pm01), 1,200,000 (pm), 1,235,374 (gna11), 1,244,800 (aes10), 1,248,000 (pn02; jfn04, sh94), 1,248,968 (gna06), 1,264,000 (ew11), 1,272,000 (ecs), 1,272,500 (usda), 1,296,000; 1,381,632 (wns01), 1,498,000 (granite), the exceptional year 4,223,256 (gna05) seeds per pound. Pure stand plant 2 lb per acre (granite). Our recommendation is in mixes plant 0.015 to 0.125 lb pls per acre. USDA (1997) repeats some unsound rates of 0.125-1.00 lb pls per acre, which may be great for effect. Yea, right, a bit on the high end, & I have a wonderful bridge that might interest you.

"*Monarda fistulosa* General prairie & other habitats. Blooms early July through August; PALE VIOLET. Harvest October. 3'; easy by method #1, SEEDLING TRANSPLANT. Blooming 2nd year. Rhizomatous & almost weedy, but desirable for attracting insects." (rs ma)

asexual propagation: Divide mature clumps in spring before new shoots appear. Stem cuttings work well in green house.

cultivation: Space plants 1.5-3.0'. Full sun to partial shade, mesic to dry soils. Low to moderate water requirements. Moderately coarse to moderately fine soils, tolerates clay soils. Limited inundation tolerance. Nutrient load tolerance moderate. Siltation tolerance low to moderate. Anaerobic tolerance high. CaCO3 tolerance medium. Drought tolerance rated none to high (*known to tolerate sand prairies with in situ soils, but plants are dwarfed*). Fertility requirement medium. Salinity tolerance none. Shade tolerance intermediate, full sun to partial shade. pH 6.0-8.0.

bottom line: Plant spring or dormant with reasonable results. 30% of lots are significantly to strongly dormant & benefit from dormant seeding. Germ 71.9, 78, 70, sd 22.5, r17-98.5 (81.5)%. Dorm 17.8, 9.5, 0.0, sd 21.3, r0.0-70 (70)%. Test 26, 27, 27, r10-43 days. (#20:2)**



greenhouse & garden: Germinates best with light at warm temperatures. Dry store seed. No treatment necessary. Established readily from seed. Easy from moist stratified seed, light or GA3, no treatment, successional restoration.

Description: Native aromatic, perennial subshrub herb; 4" minimum root depth; stems 12-42", square; with grey-green foliage; flowers lilac, (pink, lavender, purple, blue/violet)) to rarely white; key features: Flowers pale purple, stamens longer than the petals, inflorescence a single, round dense cluster; leaves gray (fh).

Comments: status: Historical sp in Rhode Island. *Monarda* is also considered invasive in some parts of its range or in certain applications (plow & cow regulations) (Stubbendieck et al 1994). phenology: Blooms 6,7,8. In northern Illinois, collect seeds in late August through October. Collect seeds in se Wisconsin in October (he99). Leaves are aromatic. Attractive cut flowers, dried flowers, & dried seed heads. Forms large colonies, landscaping, flower beds, naturalized meadows, rain gardens, roadside plantings, striking *en masse* (*occasionally, but not always, justifying those high seeding rates*), increasing diversity, useful in upper slope stabilization, & erosion control. Aggressive, spreading by seed & rhizomes, young plants rapidly increasing in

size, successional in diverse restorations with grassy competition, gradually diminishing. Seed source nursery production plots genetic source railroad remnant, Big Rock, Kane Co, & DuPage, Kane, & Will (Horlock) cos.

Bob Horlock was Seedsman for The Natural Garden in the 1980s & early 1990s, & a pioneer in this industry. We were fortunate to have a friendly business relationship with Bob during the early years of our nursery. Bob's seeds were collected in DuPage, Kane, & Will cos. We traded back & forth with him, & several of our production plots originate from his collections. Bob passed away in the early 1990s.

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

"A very common roadside weed which grows also to some extent in thin woods. In 1945, the white form was common over the county but we have seen little of it since. The offspring of white plants that we transplanted to our garden had lilac colored flowers. (*M fistulosa* var *mollis* (L) Benth)" (ewf55)

Associates: Butterfly nectar source, & pollinated by *Lepidoptera*. Nectar source for *Speyeria cybele*, Great Spangled Fritillary Butterfly. Attracts hummingbirds (Ruby-Throated Hummingbirds), butterflies, honeybees, & many beneficial insects. Pollinated by long-tongued bees, short-tongued bees, native bees, & *Lepidoptera*. Palatable to herbivores in early growth stages. Reported to be deer resistant. Reported tolerant of growing under walnut trees.

ethnobotany: Used as medicinal beverage by Ojibwa (sm23). Ojibwa medicine for eruptions, burns, & worms (den28). Used by Ojibwa & Fox as medicine.

VHFS: An involved, widely distributed sp, with subsp & varieties, & opinions there of. What constitutes a subsp or variety varies with the authority.

Monarda fistulosa L ssp *brevis* (Fosberg & Artz) Scora, comb nov ined. [*M fistulosa* L var *brevis* Fosberg & Artz] SMOKE HOLE BERGAMOT, aka CEDAR GLADE BERGAMOT, is known from Virginia & West Virginia.

M fistulosa L ssp *fistulosa* has five varieties, of which three varieties are in Illinois, & one, which is native to adjacent states.

Add Key to Illinois vars.

Var *fistulosa* occurs through out most of the eastern United States, except Wisconsin & Florida. "Dry woods, fields, prairies, roadsides; common throughout Illinois" (m14). Leaves thin, green; lower surface of leaves with hairs 1-3 mm long; blades spreading-hirsute or villous with long hairs along the veins beneath, corolla deep purple or lavender; middle lobe of lower lip of corolla 2-4 mm long; bracts green except for a reddish midvein, often intergrading with the following.

Var *mollis* (L) Benth EASTERN BERGAMOT, aka CANESCENT WILD BERGAMOT, occurs from the Great Plains to the Atlantic, except Florida. "Dry woods, prairies, fields; scattered in Illinois" (m14). Leaves firm, pale green, lower leaf surfaces canescent (or puberulent), minutely short-pilose, hairs less than 1 mm long of glabrescent; corolla deep purple or lavender; middle lobe of lower lip of corolla 2-4 mm long; bracts green except for a reddish midvein. Blooms May-August. [*M mollis* L, *M scabra* Beck]

Var *rubra* Gray PURPLE BERGAMOT, aka RED WILD BERGAMOT, occurs in Illinois & several eastern states. "Fields, not common; scattered in Illinois" (m14). Corolla deep purple to crimson; middle lobe of lower lip of corolla 4+6 mm long; bracts pink tinged. Blooms May-August.

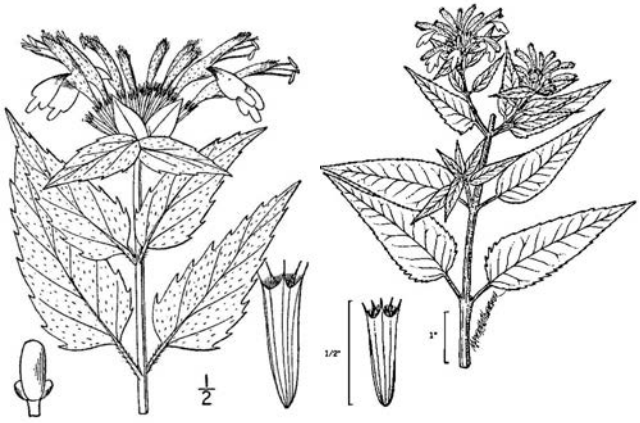
Var *menthifolia* (Graham) Fern MINTLEAF BERGAMOT, grows in Iowa, Wisconsin, & further west. [*M menthifolia* Graham]

Var *stipitatoglandulosa* (Waterfall) Scora, comb nov ined is known from Arkansas & Oklahoma.

A lemon-scented variation, *Wahpe Washtemna*, is sold by Prairie Moon. M14 under var *fistulosa,* notes "an unnamed variety with a strong lemon scent has been found several times in Illinois." A few plants of this variation were found in a remnant in Lee Co, Illinois, about 1 mile east of County Line (Foley) Prairie & ¼ mile north of where Ed Foley's house used to be (east side of blacktop). This neighborhood has been taken over by hog confinements in recent years. It is now ill advised to inhale deeply through your nose while looking at *Monarda* in this area.







Monarda fistulosa

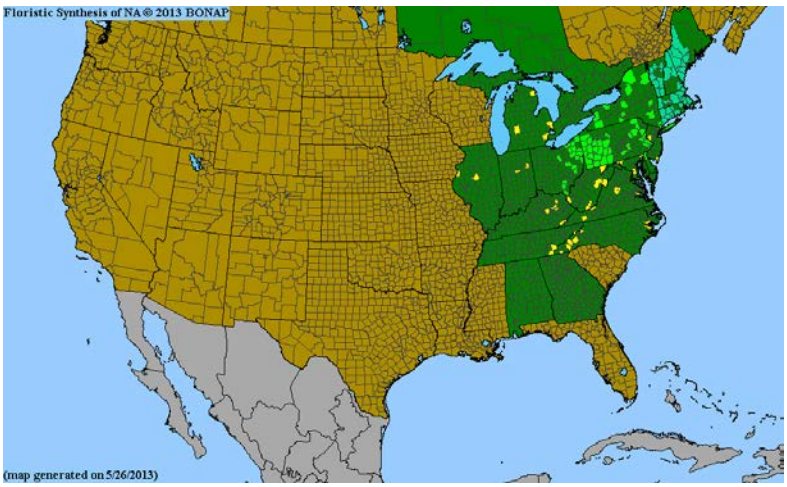
Illinois map courtesy plants.usda.gov. 1st line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS. *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Illinois map courtesy plants.usda.gov.

Monarda x media Willdenow HYBRID MONARDA, aka MEAN MONARDA, PURPLE BEE-BALM, PURPLE BERGAMOT, *medius, media* the middle, from classical Latin *medius,* middle, as in the middle of a body, part, or organ; or central, between others (parts or species).
"Dry woods, rare, Henderson, Tazewell, & Union cos. This is a reputed hybrid between *M fistulosa* L & *M clinopodia* L." (m14). Taxon is not recognized in Ilpin. Illinois map not available.
Sp is of special value to bumblebees & other native bees.

Monarda ×media Willd is presumed to be a hybrid between *M didyma* & *M fistulosa*. Such plants have large colorful flowers, as in *M didyma*, but more purple than red and with the throat of the calyx prominently bearded. The status of Michigan collections of *M ×media* is not clear; they could be direct escapes from cultivation, or they could have resulted from hybridization between garden plants of *M didyma* & wild *M fistulosa*. Such plants have been collected in Alpena, Kent, St Clair, and Wayne Cos." (rvw11)

The following is the complete entry from Weakley (November 2012). "*Monarda media* Willdenow, PURPLE BEE-BALM. Mt (GA, NC, VA, WV): grassy balds, moist slopes, mostly at high elevations; rare. July-September; September-October. VT west to IN, south to w MD; disjunct in w NC & sw TN, part of the range perhaps the result of cultivation. *M media* is a problematic taxon, especially in combination with *M fistulosa* var *rubra*. Many have suggested that *M media* is the result of hybridization or introgression of *M didyma* with either *M fistulosa* or *M clinopodia,* or both (see Scora 1967). Scora (1967) implies that *M media* consists of hybrids, backcrosses, & "introgressive elements" involving all three pairwise combinations, & the three-way combination, but that *M fistulosa* var *rubra* is not of hybrid origin. Needed are studies of *M media, M fistulosa* var *rubra,* & their possible parents which go beyond the herbarium & determine the genetics, origin, & population structure of these taxa. It seems best for the moment to recognize (or to attempt to!) *M media* & *M fistulosa* var *rubra* in order to foster additional observation & study, hopefully leading to a more definite understanding of their taxonomic status(es)."

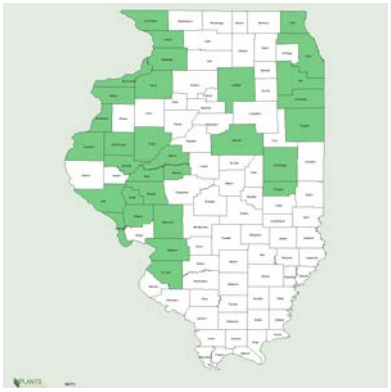
RW Scora, 1967, Interspecific relationships in the genus *Monarda* (*Labiatae*). Univ of Calif Publ in Botany 41: 1-69.



Monarda x media

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Photo courtesy C&L Loughmiller, Wildflower Center Slide Library. Unrestricted image. North America map courtesy of BONAP (2010)

Monarda punctata Linnaeus var **villicaulis** (Pennell) EJ Palmer & Steyermark *KY, OH, PA SPOTTED BEE BALM, aka BEE BALM HORSEMINT, DOTTED HORSE MINT, HORSEMINT, *MONARDA* (G), SPOTTED BEEBALM, (*punctatus -a -um* spotted, marked with dots, dotted, from Latin *punctum*, noun, something that is pricked; a puncture; a small spot; a small portion, -*atus*, adjectival suffix for nouns: possessive of or likeness of something, or with, shaped, made. (*villicaulis -is -e* hairy stem, with a shaggy stem, from Latin *villus, villi*, noun, a tuft of shaggy hair or wool, *-i-*, connective vowel used by botanical Latin, & *caulis*, adjective, from the Greek καυλος, *kaulos,* the stem of a plant, the shaft.) upl



Habitat: Disturbed, dry, open sands & dry, sand prairies with little grassy competition. In Michigan, "sand dunes, sandy fields and relic prairies, oak and pine savanna; also along roadsides, railroads, and disturbed places; seems to do well with some disturbance. Presumably native in western Michigan as far north as dunes in Leelanau Co; quite probably adventive elsewhere." (rvw11) distribution/range: "Sandy fields & woods, dunes, prairies; occasional in the n ½ of Illinois, rare elsewhere (m14). Known but not mapped from Bureau Co. Absent from parts of the Ohio River drainage.

The locally rare variety *occidentalis* (Epling) Palmer & Steyerm is known from Madison & St Clair cos.

Culture: propagation: ①No pre-treatment necessary other than cold, dry stratification. Surface sow, seeds are very small or need light to naturally break dormancy & germinate. (pm11) ②No pre-treatment needed. Sowing outdoors in the spring is the easiest method. (he99) ③Sow at 20ºC (68ºF), germ in less than two wks thin cover, needs light (tchn). ④"30 days moist stratification improves germination, but not needed for good greenhouse crop. Field sow fall, spring, early summer" (pnnd). ⑤No pretreatment needed. Sow seeds on the soil surface at 70ºF & water. (ew11)

seed counts & rates: 1,440,000 (pm02), 1,472,000 (ecs, ew11), 1,499,200 (aes10), 1,504,000 (pn02, jfn04), 1,541,596 (gnam09), 1,621,428 (gnhm02) seeds per pound.

cultivation: Space plants 1.0-1.5'. Full sun, but requires soils with good internal & external drainage. Drought tolerant. Does not tolerate aggressive, grassy competition.

bottom line: Sp is trending towards dormancy. Two in seven lots of late are strongly dormant (63-71%). Germ 63.8, 71, na, sd 25.2, r22-92 (70)%. Dorm 23.2, 7.0, na, sd 27.9, r2.0-71 (69)%. Test 30, 29, na, r21-35 days. (#7:2).**

Description: Native annual, biennial, or short-lived perennial forb, aromatic; stems 1.0-2.0'; flower clusters are terminal & axillary; flowers pale yellow dotted with purple, & showy, white, pink, or lavender bracts;

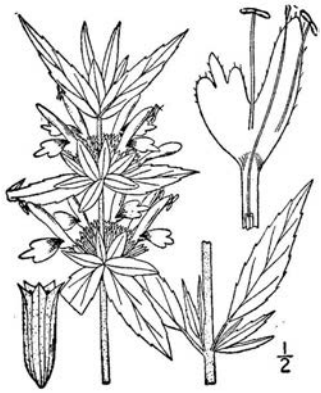
Comments: status: Native. *M p punctata* is Historical in Kentucky, & Endangered in Ohio & Pennsylvania.

phenology: Blooms 7, 8, 9 (10). In northern Illinois, collect seeds in October. Collect seeds in se Wisconsin in October (he99). Biennial, occasionally short-lived perennial. Subshrub forb (usda). Attractive cut flowers with large, gaudy bracts, & interesting pagoda-like dried seed heads good for dried arrangements, aromatic. Some liken the minty aroma to OREGANO. Landscaping, dry pollinator gardens, & xeriscaping, thriving in hot, open sandy soils; can be aggressive on open sands, but it requires open sandy soils with scant competition to reseed. Seed source remnant sand prairies, Tampico Twp, Whiteside & Bureau cos, Illinois.

Associates: Pollinator friendly. Attracts butterflies & hummingbirds.

VHFS: A taxonomically more complex sp than *M fistulosa*, with 2 subsp & 9 varieties. To some authorities, our plant is *Monarda punctata* L ssp *punctata* var *villicaulis* (Pennell) Palmer & Steyermark. Var *occidentalis* (Epling) Palmer & Steyermark grows in se Illinois. Var *lasiodonta* with canescent-pubescent stems is known from Madison & St Clair cos.



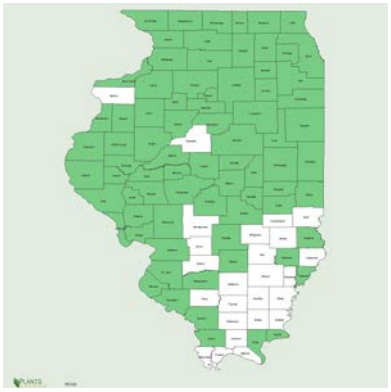



Monarda punctata, sand prairie planting, northwest Bureau Co

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

NEPETA Linnaeus 1753 **CATNIP, CATMINT** *Lamiaceae* or *Labiatae* *Nepeta* from Celsius & Pliny, from Classical Latin *Nepeta,* a name for an aromatic plant, probably CALAMINT, possibly of Etruscan origin from *Nepi,* a city in central Italy. (*When a Latin word has no easily apparent origin, it is fashionable to claim it is Etruscan, since so very little Etruscan vocabulary survives, & no Etruscan can dispute!*) A genus of about 250 spp of Eurasia & North Africa. Introduced-naturalized, pungently-aromatic, perennial forb, pubescent, leaves gray green pubescent, with inflorescence of tight axial clusters & terminal cluster of pinkish-whitish flowers, spotted throat, and 4 stamens. "One blue rarely seen escaped cultivar in our area" (wisplants.uwsp.edu)

Nepeta cataria Linnaeus CATNIP, aka CAT MINT, *CATAIRE,* CATMINT, CATWORT, *ERBA DEI GATTI, ERBA-DE-GATTAL ERVA-GATEIRA*, FIELD BALM, *GATTAIA COMUNE, HIERBA GATERA, KATZENMINZE, MENTO DE GATO, MENTHE DES CHATS, NEPETA, GAJUGENSIBUG,* (Ojibwa)



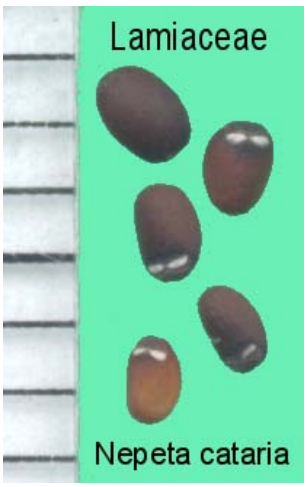
"A common weed of roadsides, yards, farm-lots, woods, &c." (ewf55) Often found in waste places, yards, & along roadsides. Sometimes cultivated. Sp here favors disturbed "bromey" woodlands, frequently with *Leonurus*. distribution/range: Introduced from Eurasia.

propagation: ①Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks cover, needs darkness (tchn).
Seeds are borne 4 in a "pod" (calyx), oval, with 2 flattened sides & 1 rounded side, dark reddish-brown with 2 white spots at one end.

"Generally distributed throughout as a common weed on roadsides, in open woodlands, & in waste places."

"One of many old time medicinal plants & still said to be of some commercial importance, the leaves & the flowering top being used, & catnip oil is said to be used as a scent in the trapping of bobcats & mountain lions." (do63) Lions & leopards are also attracted to this plant, but some 20% of adult felines are apparently immune to the intoxication.

I tawt i taw a puddy tat a creeping up on me
I did I taw a puddy tat as plain as he could be. Tweety



Nepeta cataria

Illinois map courtesy plants.usda.gov. Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. Line drawing public domain from Hippolyte Coste - *Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes*, 1901-1906. Line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de. Line drawing Bull 772, U of I, DOA http://extension.illinois.edu/~vista/html_pubs/WEEDS/intro.html . Color illustration Jacob Sturm, Johann Georg Sturm - *Deutschlands Flora*

in Abbildungen (1796). Copyright expired. Source: www.biolib.de. Seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp . Illinois map courtesy plants.usda.gov.

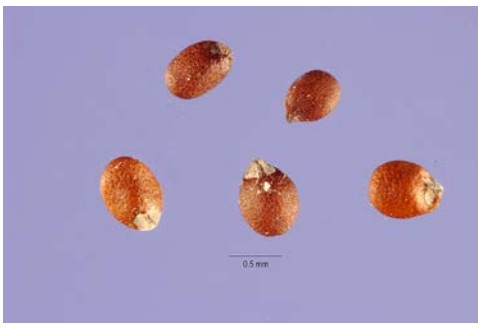
OCIMUM Linnaeus 1753 **BASIL** *Lamiaceae* or *Labiatae* *Ocimum* from Greek *okimom* a name for an aromatic herb. A genus of about 65 spp of herbs & shrubs of warm temperate & tropical areas. *O basilicum,* SWEET BASIL, may persist around gardens or trash heaps for a few years. Rarely escaped (adventive) in disturbed soil in Hancock, Jackson, Sangamon cos, Illinois (m14).

BASIL, aka *ALBAHACA* (SP), *ALVAVACA* (P), *BASILIC* (F), *BASILICO* (I), *BASILIENKRAUT* (G), *BASILIKA* (SW), *BASILIKUM* (G), *MANJERICÃO* (P), SWEET BASIL,

Seed photo Tracey Slotta USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp

ORIGANUM Linnaeus 1753 **OREGANO, MARJORAM** *Lamiaceae* or *Labiatae* *Origanum* from Middle English, from 4th century Latin *origanus*, from Classical Latin, *orīganum*, wild marjoram, (also Latin *origanos*) from Greek, ὀρίγανον, ὀρίγανος, *origanon, oroganos,* also ὀρείγανος, *oreiganos*, an acrid herb, from ὄρος, *oros,* mountain, & γάνος, *ganos,* beauty, brightness, delight, ornament. Possibly an ancient loan word, the plant OREGANO was said to have originally come from Africa. A genus of about 36-40 spp of herbs & dwarf shrubs of Eurasia. *O vulgare,* OREGANO, WILD MARJORAM, may occasionally persist around old gardens or escape to roadsides, refuse piles, & disturbed ground. Rarely adventive in disturbed soil in ne Illinois (m14).

Origanum vulgare, ①sow at 20ºC (68ºF), germinates in about two wks (tchn).



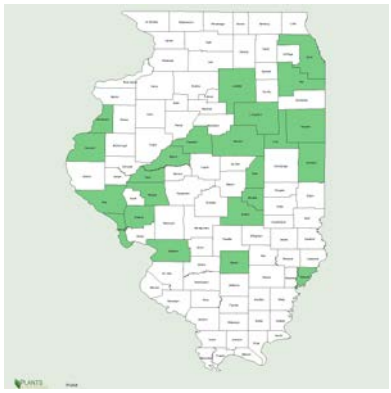
Origanum vulgare

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed & fruit photo Jose Hernandez USDA-NRCS PLANTS Database. - Not copyrighted image. Color illustration Otto Wilhelm Thomé: *Flora von Deutschland, Österreich und der Schweiz* (1885) -

PHYSOSTEGIA Bentham 1829 **FALSE DRAGON HEAD, OBEDIENT PLANT, LIONSHEART** *Lamiaceae* or *Labiatae* *Physostegia* (fi-so-STEE-gee-a) New Latin from ancient Greek φῦσα, *physa, phusa,* a pair of bellows, bladder, bubble (*also wind in the body, breaking of wind*) & στέγη, *stege,* covering, New Latin *-ia*; akin to Greek στέγιεν, *stegein* to cover, or shelter, from στέγος, *stegos,* n, roof, similar to Sanskrit *sthagati* he covers, referring to the inflated calyx which covers the fruit. A genus of about 12 spp of North American perennial herbs having sessile linear to oblong leaves & showy white, rose, or lavender flowers with an inflated 5-toothed calyx. Fruits are nutlets.

Easy from cold moist stratified seed. Code B. Easy by division or 3 node softwood cuttings. (cu00)

Physostegia angustifolia Fernald NARROW-LEAVED OBEDIENT PLANT, aka False Dragon Head, NARROW FALSE DRAGONHEAD, NARROWLEAF FALSE DRAGONHEAD, NARROW-LEAVED FALSE DRAGONHEAD, SHOWY OBEDIENT PLANT, (*angustifolius -a -um* angustifo'lius (an-gus-ti-FO-lee-us) narrow-leaved, from Latin *angustus*, adjective, drawn together; narrow, *-i-*, connective vowel used by botanical Latin, & *folium, foli(i)*, n., noun, a leaf.)



Habitat: Species is distributed on low ground, gravel bars along streams, rocky open glades (Ilpin). Wet, wet mesic, & mesic prairies & savannas. In the se USA, calcareous openings, rare (w12). distribution/range: "Low prairies; occasional in the n ¾ of Illinois (m14). Illinois is the northeast limit of this spp range.

Culture: propagation: ①60 days cold moist stratification (pm09, 11). ②Fall plant or cold stratify at 40ºF for 1 month for best results. Sow just below the soil surface at 70ºF & water. (ew11)

seed counts & rates: 285,462 (gnam11), 352,000 (pm11, ew11) seeds per pound.

availability: Very limited quantities & ecotypes are available in the seed & plant trade.

cultivation: Space plants 1.5-2.0'. Average, medium, well-drained soil in full sun. Tolerates light shade. Plants may become leggy, esp in fertile soils & shade. Aggressively rhizomatous, in a garden, divide every 2-3 years to control spread. No serious disease or insect problems. Rust may be an occasional problem. May need staking. Zones 3-9.

bottom line: Dormant seed only. Initial test datum indicates seeds are strongly dormant, 55%. Germ 42 %. Dorm 55%. Test 40 days.**

Description: Erect perennial, 3-5', 2.0-3.0 spread; rhizomatous, flowers pink (white w/ pink spots), 5-merous; key features: Sp tends to have more rigid stems & narrower leaves than *P virginiana* (mbg).

Comments: status: phenology: Blooms 6-9. C3. Good cut flowers. Great for naturalizing in wildflower plantings & mesic rain gardens. Perennial beds with caution, do not plant near your favorite plants.

Associates: Deer tolerant.

VHFS:

Physostegia angustifolia

Illinois map courtesy plants.usda.gov. Photo courtesy Harry Cliffe, WD & Dolphia Bransford, Wildflower Center Slide Library. Unrestricted image. Illinois map courtesy plants.usda.gov.

Physostegia halitosis (D Ingels) Listerine FALSE DRAGON BREATH
Culture: Easiest by garlic bread, pizza, too much beer, & minimal or no oral hygiene, any time of the year.

Physostegia parviflora Nuttall ex A Gray WESTERN OBEDIENT PLANT, aka AMERICAN DRAGONHEAD, PURPLE DRAGONHEAD, SMALL FLOWERED FALSE DRAGONHEAD, WESTERN FALSE DRAGONHEAD, (*parviflorus -a -um* parviflor'us (par-vi-FLOR-us) with small flowers, or having flowers smaller than the type, from *parvus -a -um,* small, little, insignificant, *-i-,* & scientific Latin *-florus,* from *floreo, florere, florui,* flourish, blossom, be prosperous; be in one's prime.)
Habitat: Wet to wet mesic prairies & savannas; low wet places. "Wet to mesic prairies, damp thickets, & banks of streams & ponds" (Hilty). distribution/range: Moist prairies, rare; Kane, Lake, & Lee cos (m14). More common west, Illinois is at the se edge of sp range.
Culture: propagation: ①60 days cold moist stratification (pm09, 11). 352,000 (pm11) seeds per pound. Thousand Seed Weight: 1.900g (kew)
cultivation: Full to partial sun, wet to mesic soils with adequate organic matter for moisture retention.
bottom line:
Description: Native, erect, herbaceous, perennial, forb; taproot & rhizomatous, colonial; stems, to 5', bluntly square, glabrous; inflorescence spike-like racemes, blooming from the bottom up with only a few sin bloom at any time; flowers pink, 5-merous, each producing 4 small nutlets; key features: ①"The foliage of WESTERN OBEDIENT PLANT is very similar to the more common *Physostegia virginiana* (OBEDIENT PLANT),

these two spp differ primarily in the length of their flowers (about ½" for Western Obedient Plant versus 1" for Obedient Plant). Outside of Illinois, there are some additional *Physostegia spp* with similar flowers. They often have floral racemes that are less dense (their flowers are more widely spaced) than the preceding 2 spp, or their leaves may have slender petioles &/or blunt teeth." (Hilty)
Comments: status: phenology: Blooms 7-9(10). C3;
Associates: Pollinated by bumblebees & other bees. Nectar source, attracts Ruby-throated Hummingbirds & butterflies. Foliar diseases or insect pests are rarely problems.

ethnobotany: An infusion of the leaves was used by the Mesquakie for bad colds (sm28).

VHFS: [*Dracocephalum nuttallii* Britt, *Physostegia nuttallii* (Britt) Fassett, *P virginiana* (L) Benth var *parviflora* (Nutt ex A Gray) B Boivin]

http://www.illinoiswildflowers.info/prairie/plantx/ws_obedient.htm

Physostegia parviflora

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

Physostegia virginiana (Linnaeus) Bentham *VT FALSE DRAGON HEAD, aka DRAGONHEAD, *FALSA-CABEÇA-DE DRAGÃO,* FALSE DRAGONHEAD, OBEDIENCE, OBEDIENCE PLANT, OBEDIENT PLANT, OBEDIENT-PLANT, VIRGINIA FALSE DRAGONHEAD, (*virginianus -a -um* (vir-jin-ee-AH-nus) of Virginia.) The common name OBEDIENT PLANT refers to flower heads being able to be turned & positioned.
Habitat: Mesic & wet mesic prairies. In Michigan, "swamps, shores, river floodplain forests, wet thickets, moist open ground; also roadsides, ditches, near habitations, & other sites where probably escaped from cultivation" (rvw11). In the se USA, "streambanks, seepages, marshes, grassy balds (native occurrences usually over mafic or calcareous rocks), other open or semi-open moist to wet habitats, disturbed areas, ditches; rare as a native, more common as an escape from cultivation" (w12). distribution/range: "Moist soil; particularly prairies; occasional throughout Illinois" (m14).

Culture: propagation: ①Cold moist stratify 60 days (Wade nd). ②Seeds germinate after about 60 days of cold moist stratification (he99). ③"30 days moist stratification required for germination. Field sow fall." (pnnd). ④Fall plant or cold stratify at 40ºF for 1 to 2 month for best results. Then sow just below soil surface at 50ºF & water. (ew11) ⑤Sow at +2 to +4ºC (34-39ºF) for 12 wks, move to 20ºC (68ºF) for germination not true to type (tchn).

seed counts & rates: 176,000 (pm11), 180,000 (ecs), 236,992 (wns01), 240,000 (pm01), 252,503 (gna04), 255,277 (gn02), 279,292 (gn05), 284,192 (agre05), 288,000 (ew11), 400,000 (jfn04) seeds per pound.

availability: Sp is strongly rhizomatous, & production beds fill in quickly & seed production declines. Seed availability may wax & wane.

"*Physostegia virginiana* Moist to mesic prairie. Blooms early August to mid September; PINK. Harvest October. 4'; method #1. SEEDLING TRANSPLANT, SPRING BROADCAST. Blooms 2nd year. Plants get too tall unless they have close competition." (rs ma)

asexual propagation: Division of mature plants in spring. Stem cuttings taken before flowering.

cultivation: Space plants 2.0-2.5'. Suggested companion plants *Asclepias incarnata, Boltonia asteroides, Hasteola suaveolens, Chelone glabra, & Gentiana andrewsii*.

bottom line: Dormant seed is best, all lots tested are significantly to strongly dormant; ca 20% of lots will give 40-54% germ in spring planting. Germ 22.6, 21, 4.0, sd 16.7, r1.0-54 (53)%. Dorm 47.7, 55, 66, sd 23, r0.0-90 (90)%. Test 33, 33, 36, r24-43 days.**

greenhouse & garden: Easy from seed & spot planting.

Description: Native, erect, perennial forb, hairless; 2.0-4.0'; rhizomatous; flowers pink or rose, 5-merous; key features: ①"Flowers can be moved horizontally & will stay, hence name "obedient plant""(Ilpin)

Comments: status: phenology: Blooms 6-9. C3. In northern Illinois, collect seeds in September - October. Collect seeds in se Wisconsin in October - November (he99). Attractive cut flowers. A nice plant in the flower garden, but aggressively rhizomatous; spreads quickly underground, good in rain gardens. Seed source The Burg, Lee 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 that any others, …" *Physostegia virginiana* as *Dracocephalum Virginiana* L. (Short 1845)

"Less common than the preceding (var *speciosa*) preferring prairie soil of a rather dry type. Charles street road west of Cherry Valley, the C & NW Ry east of Winnebago. It also is used as a garden plant. (*P angustifolia* Fern)." (ewf55)

"Although to be expected in Henry Co as an escape, all of my specimens have been found in cultivation." (do63)

Sp is common as an escape. "Moreover, garden escapes show some intermediacy between the 2 subspecies, & Cantino (1982) suggests that cultivars are likely inter-subspecific hybrids, stating "because the genetic background of modern cultivars is unknown, they cannot be reasonably placed in either subspecies & should not be identified below the species level."" (w12) All native Michigan specimens are subsp *virginiana*. Cultivated variants of this species may include some results of hybridization (rvw11).

Associates: Pollinated by birds, long-tongued bees, & *Lepidoptera*. Attracts butterflies & Ruby-Throated Hummingbird. Reported as deer resistant.

VHFS: The following is according to plants.usda.gov, Illinois has ①ssp *virginia* [synonyms *Dracocephalum denticulatum* Ait, *D formosius* (Lunell) Rydb, *D virginianum* L, *Physostegia denticulata* (Ait) Britt, *P formosior* Lunell, *P speciosa* (Sweet) Sweet, *P virginiana* (L) Benth var *elongata* Boivin, *P v* (L) Benth var *formosior* (Lunell) Boivin, *P v* (L) Benth var *granulosa* (Fassett) Fern, *P v* (L) Benth var *speciosa* (Sweet) Gray] & ②ssp *praemorsa* (Shinners) Cantino [synonyms *P praemorsa* Shinners, *P serotina* Shinners, *P v* (L) Benth var *arenaria* Shimek, *P v* (L) Benth var *reducta* Boivin]

Upper leaves abruptly reduced in size, at least some of the leaves more than 1 cm broad; spike appearing pedunculate, some of the flowers overlapping……..*P virginiana*

Upper leaves gradually reduced in size; spike appearing sessile…….*P speciosa*

after m14

PD Cantino, 1982. A monograph of the genus *Physostegia* (*Labiatae*). Contr Gray Herb 211.



Physostegia virginiana

Illinois map courtesy plants.usda.gov. 1st & 3rd line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS. *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Illinois map courtesy plants.usda.gov.

Physostegia virginiana (Linnaeus) Bentham var **arenaria** Shimek PRAIRIE OBEDIENT PLANT, (*arenarius -a -um* relating to sand, of sand or sandy places, sand loving, growing in sandy places, from Latin *harenarius -a -um*, relating to sand, sandy, from *arena*, sand; slime, mud, & *-arius*, adjectival suffix indicating connection to or possession. Also from *(h)arenosus.*)
Habitat: Mesic to dry prairies & savannas, cracks of bare limestone, shallow prairie soil over bedrock, very moist prairies (sw94). distribution/range:
Culture: seed counts & rates: 400,000 (jfn04) seeds per pound.
.
availability: Not well represented in the seed or plant trade. Seed is limited to the extent this sp should not be specified as part of any general seed mix.
Description: Flowers late July to late September.
VHFS: In plants.usda.gov & w12, this is *Physostegia virginiana* (L) Benth ssp *praemorsa* (Shinners) Cantino.

Physostegia virginiana (Linnaeus) Bentham var **speciosa** (Sweet) Gray, alternately **Physostegia speciosa** (Sweet) Sweet) SHOWY FALSE DRAGONHEAD, (*speciosus -a -um* specio'sus (spee-kee-O-sus, or dumbed down to spe-see-OH-sus. If you can't stand the hard consonants, get out of the herbarium.) beautiful, showy, spectacular, splendid, good-looking, from Latin *speciosus*, adjective, beautiful, handsome, good-looking; attractive, appealing; presentable, respectable, imposing; spectacular, brilliant, impressive, splendid; showy, public; plausible, specious.) [facw]
Habitat: Wet meadows & wet savannas; gravel bars & bases of bluffs. distribution/range: "Low prairies, occasional throughout Illinois" (m14).

Culture: propagation: ①"Moist cold treatment, or fall sow. Light cover. Variable good to fair germination." (mfd93).

seed counts & rates: 288,000 (pm01), 255,277 (gnh02), 279,729 (gna05), 400,000 seeds per pound.

availability: The variety is seldom, if ever, distinguished from the sp, & is unavailable. It is NOT in the native plant trade. Sp is strongly rhizomatous, & production beds fill in quickly & seed production declines.

asexual propagation: Stem cuttings, or division of mature plants any time with care.

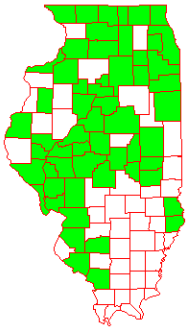
greenhouse & garden: Moist cold stratify or dormant seed. Seed has a fair degree of dormancy & may show in plantings years later.

Description: Erect perennial; 2.0-4.0'; flowers pink, 5-merous;

Comments: status: phenology: Blooms 8,9. C3. Cut flowers, landscaping, rain gardens, pond edges. Aggressive, rhizomatous. Seed source nursery production plots, from original stock from Spring Slough, Whiteside Co, & Harmon, Lee Co.

"Common in wet places, stream banks, low prairies & marshes. Slough west of Shirland, Kent Creek west of Rockford, Rock River bank at Rockford, &c. Used to some extent as a perennial garden plant. (*P virginiana* var *speciosa* (Sweet) Gray)" (ewf55)

"Frequent to common in marshes & low springy depressions, also on the wet margins of swamps & ditches. Sections 6, 9, & 14, Geneseo township; Sections 1, 9, & 24, Hanna Twp; Sections 12 & 15, Colona Twp; Section 16, Phenix Twp; Section 14, Andover Twp; south margin of Shadow Lake." (do63)


Physostegia speciosa

Associates: Attracts hummingbirds.

VHFS: There is controversy as to whether this is a variety or a sp, if a sp it is *P speciosa* (Sweet) Sweet, as in m14. Weakley (2012) & other authors lump this taxon into ssp *virginiana.*

[*Dracocephalum formosius* (Lunell) Rydb, *Physostegia virginiana* var *speciosa* (Sweet) Gray]

Illinois map courtesy of ILPIN.

PRUNELLA Linnaeus 1753 **SELF HEAL, HEAL-ALL** *Lamiaceae* or *Labiatae* *Prunella* (proo-NEL-la) derivation possibly from Latin *prunum*, plum, referring to the plum-colored flowers, or from German *Braüne*, quinsy, which the herb is said to heal. Common name is also seen as SELF-HEEL. Perennial herbs. Fruits are nutlets.

This was formerly *Brunella* Tournefort. "Commonly written *Prunella,* but said to come from the old German word *Brune* or *Braune,* an affliction of the throat, which the plant was thought to cure." (Gray 1896)

A little blue SELF-HEAL was one of Ralph Waldo Emerson's favorite flowers (Maynard 2004).

Prunella vulgaris Linnaeus var **lanceolata** (W Barton) Fernald (Alternately **Prunella vulgaris** L var **elongata** Bentham (m14)). CARPENTER'S WEED, aka AMERICAN SELF-HEAL, COMMON SELFHEAL, HEAL ALL, HEAL-ALL, HEALALL, HEART-OF-THE EARTH, LANCE SELFHEAL, SELF HEAL, *Name'wuskons'* (Ojibwa), (*vulgaris -is -e* vulgar'is (vul-GARE-is, or vul-GHA-ris, common, ordinary, usual, vulgar, from Latin adjective *vulgāris*, from *vulgus*, the common people, the mob. *lanceolatus -a -um* lanceola'tus (lan-kee-o-LAH-tus, casually lan-see-oh-LAY-tus) little-spear or lancelet like, lanceolate, New Latin from *lancea,* lance or spear, *-olus- a- um-,* diminutive, and *-atus*, possessive of or likeness of, often for the lanceolate leaves. Cf *lanciola, lanciolae* f, a small lance. *elongatus -a -um* elonga'tus (ee-long-GAY-tus) New Latin, elongated, lengthened, drawnout, extended. Cf Classical Latin *elongo, elongare, elongavi, elongatus* v, withdraw, depart; remove; keep aloof.) CARPENTER'S WEED is a reference to the square stem. SELF-HEAL is from the plants former use in treating throat ailments. [facu]

Habitat: In most environments, mesic prairies & woodlands; one naturalized var is considered a lawn weed. "Found growing in low meadows, open woodlands, roadsides, pasturelands, lake margins, & waste places in the east fourth of Texas; widespread throughout the Northern Hemisphere" (lbj). "Common in yards, waste places, on roadsides." (ewf55 as *P vulgaris* L)

distribution/range: "Disturbed woods, pastures, meadows, common; in every Illinois co (m14). Throughout much of North America, except the far north. Native in Eurasia and in North America, although some thoroughly established weedy variants are presumably introduced (rvw11).

"Frequent in rich moist, or dry open, woodlands, also in open turfy swales. Section 27, Hanna Twp; Section 28, Geneseo Twp; one & one-half

miles southwest of Briar Bluff, one mile south of Ophiem; one & one-half miles southeast of Andover." (do63 as *P vulgaris* L var *lanceolata* (Bart) Fern.)

Culture: ①Easy, dormant seed or moist cold stratify. Fall plant or cold stratify at 40ºF for 1 month for best results. Sow just below the soil surface at 70ºF & water. (ew11) ②Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks (tchn). 689,000 (ew11) seeds per pound.

Prunella vulgaris subsp *asiatica* (Nakai) Hara. Thousand Seed Weight: 0.80g

P vulgaris var. l*anceolata* (WPC Barton) Hultén. Thousand Seed Weight: 1.2g; Oil content: 22.0%

P vulgaris L. Storage Behaviour: Orthodox; Thousand Seed Weight: 1.0g; Germination data available; Oil content: 21.7% (kew)

cultivation: Space plants 1.0-2.0'. Full sun medium to dry soils. Zone 4a-9b.

Description: Herbaceous, perennial, native forb, in part; 0.5-1.5'; runners rooting freely at the node; leaves gray-green; inflorescence terminal dense clusters; flowers lavender (violet, blue to purple), seed is a nut (nutlet) borne 4 in a pod, (calyx), each somewhat pear-shaped, slightly flattened on 2 sides, brown with dark lines, slightly rough; key features: "Decumbent & rooting at nodes" (Ilpin). "*Blephilia ciliata* might be superficially confused with *Prunella* because of the broad, conspicuous floral bracts, but that species has entire corolla lobes, 2 stamens, all 5 calyx lobes well developed and more densely ciliate, and paler flowers" (rvw11).

Comments: status: This sp is considered to be weedy or invasive in some areas by some authorities (Uva et al 1997, Stubbendieck et al 1994). phenology: Blooms 5(6)-9(10), Texas May - June. C3. Economic weed to those who give a rat's hinny about their lawn. The native variety is too aggressive for most gardens (rvw11), although it may be useful as a shaggy groundcover.

Associates: Attracts butterflies & bees. Nectar source. Larval host of *Colias philodice,* Clouded Sulphur butterfly. Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera*, *Diptera*, *Lepidoptera*. Minimal deer resistance. Non-mycorrhizal.

ethnobotany: Used as medicinal plant by Ojibwa for diseases of women. Plant is astringent. "Heal-all has long been used in folk medicine as a salve for flesh wounds, & an infusion derived from Heal-all is traditional remedy for strep throat & ailments of the respiratory system. (Strickland) For boils. (Weiner)" (lbj) Qualifiedly edible as a pot herb or seasoning.

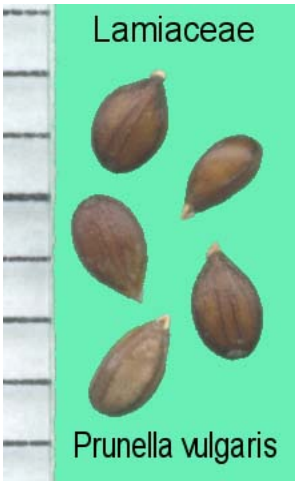
VHFS:

Form *iodocalyx* Fern. "Although my search for this striking form with bluish corolla & bright purple calyx in Henry Co has been without success, I once found a few specimens while botanizing in Nova Scotia about 75 miles southwest of Halifax." (do63) White flowered plants are f. *albiflora* Britton.

Prunella vulgaris Linnaeus var *vulgaris,* EURASIAN SELF-HEAL, aka *BRUNELLA, BRUNELLE COMMUNE, BRUNELLE VULGAIRE* (F)*, BRUNÖRT* (SW), *ERVA-FÉRREA, GEMEINE BRAUNELLE, HEIRBA DE LAS HERIDAS, MORELLA, PRUMELLA COMMUNE,* is native to Europe (Eurasia), naturalized in lawns, fields, & waste ground; occasional throughout Illinois (m14).

[*Prunella pennsylvanica* Willd var *lanceolata* WPC Barton, *P vulgaris* L var *elongata* Benth, *P v* L var *lanceolata* (WPC Barton) Fern, *P v* L var *lanceolata* (WPC Barton) Fern f *iodocalyx* Fern]



Prunella vulgaris lanceolata

Illinois map courtesy plants.usda.gov. Line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS. *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing Bull 772, U of I, DOA http://extension.illinois.edu/~vista/html_pubs/WEEDS/intro.html . 2nd Seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp Illinois map courtesy plants.usda.gov.

PYCNANTHEMUM Michaux 1803 **MOUNTAIN MINT, WILD BASIL** *Lamiaceae* or *Labiatae* *Pycnanthemum* densely flowered, New Latin, from Greek, πυκνος, *pyknos,* dense & ἀνθεμον, *anthemon,* flower. The common name MOUNTAIN MINT may be a translation from a Scandinavian (or the northern Germanic language group) common name for a similar plant, as in Norwegian *bergmynte,* or mountain mint. A complex & difficult genus of 20-25 spp of herbs of temperate North America. Species have evolved by allopolyploidy, autoploidy, & aneuploidy. Numerous sterile hybrids & aberrant forms complicate the understanding of spp & their identification. (w12) C3. Midwestern spp are mostly highly aromatic, with flowers white, usually dotted or tinged with pink or purple. Formerly *Koellia.*

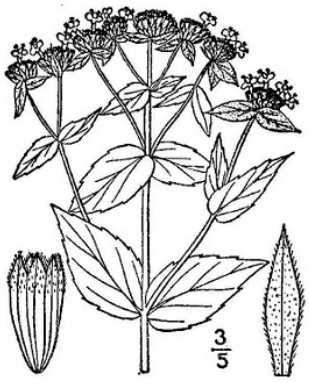
In reference to *Pycnanthemum spp*, Short wrote "There are, indeed, comparatively speaking, but few plants, except the grasses, (which are gregarious every where and are intermixed in greater or less degree and variety among all the other plants of the prairie,) which may be considered as indigenes of the prairie region generally. ---Among these we may mention, as occurring most constantly, and under greater diversity of soil and situation that any others, … *Pycnanthemum*" (Short 1845).

Genus needs light to germinate, most are easy from seed, cuttings, division, attracts butterflies.

Seeds ripen late summer. Easy by cold moist stratification. Code B. 2-node stem cuttings root easy, but may not overwinter. (cu00) *P incanum*, sow at 20ºC (68ºF), germinates in about two wks (tchn).

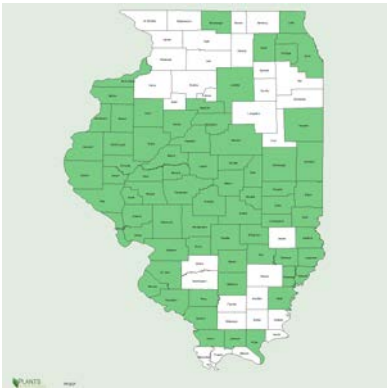
Pycnanthemum muticum (Michaux) Persoon *KY, ME, MI, NY BROAD-LEAVED MOUNTAIN MINT, aka BIGLEAF MOUNTAIN MINT, BLUNT MOUNTAIN MINT, CLUSTERED MOUNTAIN MINT, (*muticus -a -um* Classical Latin awnless, lacking spines, blunt, pointless, blunt, curtailed, docked.) [obl]
Habitat: Moist calcareous ground. distribution - range: "Low woods, rare; Henderson & Wabash cos (m14).

Culture: Propagation: 5,300,000 (jfn04) seeds per pound.
Description: Native, erect perennial forb, to 3' tall; flowers white with white bracts. key features: "*Pycnanthemum muticum* differs from *P verticillatum* in larger principal leaves, ± ovate, a third or more as broad as long" (rvw11).
Comments: status: Threatened in Kentucky. Possibly extirpated in Maine. Threatened spp in Michigan & New York. phenology: ? Impressive when massed.
VHFS: [*Koellia mutica* (Michx) Ktze]



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

Pycnanthemum pilosum Nuttall (This sp is also known as **Pycnanthemum verticillatum** (Michaux) Persoon var **pilosum** (Nuttall) Cooperrider or simply **Pycnanthemum verticillatum** (Michaux) Persoon.) HAIRY MOUNTAIN MINT, aka HOARY MOUNTAIN MINT, WHORLED MOUNTAIN MINT, (*pilosus -a -um* shaggy, soft hairy, with soft hairs, with long soft hairs, covered thinly with long soft hairs, from Latin *pilosus -a -um*, hairy, shaggy.) upl



Habitat: Dry mesic prairie savannas. "Uncommon in thickets & on low prairies as on the CB & Q RR near the Winnebago-Ogle Co line." (ewf55) In Michigan, "Our few specimens, insofar as any habitat is stated, are from a shaded river bank (Berrien Co) and upland roadside and pasture (Monroe Co)" (rvw11). distribution/range: Dry woods, prairies; occasional in the central cos, less common in the n & s cos (m14). Mostly absent from northwest Illinois.
Culture: ①No pre-treatment necessary other than cold, dry stratification. Surface sow, seeds are very small or need light to naturally break dormancy & germinate (pm09). ②No pretreatment needed. Sow seeds on the soil surface at 70ºF & water. (ew11). ③Sow at 20ºC (68ºF), germinates in about two wks (tchn). 2,960,000 (pm01, ew11), 3,024,000; 3,478,927 (gnam11), 3,844,067 (gnh11), 3,896,994 (gna04), 3,944,347 (gnh13) seeds per pound.

cultivation: Space plants 1.5-3.0. Mesic soils, full sun to partial shade.

bottom line: Dormant seeding is best. Genesis preliminary data indicates >70% of lots benefit from cold moist stratification (38-80% dorm). Flipflop species. Germ 46.1, 41, na, sd 26.4, r17-85 (68)%. Dorm 46.7, 53, na, sd 29.9, r1.0-80 (79)%. Test 34, 33, 33, r25-50 days.**

greenhouse & garden: GA3 or light, dormant seed or cold moist stratify 90 days.

Description: Native, erect perennial forb; stems with faces & angles hairy, 2.0-5.0'; fragrant. The small white flowers with purple spots are large compared to other mountain mints. Species has its own minty *Gestalt,* erect, robust, green-white hairy.
Comments: status: phenology: Blooms 7,8,9. In northern Illinois, collect seeds in October - early November. Attractive cut flowers, dried seedheads for fall arrangements. Landscaping. Seed source nursery plots, genetic source LaSalle Co, Tomahawk Bluff, Doc Cooper (M Brucker) Prairie, Whitefield Twp Marshall Co & Peoria Co, Barry Taylor's Savanna. Some seed lots may be double dormant.

Associates: Attracts butterflies. July 25, 2010 an *Atteva punctella AILANTHUS* WEBWORM MOTH, was found feeding on *P pilosum* flower on our farm, *vide infra*. A weedy moth, or a moth for weeds? Nursery personnel report this plant makes a great mint julep.
VHFS: In Britton & Brown (1913), this is *Koellia pilosa*. [*Pycnanthemum verticillatum* (Michx) Pers, *P v* (Michx) Pers var *pilosum* (Nutt) Cooperr]

Reznicek et al (2011) notes the few Michigan specimens are distinct from *P verticillatum*.

Pycnanthemum pilosum in a tallgrass savanna

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

Pycnanthemum tenuifolium Schrader SLENDER MOUNTAIN MINT, aka NARROW-LEAVED MOUNTAIN MINT, (*tenuifolius -a -um* slender-leaved, from Latin *tenuiflolius*, slender-leaves, from *tenuis*, thin, fine, slim, slender, *-i-,* & *folium*, leaf.) fac

Habitat: Local in prairies, degraded sandy areas, loamy prairies (sw94). Dry upland woods & dry prairies (fh). "Moist to slightly dry black soil prairies, moist meadows & gravelly areas along rivers, openings in woodlands, moist thickets, acid gravel seeps, limestone glades, & abandoned fields" (Hilty). Wet meadows, mesic & dry prairies, hill prairies & oak openings. Common in pastures & on prairies." (ewf55). In Michigan, "Quite local, in sandy fields, moist meadows, grassy areas, and wet prairies" (rvw11). distribution/range: "Woods, fields, prairies; occasional to common throughout Illinois" (m14).

Culture: ①No treatment (Code A, D Ken Schaal). ②No pre-treatment necessary other than cold, dry stratification. Surface sow, seeds are very small or need light to naturally break dormancy & germinate (pm09). ③No pre-treatment needed. Sowing outdoors in the spring is the easiest method. (he99) ④Sow at +2 to +4ºC (34-39ºF) for 12 wks, move to 20ºC (68ºF) (tchn).

seed counts & rates: 4,536,000; 6,048,000 (pm11, aes10), 6,000,000 (jfn04), 6,213,698 (gnh13), 9,408,000 (gn) seeds per pound.

bottom line: Field sow spring will give good results most years. 20% of lots are highly (88%) dormant. Flipflop species. Germ 50.1, 56.3, na, sd 34.3, r6.0-87 (81)%. Dorm 41.1, 34.8, na, sd 35.5, r3.0-88 (85)%. Test 30, 31, na, r25-34 days.**

Description: Native, erect perennial, stems square, faces & angles hairless, 1.5-3.0'; flowers white; plant is hairless & lacks a mint odor, or is only faintly aromatic. A diploid & tetraploid sp n = 20 & 40. The southeastern *P flexuosum* has n = 18. key features: "The leaves are narrowly linear; but some specimens of *P. virginianum*, which normally has slightly broader leaves, have them narrow enough to be within the range of *P. tenuifolium*. This species is nearly lacking odor." (rvw11)

Comments: status: phenology: Blooms 6,7,8. In northern Illinois, collect seeds in late September - October. Collect seeds in se Wisconsin in October (he99). Attractive cut flowers, dried seed heads. Landscaping, mildly aggressive, plants increase by modest rhizomes. Seed source nursery production from railroad remnants Big Rock Twp, Kane & Squaw Grove Twp, DeKalb Cos.

"*P flexuosum* (Walt) BSP Much less frequent than *P virginianum* being common only in the low sandy prairies in Coon Creek bottom." (ewf55 as *P flexuosum*)

Associates: Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera, Diptera, Lepidoptera, Coleoptera, & Hemiptera.* Reported to be deer resistant.

VHFS: [*Koellia flexuosa* auct non (Walt) MacM [misapplied], *Pycnanthemum flexuosum* auct non (Walt) BSP [misapplied]]

Pycnanthemum tenuifolium, production and in the wild.

Illinois map courtesy plants.usda.gov. Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 1st photo Robert H. Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image. Last photo James Albani Alwill. Illinois map courtesy plants.usda.gov.

Pycnanthemum virginianum (Linnaeus) T Durand & BD Jackson (Macm) or (L) T Durand & BD Jackson ex BL Robinson & Fernald *NH COMMON MOUNTAIN MINT, aka AMERICAN MOUNTAIN MINT, BASIL, MOUNTAIN MINT, MOUNTAIN THYME, PENNYROYAL, PRAIRIE HYSSOP, *PYCNANTHÈME DE VIRGINIE*, VIRGINIA MOUNTAINMINT, VIRGINIA THYME, WILD BASIL, WILD HYSSOP, *Name'wuckons',* little sturgeon plant (Ojibwa), (*virginianus -a -um* of or from Virginia, USA, Virginian.) Facultative Wet+

Habitat: Occurs in most grassy open communities, hill, dry, mesic, & wet prairies & savannas, gravelly shores, meadows, dry to wet thickets, &c. Moist calcareous soils. In Michigan, "Fens, prairies, marshes, sedge meadows, tamarack swamps, swales, depressions such as old lakebeds; fields, sandy banks; less often in forested areas" (rvw11). In the se USA, "wet meadows & marshes over calcareous or mafic rocks; common" (w12). distribution/range: "Marshes, calcareous fens, prairies; occasional in the n ½ of Illinois, becoming less common southward (m14).

Culture: ①"No pretreatment needed, or fall sow. May be moist cold treated. Very light to light cover. Excellent germination." (mfd93). ②No pre-treatment necessary other than cold, dry stratification. Surface sow, seeds are very small or need light to naturally break dormancy & germinate (pm09). ③No pre-treatment needed. Sowing outdoors in the spring is the easiest method. (he99) ④"30 days moist stratification improves germination, but not needed for good greenhouse crop. Field sow fall, spring, early summer" (pnnd). ⑤"No pretreatment needed. Sow seeds on the soil surface at 70ºF & water" (ew12). Sow at +2 to +4ºC (34-39ºF) for 12 wks, move to 20ºC (68ºF) (tchn). ⑥"Seeds are so tiny it is best to plant them in flats. No pretreatment necessary." (lbj)

3,200,000 (pn02), 3,520,000 (pm01), 3,661,290 (gnh01), 3,880,342 (gna06), 3,913,793 (gnh06b), 4,416,000 (ew12), 4,544,000 (sh94, aes10), 4,536,000; 4,585,859 (gna04), 4,656,410 (gnh02), 5,016,574 (gna03), 5,300,000 (jfn04), 5,404,761 (gnam06) seeds per pound. In mixes plant 0.015 to 0.06 lb pls per acre (usda 1997).

"*Pycnanthemum virginianum* Moist to mesic prairie. Blooms late July to mid September; WHITE. Harvest October. 2'; easy by method #1 though seeds small; SEEDLING TRANSPLANT. Blooms 2nd year & is reliable; desirable for fragrance, the most fragrant of our prairie plants. In recent years we find very little seed; flowers 2nd year." (rs ma)

asexual propagation: Stem (tip) cuttings in late spring, early summer, division in spring.

cultivation: Space plants 1.5-2.0'. Prefers moist to saturated soils in sedge meadows, wet prairies, & mesic prairies. Tolerates flooding early in the growing season only. Drought tolerant. Nutrient load tolerance moderate, not salt tolerant, siltation tolerance low to moderate. pH 5-7. Wet to mesic soils, full sun to light shade. Zones 3-7 (5a-10b). Plants can be pinched back in early summer for a bushier habit.

bottom line: Best dormant seeded. Over 50% of lots have a significant to strong requirement for dormant seeding, but the high seed count gives even modest germination the appearance of a good crop. Flipflop species. Germ 49.3, 55, 9.0, sd 25.4, r9.0-83 (74)%. Dorm 33, 25, 0.0, sd 28.5, r0.0-88 (88)%. Test 33, 32, 30, r22-51 days. (#24).**

greenhouse & garden: Easily established from seed in plantings. Responds well to successional restoration method.

Description: Erect, perennial, native herb, aromatic; stems square, faces hairless; stems hairy on the angles, 1.5-3.0', spread 1.0-1.5'+; leaves, opposite, stemless; toothless & hairless; inflorescence flat-topped, terminal clusters of compound flowers, only a few flowers in each individual cluster flower at any one time; 2-lipped, 5-lobed flowers white with purple spots; each flower produced 4 1-seeded nutlets. Tetraploid sp, n = 40. key features: "This is our only common species in the genus, and a fairly distinctive one, with the angles of the main stem usually copiously pubescent and the sides rarely with a few small hairs. The leaves are variable in size, shape, and pubescence." (rvw11)

Comments: status: Endangered in New Hampshire. phenology: Blooms July to September. C3. In northern Illinois, collect seeds in late August - early November. Collect seeds in se Wisconsin in October (Heon et al 1999). Attractive cut flowers & dried seedheads. Aromatic, having a strong mint odor when bruised or crushed. Landscaping, aggressive in small gardens, aroma gardens & herb gardens, pollinator gardens, borders, naturalized areas & meadows. Slowly rhizomatous, long-term erosion control, improves soil stability, upper shorelines, prairie buffers, rain gardens, & vegetated swales, & adds to overall diversity. Calcareous soils, aggressive, fragrant. An Illinois population was reported to have a lemony odor instead of a minty odor (Sørensen & Matekaitis 1981). Seed source nursery production plots from genetic sources, wet prairie & railroad remnants, Clinton Twp, DeKalb Co, Sublette Twp, Lee Co, & Spring Slough, Hume Twp, Whiteside Co.

Associates: Sp is of special value to native bees, bumble bees, & honey bees (Xerces). A large field in bloom has an incredible pollinator draw. Pollinator friendly & highly desirable for pollinator gardens. Nectar source. Attracts butterflies. Long blooming season attracts many pollinators. Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera, Diptera, & Lepidoptera*. Herbivores & leaf-chewing insects seldom bother COMMON MOUNTAIN MINT. Reported as deer resistant. Reported to tolerate growing under a walnut tree. No serious disease or insect problems. Stressed plants may develop rust.

ethnobotany: Flowers & buds available from July to September for flavoring. Used by Ojibwa for food (flowers & flower buds) & medicine, but not reported for beverage (den28). Used as medicinal plant by Ojibwa for fevers & diseases of women (den28). Used as an aborifacient, alterative, cough medicine, febrifuge, & stimulant. Also used for food & flavoring, the buds & flowers used as a spice to season meat. Mesquakie used the leaves to mask their scent on mink traps. The plant is diaphoretic, carminative, & tonic.

VHFS: Formerly *Koellia virginiana* (Linnaeus). [*Koellia virginiana* (L) MacMill, *Pycnanthemum lanceolatum, Satureja virginiana*] (Verify *Pycnanthemum virginianum* (Linnaeus) T Durand & BD Jackson (Macm))

PD Sørensen & PA Matekaitis. 1981. A lemon-scented *Pycnanthemum* (*Lamiaceae*). Rhodora 83: 145-146.





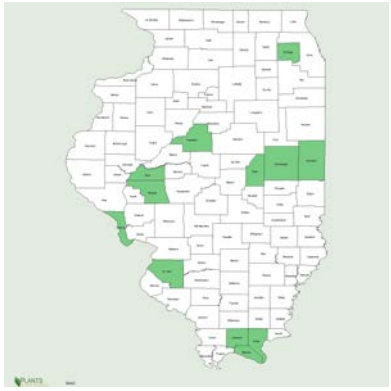
Pycnanthemum virginianum, including a massive clone
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov.

Rosmarinus officinalis, ①sow at 20ºC (68ºF), germinates in less than two wks thin cover, needs light (tchn).

SALVIA Linnaeus 1753 **SAGE, CLARY** *Lamiaceae* or *Labiatae* *Salvia* New Latin, from Latin, *salvia, salviae,* sage, from the medicinal properties of some spp of the Sage genus. A genus of about 900 spp of shrubs & herbs, almost cosmopolitan. *S nemorosa,* WOODLAND SAGE, is the source of many popular garden perennials. WOODLAND SAGE is known from some pioneer cemeteries.

Seeds ripen late summer to fall. Seed needs no treatment. Code A. 1-3 node cuttings taken before flower buds form root easily. (cu00)

Salvia azurea Michaux ex Lamarck *IL, TN PITCHER SAGE, aka AZURE SAGE, BLUE SAGE, (*azureus -a -um* (a-ZYEWR-ee-us) azure, true blue, the color of deep blue, deep sky blue, from *azure*, which is derived from Old French *lazaward*, *lapis lazuli* with initial '*l'* dropped as if it were French: adapted from Arabic (*al-*) *lazaward* from Persian *ljward, lzhward,* lapis lazuli, blue color, & *-eus,* made from, -color, -like. (OED) medieval Greek λαζούριον, *lazourion*, & medieval Latin *lazurius*, *lazur*, *lazulus*, lapis lazuli. The Italic languages dropped the Arabic article *al-* as though it were the article *l'*.)



Habitat: Where native, limestone glades, prairies & open ground. In the se USA, for var *grandiflora*, "prairies, woodlands over calcareous or mafic rocks; rare" (w12). distribution/range: "Dry woods, prairies; scattered in Illinois. *Most* records appear to be garden escapes (m14) (emphasis added). Illinois is on the northeast edge of the sp natural range, with several adventive records known, including prairie plantings near Rock Falls & Blackhawk East Community college. Considered introduced in Wisconsin.
Culture: ①No pre-treatment necessary other than cold, dry stratification (pm09). No pre-treatment needed.

Sowing outdoors in the spring is the easiest method. (he99) ②"No pre-treatment needed. Sow seeds just below soil surface at 70ºF & water." (ew12) ③Sow in spring (pots 2000).

seed counts & rates: 112,000 (pm11, ew12), 149,000 (stock) seeds per pound. For a single sp plot, plant 4.5 oz. per 1,000 sq. ft. (stock).

cultivation: Space plants 1.0-2.0' centers. Mesic to dry soils with good drainage, full sun to partial shade. Drought tolerant.

bottom line: Field sow spring or dormant. Germ 82%. Dorm 0.0%.**

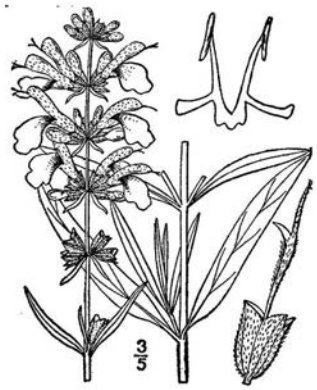
Description: Warm-season perennial, aromatic; stems square; leaves opposite, gray-green; 2-4 airy spikes of flowers; flowers large, azure-blue, 2-lipped, 5-merous; fruit a one seeded nutlet;

Comments: status: Threatened in Illinois. Special Concern in Tennessee. phenology: Blooms 7-9. In northern Illinois, collect seeds in October. PITCHER SAGE was a favorite plant, & for years a 'trademark' of Corliss "Jock" Ingels, a true prairie pioneer without whom this industry would still be blindly crawling on all fours, worse than it is now. The sp was included in some of his standard seed mixes. Jock recognized this sp as a rare Illinois native, & he was bound & determined to not keep it rare.

Associates: Attracts butterflies, bees, & hummingbirds. Reported as deer resistant.

VHFS: According to Mohlenbrock (2014), Illinois material is var *grandiflora* Bentham. [*S pitcheri* Benth]





Salvia azurea

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

Salvia coccinea PJ Buc'hoz ex Etlinger SCARLET SAGE, aka BLOOD SAGE, RED TEXAS SAGE, SCARLET SALVIA, (*coccineus -a -um* coccin'eus (incorrectly ko-SIN-ee-us) Latin crimson, scarlet, red, deep red, deep carmine red, from Latin *coccineus -a -um*, died scarlet, scarlet dye; scarlet, of scarlet color, for the dye produced from galls on *Quercus coccifera*.)

distribution/range: Native south of our area, Florida to Texas, & Ohio state.

①No pre-treatment needed. Sow seeds just below soil surface at 70ºF & water. (ew12) 368,000 (ew12) seeds per pound.

Space plants 1.0-1.25'. Dry soils, full sun.

Annual, red flowers.

Attracts hummingbirds & butterflies. Reported as deer resistant.

Salvia farinacea Bentham BLUE SAGE, aka MEALY SAGE, MEALY CUP SAGE, (*farinaceus –a -um* with starch, starchy, by usage abounding in flour, from Latin noun *farina, farina* f, flour or meal (for dough or pastry), stuff persons made of; dust or powder from grinding)
distribution/range: Native south of our area, Florida to New Mexico, & Ohio state.
①No pre-treatment needed. Sow seeds just below soil surface at 70ºF & water. (ew12) ②Sow at 20ºC (68ºF), germinates in less than two wks (tchn). 304,000 (ew12) seeds per pound.
Space plants 1.5-2.0'. Mesic soils, full sun.
Annual sp, 2.0-3.0';
Attracts hummingbirds. Reported as deer resistant.

Salvia lyrata Linnaeus LYRE-LEAVED SAGE, aka CANCER WEED (*lyratus –a -um* lyrate, lyre-shaped, pinnafid with large terminal lobe, from Latin noun *lyra, lyrae* f, lyre; lyric poetry, inspiration, genius; Lyra, the Lyre (constellation), lute or harp; from Greek λύρα, *lyra*.)
distribution/range: "Rich woods, open woods, occasional to common in the s ½ of Illinois (m14). Native south of our area, Connecticut & Pennsylvania west to Oklahoma, south to Florida & Texas.
①No pre-treatment necessary other than cold, dry stratification (pm09). ②"No pre-treatment needed. Sow seeds just below soil surface at 70ºF & water." (ew12) ③Sow at 20ºC (68ºF), germination slow (tchn).
seed counts & rates: 240,000 (ew12) seeds per pound.
Space plants 1.0-1.25'. Mesic soils, full sun.
Perennial, 1.0-1.5';

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

Salvia officinalis Linnaeus KITCHEN SAGE, aka COMMON SAGE, GARDEN SAGE, DALMATIAN SAGE, (*officinalis -is -e* officina'lis officina'le (oh-fis-in-AY-lis, oh-fis-in-AY-lee, alternately the C may be pronounced as a K) of the shops, sold in (apothecaries') shops, sold as an herb, sold in the marketplace, of practical use to man; used in medicine, medicinal, official, from *officina*, noun, Modern Latin, workshop, laboratory, or herb pharmacy, and *-alis*, of or pertaining to. An officinal is a medicine kept as a standard or stock preparation (oed).)
Species may be long persistent around old garden sites. distribution/range: Native of the Mediterranean lands.
①"No pre-treatment needed. Sow seeds just below soil surface at 70ºF & water." (ew12) ②Sow at 20ºC (68ºF), germinates in less than two wks (tchn). 288,000 (ew12) seeds per pound.
Space plants 1.0-1.5' in the row, 2.0' between rows. Well drained garden soils, full sun to partial shade.
Short-lived perennial. key features: "The leaves in this species are very regularly and finely crenulate-toothed, while in *S pratensis* they tend to be more coarsely, irregularly toothed" (rvw11).
Leaves are evergreen, & are available fresh from the garden almost all year long.

Salvia officinalis

Color illustration modified from Franz Bley - *Botanisches Bilderbuch* (1897/98) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de . Seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp

Salvia reflexa Hornemann WESTERN SAGE, aka LANCE-LEAF SAGE, MINTWEED, ROCKY MOUNTAIN SAGE, (*reflexus -a -um* reflex'us (ree-FLEX-us) reflexed, bent back bent back abruptly, from Latin verb *reflecto, reflectere, reflexi, reflexus*, bend back; turn back; turn round.)

"Native to the w US. Dry woods, pastures, fields; occasional throughout the state except for the southern-most cos (m14). "Known only on the Freelund farm west of Roscoe where it is abundant around the barn & feed lots" (ewf55). In Michigan, "Native west of the Great Lakes and with us rarely adventive in farmyards and disturbed ground. First recorded in Lenawee Co in 1902. The light blue corollas are ephemeral." (rvw11)

Salvia sylvestris Linnaeus BLUE SAGE, aka WILD SAGE, WOODLAND SAGE (*sylvester, sylvestris, sylvestre* of woods, wild, by usage growing in woods, from Latin *sylvestris*, of or belonging to the forest or woods)

"Native to Europe; adventive in pastures & along roads; Cook, McHenry, & Winnebago cos (m14). "An escape that is well established in an old pasture on Owen Center road north of Rockford & in waste ground in East Rockford." (ewf55)

Salvia X sylvestris L (pro sp), *Salvia nemorosa* L X *S pratensis* L

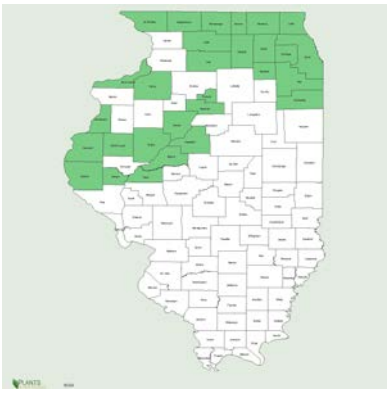
Satureja hortensis L. "The *Satureja hortensis*, which I believe is not regarded as indigenous to North America, was once seen by us in the greatest profusion, and that, too, in a situation the least favorable to the idea of its having been introduced---the centre of a large prairie, where no settlement could have been made." (Short 1845).

SCUTELLARIA Linnaeus 1753 **SKULLCAP** *Lamiaceae* or *Labiatae* *Scutellaria* New Latin from Latin *scutella, scutellae,* a small dish, tray, platter, or drinking bowl & *-aria*, from the appearance of the calyx (or sepals) in fruit. *Scutella* also refers to the figure of a lozenge, a rhombus, or a diamond. Genus of about 350-360 spp of almost cosmopolitan herbs & shrubs. For those blessed with an agricultural or rural background, skullcaps are recognizable by an "antique tractor seat"-shaped protuberance on the upper calyx (w12). Go Angela. C3.


antique tractor seat & *Scutellaria integrifolia*
Photo Robert H. Mohlenbrock USDA-NRCS PLANTS Database - Not copyrighted image.

Seeds ripen early to late summer, & are quickly shed when ripe. Capsules have 1-2 seeds each, & should be picked when the capsules yellow. The plants bloom sequentially, & may have blossoms, ripe fruit, & empty capsules at the same time. Germinates easily after cold moist stratification, often blooming first year. Code B. Spring cuttings will root somewhat. (cu00)

Scutellaria epilobiifolia Muhlenberg (in new nomenclature this is **Scutellaria galericulata** Linnaeus) MARSH SKULLCAP, aka *FROSSÖRT* (SW), HOODED SKULLCAP, MARSH SCULLCAP, *SCUTELLAIRE CASQUÉE* (F), SMALL SKULLCAP, *SUMPF HELMKRAUT* (G), (*epilobifolius -a -um* New Latin with leaves resembling those of *Epilobium*, from *Epilobium,* from Greek επι-, *epi,* on & λοβος, *lobos* a pod, & Latin *folium*, leaf. The synonym *galericulatus -a -um* skullcap-like, helmet-like, with a small helmet, cap or hood, from Latin *galericulum, galericuli* n, skull-cap; wig, & Latin *–atus*, suffix indicating possession, likeness, or 'provided with', used with noun bases.) obl



Habitat: Wet to moist woods, shores & shallow water. Wet meadows & marshes. In Michigan, "Wet or marshy shores & banks; borders of streams, rivers, lakes, & ponds; swamps, thickets, & clearings; bogs, sedge meadows, cedar swamps; ditches & swales" (rvw11). In Michigan, Wet or marshy shores and banks; borders of streams, rivers, lakes, and ponds; swamps, thickets, and clearings; bogs, sedge meadows, cedar swamps; ditches and swales" (rvw11). In the se USA, "spring-fed seepage, bogs, swamps, freshwater tidal marshes; rare" (w12). distribution/range: Marshes; confined to the n ½ of Illinois (m14). Circumboreal. The only species found in both the Old & New World.
Culture: ①Seeds germinate after about 60 days of cold moist stratification (he99). ②"Wash seeds several times, sow at +4ºC (39ºF) for 6 wks, move to 16ºC (60ºF) for germ" (??)(tchn). 2,000,000 (jfn04), 2,268,000 seeds per pound.

Storage Behaviour: Orthodox. Storage Conditions: Long-term storage under IPGRI preferred conditions at RBG Kew, WP. Oldest collection 1 year.

1000 Seed Weight. Average 1000 Seed Weight(g): 0.75. 0.7; (RBG Kew, Wakehurst Place), Seed. 0.8; (Bouman et al, 2000), Seed; Seed mc not stated, but weight is likely to refer to air-dry seed.

Seed Dispersal. Water; Floating in freshwater currents; Method not stated; (Ridley 1930), The diaspore is buoyant. Water; Diaspore is propelled by action of rain on plant structure; Method not stated; (Bouman et al 2000)

Germination. 85 % germination; ; germination medium = 1% agar + 250 mg/l giberillic acid (GA3), germination conditions = 21°C, 12/12; (RBG Kew, Wakehurst Place)

greenhouse & garden: No treatment, small seeds need light to germinate, shallow cover
Description: Erect, herbaceous, perennial, aromatic, native forb, aromatic; roots minimum depth; stems 6-32(-48)" tall, stems square, weak; leaves opposite, usually 2 to 4 times as long as wide, barely stalked, inflorescence mostly solitary flowers from the axils of the leaves; flowers blue with white marks, 5-merous, 0.50-0.75" long; fruit is a one seeded nutlet, prominently tuberculate, orange-brown, c 1.5 x 1 mm; N. key features: Mostly

solitary flowers, leaves barely stalked. "The calyx and corolla are puberulent. The flowers are solitary in the axils of normal to reduced leaves, and both flowers at a node turn to the same side, giving a distinct lateral appearance. Depauperate plants with leaves as short as in *S nervosa* and *S parvula* can be distinguished by having the leaves over twice as long as broad. In our plants of these two small species, the mid-cauline leaves are no more than twice as long as broad." (rvw11)

Comments: status: phenology: Blooms 6,7,8,9. C3. Collect seeds in se Wisconsin in September (Heon et al 1999). Wetland restoration, rhizomatous. Early successional or a wetland seed-bank sp in our area.

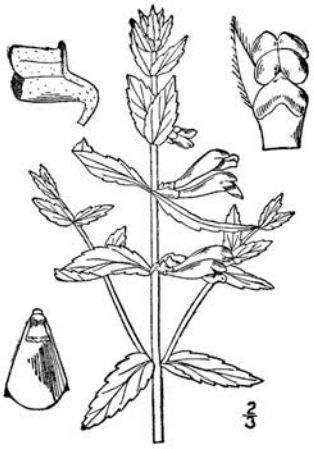
"Not uncommon in wet places. Campbell Bog in Rockton Twp & Kent Creek west of Leving's Park." (ewf55).

"*S epilobifolia* A Hamilton (*S galericulata* of American authors, not L) MARSH SKULLCAP.

In situations similar to the preceding (*S lateriflora*), but much less frequency & with few plants at a station. Section 14, Geneseo Twp; Section 10, Alba Twp; Section 11, Colona Twp; Section 1, Hanna Twp." (Dobbs 1963)

Associates: ethnobotany: Used as medicinal plant by Ojibwa (sm32).

VHFS: [*Scutellaria epilobifolia* A Ham, *S galericulata* L, *S g* L subsp *pubescens* (Benth) A&D Löve, *S g* L var *epilobiifolia* (A Ham) Jordal, *S g* L var *pubescens* Benth] synonyms from Tropicos.





Scutellaria galericulata

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Photo Robert H. Mohlenbrock 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 species.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed photo Jose Hernandez USDA-NRCS PLANTS Database. - Not copyrighted image. Color illustration Otto Wilhelm Thomé: *Flora von Deutschland, Österreich und der Schweiz* (1885) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de . 2nd color illustration Jan Kops, FW van Eeden - *Flora Batava of Afbeelding en Beschrijving van Nederlandsche Gewassen,* XVI Deel., Volume 16 (1881) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de . Line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de. Illinois map courtesy plants.usda.gov.

Scutellaria incana Biehler *MI, NY HOARY SKULLCAP, aka DOWNY SKULLCAP, SKULLCAP, (*incanus -a -um* inca'nus (in-KAY-nus) pale, hoary, whitish gray, gray, hairy, gray with age, like gray felt, from Latin *incānus*, quite gray, hoary.)

Habitat: "Species is distributed in rocky woods; wooded slopes along streams" (Ilpin). In Michigan, "A species of dry forests & thickets, but with no extant occurrences known" (rvw11). In the se USA, "dry sandy open woods or woodland margins; rare" (w12). "Open woods, sandy areas, pinelands, dry bluffs" (lbj). distribution/range: "Dry, rocky woods; occasional in the s ⅔ of Illinois (m14). Native south & east of our area

Culture: Propagation: ①No pre-treatment needed. Sow seeds just below soil surface at 40ºF & water. Slow to germinate. (ew12) ②Sow at max 5ºC (41ºF), germ irregular, often several months (tchn). 320,000 (ew12) seeds per pound.

asexual propagation: Cuttings.

cultivation: Space plants 1.0-2.0. Mesic soils, full sun to partial shade or deep shade. Water usage low to medium. Rich, acid soils, pH<6.8, and sands; dry to moist.

Description: plant 2.0-3.0'; plant fragrant; inflorescence 60." spikes; key features:

Comments: status: Probably Extirpated in Michigan. Endangered in New York. phenology: Blooms June-September. C3. Aromatic.

Associates:

ethnobotany: Reported as deer resistant and as deer browse it.

VHFS:




Scutellaria incana

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Jose Hernandez USDA-NRCS PLANTS Database. - Not copyrighted image. Photo courtesy WD & Dolphia Bransford (1,2) & Sally & Andy Wasowski (3), Wildflower Center Slide Library. Unrestricted image. Illinois map courtesy plants.usda.gov.

Scutellaria lateriflora Linnaeus MAD DOG SKULLCAP, aka BLUE SKULLCAP, HOODWORT, VIRGINIA SKULLCAP, (*lateriflorus -a -um* with flowers on the side, with flowers at the side, lateral-flowered, from Latin adjective *lateralis –is -e,* lateral, of or on side of body, and *-florus -a -um*, -flowered, from post-classical Latin and scientific Latin *-florus -a -um*; from classical Latin *flōs, flōris,* flower, a reference to the non-terminal flowers.) The common name MAD DOG is in reference to the plant's supposed ability as a cure for rabies. Habitat: Marshes & drainage ditches. Wet to moist woods, shores, & shallows. In Michigan, "Hardwood & conifer swamps, thickets, wet shores, meadows, river banks, ditches & swales, marshes, & bogs. In much the same diversity of wet habitats as the equally common *S. galericulata*, but the latter seems more often to be in open places & S. lateriflora more often in shaded ones." (rvw11). In the se USA, "alluvial forests, bogs, seeps, marshes; common (rare in FL)" (w12). distribution/range: "Marshes, swampy woods, borders of rivers & streams; occasional to common throughout Illinois" (m14).

Culture: ①60 days cold moist stratification (pm09). ②Seeds germinate after about 60 days of cold moist stratification (he99). ③Fall plant or cold stratify for 1 to 2 months for best results. Sow seeds just below the soil surface at 70ºF & water. (ew12) 978,448 (gnh13), 1,040,000 (pm11, ew12), 1,042,480 (gnam11), 1,082,241 (gnam06) seeds per pound.

cultivation: Space plants 1.25-1.5'. Wet soils, full sun to partial shade.

bottom line: Some historical succcess by spring seeding , but dormant seeding is necessary of late. Flipflop & crossover sp. Germ 34.8, 43, na, sd 22.6, r7.0-60 (53)%. Dorm 52.6, 46, 88, sd 30.5, r16-88 (72)%. Test 31, 34, na, r20-36 days. (#7)**

Description: Erect, herbaceous, perennial, native forb, aromatic; stems 12-28" tall; leaves opposite, stalked, thin with pinnately-arranged veins, wide rounded base, toothed; inflorescence a 1"-4" long raceme of stalked flowers mostly from the leaf axils; flowers blue, 5-merous, 0.25-0.33" long, petals nearly straight; fruit is a one-seeded nutlet; N. key features: 1-4" long axillary racemes, leaves stalked.

Comments: status: phenology: Blooms 6-9. C3. Collect seeds in se Wisconsin in September - October (he99). Similar to *S epilobifolia*, but flowers smaller. Seed source genetic source Deer Grove, Whiteside Co.

"Common in wet places as sloughs, shallow bogs, & the edge of streams." (ewf55).

"Frequent to common & forming small colonies in marshes, wet depressions, & low wet woodlands, also on muddy shores. Section 1,8,9,12, & 27, Hanna Twp; Sections 3,12,15, & 19, Colona Twp; Section 16, Phenix Twp; Section 2, Clover Twp; near Hoopole.

One of many old time medicinal plants & still said to be of some commercial importance, the herb being used." (do63)

Associates: Seed has some food value to pheasants.

ethnobotany: The plant has been used as a nerve remedy & a tonic.

VHFS: [*Scutellaria lateriflora* L var *lateriflora*]




Scutellaria lateriflora

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Photo Robert H. Mohlenbrock 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 species.* USDA Natural Resources Conservation Service. Not copyrighted image. Seed photo Tracey Slotta. Illinois map courtesy plants.usda.gov.

Scutellaria leonardii Epling (Alternate nomenclature **Scutellaria parvula** Michaux var **missouriensis** (Torrey) Goodman & CA Lawson) GLADE SKULLCAP, aka LEONARD'S SKULLCAP, SHALE-BARREN SKULLCAP, SMOOTH SMALL SKULLCAP, (The specific epithet is sometimes spelled with one i. *parvulus -a -um* small, somewhat small, very small, from Latin *parvus -a -um,* small, little, and *-ulus -a -um*, adjectival diminutive suffix meaning little, -tending to, -having somewhat. *missouriensis -is -e* missourien'sis (mi-sur-ree-EN-sis, or mis-oo-ree-EN-sis) of, pertaining to, or from Missouri or the Missouri River.)

Habitat: Dry rocky woods & dry prairies, does not like grassy competition. In the se USA, "limestone glades, diabase barrens, shale barrens & woodlands, dry sandy soils; rare" (w12) distribution/range: "Prairies, rocky woods, scattered through Illinois (m14).

Culture: ①60 days cold moist stratification (pm09).

Description: Native erect perennial, native forb; stems 3-8" tall, erect, downy, 4-angled, leaves opposite, simple, entire, main leaves stalkless, usually with 2 pairs of side veins; flowers blue to pink, 5-merous, 0.25-0.33' long, fruit is a one-seeded nutlet; N. key features: Sp is pubescent, hairs without glands (Ilpin). Leaves with 2 pairs of side veins.

Comments: status: phenology: Blooms 5,6,7. C3. Collect seeds in se Wisconsin in July (he99).

"Common on gravel ridges, open woods, &c. (*S parvula* var *leonardii* (Epling) Fern.)" (ewf55)

"*S parvula* Michx var *leonardii* (Epling) Fern. (*S parvula* var *ambigua* sensu Fern & *S ambigua* sensu Leonard, not Nutt) SMALL SKULLCAP.

A plant of frequent occurrence & with a wide range of ecological amplitude in Henry Co, being found on moist turfy embankments, in depressions, & moist meadows, in dry open woodlands, & on dry sandy bluffs. Section 9, Geneseo Twp; Section 32, Hanna Twp; Section 10, Edford Twp; Section 19, Colona Twp; Section 16, Phenix Twp; near Nekoma, Hoopole, & Ulah.

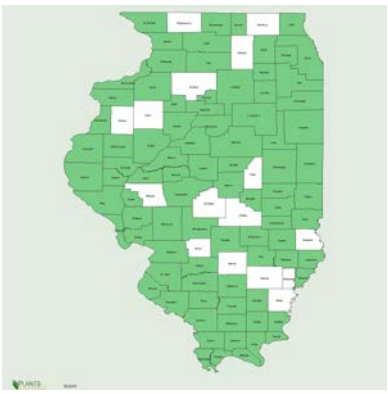
Determined by Professor ML Fernald at the Grey Herbarium where the specimens were deposited." (do63)

VHFS: Reznicek et al (2011) treat this as *S parvula* Michx var *leonardii* (Epling) Fern. "This (var *leonardii*) differs from var *parvula* in having only tiny incurved eglandular hairs on the stem & eglandular hairs on the calyx; in var *parvula* there are straight, erect, gland-tipped hairs on stem & calyx (overtopping any shorter hairs)."

[*Scutellaria ambigua* Nutt, *S a* Nutt var *missouriensis* Torr, *S leonardii* Epling, *S nervosa* Pursh var *ambigua* (Nutt) Fern, *S parvula* Michx var *ambigua* (Nutt) Fern, *S p* Michx var *leonardii* (Epling) Fern]

Illinois map courtesy plants.usda.gov.

Scutellaria ovata Hill var **versicolor** (Nuttall) Fernald (new nomenclature **Scutellaria ovata** Hill var **bracteata** (Benth) SF Blake) *WI HEART-LEAVED SKULLCAP, aka FOREST SKULLCAP, (*ovatus -a -um* **(**o-VAH-tus) ovately shaped, egg-shaped, elliptic, but broader at the base, from Latin *ovatus*, from *ovum* egg & *-atus,* suffix indicating possession or likeness; *versicolor* (ver-SI-ko-lor) variously colored, changing color, from Latin *versicolor*, from *vers-,* participle stem of *vertĕre,* to turn, change, & *color, coloris,* color, pigment. *bracteatus -a -um* bractea'tus (brak-tee-AY-tus) New Latin for bracted, bracteate, bearing bracts, modified leaves immediately below the calyx, or on the peduncle, from Latin *bractea,* a thin metal plate, gold leaf, and *-atus*, Latin suffix indicating possession, likeness of, or provided with.) facu



Habitat: Mesic savannas, mesic woodlands, rocky woods, & rich woods. Dry woods & forests. In Michigan, rich, moist deciduous forests, very rare. First collected from the Bankson Lake area, Van Buren Co (*JA Nieuwland* in *1918*, ND) and more recently by R. W. Smith in Lenawee Co." (rvw11)

distribution/range: "Rocky woods, rich woods; occasional throughout Illinois" (m14).

Culture: ①60 days cold moist stratification (pm09).

Description: Erect, herbaceous, perennial, native forb, aromatic; roots minimum depth, spreads by runners; stems 0.5-1.0' (taller than 25 cm.), stems square, with spreading glandular hairs; leaves opposite, long-stalked, round to oval, margins serrate, crenate, venation pinnate; inflorescence of stalked flowers in 1 or more terminal racemes up to 4" tall; flowers blue, uppermost bracts shorter than the calyx; 5-merous, 0.50-1.0" long; fruit a one-seeded nutlet; N. key features: Stems with spreading glandular hairs; flowers in terminal clusters, leaves long stalked.

Comments: status: Subsp *ovata* is Special Concern in Wisconsin. phenology: Blooms 6,7. C3. 648,000 seeds per pound.

"Uncommon in woods, usually in moist places. Mulford woods, Kishwaukee River Forest Preserve, & Alpine Park east of Rockford." (ewf55 as *S ovata* Hill)

"Infrequent to rare in rich moist woodlands, with few plants at a station. Section 26, Hanna Twp; Section 19, Colona Twp; south margin of Shadow Lake." (do63)

VHFS: Mohlenbrock (1986) lists the sp & the rare subsp *rugosa* (Wood) Epling, as well as this variety. M02, 14 lists var *ovata,* var *bracteata* (Benth) SF Blake, & var *rugosa* (Wood) Epling. He places var *versicolor* in synonymy with var *bracteata.*

Var *ovata* Rocky woods; occasional throughout Illinois. Some or all of the leaves more than 4 cm long; plants generally taller than 25 cm; upper most bracts longer than the calyx. Blooms May- October.

Var *bracteata* Rocky woods, rich woods; occasional throughout Illinois. Some or all of the leaves more than 4 cm long; plants generally taller than 25 cm; upper most bracts shorter than the calyx. Blooms May-October.

Var *rugosa* Limestone woods; rare; Jackson, Monroe, Randolph, & Union cos. None of the leaves more than 4 cm long; plants less than 25 cm; upper most bracts long. Blooms May- October.

Some authorities include this variety in subsp (or variety) *ovata*. Reznicek et al (2011) note plants from the northern part of the range of this variable species are referred to var *versicolor* (Nutt) Fernald.

Weakley (2012) lists *S ovata* ssp *versicolor* (Nutt) Epling as synonymous with *S o* Hill ssp *ovata* var *ovata*. He also lists the taxa in m14 but as subspecies, not vars.

[*Scutellaria cordifolia* Muhl, *S mississippiensis* M Martens, *S ovata* Hill subsp *calcarea* Epling, *S o* Hill subsp *mississippiensis* (M Martens) Epling, *S o* Hill subsp *versicolor* (Nutt) Epling, *S o* Hill var *calcarea* (Epling) Gleason, *S ov* Hill var *ovata, S o* Hill var *versicolor* (Nutt) Fern, *S versicolor* Nutt]

Scutellaria ovata

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

Scutellaria parvula Michaux DWARF SKULLCAP, aka SMALL SKULLCAP, (*parvulus -a -um* small, somewhat small, very small, from Latin *parvus -a -um,* small, little, and *-ulus -a -um*, adjectival diminutive suffix meaning little, -tending to, -having somewhat.)

"Rocky woods, prairies, fields, limestone barrens; occasional in the s ½ of Illinois; also Tazewell Co (m14).

"Common on gravel banks & other dry places" (ewf55). In Michigan, the sp *sensu lato*, is "usually associated with calcareous areas, such as limestone pavements & gravels" (rvw11).

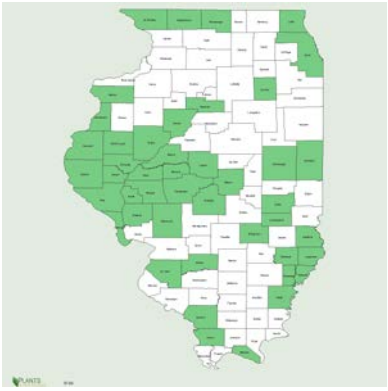
①Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks (tchn).

[*S parvula* var *parvula*]

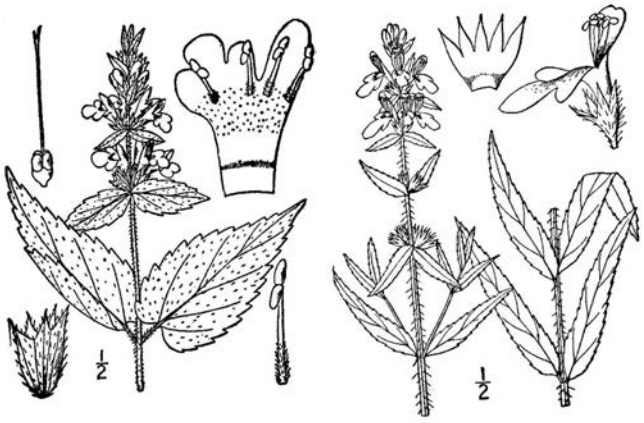
Scutellaria parvula

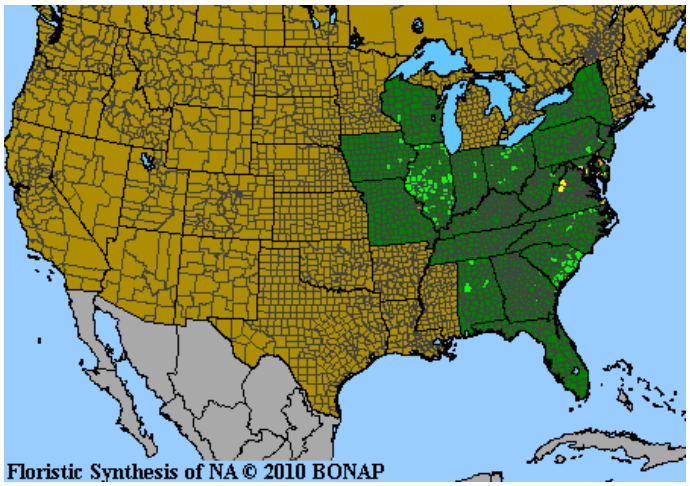
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society.

STACHYS Linnaeus 1753 **HEDGE NETTLE, WOUNDWORT** *Lamiaceae* or *Labiatae* *Stachys* from Greek *stachys,* a spike, an ear of grain, base horehound; used in compound words; alternately Latin *stachys* from Pliny, a name for a yellow-flowered, leek-like plant, from Greek στάχυς, *stakhys,* from Dioscorides, a transferred use of στάχυς, *stakhys,* ear of grain or corn. "The plant called *stachys* by Pliny is described as resembling a leek, with longer & more numerous leaves, a yellowish colour, & an agreeable smell; used as an emmenagogue. The reason for the modern application of the name is obscure." (oed) Genus of about 300 sp of herbs & shrubs, mainly temperate, almost worldwide except Australia & New Zealand.



Stachys aspera Michaux *MD ROUGH-LEAVED HEDGE-NETTLE, aka HYSSOPLEAF HEDGNETTLE, ROUGH HEDGE-NETTLE, *asper -era –erum* as'per (AS-per, AS-pir) as'pera (AS-per-a, AS-pir-a, AS-pir-um) rough to the touch, from Latin *asper, asperi*, adjective, rough, in usually reference to the surface texture.
Habitat: "Uncommon on low prairies west of Shirland & on Mill road north of Cherry Valley. (*S hyssopifolia* Michx var *ambigua*)" (ewf55) In Michigan, "wet meadows & thickets, ditch banks, & openings in swamps" (rvw11). In the se USA, "moist or wet sandy soil of savannas, marshes, or swamp forests, sinkhole ponds in the Great Valley; uncommon" (w12).
distribution/range: "Moist soil; occasional in the cent cos, rare in the n & s cos" (m14).
Annual. key features: "Very similar to narrow leaved plants of *Stachys hispida*" (rvw11).
Comments: status: Endangered in Maryland. phenology: Blooms 6-8. C3.
Associates: ethnobotany: "Tubers may be used as a fresh or cooked vegetable" (Ilpin).
VHFS: Formerly included in *S tenuifolia* in *Michigan Flora* (rvw11). [*Stachys tenuifolia* Willd var *aspera* (Michx) Fern, *S ambigua* (A Gray) Britton, *S hyssopifolia* Michx var *ambigua* A Gray, *S grayana* House]

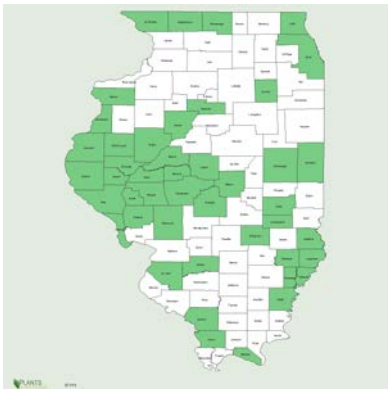




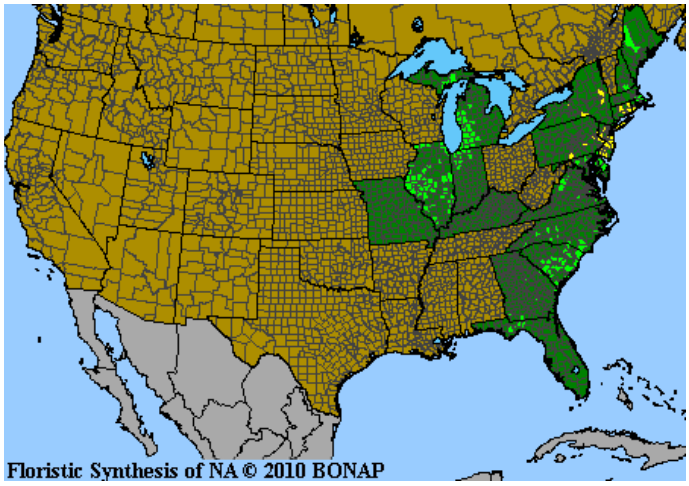
Stachys aspera. Note the Illinois-border-hugging, geo-bio-political aspect of this plant.

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov. North America map courtesy of BONAP (2010)

Stachys hyssopifolia Michaux (in m14, Linnaeus) HYSSOPLEAF HEDGENETTLE, aka HYSSOP HEDGE-NETTLE, HYSSOP-LEAF HEDGE-NETTLE, HYSSOP-LEAVED HEDGENETTLE, ROUGH HEDGENETTLE, (*hyssopifolius -a -um* hyssopifo'lius (his-op-i-FO-lee-us) hyssop-leaved, with leaves like *Hyssopus officinalis*, hyssop, from Hyssopus, which see, and *-folius -a -um* -leaved, from Latin *folium, foli*(*i*) n, leaf.)



Habitat: In Michigan "sandy shores (especially recently exposed ones) and fields, wet depressions, meadows and prairies, even marly or peaty places" (rvw11). In the se USA, moist soils of savannas, marshes, seasonally flooded sinkhole ponds, roadside ditches; uncommon" (w12). distribution/range: "Wet ground, very rare; Williamson County" (m14).
Comments: status: Endangered in Connecticut & Florida. Threatened in New York & Rhode Island. Extirpated in Pennsylvania. phenology: Blooms June - August.
VHFS: All Michigan & adjacent northwest Indiana plants are the narrow-leaved var. *hyssopifolia*, a disjunct taxon largely of the Atlantic Coastal Plain from Massachusetts to Georgia (rvw11). [*Stachys lythroides* Small, *S atlantica* Britton, *S hyssopifolia* Michx var *lythroides* (Small) JB Nelson]



Stachys hyssopifolia

Line drawings Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov. North America map courtesy of BONAP (2010)

Stachys palustris Linnaeus HEDGE NETTLE, aka CLOWN WOUNDWORT, (*paluster -tris -tre* pa-LUS-ter; palus'tre (pal-US-tree), of or pertaining to swamps or marshes, of marshes, or by usage marsh-living, marsh-loving, swamp loving, growing in bogs, bog-loving, from Latin *paluster -tris -tre* marshy, boggy, of swampy ground, from *palus*, *paludis* f, a swamp or marsh; *palustris* is often used as a masculine ending in plant names

A variable circumpolar sp. *Stachys palustris* L var *palustris* is native to Europe, & is occasionally naturalized in wet, disturbed areas, scattered in Illinois. Mohlenbrock formerly broke this down into the rare native varieties *pilosa* (Nutt) Fern & var *phaneropoda* Weath & the more common native var *homotricha* Fern. The last variety includes var *nipigonensis* Jennings. In Michigan, "rarely introduced into wet shores and other disturbed moist areas" (rvw11). Sow at +2 to +4ºC (34-39ºF) for 12 wks, move to 20ºC (68ºF) for germination (tchn).

Stachys pilosa Nuttall (formerly part of a broadly defined *Stachys palustris* Linnaeus) WOUNDWORT, aka CLOWN'S WOUNDWORT, HEDGE-NETTLE, *Ande'gobug,* crow leaf (Ojibwa),
Stachys pilosa Nuttall var **homotricha** (Fernald) Mohlenbrock comb nov WOUNDWORT, (*pilosus -a -um* pilo'sus (pi-LO-sus) New Latin shaggy, soft hairy, with soft hairs, with long soft hairs, covered thinly with long soft hairs, from Latin *pilosus -a -um*, hairy, shaggy. *homotrichus –a -um* alike hair, from *homo-,* Greek like, resembling, of the same kind, alike, from ancient Greek ὁμο-*, homo-*, combining form of ὁμός, *homos,* same, and τριχος, *trikhos*, a hair.)

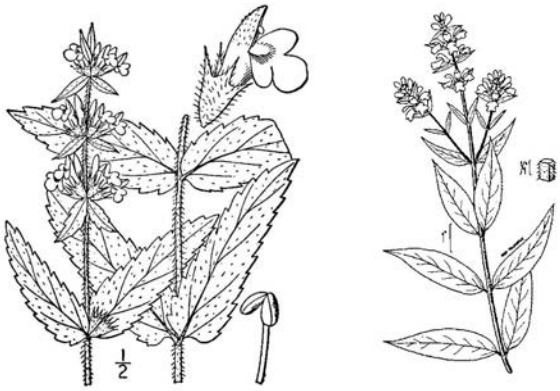
Habitat: In Michigan "Wet meadows & thickets, lake & pond shores, openings in swamps, river & stream borders, ditches" (rvw11). distribution/range: In Illinois, the sp is known only from Hancock & Union cos, and the var is the common element. Var *homotricha* wet prairies, swampy & marshy soils, occasional to common in north ½ of Illinois, uncommon elsewhere.
Culture: ①60 days cold moist stratification (pm09). ②Germination method unknown (he99).

culture: Humus soils.

Description: Erect perennial; 8-40"; flowers pink.
Comments: status: phenology: Blooms 8-9. Collect seeds in se Wisconsin in October (he99).

"*Stachys arenicola* Britt. The most common sp & the first to flower. Roadside ditches & other moist places. (*S palustris* L var *homotricha* Fern)" (ewf55 as *S arenicola*)
Associates: ethnobotany: Used as medicinal plant by Ojibwa for colic (den28). Herb said to be expectorant & vulnery (den28).
Blooms 6-9. C3.
VHFS: Formerly part of a broadly defined, variable, circumpolar *Stachys palustris.* Var *pilosa* moist soil, rare; Hancock & Union cos, blooms 6-9 (m14).

Mohlenbrock (2014) introduces the name *Stachys pilosa* Nuttall var *homotricha* (Fernald) Mohlenbrock, Basionym: *Stachys palustris* L var *homotricha* Fern.



Stachys pilosa

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Stachys tenuifolia Willdenow SMOOTH HEDGE NETTLE, [facw] (*tenuifolius -a -um* tenuifo'lius (ten-yoo-i-FO-lee-us) slender-leaved, from Latin *tenuiflolius*, slender-leaves, from *tenuis -is -e*, thin, fine, slim, slender, *-i-,* and *folium*, leaf)
Habitat: Floodplains, wet meadows. In Michigan, "marshes, wet prairies, shores, floodplain swamps, thickets, river banks" (rvw11). In the se USA, "wooded alluvial river bottoms, swamp forests, and roadsides; uncommon" (w12). distribution/range: Moist soil; occasional throughout the state" (m14).
Culture: ①Moist cold stratify or dormant seed.
asexual propagation: Division of mature plants, cuttings.
Description: Erect perennial; 1.0-2.0'; flowers white to pink;
Comments: status: phenology: Blooms 8,9.
"Less common than the above (*S hispida*) & found in the same places; prairie sloughs east of Rockford & Hall Creek at the "dells"" (ewf55).
Illinois map courtesy plants.usda.gov.

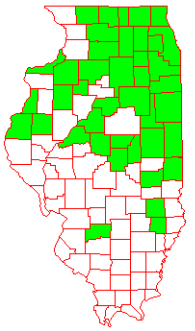
Stachys tenuifolia Willdenow var **hispida** (Pursh) Fernald (Alternately **Stachys hispida** Pursh) MARSH HEDGE NETTLE, aka HISPID HEDGE-NETTLE, (*hispidus -a -um* his'pidus (HIS-pi-dus) bristly, fine hairy, hairy rough, with stiff hairs or bristles, from Latin adj *hispidus –a -um*, rough, shaggy, hairy; bristly; dirty.) facw+
Habitat: Floodplains & wet meadows. In the se USA, "wet meadows & mesic forests; common" (w12). distribution/range: Low woods, swamps, marshes; occasional in the n ½ of Illinois, uncommon elsewhere" (m14).
Culture: ①Moist cold stratify or dormant seed.
asexual propagation: Division of mature plants, cuttings.
Description: Erect perennials; 1.0-2.0'; leaves thin-textured (& essentially glabrous), flowers white to pink;
Comments: status: phenology: Blooms 6,7,8,9.
"More common than the above (*S aspera*) & in the same situations particularly in wet places along prairie roadsides east of Rockford & east of Winnebago. (*S tenuifolia* var *hispida* (Pursh) Fern)" (ewf55) [*Stachys hispida* Pursh]
Plants.usda,gov place this variety in synonymy with the species. M14, rvw11, & w12 call this *Stachys hispida* Pursh. M14 includes var *platyphylla* Fern here.
Sp was included in *S tenuifolia* in *Michigan Flora*. "The commonest member of the *Stachys tenuifolia* group in Michigan, & the only one found throughout the state. Rare specimens (seen from Lenawee & Wayne Cos.) more or less intermediate with *S. tenuifolia* by having either essentially glabrous leaves but short petioles or hispid leaves but long petioles, may be hybrids." (rvw11)

Stachys tenuifolia
Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Photo Robert H. Mohlenbrock 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 species.* USDA Natural Resources Conservation Service. Not copyrighted image. Illinois map courtesy plants.usda.gov.

TEUCRIUM Linnaeus 1753 **GERMANDER** *Lamiaceae* or *Labiatae* *Teucrium* New Latin, from Greek τεύκριον, *teukrion,* germander, a name used by Dioscorides, perhaps from *Teukros,* Teucer, first king of Troy. A genus of about 100-250 spp of herbs & shrubs, nearly cosmopolitan.

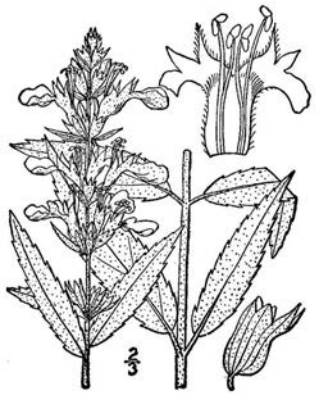
Teucrium canadense Linnaeus GERMANDER, aka AMERICAN GERMANDER, CANADA GERMANDER, WOOD SAGE, (*canadensis -is -e* (kan-a-DEN-sis, kan-a-DEN-see) of or from Canada or the north-east USA, of Canadian origin.) facw
Habitat: Wooded floodplains, dry prairies, mesic, & dry savannas. In Michigan, "moist shores, marshes, meadows, prairies, river and stream margins; savannas and thickets, floodplains (forested or grassy)" (rvw11).
distribution/range:
Culture: ①60 days cold moist stratification (pm09). Seeds germinate after about 60 days of cold moist stratification (he99). "Fall plant or cold stratify at 40ºF for 1 month for best results. Sow seeds just below the soil surface at 60ºF & water." (ew12) Sow at 20ºC (68ºF), if no germination in 3-4 wks, move to +2 to +4ºC (34-39ºF) for 2-4 wks (tchn). Dormant seed or moist cold stratify. 32,000 (ew12), 204,288 (wns01), 206,129 (gnam11), 238,736 (lhn91), 255,919 (gnai06), 312,000 (jfn04), 320,000 (pm01, aes10) seeds per pound.
asexual propagation: Division of mature plants. Cuttings.
cultivate: Space plants on 1.5-2.0' centers. Mesic soils, full sun to partial shade. AES (2010) notes some salt resistance.
bottom line: For field establishment dormant seed only. Germ 23.4, 30.8, na, sd17.1, r0.0-43 (43)%. Dorm 59.9, 54, na, sd 15.4, r44-85 (41)%. Test 37, 37, 35, r32-42 days.**
Description: Erect perennial; 0.75-2.0'; flowers pink;
Comments: status: phenology: Blooms 6,7,8,9. In northern Illinois, collect seeds in late August through October. Collect seeds in se Wisconsin in October (he99). Aromatic, aggressive, rhizomatous. "It can hold its own against tough competitors like QUACK GRASS & GOLDENROD" (ew12). Seed source nursery production, genetic source Tampico Twp, Whiteside Co.
Associates: Visited by Ruby-throated Hummingbirds. Reported to be deer resistant.
ethnobotany:
VHFS: In addition to *boreale*, Weakley lists 4 varieties in se USA, *canadense, hypoleucum*, *occidentale*, & *virginicum*.
Historically in Illinois, there have been 2 recognized varieties. In the 1980s var (1) *virginicum* & (2) *boreale*, & respectively in the 2010s, (1) *canadense* & (2) *occidentalis*.

Teucrium canadense Linnaeus **boreale** (Bicknell) Shinners GRAY GERMANDER (*borealis -is -e* bo-ree-AH-lis) northern, of the North wind, of the North, from Latin *boreas, boreae*, northern, pertaining to the north wind, from Greek βορεας, *boreas*)
Recognized in Ilpin. Now considered a synonym of var *occidentale* (A Gray) EM McClint. & Epling.
Wet fields. distribution/range: The Illinois distribution is identical to that of *T c occidentale*. Hmmm.
Var *boreale* (Bickn) Shinn GRAY GERMANDER, Calyx & bracts glandular-pubescent, lower leaf surfaces spreading-pubescent. Low woods, wet prairies, wet fields, occasional in the n ¾ of Illinois. *T occidentale* Gray. *T canadense* var *occidentale* (Gray) McClintock & Epling.


Teucrium canadense boreale

"*T occidentale* var *boreale* (Bickn) Fern (*T boreale* Bickn) Rare. Known from only two stations, one being in a moist depression in Section 10, Alba Twp, & the other in a low wet depression in Section 9, Hanna Twp." (do63)
Key features: Calyx & bracts are glandular-pubescent (Ilpin).
Blooms 7-9, C3.
[*Teucrium canadense* L var *occidentale* (Gray) McClintock & Epling, *Teucrium occidentale* Gray, *T o* Gray var *boreale* (Bickn) Fern]
Illinois map courtesy of ILPIN.

Teucrium canadense L var **canadense** CANADA GERMANDER,
distribution/range: "Low woods, wet prairies, wet ditches, wet fields, common; in every Illinois co (m14). Freckmann Herbarium excludes this var from Wisconsin.
[*Teucrium canadense* L var *virginicum* (L) Eaton, *T c* L var *angustatum* A Gray, *T c* L var *littorale* (Bickn) Fern, *T littorale* Bickn]



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

Teucrium canadense L var **occidentale** (A Gray) EM McClint. & Epling WESTERN GERMANDER, aka AMERICAN GERMANDER, WOOD SAGE, (*occidentalis -is -e* occidenta'lis (ok-si-den-TAY-lis) of the west, western, from Latin *occidens*, *occidentis*, noun, the west, towards the setting sun, and *-alis,* adjective suffix of or pertaining to, as opposed to *orientalis* of China)

Note variety is poised on the Wisconsin border ready to invade.

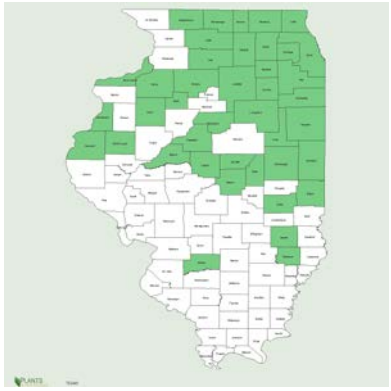
"*T occidentalis* Gray. Less common than the above; a smaller plant with smaller flowers. Usually on low prairies but also in other damp places as roadsides & streambanks." (ewf55)

"In situations similar to the preceding (*T canadense virginicum*), but much less frequent. Section 22, Geneseo Twp; Section 16, Phenix Twp; Section 2, Clover Twp.

My determination was confirmed by Professor ML Fernald at the Gray Herbarium where specimens were deposited." (do63)

VHFS: Reznicek et al (2011) notes almost all Michigan specimens are this var, having gland-tipped hairs on the calyx, ranging from sparse to abundant.

[*Teucrium canadense* L ssp *occidentale* (A Gray) WA Weber, *T c* L var *boreale* (Bickn) Shinners, *T c* L ssp *viscidum* (Piper) Roy L Taylor & MacBryde p p, *T boreale* Bickn, *T occidentale* A Gray, *T o* A Gray var *boreale* (Bickn) Fern]




Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Illinois map courtesy plants.usda.gov. Wisconsin map liberated from wisplants.uwsp.edu.

Teucrium canadense Linnaeus var **virginicum** (Linnaeus) Eaton AMERICAN GERMANDER,

Freckmann Herbarium recognizes vars *occidentalis* & *virginicum*, Ilpin recognizes vars *boreale* & *virginicum*. Weakley (2012) recognizes vars *canadense, occidentale,* & *virginicum.*

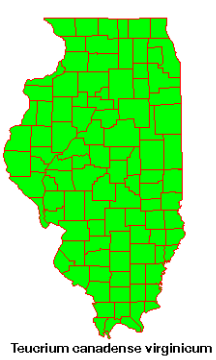
Wet ditches, fields, & meadows. distribution/range: In all Illinois counties, identical to *T c canadense.*

key features: Calyx & bracts without glandular hairs (Ilpin).

Blooms 6-9, C3.

"*T canadense* L WOOD-SAGE. Common in damp places in woods, on railroads, roadsides & low prairies. (Var *virginicum* (L) Eat)" (Fell 1955).

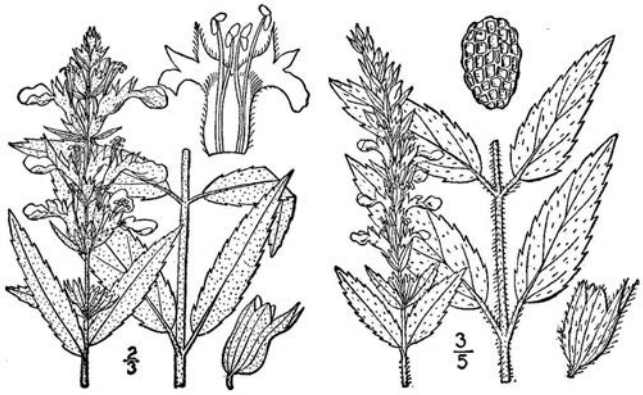
T canadense Linnaeus var *virginicum* (Linnaeus) Eaton AMERICAN GERMANDER, aka GERMANDER, WOOD SAGE, Calyx & bracts without glandular hairs, lower leaf surface appressed pubescent, low woods, wet prairies, wet ditches & fields, common in every county. Blooms June-Sept. "Frequent to common on low moist to wet shores, in moist depressions, & in wet, or even dry, woodlands. Sections 8,10,11, & 13, Edford Twp; Sections 14 & 16, Phenix Twp; Sections 11 & 19. Colona Twp; Section 19 Lynn Twp; section 9, Geneseo Twp; one & one-half miles southwest of Briar Bluff; south margin of Shadow Lake." (do63)





Teucrium canadense

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS. *Wetland flora: Field office illustrated guide to plant species.* USDA Natural Resources Conservation Service. Not copyrighted image. Last photo Robert H. Mohlenbrock USDA-NRCS PLANTS Database - Not copyrighted image. Seed photo Miller McDonald, Mark Bennet, Andrew Evans, & Alicia Sites, Department of Horticulture & Crop Sciences, Ohio State University, http://www.oardc.ohio-state.edu/seedid/search.asp Illinois map courtesy of ILPIN. Wisconsin map liberated from wisplants.uwsp.edu.

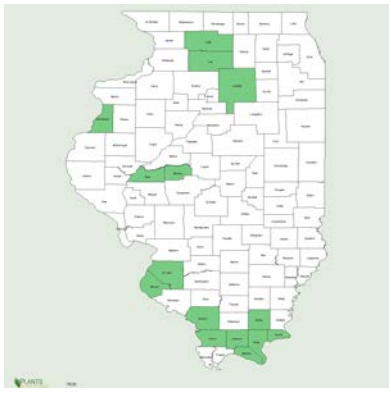


T canadense var *canadense* & *T canadense* var *occidentale,* respectively

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

Thymus spp occasionally escape cultivation in the Midwest (*albidus, pulegioides, praecox*). *Thymus pulegioides, serpyllum, & vulgaris*, sow at 20ºC (68ºF), germinates in about two wks (tchn). Some species are intensively utilized by native bees.

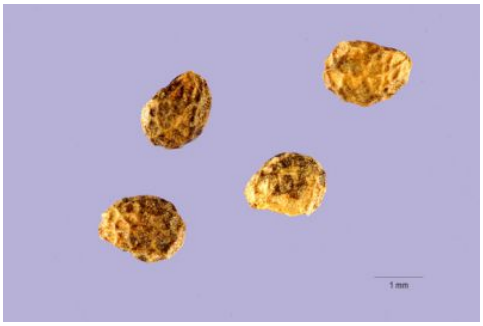
Trichostema dichotomum Linnaeus FORKED BLUECURLS, aka BASTARD PENNYROYAL, BLUE CURLS, (*Trichostema* Trichos'tema (tri-KOS-te-ma) New Latin, from Greek τριχος, *trikhos*, a hair, from Latin *stamen, stāminis,* n, plural *stamina,* from Greek *stēma* stamen, from *stēmōn* thread, for the or hairlike stamens.) (*dichotomus -a -um* dichotomus (di-KOT-a-mus) two-branched, with forked boughs, forked in pairs, dividing repeatedly in two, from Latin *dichotomos*, *-mus*, from Greek διχότομος, *dikhotomos*, cut in half, equally divided, from διχο-, *dikho-,* διχα, *dikha*, in two, asunder, apart.) Annual.



distribution/range:

①Sow at 20ºC (68ºF), germinates in less than two wks (tchn).

Rare in Indiana. Threatened in Michigan.



Trichostema dichotoma

Illinois map courtesy plants.usda.gov. 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 plants.usda.gov.

End of Mint Section

Endnotes & abbreviations. The following math functions violate Abbey's 1st 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)
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 (-4ºC 24ºF 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 & Kesseler 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)
Reliquum etiam non scriptum est.