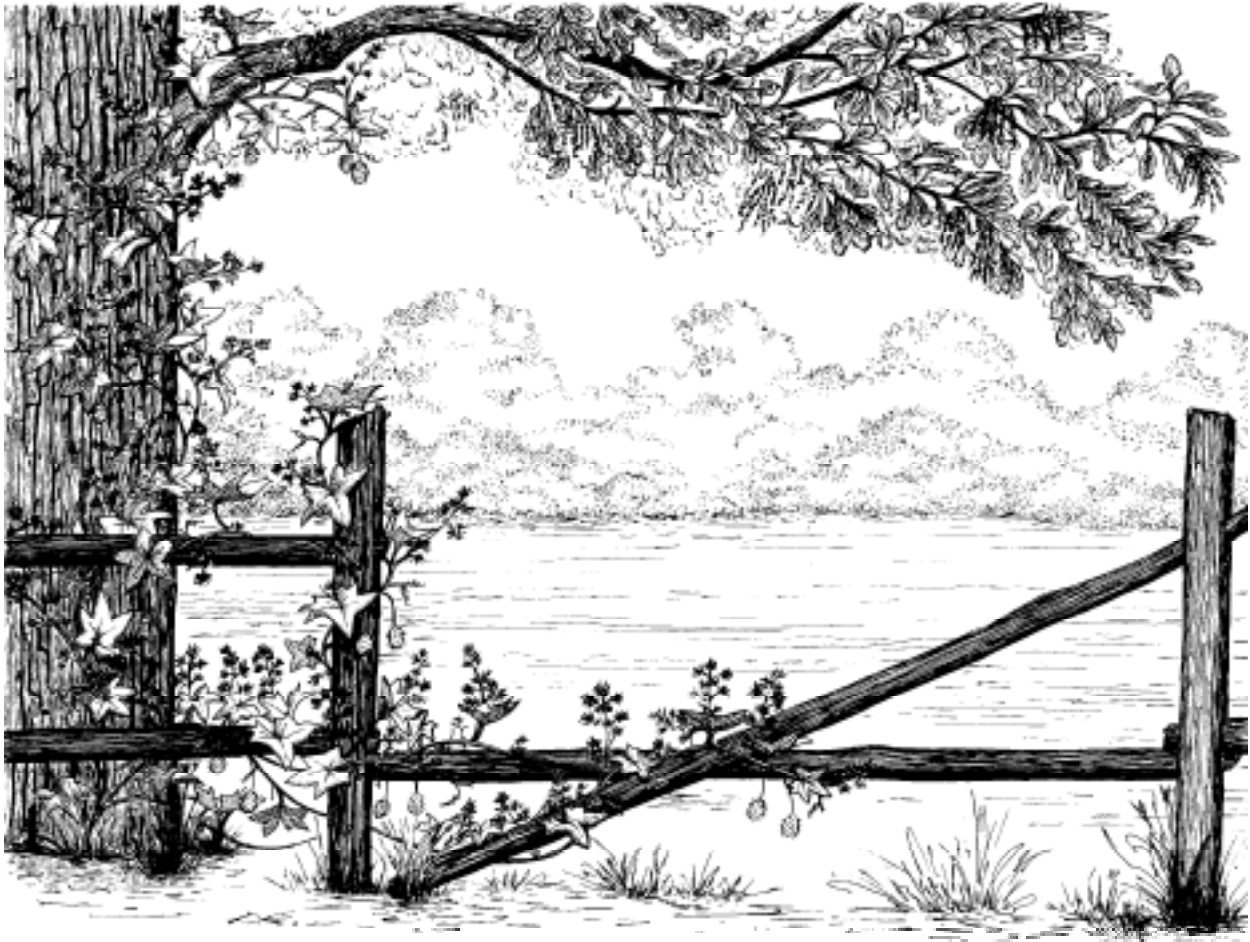


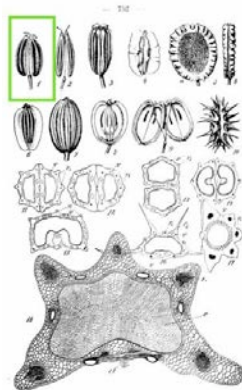
UMBELLIFERAE

Revised May the 4th 2015



UMBELLIFERAE AL de Jussieu 1789 or **APIACEAE** Lindley 1836, or ...

Actinotaceae AI Konstant & Melikyan, **Ammiaceae** Bercht & J Presl, **Angelicaceae** Martinov, **Daucaceae** Martinov, **Ferulaceae** Sacc, **Saniculaceae** Bercht & J Presl, **Umbelliferae** Juss, nom cons.



Drawing modified from Richard Wettstein - *Handbuch der Systematischen Botanik* (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de

CELERY FAMILY

UMBELLIFERAE

Angelica
Berula
Carum
Chaerophyllum
Cicuta
Conioselinum
Conium
Cryptotaenia
Cynosciadium
Daucus
Erigenia
Eryngium
Heracleum

Hydrocotyle
Osmorhiza
Oxypolis
Pastinaca
Perideridia
Polytaenia
Ptilimnium
Sanicula
Sium
Spermolepis
Taenidia
Thaspium
Zizia



Thaspium barbinode foreground, *Zizia aurea* in distance, Genesis plantings

UMBELLWORTS

ALPHABETICAL LIST OF PLANT MATERIALS

The *Umbelliferae* are cosmopolitan, but mostly north temperate herbs, rarely shrubs or trees, almost always with umbellate inflorescences, comprising about 300 (250-445) genera & 3,000 (3300-3540-3700) spp that are commonly further distinguished by the presence of hollow stems & sheathing petioles. The leaves are nearly always alternate & pinnately or palmately compound or more than once compound; stipules are generally absent. The flowers are typically small, mostly bisexual, mostly actinomorphic except in a few instances where pseudanthia are produced & the peripheral flowers have enlarged petals directed away from the center of the inflorescence. The calyx is reduced to 5 tooth-like sepals around the summit of the ovary or may even be obsolete. The corolla consists of 5 distinct, typically inflexed petals or rarely is lacking. The androecium comprises 5 distinct stamens arising from an epigynous nectary disk. The gynoecium consists of a single compound pistil of 2 carpels, 2 styles

borne on an enlarged stylopodium, & an inferior ovary with 2 locules, each containing a single pendulous, apical-axile ovule. The fruit is a schizocarp. – after Gerald Carr. Cf the intro to Weakley (2012).

The fruit is also called a cremocarp, a specific type of schizocarp, consisting of 2 coherent achenes called mericarps, which separate along the middle, called the commissure. The carpophore is the slender, simple or forked axis attached to & supporting the mericarps at the top, enclosed between them at the commissure. Each seed (mericarp) has 5 primary ribs; the dorsal rib down the back, two lateral ribs on the edges near the commissure, & two intermediate ribs between the dorsal & lateral ribs, occasionally with four secondary ribs alternating with the primary, the ribs filiform to broadly winged, thin or corky. Beneath the ribs are the *vittae*, small tubular receptacles of volatile oil embedded in the pericarp.

Generally, aromatic plants, with hollow, furrowed stems. The leaves are compound or feathery with the leaf stalk sheathing the stem. The flowers are 5-merous, typically white (whitish-green) or yellow, rarely purple, & mostly in compound umbels. Petals are separate with stamens alternate to the petals.

Some spp seeds behave as semi-recalcitrant. Early ripening & dehiscing spp may require warm moist then cold moist cycles to prompt germination.

Hydrocotyle is closely related to *Araliaceae*, & sometimes included there.

Eating the roots, seeds, leaves, or stems of wild *Umbelliferae* can be very tasty or very deadly. Few groups of plants have as many culinary, condimental, & corruptent spp as the Carrot clan. *Requiescat in pace.*



Poisonous lookalike
You're not my girl
Poisonous lookalike
What have you done with her?
Poisonous lookalike
You're not my girl
Poisonous lookalike
What have you done with her?

Poisonous Lookalike, Warren Zevon, 1995

ANGELICA Linnaeus 1753 *Umbelliferae* **ANGELICA, WILD CELERY** *Angelica* (an-GEL-I-ka) Angel, from the Medieval Latin name *herba angelica*, “angelic herb” in Matthaeus Sylvaticus, for the ‘angelic’ medicinal properties of *A archangelica* (or for its excellencies). Feminine of the Latin adjective *angelicus*, angelic. *Angelic*, for the cordial & medicinal properties of the genus. Fernald’s use of “cordial” could be interpreted as a stimulant or as a liqueur. A genus of about 110 spp of large perennial herbs, to 6.0+’, found in the temperate zone of the Northern Hemisphere & New Zealand & having stems purplish, decomposed leaves, 2 or more times pinnately divided, not feathery, loose, rounded, compound umbels of mostly white flowers, & fruits dorsally compressed, not winged, with 3 prominent, carinate, thick, dorsal ribs upon each carpel, & 2 marginal ones dilated into membranous wings; seeds loose in the ripe carpel, covered with *vittae*. All members of this genus contain furocoumarins, which increase skin sensitivity to sunlight & may cause dermatitis.

Illinois has 2 spp native to the northern 1/3 & southern 1/3 of Illinois, but not the central 1/3.

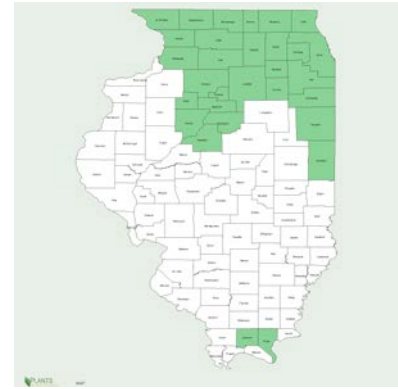
ANGELICAS are known by many common names, including: *AMARA AROMATICA*, AMERICAN ANGELICA, ANGELICA, ARCHANGELICA, *ARCHANGELICA OFFICINALIS*, BELLYACHE ROOT, EUROPEAN ANGELICA, GARDEN ANGELICA, GOUTWEED, HERB OF THE ANGELS, HIGH ANGELICA, HOLY GHOST PLANT, HOLY HERB, MASTERWORT, PURPLE ANGELICA, PURPLESTEM ANGELICA, ROOT OF THE HOLY GHOST, WILD ANGELICA, & WILD PARSNIP.

Angelica atropurpurea Linnaeus * IA?, MD, RH, TN ANGELICA, aka AMERICAN ANGELICA, ALEXANDERS, DARK PURPLE ALEXANDERS, GREAT OR LARGE ANGELICA, MASTERWORT, PURPLE ANGELICA, PURPLE-STEM ANGELICA, *RÖDSTJÄLKSKVANNE*, WILD MASTERWORT, WILD ARCHANGEL, (*atropurpureus* -a -um, blackish purple, abbreviated from *ex atro purpureus* (purple tinged with black) obl

Habitat: Fens & seeps, wet meadows, calcareous moist woodlands, & marshes. “Common in wet places.” (ewf55) In the se USA, “riverbanks, streambanks, moist roadsides; rare” (w12). Species grows best where there is constant, calcareous groundwater (although it has a dark, weedy side & grew along our dry, gravel drive in well-drained &

compact soils, & it grows everywhere my brother-in-law drops a seed in his yard). distribution/range: Possibly introduced into southeastern USA.

Culture: propagation: ①Seeds need a cold, moist period followed by a warm, moist period followed by a 2nd cold, moist period, or sow outside & allow 2 years for germination (pm09). ②Sow seeds outdoors in fall, or 60 days cold moist stratification (he99). ③30 days moist stratification necessary, field sow fall (pnnd). ④Fall plant or cold stratify at 40°F for 8 weeks. Sow just below the soil surface at 50°F & water. Slow. Moderately difficult. (ew11) ⑤Sow at Max 5°C (41°F), germination irregular, often several months (tchn). ⑥Seed is best sown shortly after ripening, as it is short-lived (A Huxley, The New RHS Dictionary of Gardening 1992).

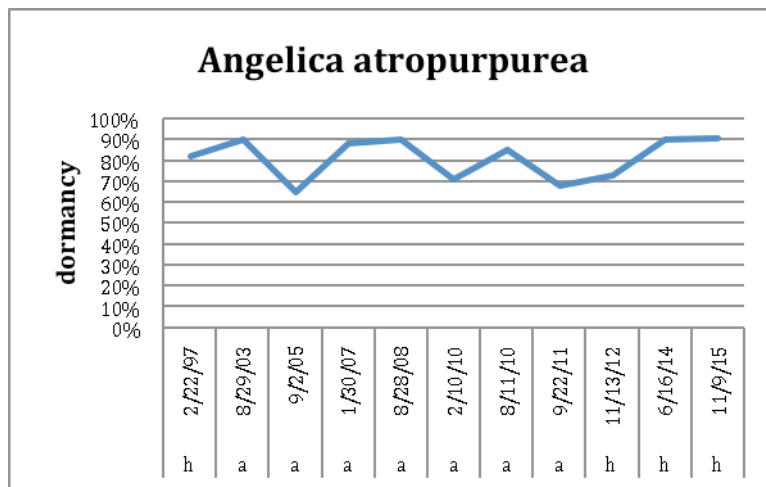


seed counts & rates: 75,730 (gn11), 77,237 (gna11), 83,200; 87,291 (gna05), 86,400 (pm02), 92,258 (gna06), 96,000 (ecs), 97,279 (gnh02), 92,800 (ew11), 100,000 (jfn04), 105,600 (pn02) seeds per pound.

cultivation: Space plants 1.5-2.0+'. Wet soils, full sun to partial shade. Calcareous soils.

bottom line: Plant fresh seed or dormant plant properly stored seed. Seeds are semi-hydrophilic. Consistently dormant. Germ 3.9, 2.0, 2.0, sd 3.8, r0.0-14 (14)%. Dorm 81.2, 85, 90, sd 9.5, r65-91 (26)%. Test 33, 33, 33 r27-943 days. (#16)**

greenhouse & garden: Fresh seed or moist cold stratify shortly after ripening. Light.



Description: Native, erect, herbaceous, biennial-short-lived perennial (or monocarpic) forb; roots; stems 5.0-8.0', often purple; leaves pinnately divided, large but getting diminishing upwards, on a clasping, 2.0-4.0" stalk; inflorescence 4-9" ball-like compound umbel; flowers white to green, 5-merous, lacking sepals; fruit a dry schizocarp splitting into 2 seeds; N. key features: ①Purple or purple stained glabrous stems; very large umbels. Comments: status: Iowa? Endangered & extirpated in Maryland. Endangered in Rhode Island. Threatened in Tennessee. phenology: Blooms 5,6. Collect seed July - August (he99). C3. Landscaping, wetland restoration, permanently wet rain gardens. One of the largest Midwest spp of *Umbelliferae*. Can be aggressive. Seed source fen & sedge meadow remnants, Whiteside Co.

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

Angelica atropurpurea L. as *A. triquinata sensu* Short (1845) *non* Michx. (Short 1845).

Associates: Attracts upland game birds & songbirds.

ethnobotany: Root used as medicinal plant by Menominee (sm23) & stimulates the digestive system. The European sp' aromatic stems can be eaten raw, candied, or cooked. Essential oils from seeds & roots are used in perfumes & as a flavoring for gin, vermouth, & liqueurs such as Chartreuse. The European sp has supposed powers against poison & plagues.

Species ethnobotanical uses include treating or acting as: alcoholism, bronchitis, fever, gout, rheumatism, or carminative, emetic, emenagogue, poison, & sudorific.

VHFS: Var *occidentalis* Fassett, WESTERN GREAT ANGELICA known from Woolworth Co, WI, (*actually ranging over most of Wisconsin*) not recognized by most authorities (sw94). Sp was at one time in the genus *Archangelica*.

[Historically *Archangelica atropurpurea* (Hoffm), *Angelica atropurpurea* var *atropurpurea*, *Angelica triquinata* Michx, *Imperatoria lucida* Nutt]



Angelica atropurpurea

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Angelica venenosa (Greenway) Fernald *CT HAIRY ANGELICA, aka DEADLY ANGELICA, VENOUS ANGELICA, WOOD ANGELICA,

Habitat: Prairies, rich or rocky woods, ridges. Dry forests & woodlands, woodland borders, longleaf pine sandhills, & hammocks (w07).

distribution/range: Western Massachusetts & Connecticut west to southern Michigan, southern Illinois & the Ozarks, south to the Florida panhandle & west to central Louisiana. Not common, southern ¼ of Illinois.

Culture: Seeds & plants are not commercially available.

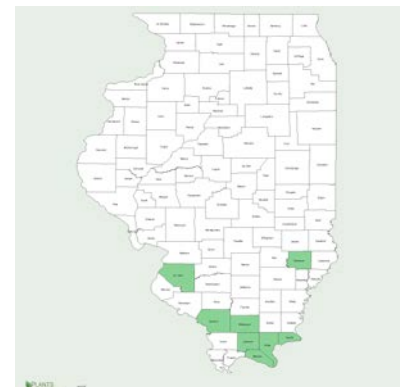
Description: Erect, herbaceous, perennial, native forb; roots; stems; leaves; flowers 5-merous, no sepals; fruit is a schizocarp; N. key features: "Plant has very large umbels." (Ilpin)

Comments: status: Special Concern in Connecticut. phenology: Blooms May through July in Illinois. Eastern USA June-August, fruiting July-September. C3.

Associates:

ethnobotany: Native Americans applied a poultice to strained muscles & twisted joints. The roots were eaten to commit suicide. (Herrick 1977)

VHFS: [*Angelica villosa* (Walter) BSP, *Archangelica villosa* (Walter) Kuntze, *Cicuta venenosa* Greenway, *Ferula villosa* Walter]





Angelica venosa

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

BERULA Besser ex WDJ Koch **WATERPARSNIP** *Umbelliferae Berula* from the classical Latin name of some aquatic plant like water-cress.

Native, aquatic to wetland, erect, perennial forb with the main leaves once pinnate, toothed, & not feathery, inflorescence compound umbels of white flowers, followed by smooth fruit smooth.

Berula erecta (Hudson) Coville *IA, MI **CUTLEAF WATERPARSNIP**, aka *BÄCKMÄRKE*, **CUT-LEAF WATERPARSNIP**, **LESSER WATER-PARSNIP**, **LOW WATER PARSNIP**, **NARROW-LEAF WATER-PARSNIP**, *SEDANINA D'ACQUA*, **STALKY BERULA**, **WATER-PARSNIP**, **WATERPARSNIP**, (*erectus -a -um* Latin upright, erect, perpendicular.)

Habitat: Springs, streams, shallow water. Marshes, ponds, wet ditches, low woods, not common (m02). In Michigan, “cold spring fed streams, marshes, & tamarack swamps; usually in calcareous areas” (rvw11).

distribution/range: Native of Africa, temperate & tropical Asia, Europe, north America & Central America. North ½ of Illinois. Illinois is near the eastern limit of this sp range in the Midwest.

Culture: Propagation unknown. Growth rate rapid. Seedling vigor medium. Vegetative spread rate none. Moderate seed spread rate. 2,500,000 (usda) seeds per pound. Seeds & plants are not commercially available.

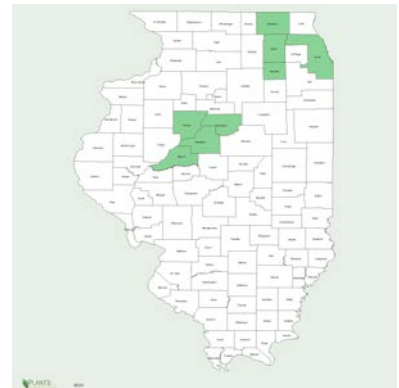
cultivation: Space imaginary plants on 1.5' centers. Tolerant of medium to fine textured soils. Anaerobic tolerance high. CaCO3 tolerance low. Drought tolerance none. Fertility requirement medium. Salinity tolerance none. Shade intolerant. pH 4.9-6.9.

Description: Erect, herbaceous, perennial, native forb, 0.75-3.0', aquatic; roots soft, fibrous rooted, often stoloniferous from the base, 10” minimum root depth; stems freely branched; leaves submerged leaves filiform-dissected, lower aerial leaves with 7-21 lance-ovate leaflets with rounded teeth, upper leaves with smaller & narrower leaflets with sharper teeth, or even pinnatifid; flowers white, 5-merous, petals 5, 2” compound umbel, 6-15 rays 1-2 cm long, involucre & involucl of evident, narrow bracts, calyx teeth minute; style short, stylopodium conic; fruit elliptic, glabrous, 1.5-2.0 mm long, the ribs inconspicuous; N. key features:

Comments: status: Threatened in Iowa & Michigan. phenology: Blooms July through September. C3.

Associates: ethnobotany: Slight toxicity reported. Poisonous to mammals. Reported to be used as a poison, but also as a food & medicine.

VHFS: [*Berula erecta* (Huds) Coville var *incisa* (Torr) Cronq, *B incisa* (Torr) GN Jones, *B pusilla* Fern, *B pusilla* (Nutt) Fern, *Siella erecta* (Huds) M Pimen, *Sium erectum* Huds, *S incisum* Torr, *S pusillum* Nutt ex Torr & Gray]





Berula erecta

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CARUM Linnaeus 1753 **CARAWAY** *Umbelliferae Carum* New Latin, probably from Medieval Latin *carvi*, from Arabic *karawyā*, from Greek *karon* caraway; alternately from *Caria*, according to Pliny the native country of the plant. A genus of about 30 spp of temperate areas.

Carum carvi Linnaeus *NOX CO CARAWAY, aka *ALCARÁVIA*, *ANIS DES VOSGES*, *COMINO DE PRADO*, *CUMIN DES PRÉS*, *CUMINO TESDESCO*, *FANGFEN*, *GI LU ZI*, *KUMMEL*, *KÜMMEL*, *KUMMIN*, *SE LU ZI*, *SIYAH-JIRA*, *WILD CARAWAY*, *ZIRA-SEEAH*,

A native of Africa, temperate & tropical Asia, & Europe. “Occasionally escapes & establishes itself in old fields & on roadsides.” (ewf55)

Noxious weed in Colorado.



Carum carvi

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CHAEROPHYLLUM Linnaeus 1753 **CHERVIL** *Umbelliferae* *Chaerophyllum* from Greek, χαίρω, *khairo*, I rejoice, & φύλλον, *phyllon*, a leaf. Additionally, from Latin *caerifolium*, part translation of Greek *chairephyllon*, from *chairein* to take pleasure in, to rejoice, enjoy, & *phyllon* leaf, referring to the fragrance. “It is thought to be called so because it delighteth to grow with many leaves; or rather that it causeth joy & gladness” Gerard from Dodonaeus. About 35 spp, herbs, north temperate regions, herbs; main leaves bipinnate, not feathery; small compound umbels of white flowers, fruit not winged, laterally compressed, contracted above but scarcely beaked; carpels with 5 obtuse, equal ribs; intervals with 2 *vittae*; commissure deeply sulcate.

Culinary CHERVIL is the annual Old World herb *Anthriscus cerefolium*.

Chaerophyllum procumbens (Linnaeus) Crantz *IN, NY, WI WILD CHERVIL, aka COMMON SPREADING CHERVIL, SHORT’S SPREADING CHERVIL, SLENDER CHERVIL, SPREADING CHERVIL,

Habitat: Rich woods, along streams, alluvial floodplains, along railroads & highways. Temperate deciduous forests. Moist woods in alluvial soil.

“Common in Sugar River bottom above Yale bridge, in Pecatonica River bottom near Coon Creek & Killbuck Creek bottom at the Forest Preserve” (ewf55). distribution/range: Eastern North America, primarily Tallgrass Prairie & eastward. Northern Iowa & southern Wisconsin are the northern limit of the sp local range. Common, throughout Illinois.

Culture: propagation: ① Seeds exhibit morpho-physiological dormancy. Seeds are warm stratified & germinate at 20/10° C. Germination is greater in light than dark. (bb01) There are no known commercial seed or plant sources.

Description: Native, erect or drooping, herbaceous, annual forb; roots; stems 6.0” to 20”, mostly smooth or sparsely hairy, stems spreading, often weak, usually branching from the bottom; leaves several times pinnately divided, undersides smooth or with only a few hairs; inflorescence usually compound umbels, sometimes with irregular flowers along the outer edge; flowers white, 5-merous; fruit a dry schizocarp, splitting into 2 mericarps, elliptical or oblong, widest near the middle; linear-oblong, acute, ribs narrower than the intervals; N. key features: ① Pedicle of the fruit same diameter throughout; fruits broadest at the middle. Ribs of fruit narrow, the intervals between the ribs equal to or wider than the ribs.

Comments: status: Endangered in Indiana & New York. Special Concern in Wisconsin. phenology: Blooms April – June. C3.

Associates: Pollinated by small bees (especially Halictid bees), parasitic wasps, flies (especially Syrphid flies), & beetles. Larval host of *Papilio polyxenes asterias* BLACK SWALLOWTAIL BUTTERFLY.

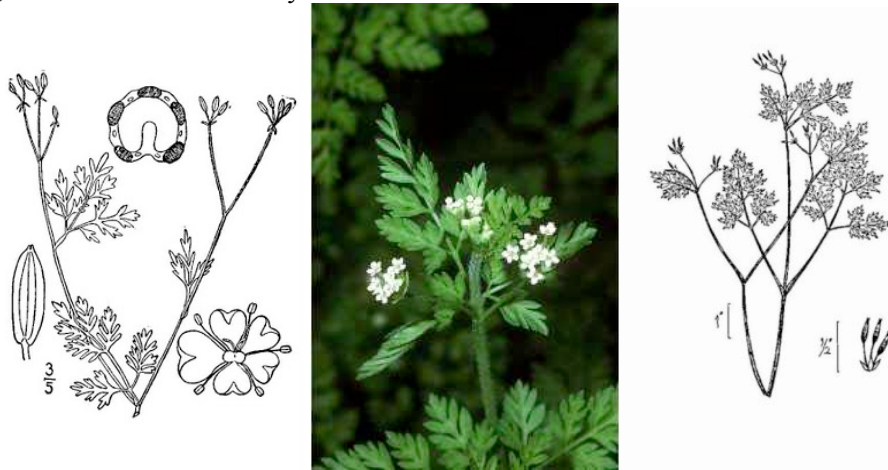
ethnobotany: ♂ Native Americans used the poisonous root as an emetic (Moerman).

VHFS: Variety *procumbens* has glabrous fruits. Variety *shortii* T&G, SHORT’S SPREADING CHERVIL, with fruits densely puberulent, 4.5-6.5 mm long, 2-2.5 mm broad, is endangered in Indiana. It is known from alluvial woods in scattered cos in southern Illinois, blooming April – June. Weakley (2007) notes the validity of this taxon needs study. [*Chaerophyllum shortii* (T&G) Bush]

Unconvrighted draught



CC Baskin & JM Baskin, 2001. Propagation protocol for production of container *Chaerophyllum procumbens* (L) Crantz plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. [URL://www.nativeplantnetwork.org](http://www.nativeplantnetwork.org) (accessed 14 October 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.



Chaerophyllum procumbens

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***Chaerophyllum tainturieri* Hooker** HAIRYFRUIT CHERVIL, aka CHERVIL, HAIRY-FRUIT CHERVIL, SOUTHERN CHERVIL, WILD CHERVIL,

Habitat: Fields, roadsides, disturbed soils (rhm 2002). Waste ground, roadsides, & sandy soil. distribution/range: Native of the se USA, with outliers in west Texas, New Mexico, & Arizona. Mostly in the south 1/3 of Illinois, not common. Southern Illinois is near the northern limit of this sp range.

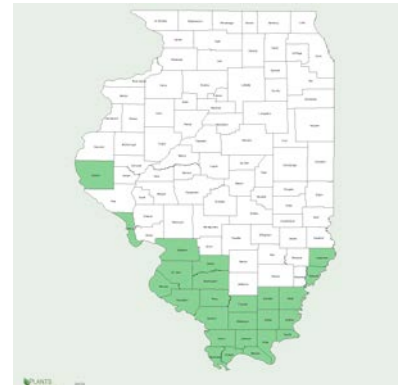
Culture: There are no commercial seed or plant sources.

Description: Native, erect, herbaceous, annual forb; taprooted; stems 1.0-3.0'; leaves alternate, pinnately compound, margin lobed; flowers white, 5-merous; fruit attenuated to a short beak, ribs terete, much broader than the intervals, 0.33" long, brown & smooth when ripe; N. key features: ① "Species occurs in dense masses with erect stems." (Ilpin) ② Leaf segments crowded, ultimate segment very small, oblong, acute; ribs terete, much broader than the intervals (Wood)

Comments: status: phenology: Blooms March-May. C3.

Associates:

VHFS: Some authors divide this sp into 2 or more varieties.



Chaerophyllum tainturieri

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CICUTA Linnaeus 1753 **WATER HEMLOCK** ☞ *Umbelliferae* *Cicuta* New Latin, from Latin, poison hemlock, probably *Conium maculatum*; a Latin name used by Virgil (Ecl. 2nd & 5th), but of unknown application. 8 spp of north temperate regions, throughout North America, herbs to 6.0' or more; main leaves 2-3 times pinnately divided, not feathery; compound umbels of white flowers with triangular sepals; fruits smooth, subglobose, didymous, carpels with 5 flattish, equal ribs, 2 of them marginal; intervals filled with single *vittae*, commissure with 2 *vittae*; carpophore 2-parted; seeds terete.

Cicuta has leaves organized into distinct and separate leaflets of uniform shape, often more than 2 cm wide. *Conium* has dissected leaves with the divisions under 1 cm wide

Cicuta bulbifera Linnaeus *MA, WA ☞ **BULBLET WATER HEMLOCK**, aka **BULB WATERHEMLOCK**, **BULBLET-BEARING OR BULB-BEARING WATER HEMLOCK**, (*bulbifera* bulb-bearing, for the small bulblets clustered on the leaves.)

Habitat: Calcareous marshes, swamps, & streambanks. "Uncommon. Sugar River slough west of Shirland & Coon Creek bottom." (ewf55)

distribution/range: Native to the northern 1/2 of North America, most abundant in northeast USA (disjunct or introduced in North Carolina & Florida). Not common; north 1/2 of Illinois, also Union & Washington cos. Illinois is on the southern limit of the sp range.

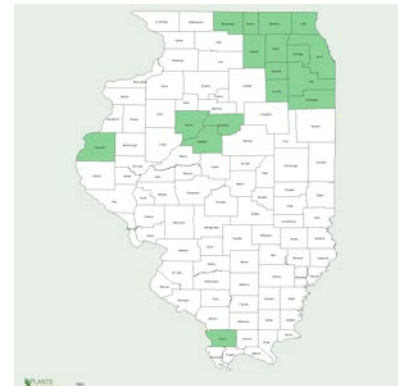
Culture: There are no commercial seed or plant sources.

Description: Erect, herbaceous, perennial, native, emergent aquatic; roots clustered, usually with thickened tubers; stems slender, hollow, partitioned inside, 12-40"; upper leaf axils bulbiferous, leaflets with narrowly linear segments, usually < 5 mm wide; inflorescence a 2" compound umbel, terminal & axillary; flowers white, 5-merous, sepals triangular, flowers usually aborting; fruit is a dry schizocarp splitting into 2 seeds; N. key features: ① "Upper axils bearing fascicled bulblets" (Ilpin).

Comments: status: Endangered in Maryland. Sensitive in Washington. phenology: Blooms July to September. C3. "A somewhat rare plant, often sterile, & sometimes also without bulbs" (Torrey & Gray 1838-40).

Associates: Poisonous to mammals.

VHFS:



Cicuta bulbifera

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

Cicuta maculata Linnaeus *NOX NV ☞ **WATER HEMLOCK**, aka **BEAVER POISON**, **COMMON WATERHEMLOCK**, **MUSQUASH ROOT**, **POISON HEMLOCK**, **POISON PARSNIP**, **SPOTTED COWBANE**, **SPOTTED PARSLEY**, **SPOTTED WATER HEMLOCK**, **SPOTTED WATERHEMLOCK**, **WATERHEMLOCK**, *Wanukons'*, no translation (Ojibwa), (*maculatus -a -um* (mak-ew-LAH-tus) spotted, stained, blotched, blotchy, mottled, New Latin from *macula*, a spot, mark, stain; sometimes the mesh of a net; a moral stain, blemish; alternately past participle of *maculo*, I spot, stain, pollute, defile; either source in reference to the spotted leaves & stem.) obl

Habitat: Seasonally inundated meadows, wet meadows, wet savannas, & upland swamps. Humusy soils. In the se USA, "Marshes, bogs, seepages, ditches, swamp forests" (w12). "Much more common than the

preceding (*C bulbifera*) being found in most sloughs & boggy places” (ewf55). distribution/range: Species occurs throughout North America. Known from most Illinois cos.

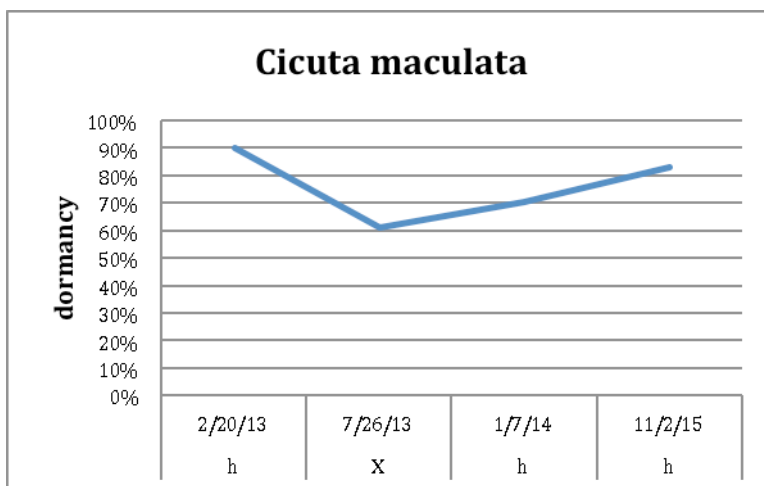
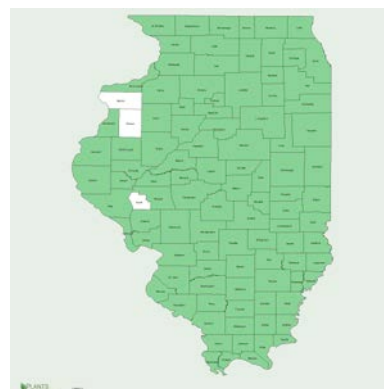
Culture: ① “Sow in flats in fall & over winter, or fall sow. If not possible then moist cold treat 120 days. Light cover.” (mfd93) ② 120 days cold moist stratification. Best planted outdoors in the fall. (pm09) ③ Sow seeds outdoors in fall, or 120 days cold moist stratification (he99). ④ Sow at 20°C (68°F), germinates in less than two wks (tchn).

seed counts & rates: 170,677 (gnhm13), 192,000 (pm02, aes12), 250,331 (gnhm13) seeds per pound.

asexual propagation: This sp may weakly “vegetatively reproduce” in part by its tuberous roots. ☠ Division would probably be successful, but don’t lick your fingers.

bottom line: ☠ We advise against planting this sp in commercial restoration, or in any areas that children may frequent. If you specify or plant it, check your errors & omissions & liability insurance, & consider the quality of your new life in a non-extraditionary country. If you must, dormant seed only!! E North America's most poisonous plant! ☠ Germ 11.5, 8.0, na, sd 8.6, r4.0-26 ((22)%. Dorm 76, 76.5, na, sd 11.2, r61-90 (29)%. Test 32, 33, na r21-41 days. (#5)**

greenhouse & garden: Dormant seed or moist cold stratify 120 days.



Description: Erect, herbaceous, perennial or biennial, semi-aquatic, shoreline-wet meadow, native forb, the plant has a pleasant licorice or anise scent, but be cautious handling the plant; roots tuberous, thick & fleshy & sweet-smelling fleshy roots; stems 2.0-7.0', often branched, stout, hollow, partitioned inside, purple spotted or streaked; leaves alternate, 2-3 pinnate, lower leaves long petiolate, to +60 cm, upper leaves with shorter petioles, petioles with involute margin, leaf divisions purple at axils, ultimate leaflets serrate, (the teeth mucronate), lanceolate, glabrous; inflorescence 3.0" flat-topped compound umbel; flowers white, 5-merous; fruit rounded, slightly ribbed schizocarp, 0.13" diameter, 10-ribbed, crowned with the permanent calyx & styles, splitting into 2 seeds, slightly aromatic & somewhat resembling *anise*; N. key features: ① Lower part of the stem is often mottled purple (Ilpin). ② Its habitat, its glabrous & glaucous stems (which are purplish at the nodes), & its 2-3-pinnately divided leaves. ③ A distinguishing characteristic is that the veins in the leaf run to the notches between the teeth.

Comments: status: Noxious weed in Nevada. This sp is considered weedy or invasive by some authorities (Assorted authors. 200_. State noxious weed lists for 46 states, Stubbendieck et al 1994). Its weediness may have economic impact in some areas. phenology: Blooms 6,7,8. C3. In northern Illinois, collect seeds in late August - September. Collect seeds in se Wisconsin in September - October (he99). Seed source Hannaman Twp, Whiteside Co.

Associates: Larval host SWALLOWTAIL BUTTERFLIES. Reported as deer resistant. Hmmm. ☠ Roots are deadly to cattle.

ethnobotany: The root was smoked to attract deer by Ojibwa (sm32). (You must really have a hankering venison to do this!) **This is the most poisonous native plant in eastern North America!!!!** All plant parts, especially the tubers, are considered poisonous to people. Symptoms of poisoning include muscle twitch, rapid

pulse, rapid breathing, tremors, convulsions, excessive salivation or frothing at the mouth & dilation of the pupils, blurred vision. Consider your errors & omissions insurance & liability policies before listing this for your planting. VHFS: Illinois has varieties *maculata* & *bolanderi*. The synonym of var *bolanderi* (S Wats) G Mulligan is *C bolanderi* S Wats. Variety *angustifolia* Hook is n & w of Illinois.

[*Cicuta curtissii* Coult & Rose, *C maculata* L var *curtissii* (Coult & Rose) Fern, *C mexicana* Coult & Rose]



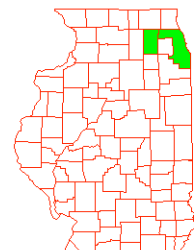
Cicuta maculata

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Photo Robert H. Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image. Last photo Jock Ingels.

CONIOSELINUM Hoffmann 1819 **HEMLOCK-PARSLEY** *Umbelliferae* *Conioselinum* New Latin, from *conio-*, from *Conium*, (see below) & *Selinum*, the genus name formerly used for what is now called *Conioselinum*, from Late Latin *selinon* celery. Genus of about 10 spp of north temperate areas, herbs, to 5.0' tall; main leaves 2-3 x pinnate, lobed or cut, shiny, broadly feathery; compound umbels of white flowers; fruit compressed on the back; carpels with 5-winged ribs, lateral ones marginal & much the broadest; intervals with 1 to 3 *vittae*, commissure with 4 to 8.

Conioselinum chinense (Linnaeus) Britton, Sterns & Poggenberg. *IL, IN, ME, NJ, NC, PA, WI CHINESE HEMLOCK PARSLEY, aka HEMLOCK PARSLEY, HEMLOCK-PARSLEY, (*chinensis* -is -e of or referring to China. The sp name is a mistake based on confusion between "Genesee," New York, & "Chinensem". HEMLOCK-PARSLEY has the classic distribution of northeastern North America & eastern Siberia, but not China.) Habitat: Swamps, bogs, & wet meadows. Shaded springy ground, often calcareous slopes, Trout Park. In Michigan, "swamps with deciduous trees, cedar, tamarack; springy river banks, stream borders & springs. Usually in places where seepage is coming

Unconvrighted draught



to the surface.” (rvw11) In the se USA, known from nutrient-rich seepage over cliffs & through boulderfields, at high elevations, known from seepage over cliffs & through boulderfields, & from a north-facing greenstone cliff-top seeps (w11). distribution/range: In spite of its specific epithet, this sp is native to northern North America. Very rare, Cook, Jo Daviess, & Kane cos. Illinois is at the sw limit of its range.

Culture: There are no commercial seed or plant sources.

Description: Erect, herbaceous, perennial, native forb; roots 1 to many, thick; stems 16” to 60””; leaves alternate, deeply cut, triangular-shaped blades, short winged stalks, lower mostly 2-3 times divided, upper 1-2 times; inflorescence a few 1.0-5.0” compound umbels with many, long-stalked dense umbellets; flowers white, 5-merous, fruit a dry schizocarp splitting into 2 seeds; N. key features:

Comments: status: Endangered in Illinois & Indiana. Special Concern in Massachusetts. Endangered in New Jersey, North Carolina, Pennsylvania, & Wisconsin. phenology: Blooms August to September. C3.

Associates: Species was used as an ingredient in urinary aids by the Micmac (Moerman).

VHFS: [*Conioselinum pumilum* Rose]



Conioselinum chinense

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

CONIUM Linnaeus 1753 ☠ **POISON HEMLOCK** *Umbelliferae Conium* New Latin, from Late Latin, *conium*, hemlock, from Greek κώνειον, *kōneion*, hemlock, perhaps from κῶνος, *kōnos* cone, or a top, in reference to the plant causing dizziness. A genus of 6 spp in north temperate regions & south Africa. Biennial herb, to 6.0+’; stem purple-spotted; leaves twice pinnate, broadly feathery; compound umbels of white flowers; fruits ovate, laterally compressed; carpels with 5, acute, equal, undulate crenulate ribs, lateral ones marginal; intervals without *vittae*; seeds with a deep narrow groove on the face.

Tea anyone, a Socrates Special perhaps, with lemon?

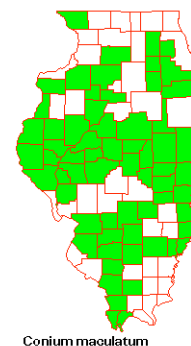
Conium maculatum Linnaeus *NOX CO, ID, IA, NV, NM, OH, OR, WA ☠ **POISON HEMLOCK**, aka *CIGUE MACULEE*, *CIGUE TACHETEE*, DEADLY HEMLOCK, POISON PARSLEY,

Habitat: Disturbed sites. distribution/range: Native of Eurasia. Ubiquitous. Species is known from throughout the USA, and is undoubtedly more common than mapped.

Culture: There are no commercial seed or plant sources.

Description: Introduced, erect, herbaceous, biennial, forb, to 8’ or more tall; roots solid, thick, white taproot; stems freely branched, green with purple spots; leaves 3-4 times pinnately divided, 8.0"-16" broadly triangular to ovate in outline, toothed; inflorescence is composed of many 2.0-3.0” mostly terminal umbels; flowers white, 5-merous, often 2-4 together from the top stem node; center, tallest one blooms first but, in time, the side ones become taller; fruit is a schizocarp that splits in 2 when ripe, with undulate or wrinkled ribs; N. key features: Stems green with purple spots.

Comments: status: Noxious weed in many states. It is considered weedy & invasive by many authors (Assorted authors. 200_. State noxious weed lists for 46 states, CEPPC 1999, Haragan 1991, Uva et al 1997, Stubbendieck et al 1994, SEPPC 1996, SWSS 1998, Whitson et al 1996. phenology: Bloom July & August. The plant has a disagreeable odor when bruised.



Associates: ☠ Poisonous to cattle, swine, poultry, horses, goats, & sheep, & Greek philosophers. All parts of the plant are poisonous, causing respiratory failure in humans & other mammals.

VHFS:



Conium maculatum

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image.

CRYPTOTAENIA Augustin de Candolle 1829 **HONEWORT** *Umbelliferae* *Cryptotaenia* from *crypto* hidden, concealed, hidden, not obvious, Latin *crypta*, from Greek κρύπτη, *krypte*, vault, from κρυπτός, *kryptos*, hidden, concealed, & Latin *taenia*, from Greek ταινία, *tainia*, a band, ribbon, fillet, (or wreath, border) a reference to the concealed oil-tubes, or a reference to the obsolete border of the calyx (Wood 1873). A fillet in this sense is a narrow strip of material, like a ribbon, not a filet, a chunk of meat. 6 spp, north temperate regions & montane Africa, perennial herbs; leaves 3-parted, not feathery, toothed; compound unequal umbels of tiny white flowers; fruits linear-oblong or ovate-oblong, with slender styles; carpels with 5 obtuse ribs, carphophore free, 2-parted, *vittae* very narrow, twice as many as the ribs.

Cryptotaenia canadensis (Linnaeus) Augustin de Candolle * FL, ME, RI HONEWORT, aka CANADIAN HONEWORT, *KANADAPERSILJA*, WHITE CHERVIL, WILD CHERVIL, (*canadensis -is -e* (kan-a-DEN-sis) of Canada or northeast USA.)

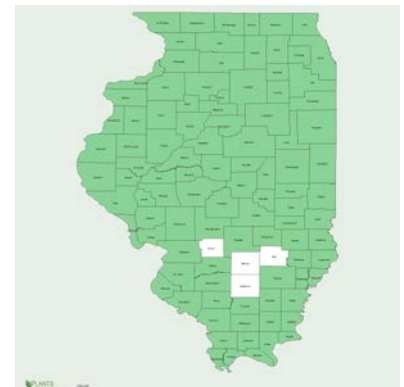
Habitat: Dry woods, shade. Rocky woods, low ground. “Common in woods & moist thickets.” (ewf55) In the SE, moist & nutrient rich forests, including alluvial, bottomland, slope & cove forests (w12). distribution/range: Known from the Tall Grass prairie region & eastward. Throughout Illinois.

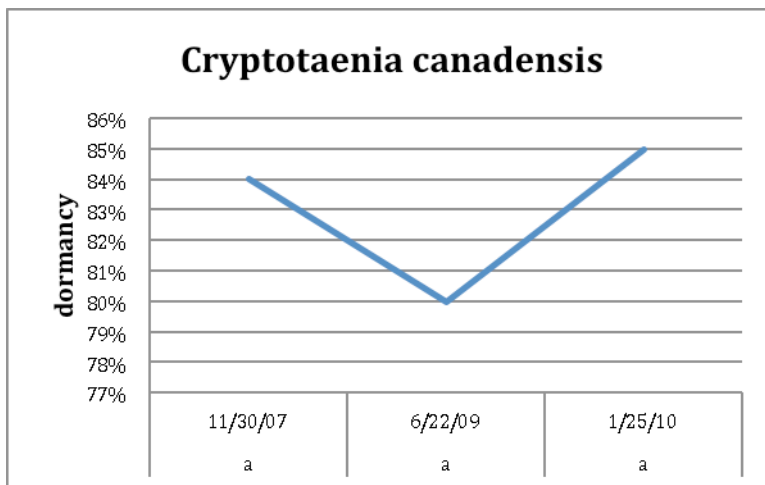
Culture: propagation: ①60 days cold moist stratification (pm09).

seed counts & rates: 112,000 (pm02), 165,422 (gna09) seeds per pound.

availability: There are limited sources of seeds & fewer sources of plants. Expect seasonal or periodic shortages.

bottom line: Dormant seed only. Consistently strongly dormant. Germ 3.3, 3.0, na sd 1.2, r2.0-5.0 (3.0)%. Dorm 83, 84, na, sd 2.2, r80-85 (5.0)%. Test 37, 39, na, r24-48 days. (#5).**





Description: Erect herbaceous, perennial, native forb with thin three-foliolate leaves & small white flowers; roots taproot (or fibrous); stems 1-3', stems branched, smooth; leaves alternate, 3-parted with sharp, irregular teeth, doubly serrate, sometimes lobed; lower leaves on long stalks; inflorescence a loose, 2" irregular, compound umbel with few flowered umbellets, on stalks of uneven length; flowers white, 5-merous, individual flowers 0.13", lacking sepals; fruit is a dry, black schizocarp, 0.25" long, crowned with the straight styles 0.13" long, splitting into 2 seeds; N. **key features:** ① "1) It has hairless leaves & stems, 2) it has trifoliolate leaves which are sometimes cleft, 3) its leaflets are lanceolate to ovate, rather than narrowly linear, 4) its umbels of white flowers are compound, rather than simple, & 5) it has no significant bracts at the base of each umbel or umbellet. If this isn't sufficient to produce an identification (this is a difficult group of plants), then consider the following two characteristics of the leaflets: Theirs margin are usually doubly serrate, & the base of each leaflet tapers to a winged petiole (sometimes it is quite short)." (Hilty)

Comments: **status:** Endangered in Florida. Possibly extirpated in Maine. Special Concern in Rhode Island.

phenology: Blooms June-July. C3. May become a weed in wildflower gardens.

Associates: Pollinated by small bees, wasps, flies, & beetles, including the parasitoid *Ichneumonid* wasps & Wild Carrot wasps (*Gasteruptiidae*). Larval host of *Papilio polyxenes asterias* BLACK SWALLOWTAIL BUTTERFLY. Deer occasionally browse on the foliage.

ethnobotany: A closely related sp, *Cryptotaenia japonica* Hassk, JAPANESE HONEWORT, is eaten in Japan. The young leaves & stems may be used as a seasoning like parsley or as a boiled green. The roots may be cooked & eaten like parsnips. The Japanese sp is also treated as a variety or subsp of *C canadensis*. However, beware before you start digging, there are many poisonous look-alikes.

VHFS: [*Deringa canadensis* (L) Kuntze, *Sison canadense* L, *Sium canadense* (L) Lam, *Chaerophyllum canadense* (L) Crantz, *Chaerophyllum canadense* (L) Pers]

<http://www.illinoiswildflowers.info/woodland/plants/honewort.htm>



Cryptotaenia canadensis

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

CYNOSCIADIUM Augustin de Candolle 1829 **CYNOSCIADIUM, FINGER DOGSHADE, HOUND'S TONGUE**
Umbelliferae Cynosciadium dog shade, from Greek κυνος, *kynos*, dog, Greek σκιά, *skia* shadow. 2 spp in south-central North America. Annuals?

Cynosciadium digitatum Augustin de Candolle *IL FINGER DOGSHADE, aka FRINGED DOGSHADE, FINGER DOG-SHADE, TANSY DOGSHADE,

Habitat: In se USA, wet places, ditches, & blackland prairies (w11). In Alabama, swamps, flooded hardwood bottomlands, & roadside ditches. Borders of ponds & wet prairies, Arkansas (Nuttall in T&G 1838-40). distribution/range: Illinois, sw TN, AL, west to OK & TX. Jackson Co, Illinois. Southern Illinois is the northern limit of the sp range.

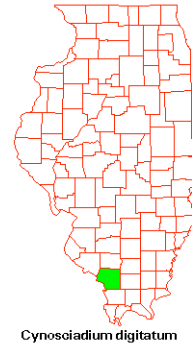
Culture: Unknown. There are no commercial seed or plant sources.

Description: Native, erect, annual forb; roots; stems; leaves alternate, simple, palmately lobed; flowers, white, 5 -merous; N. key features: "Upper leaves palmately divided to the summit of the short petiole into 3-5 linear divisions" (Ilpin).

Comments: status: Endangered in Illinois. phenology: Blooms 5,6. C3.

Associates:

VHFS: Listed in Britton & Brown (1913) as *Limnoscium pinnatum*. [*Limnoscium pinnatum* (DC) Mathias & Constance]



Cynosciadium digitatum



Cynosciadium digitatum

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo & 2nd line drawing ripped from <http://botany.csd.tamu.edu/FLORA/Apiaceae/AP0062.JPG> & http://www.biosurvey.ou.edu/wetland/emergent/white_5_petals.html. Photos by Michael Gras, MEd. on Flickr.

DAUCUS Linnaeus 1753 **CARROT, WILD CARROT, QUEEN-ANNE'S LACE** *Umbelliferae* *Daucus* (DOW-kus) New Latin, from Latin *daucus*, *daucum*, a kind of parsnip or wild carrot, from Greek δαῦκος, *daukos*, *daukon*, or from Greek *daio*, I burn; perhaps akin to Greek *daiein* to ignite, burn; a reference to the warming effect on the body from the plants medicinal use or from the sharp taste of some spp; or from the combustible sap some spp exude. Beware of flaming carrots, a new meaning for a warm salad. (*That will learn you not to smoke at the dinner table.*) The common name carrot may be from Celtic *kar*, red. Chiefly temperate & tropical Old World herbs, ca. 22 spp, that have compound umbels of mostly white flowers & prickly fruit. Ours annual or biennial/perennial herbs, leaves twice pinnate, very feathery, flat compound umbels of white flowers usually with one dark, fleshy, often-sterile, center flower, that is abortive, fruits oblong not winged, carpels with 5 primary, bristly ribs, & 4 secondary, the latter more prominent, winged, & divided each into a single row of prickles, & having single *vittae* beneath; carpophore entire, free.

Daucus carota Linnaeus **QUEEN ANNE'S LACE** aka **BEE'S NEST, BIRD'S NEST, DEVIL'S PLAGUE, LACE FLOWER, RANTIPOLE, WILD CARROT, (*carota* (ka-ROT-a) from the Latin for carrot, from the Greek name *karoton*, or from Celtic of a red color.)** The common name is from Queen Anne, wife of King James I of England. **DEVIL'S PLAGUE** was a common name given by farmers who found this weed difficult to control. **RANTIPOLE**, a term used in south England, means one that is rude, rakish, & reckless.

Habitat: Persists in oldfields in poor soils & in low diversity restorations. Common on roadsides. distribution/range: Native of Europe. Ubiquitous in the lower 48 states, but not in Alaska, Hawaii, or the Virgin Islands. Known from all Illinois counties.

Culture: Species is available as a vegetable & a "wildflower".

Description: Erect, herbaceous, biennial, introduced forb, to 4' tall; from a somewhat fleshy taproot, fusiform; dissected fern-like leaves tripinnate; umbels of white flowers with a single black or purple flower in the center; the mature seed head resembles a bird's nest. key features: ①Leaves tripinnate, the segments linear, cuspidate-pointed.

Comments: status: Secondary noxious weed in Iowa. Noxious weed in Michigan.

Prohibited noxious weed in Ohio. Class B noxious weed, noxious weed seed & plant quarantine. This is considered an invasive plant in most of the United States (Assorted authors. 200_. State Noxious Weed Lists for 46 States, Haragan 1991, Uva et al 1997, Stubbendieck et al 1994, SEPPC 1996, SWSS 1998, Whitson et al 1996).

phenology: Blooms May to October. "A common weed which resembles caraway but is taller & blooms later" (ewf55).

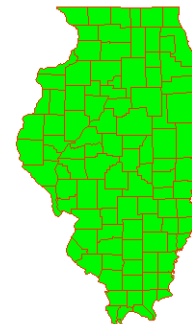
The species has some functional value, although controversial, in new native seedings. The thick, fleshy root opens up compacted soils, brings deep nutrients to the surface where shallow-rooted plants may use them, adds deep soil organic matter as it decays, & when decayed, provides literal funnels for rain to penetrate deeply into the subsoil.

Associates: Minor food value to small mammals & upland birds. Seeds attach to clothing & fur (endozoochory).

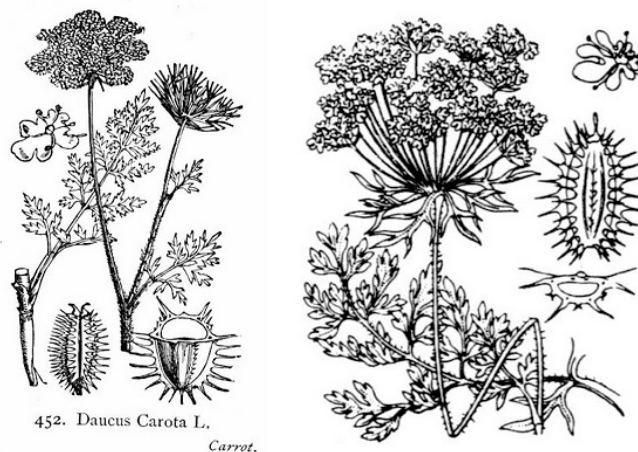
ethnobotany: The sap in the leaves may irritate some peoples skin.

VHFS: Varieties include ssp *carota*, **WILD CARROT**, & ssp *sativus* (Hoffmann) Arcang the cultivated **CARROT**.

Daucus pusillus Michaux, **AMERICAN QUEEN-ANNE'S-LACE**, has the central flower white, is smaller & less branched. key features: Leaves pubescent, bipinnatifid, with linear-oblong, merely acute segments; involucre bipinnatifid.



Daucus carota



452. *Daucus Carota* L.

Carrot.



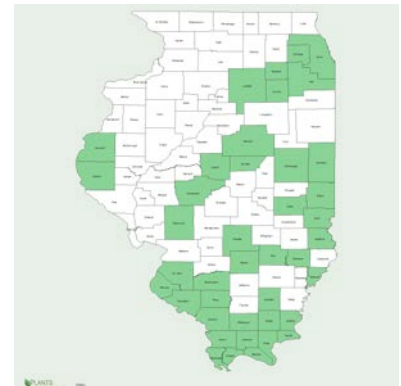
Daucus carota

Line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de. 2nd line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 3rd line drawing public domain from Hippolyte Coste - *Flore descriptive et illustrée de la France, de la Corse et des contrées limitrophes*, 1901-1906. Note the dark central flower.

ERIGENIA Nuttall 1818 **HARBINGER OF SPRING, PEPPER-&-SALT** *Umbelliferae* *Erigenia* from Greek for born in the spring, or from Greek ἠριγένεια, *erigeneia*, daughter of early spring, in reference to its early blooming; probably ultimately from the Indo-European root **ue(s)r*, spring. The pink to wine colored anthers quickly dry & turn black. The black of the anthers & the white of the petals give the plant a "pepper & salt" appearance. Monotypic genus one herb of eastern North America perennial, spring ephemeral, less than 12 inches tall in shady habitats, leaves twice 3-parted, leaflets more than 0.5" wide, compound umbels of white to pink flowers, fruit contracted at the commissure; carpels 3-ribbed, ovate-reniform.

Erigenia bulbosa (Michaux) Nuttall *NY, PA, WI **HARBINGER OF SPRING**, aka **HARBINGER-OF-SPRING, PEPPER-&-SALT, ERIGINIA, PEPPER AND SALT**, (*bulbosus -a -um* Latin bulbous, having bulbs, onion-like; swollen, from *bulbosus*.) The common name is from very early blooming period, one of the first forest wildflowers to flower. As the season progresses, the pinkish anthers dry & blacken. The black of the anthers contrasting with the white of the petals give the plant a "pepper & salt" appearance, hence the common name.

Habitat: Sugar Maple-Basswood forests, rich hardwood forests, especially near the bases of slopes & rocky bluffs. Alluvial soils along streams & in valleys & alluvial thickets. Gentle wooded slopes along rivers. In the se USA, "Mesic, nutrient-rich forests, either over calcareous substrate or on very rich alluvial deposits (such as riverbanks)" (w12). distribution/range: Throughout Illinois, except for the northwest cos. Illinois is on the northwest limit of the sp range.



Culture: propagation: ① "Seeds exhibit morpho-physiological dormancy. Seeds are warm & cold stratified & germinate at 15/6° C." (bb02)

availability: There are no commercial seed or plant sources.

cultivation: Rich loamy soil with decaying organic matter is preferred.

Description: Erect, herbaceous, perennial, native forb, 2.0-10" (5-15 cm), roots are round tubers; stems 5-15 cm, erect to sprawling, single or multiple, from spherical tuber, stems purplish with green base, glabrous, angled to ribbed; leaves to +5 cm broad & long, few, petiolate, sheathed at the base, ternately compound, rounded tip, wide oval in outline, ultimate leaflets acute, entire, shiny below, dull green above, the tips with a small translucent spot, petioles purplish, sheathing at the base, grooved adaxially; inflorescence compound, compound umbel, 0.75", 2-4 stalked umbellets with leafy bracts below & ±6 stemless flowers; flowers white, petals, 5-merous, 0.25-0.33" wide, petals teardrop-shaped, 3.0-4.0 mm long, widely spaced, not touching each other large, dark reddish (pink to wine colored, dark reddish brown) anthers, calyx purple, sepals absent; fruits 2.0-3.0 mm long, 3.0-5.0 mm broad, glabrous; N. key features: "Fairly distinctive because of its period of early bloom, stout stems, oddly colored anthers, & tight umbellets of flowers with narrow white petals" (Hilty 2004-11)

Comments: status: Endangered in New York & Wisconsin. Threatened in Pennsylvania. phenology: Blooms (2-) 3-4. Dormant by the warm months. C3. In its range, it is the first wildflower of the year to bloom. Because of its small size, it is easily overlooked, with flowers often 1-2 centimeters above the leaf litter. Occasionally used in wildflower gardens.

Associates: Pollinated primarily by solitary bees, & secondarily by flies & honeybees. Nectar contains fructose. Does not form vesicular-arbuscular mycorrhizal associations with fungi.

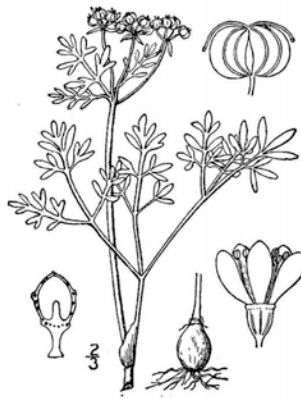
ethnobotany: Bulb is edible cooked & raw. The root was chewed by the Cherokee as a toothache remedy.

VHFS:

CC Baskin & JM Baskin, 2002. Propagation protocol for production of container *Erigenia bulbosa* (Michx.) Nutt plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 4 June 2011). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

GF Buddell II, & JW Thieret. 1985. Notes on *Erigenia bulbosa* (Apiaceae). *Bartonia* 51: 69-76.

<http://www.illinoiswildflowers.info/woodland/plants/harbinger.htm>



Erigenia bulbosa

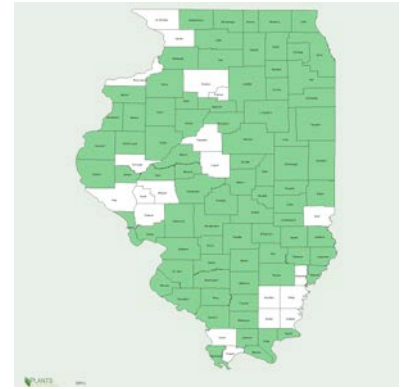
ERYNGIUM Linnaeus 1753 **ERYNGO** *Umbelliferae* *Eryngium* (e-RING-gee-um) New Latin, from Latin *ēryngion*, *eryggion*, a name for *E campestre*, *eryngo*, from Greek ἔρυγγιον, *eryggion*, *eryngion*, a bristly plant, diminutive of ἔρυγγος, *eryggos*, *eryngos*, in reference to the apparent prickle-like leaves, which are not very bristly or prickly, from the Indo-European root **ue(s)r*, spring. The Greek root is from an ancient epichoric (regional) dialect, Attic Greek, a variation of & closely related to *aruncos*, Doric Greek, the source of the genus name *Aruncus*, meaning the beard of the goat. Alternately from Greek ἐρυγεῖν, *erygein*, to belch, referring to the plant as a supposed remedy for flatulence. Coarse, bristly, perennial herbs, 250 spp of tropical & temperate regions, having stiff, elongate spinulose-margined leaves & white, rarely lavender, flowers in dense bracted heads. Ours has the leaves of a yucca, the heads of a thistle, but is a carrot. *Eryngium foetidum* Linnaeus is LONG CORIANDER of Central American & Asian cooking. Inflorescence is a capitulum. Fruits scaly or tuberculate, obovate, terete, without *vittae* or ribs.

Some species are best sown soon after harvest (tchn).

Eryngium yuccifolium Michaux *MD, MI, OH RATTLESNAKE MASTER, aka BUTTON ERYNGIO (ERYNGO), BUTTON SNAKE-ROOT, BUTTON SNAKEROOT, NORTHERN RATTLESNAKE MASTER, TALL RATTLESNAKE MASTER, YUCCABLÄTRIGER MANNSTREU, YUCCALEAF ERYNGIO, (*yuccifolius* -a -um yucca-like leaves, from *yucca*, Arawak native name for *Manihot esculenta* of which the genus *Yucca* was mistaken for, -i-, botanical Latin connective vowel, & from *folium*, leaf.) fac+

Habitat: Wet mesic to mesic & dry prairies, open woods. Wet mesic to dry mesic, full sun. “Common in wet prairies & boggy places, also on prairies that are less moist.” (ewf55). In the se USA, “Diabase barrens & glades, olivine barrens, pine savannas, pine flatwoods over loamy or clay soils, other open sites with at least periodic moisture, generally in sites showing some prairie affinities” (w12). distribution/range: “Widespread in southeastern & midwestern North America, the exact range limits of the typic variety & var *synchaetum* somewhat obscure” (w12).

Culture: propagation: ①60 days cold moist stratification (pm09). ②“Moist cold treatment, or fall sow. Light cover. Very good germination. May self sow. (mfd93)”. ③Sow seeds outdoors in fall, or 90 days cold moist stratification (he99). ④“90 days moist stratification required for germination. Field sow fall,” (pnnd). ⑤No pretreatment needed. Sow seeds on the soil surface at 70°F & water. (??) (ew11) ⑥Sow at 20°C (68°F), if no germination in 3-4 wks, move to +2 to +4°C (34-39°F) for 2-4 wks (tchn). ⑦60 days stratification (sh94). ⑧Code B (cu00).



seed counts & rates: 96,595 (gnh02), 120,000 (pm01), 122,372 (gna04), 124,800 (ew11), 126,336 (wns01), 126,400 (aes12), 128,000 (pn02, jfn04 & sh94), 130,572 (gna03), 147,235 (gna05), 157,000 (appl), 166,480 (agrec07), 177,700 (usda), 191,077 (gna06), 226,800 seeds per pound. Seeded alone 10 lb per acre or 4 oz per 1000 (sh94). In seed mixes use 0.125-0.25 pounds per acre, preferably only in fall plantings.

availability: Seeds & plugs & bareroot plants widely available.

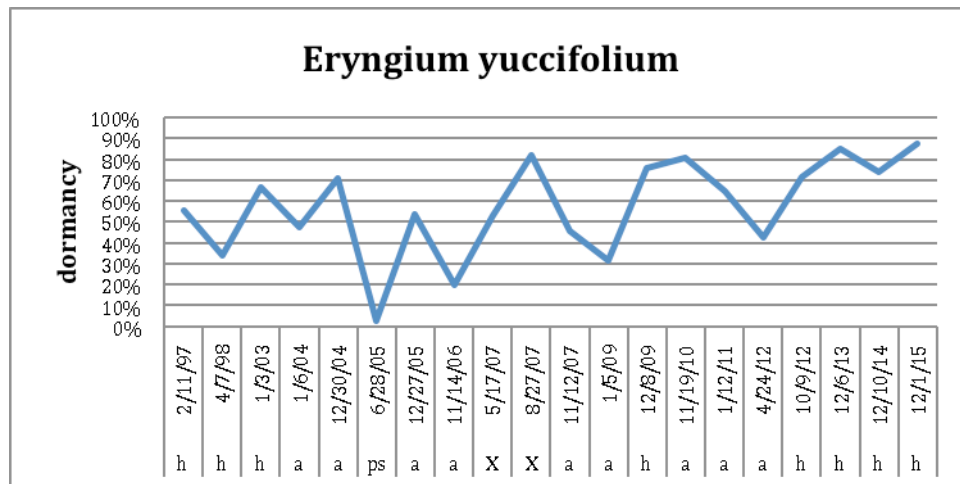
“*Eryngium yuccifolium* Moist to dry; general prairie. Blooms early July to early August; WHITE. Harvest late October. 4'; easy by method #1, blooming late 1st year; gets coarse & tall. Try with method #2 with much grassy competition. SEEDLING TRANSPLANT, SPRING BROADCAST; reseeds freely once established. Flowers 2nd year.” (rs ma)

asexual propagation: Division of mature plants in spring.

cultivation: Space plants 1.25-1.50'. Said to tolerate clay soils. AES (2010) reports some salt tolerance. pH 5-7.5. Best from transplants, but easy from fall seed.

bottom line: Dormant seeding is best, 94% of lots are significant to strongly dormant. Spring planted seed, on occasion, may germinate or may carry over and germinate the following spring. I may also win the Powerball. An extreme low dorm lot (3.0%) was hulled seed, suggesting germ inhibitors in the husk or scarification (a serendipitous byproduct of removing floral remains) may benefit. Dominantly strong dormant. Germ 29.5, 27, 60, sd 17.6, r7.0-60 (53)%. Dorm 55.9, 56, na, sd 21.8, r3.0-85 (82)%. Test 37, 37, 38, r20-52 days.**

greenhouse & garden: Moist cold stratify or fall plant, cool soils, successional restoration method. Temperature sensitive.



Description: Native, erect, herbaceous, perennial forb; roots small close bundle; stems 2.0-6.0'; leaves bluish-green, yucca-like, parallel-veined, clasping the stem, with a sharp point & widely spaced weak prickles on the edges, basal leaves may be up to 3' long; inflorescence is a cyme of 0.25-1.0" spiny, round balls of tiny flowers on stout peduncles; flowers spherical white to lilac or purple, 0.5-1.0" diameter, 5-merous, color may vary on the same plant from year to year; fruit is a dry schizocarp splitting into 2 seeds; N. **key features:**

Comments: status: Endangered & extirpated in Maryland. Threatened sp in Michigan & Ohio. **phenology:** Blooms 7,8,9. Flower heads are said to have a honey-like odor when in bloom. Seeds mature late summer. Excellent cut & dried flowers. Useful in landscaping, interesting in formal beds; useful in roadside plantings, prairie restorations & native landscaping, wildlife cover, & wildflower gardens. “Fruit is nutlet covered with seed?” (krr) Said to self-seed aggressively, but can be somewhat well behaved. Drought resistant, adaptable. On

our farm, RATTLESNAKE MASTER is at its best in a mixed planting in rich, wet mesic, black soils. In summer before the plants bolt, it looks like an *Agave* plantation. The flower color of an *Eryngium* field may change in some years, varying from bright white to lavender (*vide infra*). Seed source nursery production, genetic source Milton Twp, DuPage Co, & Kane & Will (Horlock & Kirt (Danada & College of DuPage restoration) cos & CNWRR, near Hannaman, Whiteside Co.

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.

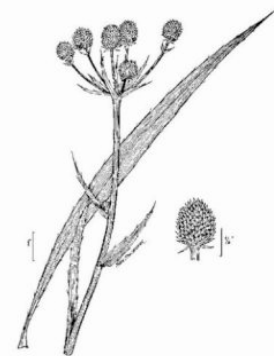
"There are, indeed, comparatively speaking, but few plants, except the grasses, (which are gregarious every where and are intermixed in greater or less degree and variety among all the other plants of the prairie,) which may be considered as indigenes of the prairie region generally. ---Among these we may mention, as occurring most constantly, and under greater diversity of soil and situation than any others, ..." "Among the oeconomic and medicinal plants of the prairies may be mentioned *Eryngium aquaticum*...; all these plants have a considerable reputation, which perhaps is but little deserved, against the bites of poisonous serpents, and they are known indifferently by the names of 'snake-root,' 'button snake-root,' 'rattle-snake's masterpiece,'" *Eryngium yuccifolium* as *E. aquaticum* L. (Short 1845)

Associates: Attracts butterflies & many other insects. Pollinated by bees (bumblebees). Attracts hummingbirds. Reported as resistant to deer. Seed heads are often parasitized.

ethnobotany: Mashed root used by Creek Indians. "Root bitter, aromatic & pungent, resembling in its medicinal properties the SENEGA SNAKE-ROOT, & highly esteemed as a diaphoretic & expectorant in the southern states. *Ell.*" (Torrey & Gray 1838-40)

VHFS: Ours is variety *yuccifolium*. Variety *synchaetum* Gray ex Coult. & Rose, SOUTHERN RATTLESNAKE-MASTER, ranges from Oklahoma to Texas, Florida to North Carolina. [*Eryngium aquaticum* (Linn.)]

Eryngium yuccifolium Michaux var *synchaetum* A Gray ex Coulter & Rose, SOUTHERN RATTLESNAKE-MASTER. "Wet savannas, especially those over calcareous clay soils. June-August. A Southeastern Coastal Plain endemic: se NC to s FL & west across the Gulf Coastal Plain, the exact range limits obscure. The distinction between the two varieties, seemingly clear in NC & elsewhere in states bordering the Atlantic, seems to become less straightforward farther west, as in LA & AR." (w12)





Eryngium yuccifolium

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 1st 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 spp.* USDA Natural Resources Conservation Service. Not copyrighted image.

HERACLEUM Linnaeus 1753 **COW PARSNIP** *Umbelliferae* *Heracleum* (hay-ra-KLEE-um) after Hercules, Ἡράκλειος, *Herakleios*, *Hēraclēus*, *Hēraclīus*, *Herakles*, a reference to his great size & the size of some rank sp. A genus of about 65 spp of herbs of the north temperate regions & tropical mountains. Native sp is a herbaceous biennial to 6.5 feet tall; leaves very large, 3-parted or once pinnately divided, more than 4 inches wide; large, flat, compound umbels, to 12" diameter; flowers white, petals deeply heart-shaped; fruits compressed, flat, with a broad, flat margin, & 3 obtuse, dorsal ribs to each carpel; intervals with a single *vittae*; seeds flat.

Heracleum mantegazzianum Sommier & Levier ☞ GIANT HOGWEED, AKA CARTWHEEL FLOWER, WILD PARSNIP, WILD RHUBARB, GIANT COW PARSNIP, GIANT COW PARSLEY, is introduced, invasive & a noxious weed in many states (*NOX F, AL, CA, CT, FL, MA, MN, NH, NC, OR, PA, SC, VT, WA). A sp complex native to the Caucasus Mountains & central Asia. It is known from northeast Illinois, Cook, DuPage, & Lake cos. propagation: ☉ Sow at 18-22°C (64-71°F) for 2-4 wks, move to +2 to +4°C (34-39°F) for 4-6 wks, move to 5-12°C (41-53°F) for germination 2 cold periods often required (tchn). To 12-16', with umbels to 1.5' diameter.

☞ The plants sap contain furocoumarins which can cause photodermatitis, with burning, blistering, & scarring. Sap in the eyes may cause temporary or permanent blindness.



Heracleum mantegazzianum

Heracleum maximum W Bartram *KY, TN COW PARSNIP, aka AMERICAN HOGWEED, BEAVER ROOT, COMMON COWPARSNIP, COWBANE, MASTERWORT, *Bi'bigwe'wunuck*, flute reed (Ojibwa), (*maximus -a -um* (MAHK-si-mus) Latin superlative adjective, the largest, very large.) Upland

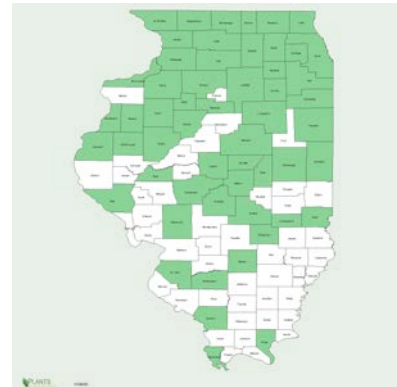
Habitat: Wet meadows, wet & mesic savannas, wet woods, woodland edges, rich or low ground, & alluvial thickets. In the se USA, forests, roadbanks, meadows, forest openings; uncommon (rare in GA)” (w11).

distribution/range: Throughout North America, but absent from many southeastern states.

Culture: propagation: ① “Fall sow direct or in containers & overwinter, or moist cold treatment. Light cover, biennial, may self sow”. (mfd93) ② Seeds need a cold, moist period followed by a warm, moist period followed by a 2nd cold, moist period, or sow outside & allow 2 years for germination. Best planted outdoors in the fall (pm09). ③ Sow seeds outdoors in fall, or 60 days cold moist stratification (he99). ④ Sow at 18-22°C (64-71°F) for 2-4 wks, move to +2 to +4°C (34-39°F) for 4-6 wks, move to 5-12°C (41-53°F) for germination 2 cold periods often required (tchn).

⑤ “Seed longevity estimated at 3 years in sealed containers at 1°C. Seed dormancy is classified as nondeep morphological-physiological dormancy. % Purity: 100% % Germination: 89%.

72 hour water soak of fresh seeds. Water was changed daily. Seeds were placed into a 100 day cold, moist stratification. Seeds were placed in fine mesh bags & buried in moist peat moss in a ventilated container under refrigeration at 1°-3°C. The running water presoak treatment is necessary for adequate germination. Calcium oxalate & other inhibitors are present in the seed coats & must be leached out.



Seeds did not germinate the 1st year, conetainers were placed in the outdoor nursery for the remainder of the growing season & were winterized outdoors. Initial germination the following spring appeared uniform & occurred following several days of temperatures at 22°C or above during the day & 13°C to 16°C at night in early June in the outdoor nursery. Conetainers are misted twice per day during the establishment phase.

Root & shoot development occurs rapidly following germination. 4 to 6 true leaves were evident 3 weeks after germination. Plants were fertilized with 20-20-20 NPK liquid fertilizer at 100 ppm during the growing season. Seedlings are irrigated with Rainbird automatic irrigation system in early morning until containers are thoroughly leached. Leaves are large & irrigation becomes difficult in conetainers; it is necessary to uppot to 3 L (1 gallon) containers if stock is to be held overwinter.” (Luna et al 2008)

⑥ “Seeds are kept dry & stored in a refrigerator. Pre-Planting Treatments: May benefit from stratification for 2 weeks. 10 grams of seeds are sown per flat containing Sunshine Mix #4 Aggregate Plus (peat moss, perlite, major & minor nutrients, gypsum, & dolomitic lime). Seeds are covered with media. Flats are watered in with an automatic mist & irrigation system & are placed on a heated bench. % Germination:50% Establishment Phase: Seeds germinate 30 days after sowing.” (Young 2006)

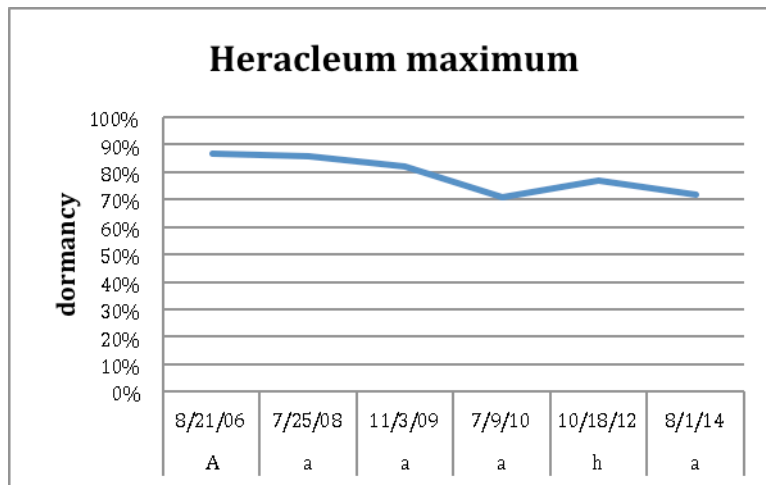
⑦ “Seeds exhibit deep complex morpho-physiological dormancy. Low temperatures stimulate the breakdown of proteins into nitrogenous compounds & the formation of amino acids beneficial to embryo growth on synthetic media. Seeds are placed in cold moist stratification for 112 days. Germination occurs at 22D/17N C alternating temperature cycle.” (bb06)

seed counts & rates: 37, 871 (gnm14), 38,400; 41,600 (pm02), 46,285 (gnhg12), 48,000 (aes12), 48,256 (jfn04), 53,352 (gnam04), 68,549 (gna06) seeds per pound.

bottom line: Dormant seed properly stored & refrigerated seed. Seed tests indicate viability drops quickly with dry storage in this sp. Seeds should be treated as hydrophilic. Germ 4.5, 2.0, 2.0, sd 3.9, r1.0-11 (10)%. Dorm 79.2, 79.5, na, sd 6.3, r71-87 (16)%. Test 35, 33, na, r21-51 days.**

greenhouse & garden: Spring- and early-summer-ripening species dehisce and the seeds fall to the ground, experiencing warm soils at ambient soil moisture levels, or natural warm moist stratification. This is followed by cold moist stratification in the winter, and germination the following spring. A portion of the seed of some species may germinate the 2nd spring.

Seeds of early ripening species are often recalcitrant or hydrophilic, meaning viability decreases as the seeds become overly dried (they are naturally “moist” in the soil). The seeds must be cleaned in a timely fashion and stored in airtight containers under refrigeration until planting or other pretreatments. Dormant seed in an unheated cold frame, or alternately, 30 days warm moist stratification followed by 15-30 days cold moist stratification and place in greenhouse or garden.



Description: Erect, herbaceous, biennial, native forb, appearing white-woolly; 4.0-6.0(10.0)'; leaves soft hairy; large, compound, flat umbel of tiny white flowers, 5-merous, petals notched. key features: Notched petals, large, flat umbel, leaves soft hairy (fh).

Comments: status: Endangered in Kentucky. Special Concern in Tennessee. phenology: Blooms 5,6,7. In northern Illinois, collect seeds in July. Collect seeds in se Wisconsin in September - October (?) (he99). Wetland restoration. Seed source Bureau Co.

Associates: ethnobotany: Available for greens in late spring & early summer. Used for food by Ojibwa (Reagan 1928). The Mesquakie used the root for food (sm28). Root used as medicinal plant by Ojibwa (sm32). Used by Ojibwa as medicine for indigestion, boils, & sore throat (den28). Root or seeds burned for hunting charm & root used for fishing charm by Ojibwa. Menominee sorcerer's evil medicine (sm32, 23). Leaves & roots are rubefacient, root said to be carminative & stimulant astringent (den28).

☠ In spite of COWPARSNIP'S many uses as food & medicine, the plant is also considered very poisonous. The sap may cause contact dermatitis, including phytophotodermatitis, acute bullous dermatitis, or toxic phytophotodermatitis.

VHFS: [*Heracleum lanatum* Michx, *H sphondylium* L var *lanatum* (Michx) Dorn, *H. sphondylium* L ssp *montanum* (Schleicher ex Gaudin) Briquet]

The North American plant is very similar to the European *H sphondylium*, EUROPEAN COW-PARSNIP, aka HOGWEED, & it is sometimes treated as a subsp or variety of the European plant. *H. sphondylium* is generally smaller than *H maximum*, with basal leaves pinnate, leaf rachis with thick, spreading hairs up to about 2 mm long versus basal leaves ternate, & leaf rachis with slender, often reflexed or curly hairs mostly not more than 1 mm long. **names & priority?**

CC Baskin & JM Baskin, 2006. Propagation protocol for production of container *Heracleum maximum* Bartr. plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 29 April 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

T Luna, J Evans, & J Hosokawa, 2008. Propagation protocol for production of container *Heracleum maximum* Bartr. plants (172 ml conetainers), USDI NPS - Glacier National Park, West Glacier, Montana. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 29 April 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

B Young, 2006. Propagation protocol for production of container *Heracleum maximum* Bartr plants (1 gallon cans), San Francisco, California. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 29 April 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.



Heracleum maximum

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Photo Robert H. Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image

HYDROCOTYLE Linnaeus **HYDROCOTYLE, PENNY-WORT** *Umbelliferae Hydrocotyle* water cup, New Latin, from ὕδωρ, *hydor-*, & Greek κοτύλη, *kotylē* cup; probably from the watery habitat & the cuplike shape of the leaves that often hold water. 130 spp of herbs, cosmopolitan, especially Australia. Perennial creeping or sprawling herbs,

leaves entire, rounded; simple, small umbels of white flowers, fruit laterally flattened, the commissure narrow, carpels 5-ribbed, without *vittae*.

Fruit elliptic to round, very compressed side-to-side; ribs \pm equal, thread-like, distinct or not; oil tubes 0, fruit wall with individual oil cells; fruit central axis not obvious; seed face flat to convex.

Molecular analysis places this genus in the *Araliaceae*.

Hydrocotyle americana Linnaeus *IN, KY, TN AMERICAN MARSH PENNYWORT, aka AMERICAN WATER-PENNYWORT, MARSH PENNYWORT, (*americanus -a -um* for America)

Habitat: Marshes. In the se USA, “ bogs, marshes, seepages, cliffs & ledges where wet by seepage or spray from waterfalls, sometimes roadside ditches; uncommon (rare in NC)” (w11). distribution/range: North & east of Illinois.

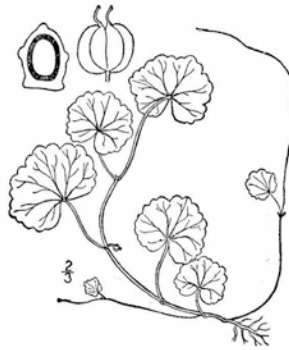
Culture: There are no commercial seed or plant sources.

Description: 2-5”; roots; stems; leaves long orb-like to broadly oval or reniform, 1/4"-2 1/4" wide, 6-10 shallow lobes, not divided; inflorescence is a flat, unbranched umbel, 2-7 stemless flowers per umbel (no umbellets), flowers white, 5-merous, individual flowers 0.063-0.125” diameter; fruit dry schizocarp, 1.0–3.0 mm, elliptic to round; ribs obscure, splitting into 2 seeds; N. key features:

Comments: status: Endangered in Indiana, Kentucky, & Tennessee. phenology: Blooms June-September.

Associates:

VHFS:



Hydrocotyle americana

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

Hydrocotyle ranunculoides Linnaeus f *IL, NJ, NY WATER-PENNYWORT, aka FLOATING MARSH-WORT, FLOATING PENNYWORT, *FLYTSPIKBLAD*, SWAMP WATER-PENNYWORT,

Habitat: Grows among cattails in shallow water. Stagnant to swiftly flowing waters of swamps, pools, blackwater streams, & backwaters. In the se USA, “stagnant to (less commonly) swiftly flowing waters of swamps pools, backwaters, blackwater streams; common (rare in WV)” (w11).

distribution/range: Widespread in North, Central, & South America, also from Africa & the Arabian peninsula. naturalized in Australia. In Illinois known from Clinton Co.

Culture: There are no commercial seed or plant sources.

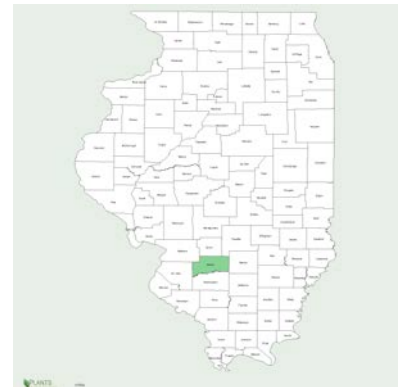
Description: General plant form; roots; stems rooting at the joints or floating; leaves simple, palmately lobed, orbicular, reniform, not peltate; flowers 5-merous; N $2n = 48$. key features: Stems floating or creeping, rooting at nodes.

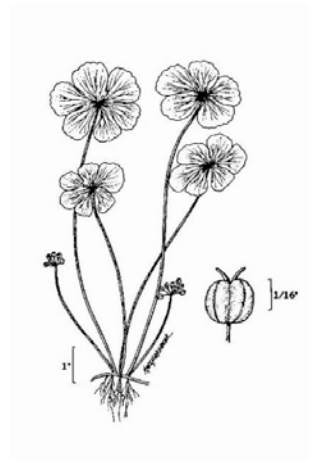
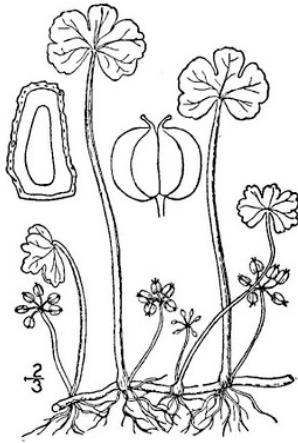
Comments: status: Endangered in Illinois, New Jersey, & New York.

phenology: Blooms 5-8. C3.

Associates:

VHFS:





Hydrocotyle ranunculoides

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Hydrocotyle umbellata Linnaeus *NOX PR *CT, OH, PA UMBELLATE WATER PENNYWORT, aka *ACARIÇOBA*, *ACARICABA*, *CAPITÃO*, *ERVA-CAPITÃO*, MANYFLOWER MARSHPENNYWORT, MARSH WATER PENNYWORT, *PARA-SOL*, WATER PENNYWORT,

Habitat: Introduced along a wet roadside ditch. distribution/range: North America & South America. Very rare in Illinois, Williamson Co.

Culture: There are no commercial seed or plant sources.

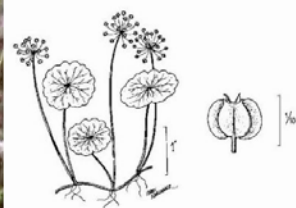
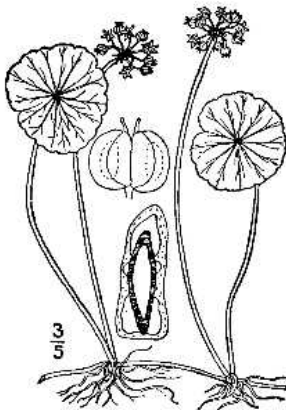
Description: Native, creeping perennial; roots; stems creep across wet soil or float on water; leaves peltate; flowers -merous; $N 2n = 48$. key features:

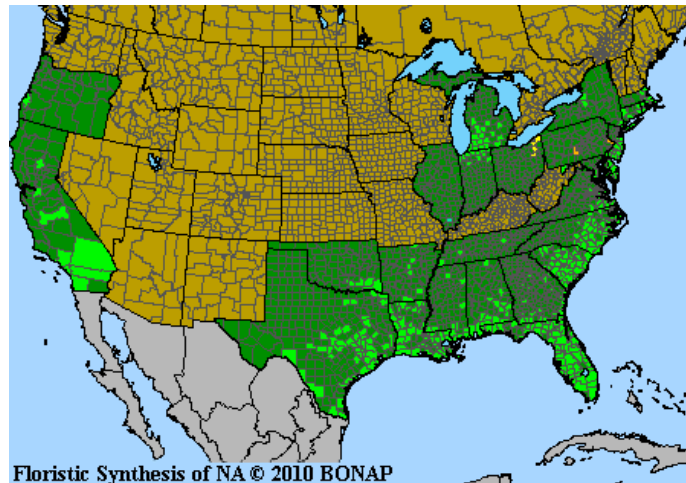
Comments: status: Noxious weed in Puerto Rico. Endangered in Connecticut & Ohio, Extirpated in Pennsylvania.

phenology: Blooms July to September.

Associates:

VHFS:





Hydrocotyle umbellata

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 spp.* USDA Natural Resources Conservation Service. Not copyrighted image. North America map courtesy of BONAP (2010)

OSMORHIZA Rafinesque 1819 **SWEETROOT, SWEET CICELY, WILD CHERVIL** *Umbelliferae Osmorhiza* New Latin, from ὄσμη, *osme*, perfume, odor, & ῥίζα, *rhiza*, root, literally smelly or odorous root, referring to the anisate fragrance of the crushed root. Relictual distribution with American (9+ spp) & Asian white-flowered erect, perennial, herbs with fleshy aromatic roots, leaves 2-3 x decomposed leaves, not feathery, & compound umbels of white flowers, & fruit linear, not winged, very long, clavate, attenuate at the base; carpels with 5 equal, acute, bristly ribs; intervals without *vittae*; commissure with a deep, bristly channel. The genus was at one time known as *Uraspermum* Nuttall.

This genus is distinguished from other white flowered WILD CARROTS by the anise odor of the crushed foliage.

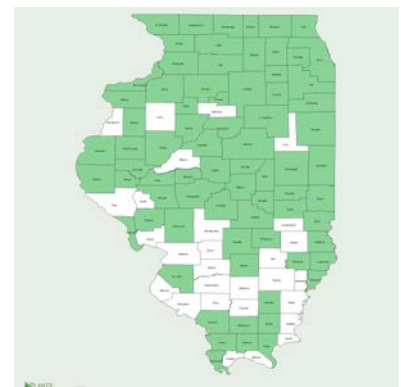
claytonii 4-7(-8-10) flowers per umbellet; styles up to 1.5 mm (shorter than the petals), leaflets more deeply cleft than below, main stem covered in fine white hairs, foliage with weak or no licorice odor when bruised (or a carrot-like odor).

longistylis (6-,7-)8-16(-18) flowers per umbellet, styles at least 2.0 mm (as long or longer than the petals), main stem usually smooth, foliage & especially the root with strong licorice odor when bruised.

Osmorhiza claytonii (Michaux) C B Clark CLAYTON'S SWEETROOT, aka BLAND SWEET CICELY, HAIRY SWEET CICELY, SWEET CICELY, SWEET JARVIL, WILD LICORICE, WOOLY SWEET CICELY, *Osaga'tigom'*, tangled branches, (*claytonii* (klay-TON-ee-eye) New Latin, from John Clayton (1686-1773), Virginia botanist & physician & New Latin *-ia*. This epithet was formerly capitalized.) The common name CICELY is of unsure origin & has been applied to many umbelliferous plants, but originates from Latin *seselis*, Greek σέσελις, σέσελι, *seselis*, *seseli*, *seseli* n., but some feel it is identical with the feminine name Cicely, Cicyly = Cecilia; some pronounce CICELY as two syllables, SIS-lee (oed).

Habitat: Moist woods, woodlands, & forests, usually disturbed. Rich woods, ravines & valleys. Wooded roadsides & hedgerows. In the se USA, cove forests & other moist, fertile forests (w12). "Deciduous forests, including beech-maple, oak & oak-hickory, northern hemlock-hardwoods; very rarely in strictly coniferous forests; sometimes on rocky or alluvial sites; persistent after clearing. Much more common than *O longistylis*, & often in drier sites." (rvw11) "Rich, mesic, mixed-hardwood forests, common in woods on shaded hillsides, also occurs on the forested edges of wet prairies & meadows" (Pavek 1992). distribution/range:

Culture: ①60 days cold moist stratification (pm09). ②Seeds germinate after about 60 days of cold moist stratification (he99). ③"SWEET CICELY is not easy, but not impossible, to start from seeds" (lbj)



④ SWEET CICELY seeds require warm stratification followed by cold stratification before germination will occur. In laboratory studies, 98% of the seeds germinated after 4 weeks with day temperatures at 86°F (30° C) & night temperatures at 59°F (15° C) followed by 2 weeks at 41°F (5° C) days & nights (bb91). Under field conditions, SWEET CICELY sheds most of its seed during the summer or early autumn when temperatures are relatively warm to hot, which results in high germination rates the following spring. Baskin & Baskin (1991) also found that a portion of the seed did not germinate until the second spring after shedding. Seeds that are not dropped & remain attached to the plant during the winter have longer dormancy after being shed. These seeds required 12 weeks warm stratification followed by cold stratification to yield 96% germination. SWEET CICELY forms a short-lived seed bank (Pavek 1992).

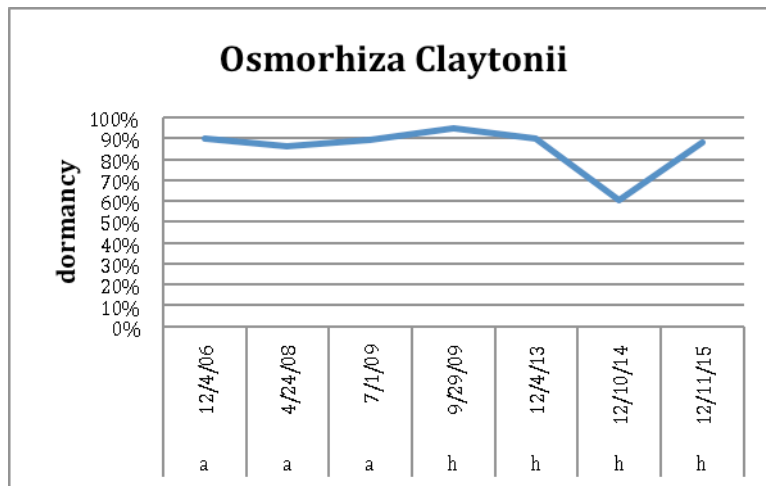
seed counts & rates: 38,400 (aes10), 40,000 (pm01), 46,112 (gna06), 44,907 (gnh13), 47,292 (gnh14) seeds per pound.

availability: Seeds are readily commercially available at most times.

bottom line: Field establishment fresh or dormant seed. This species has seed lots significantly to totally dormant. Multiple cycles? Germ 7.9, 2.0, 2.0, sd 9.9, r0.0-31 (31)%. Dorm 85.4, 89, 90, sd 10.7, r60-95 (35)%. Test 33, 34, 35, r27-42 days. (#9).**

greenhouse & garden: Spring- and early-summer-ripening species dehisce and the seeds fall to the ground, experiencing warm soils at ambient soil moisture levels, or natural warm moist stratification. This is followed by cold moist stratification in the winter, and germination the following spring. A portion of the seed of some species may germinate the 2nd spring.

Seeds of early ripening species are often recalcitrant or hydrophilic, meaning viability decreases as the seeds become overly dried (they are naturally “moist” in the soil). The seeds must be cleaned in a timely fashion and stored in airtight containers under refrigeration until planting or other pretreatments. Dormant seed in an unheated cold frame, or alternately, 30 days warm moist stratification followed by 15-30 days cold moist stratification and place in greenhouse or garden.



Description: Native, erect, herbaceous, perennial forb; odorless, stems & leaves covered with fine white hairs; roots fibrous from a caudex, may be weakly anise-scented when bruised, or destitute thereof, & tasting disagreeable; stems usually solitary, 1.0-3.0'; leaves toothed or lobed, 2(-3) times pinnately divided, lower stalked, upper stalkless, margins dentate, crenate, lobed; inflorescence is a sparse 3.0" compound umbel, with 3-6 stalked, few flowered umbellets terminal & axillary; flowers white, 5-merous, lacking sepals, styles shorter than petals, individual flowers 0.13" across; fruit a dry schizocarp, splitting into 2 seeds, nearly straight & parallel, fruit crowned with short, convergent (not spreading) styles; N. key features: ① Odorless (or nearly so), stem & leaves covered with fine, white hairs; styles shorter than the petals, becoming 0.63" long on the seeds; seeds nearly straight. Styles conical, scarcely as long as the breadth of the ovary. Differs from the following by a disagreeable tasting root, the plant being more hairy, & with more deeply cleft divisions in the leaves. Thickened, fibrous roots are characteristic. (USDA FEIS 1992)

Comments: status: phenology: Overwinters as a basal rosette. Blooms 4-6. C3. In northern Illinois, collect seeds in July - early October. Collect seeds in se Wisconsin in July (he99). The early maturity & dropping of this seed may indicate some degree of recalcitrance or a requirement for warm moist stratification. Some seeds may be retained until the following spring. Seed source disturbed woods, Whiteside & Bureau cos. This seems early

successional in our woods, strongly responding to clearing & fire, then slowly waning. Even on an intermediate landscape scale, this sp is mobile.

“Common in woods. The smaller of the two spp & the more pubescent.” (ewf55)

“Root of a sweetish but rather disagreeable taste, & without the anise flavor of the preceding sp (*O. longistylis*)” (Torrey & Gray 1838-1840 as *O. brevistylis*).

Associates: Seeds have small barbs that enable them to adhere to hair, fur, clothing, & feathers, & are dispersed by humans, other mammals, & birds.

ethnobotany: Used as medicinal plant by Menominee & Ojibwa (sm23, den28). Ojibwa medicine for ulcers & sore throat (den28). Also used for coughs, an eyewash for sore eyes, to ease parturition,

VHFS: [*Myrrhis Claytonii* Michx, *Osmorhiza aristata* (Thunb) Makino & Yabe var *brevistylis* (DC) Boivin, *Osmorhiza brevistylis* DC, *Washingtonia claytonii* (Michx) Britt]. Also *Chaerophyllum Claytoni* Pers & *Uraspermum hirsutum* Bigel.

JM Baskin & CC Baskin, 1991. Nondeep complex morphophysiological dormancy in seeds of *Osmorhiza claytonii* (Apiaceae). American Journal of Botany. 78(4): 588-593

DS Pavek, 1992. *Osmorhiza claytonii*. In: Fire Effects Information System, [Online]. U.S Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2011, December 18]



Osmorhiza claytonii

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 1st photo Jennifer Anderson - USDA-NRCS PLANTS Database - Not copyrighted image

Osmorhiza longistylis (Torrey) Augustin de Candolle LONGSTYLE SWEETROOT, aka ANISE ROOT, ANISEROOT, SMOOTH SWEET CICELY, SWEET CICELY, WILD LICORICE, (*longistylis* -is -e long-styled, having long pistils, from *longus* -a -um, long, from Latin *longus* -a -um, long, tall, & *στυλος*, *stylos*, a pillar or rod.)

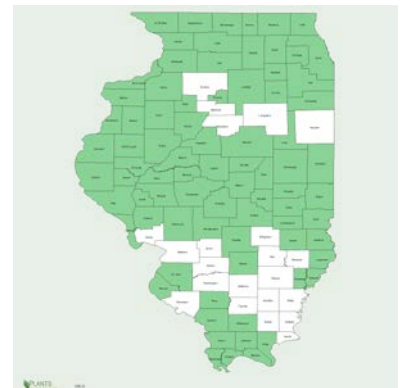
Habitat: Rich, often alluvial woods & thickets, wooded slopes. Mesic wet mesic deciduous woodlands, & slopes of woodland ravines in Maple Basswood forests.

“Rich, often moist (even swampy) deciduous forests; persistent after clearing & hence sometimes in fine stands along forest roads. Frequently growing with *O. claytonii*, but usually restricted to rich moist sites” (rvw11). distribution/range:

Culture: propagation: ①Seeds exhibit morphophysiological dormancy. Seeds need warm & cold stratified & germinate at 15°/6° C (bb02). ②Seeds germinate after about 60 days of cold moist stratification (he99).

availability: There are no known commercial seed or plant sources.

Description: Erect, herbaceous, perennial, native forb; roots; stems 1-3', usually solitary & glabrous or nearly so or in var *villicaulis* covered with long, soft hairs; leaves bi- or triternate; flowers white, 5-merous, open clusters (compound umbel) of small, white flowers rising above the foliage on stalks from upper leaf axils; fruits blackish, an inch long, crowned with the slender persistent styles, styles filiform, nearly as long as the ovaries; N. key features: Roots strongly anise-scented; stems glabrous or nearly so (Ilpin). The styles are longer than the petals, on the seeds they are 0.13 inch long. Similar to but coarser than *O. claytonia*. “Ordinarily one can readily distinguish this sp in the field from *O. claytonii* by its taller, stiffer habit with redder, more glabrous stems; the flowers tend to be larger (petals often ca. 1.5–2.2 mm long, at least on bisexual flowers) &, as they are more numerous in the umbellets (due mostly



to a larger number of staminate ones), the plant is more showy. Bracts of the involucre tend to be broader than in *O. claytonii* (often over 1 mm). Rarely the stem is densely villous (var *villicaulis* Fern). Bruised foliage of *O. longistylis* has a licorice odor, while that of *O. claytonii* has a carrot-like odor.” (rvw11)

Comments: status: phenology: Blooms 4-6. C3. Collect seeds in se Wisconsin in July (he99). The leaves & stems have a scent some liken to the Oriental SPICE STAR ANISE. “The smoother, larger & more common” (ewf55).

“Root fasciculate & somewhat fleshy, of a sweet spicy flavor, resembling *Anise*, as is the rest of the plant, though in a less degree” (Torrey & Gray 1838-1840).

Associates: ethnobotany: Roots used as medicinal beverage by Ojibwa & Pottawatomie. Root is aromatic, carminative, & stomachic (den28).

VHFS: [*Osmorhiza aristata* (Thunb) Makino & Yabe var *longistylis* (Torr) Boivin, *O. longistylis* (Torr) DC var *brachycoma* Blake, *O. longistylis* (Torr) DC var *imbarbata* Salamun, *O. longistylis* (Torr) DC var *villicaulis* Fern, *Washingtonia longistylis* (Torr) Britt.] Also *Uraspermum Claytoni* Nutt. Variety *villicaulis* has roots that are strongly anise-scented, & stems that are densely villous.

CC Baskin & JM Baskin, 2002. Propagation protocol for production of container *Osmorhiza longistylis* (Torr) DC plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL:

<http://www.nativeplantnetwork.org> (accessed 13 August 2007). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

JM Baskin & CC Baskin (1984a). Germination ecophysiology of the woodland herb *Osmorhiza longistylis* (*Umbelliferae*). Amer. J Bot. 71, 687-692.



Osmorhiza longistylis

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

OXYPOLIS Rafinesque 1825 **COWBANE, DROPWORT, HOG-FENNEL** *Umbelliferae* New Latin, from *oxy-*, *oxus*, sharp & *polios*, white from the sharp, awl-shaped secondary bracts & the white petals. Not as some say from Greek *polis* city. A genus about 7 spp of marsh herbs of temperate North America 2.0-4.0' tall, having clustered fusiform tuberous roots & leaves only once-pinnate into 5 or more leaflets, not feathery, or reduced to slender petioles like rushes, compound umbels of white flowers, incomplete, lacking sepals. “Based on work of Feist & Downie (2008), *Oxypolis* is likely to be split into two genera” (w11).

Oxypolis rigidior (Linnaeus) Rafinesque *NY ☠ COWBANE, aka COMMON WATER-DROPWORT, PIG POTATO, STIFF COWBANE, WATER DROPWORT, (*rigidior* more rigid, in comparison to a similar plant, Latin comparative of *rigidus* -a -um, rigid, stiff.) obl

Habitat: Calcareous fens, moist to wet prairies, upland swamps, marshes, drainage ditch banks. Rich organic soils. “In the boggy places in Sugar River sand areas, in sloughs, on low prairies & in prairie sloughs over the co.”

(ewf55) In the se USA, “bogs, seepages, swamps, wet meadows, streambanks; common (uncommon in FL & WV)” (w11).

distribution/range:

Culture: propagation: ① Fall sow or cold moist treatment 120 days.

Lights cover fair germination. (mfd93) ② Further germination pretreatments not sure? (pm)? ③ No pre-treatment needed. Sowing outdoors in the spring is the easiest method. Seeds need light to break



dormancy & germinate. Plant on top of growing media & do not cover. (he99) ④Sow at 20°C (68°F), germinates in less than two wks (tehn).

seed counts & rates: 163,840 (jfn04), 226,800 seeds per pound.

availability: This sp has limited commercial availability & may be seasonally available or of limited genetic provenance.

Description: Erect, herbaceous, perennial, native forb; roots; stems 2.0-5.0', smooth, few branches, stems flattened; leaves few, wide base clasping the stem; pinnately divided with 5-9 long & narrow, mostly sessile leaflets; inflorescences few, 3.0-6.0", stalked, compound umbels, each with 20+ spreading, loose, open umbellets; flowers white, greenish tinge, 5-merous; fruits dry schizocarp splitting in to 2 seeds, seed 2X wide as long, back very flat, with 5 rib-like ridges along each side; N. key features: ①Leaflets are long & slender.

Comments: status: Endangered in New York. phenology: Blooms 7,8,9. C3. In northern Illinois, collect seeds in September. Collect seeds in se Wisconsin in October (he99). Seed source wet ditches Lee Co.

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

Oxypolis rigidior (L.) Raf. as *Archemora rigida* (L.) DC. (Short 1845).

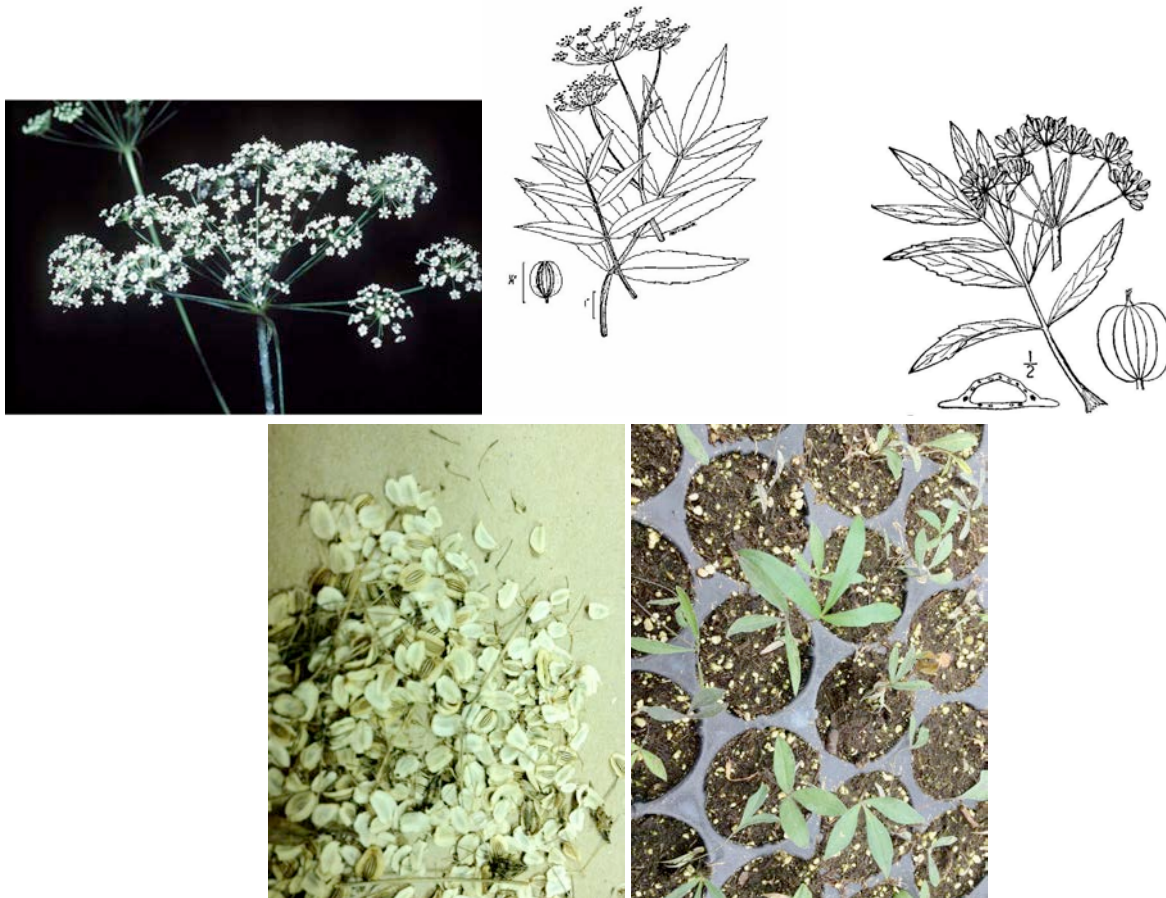
Associates: ☠ The roots & leaves are poisonous to humans & cows; contact may cause dermatitis (Ilpin).

VHFS: [*Oenanthe ambigua* Nutt, *Oxypolis longifolia* (Pursh) Small, *O rigidior* (L) Raf var *ambigua* (Nutt) BL Robins, *O rigidior* (L) Raf var *longifolia* (Pursh) Britt., *O. turgida* Small] For an extensive list see

<http://www.plantatlas.usf.edu/synonyms.asp?plantID=973> Ilpin has this as *O rigidior* (L) Coulter & Rose.

Illinois has 2 varieties. Variety *rigidior* with leaflets lanceolate to oblong, & at least 4 mm broad, is occasional throughout the state. Variety *ambigua* (Nutt) Robins, with leaflets linear, up to 4 mm broad, is rare & confined to southern Illinois.

MAE Feist & SR Downie, 2008. A phylogenetic study of *Oxypolis* & *Ptilimnium* (*Apiaceae*) based on nuclear rDNA ITS sequences. Systematic Botany 33: 447-458.



Oxypolis rigidior

Photo Robert H. Mohlenbrock USDA-NRCS PLANTS Database. - Not copyrighted image. Line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora: Field office illustrated guide to plant spp.* USDA Natural Resources Conservation Service. Not copyrighted image. Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society.

PASTINACA Linnaeus 1753 **PARSNIP** *Pastinaca* from Celsus, from the Latin name *pastinaca*, *pastinacae* f for parsnip & carrot, from *pastinum*, a two-pronged dibble, or from *pastus*, food or repast, for the nutritive properties of the root, alternately from Latin *pastino*, to prepare the ground for planting. A genus of about 14 spp of biennial herbs of temperate Eurasia. Introduced, biennial herb; tap-rooted; to 5.0' or more; leaves pinnately divided, leaflets divided or toothed, not feathery; compound umbels of yellow flowers; fruits much compressed, smooth, oval, with a broad margin; carpels with 5 nearly obsolete ribs; intervals with single *vittae*; carpophore 2-parted; seeds flat.

Pastinaca sativa Linnaeus # OH PARSNIP, aka HARTS-EYE, MADNIP, WILD PARSNIP, YELLOW PARSNIP, (*sativus* - *a* -*um* sa-TEE-vus Latin cultivated, sown, planted.) Native to Europe & Asia.

Habitat: Weed of open areas, disturbed sites, old fields, roadsides, & pastures.

Usually in rich, heavy soils. "A very common roadside weed" (ewf55).

distribution/range: In every Illinois county.

Culture: ?

Description: Introduced erect, herbaceous, biennial, sometimes perennial forb, 1-5' tall, 1st year plant basal rosette; roots fusiform, white to yellowish, long taproot; stems flat & ridged; leaves alternate, pinnately compound, margins serrate, lobed, downy beneath, they resemble celery leaves; flowers yellow to white, 5-merous, 4.0-8.0" flat, compound umbel, with 15-25 umbellets; umbellets bloom from center outward, with the maturing side umbellets become taller than the central ones; flowers lacking sepals; fruit dry schizocarp, splitting into 2 straw-colored seeds; seeds flattened on back, smooth, side ribs slightly winged; N. key features:

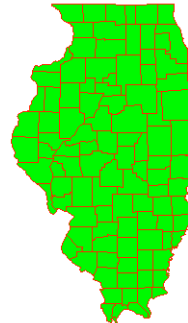
Comments: status: Prohibited Noxious Weed in Ohio. This sp is considered weedy or invasive in some areas (Assorted authors. 200_. State noxious weed lists for 46 states, Haragan 1991, Stubbendieck et al 1994, SEPPC 1996, Hoffman et al 1997). phenology: Blooms 5-10. C3. When working to eradicate this plant, wear protective clothing. Cut the root below the ground, & remove stems if seeds have formed. Late burning & herbiciding may help. Mow to break seed cycle. "The root is fusiform, large, sweet flavored, as everyone knows in its cultivated state, but in its wild state, becomes hard, acrid & poisonous, & much dwindled in size" (Wood 1873).

Associates: PARSNIP is a larval plant food of the COMMON SWIFT, GARDEN DART, & GHOST MOTH.

ethnobotany: ☞ Many people have an allergic reaction to this plant. It contains three furocoumarins (psoralen, xanthotoxin, & bergapten). These chemicals are phototoxic, & said to be mutagenic & photo-carcinogenic. PARSNIP sap makes the skin photosensitive, causing second-degree sunburns, followed by long lasting purple scars.

Beer can be made from the roots. Volunteer stewards, think about it! The domesticated roots are quite sweet, therefore a beer with a modest alcohol content should be possible. I'll wager the fermented roots can be distilled.

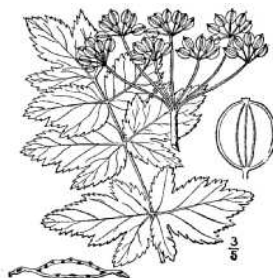
VHFS: [*Pastinaca sativa* L var *pratensis* Pers] This plant is the GARDEN PARSNIP gone wild. The cultivated plant is variety *hortensis* Ehrh, & the wild plant is variety *pratensis* Pers.



Pastinaca sativa



438. *Pastinaca sativa* L.,
Parsnip; V.



Echte Pastinake, *Pastinaca sativa*.



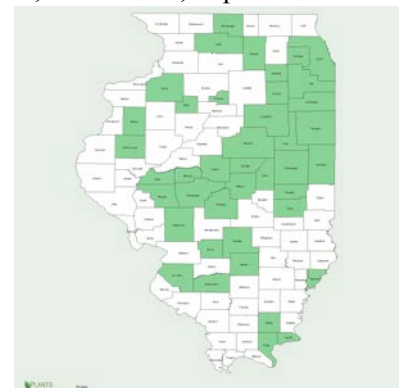
Pastinaca sativa

Line drawing Walter Hood Fitch - Illustrations of the British Flora (1924) - Permission granted to use under GFDL by Kurt Stueber. Source: www.biolib.de. 2nd line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. Color illustration Jacob Sturm, Johann Georg Sturm - *Deutschlands Flora in Abbildungen* (1796). Copyright expired. Source: www.biolib.de. Seed photo Steve Hurst USDA-NRCS PLANTS Database. - Not copyrighted image.

PERIDERIDIA Reichenbach 1837 **YAMPAH, YAMPA** *Umbelliferae Perideridia* from *perideri, perideris*, Greek, a necklace, or around the neck, both in reference to the involucre. *Yampah* is said to be a Snake Indian name for *Perideridia*, similar to Shoshoni *yampa* (said to mean big medicine in Ute). 13 spp primarily of western North America, with one sp east of the Rocky Mountains. Genus traits are 1.0-3.0' tall, slender, grass-like in appearance, with threadlike leaves 1-6" long resembling blades of grass, & umbels of white flowers, & small tubers about the size of an unshelled peanut; fruits contracted laterally, somewhat double; carpels surrounded with large *vittae*, 4 in the commissure, ribs obsolete, seed channeled on the inner face. Roots & basal leaves are needed for the identification of some spp. $x = 19?$

Perideridia americana (Nuttall ex Augustin de Candolle) Reichenb. * IN, KY, OH, TN PERIDERIDIA, aka EASTERN EULOPHUS, EASTERN YAMPAH, OSAGE PERIDERIDIA, THICKET PARSLEY, WILD DILL, Upland

Habitat: Mesic prairies, floodplains, savannas, thickets, & woods. "One of those members of a floristic diaspora, whose probable habitat was tall grass savanna on terraces of major streams" (sw94). Often found in high quality habitats (Hilty). Semishaded grassy areas, rocky woods, shaded thicket borders; rarely in degraded prairies. distribution/range: Occasional in the north ½ of the Illinois, becoming rare in the south ½. Not uncommon in Box Pond Woods, near Buda, growing with *Carex jamesii*. Known but not mapped from Bureau Co.



Culture: propagation: ①Seeds have morpho-physiological dormancy. Seeds should be cold stratified & will germinate at 25/15° C Germination is equal in light & dark. (bb01)

seed counts & rates: 177,778 (gni) seeds per pound. There are very few commercial seed or plant sources.

Cultivation: Partial or full sun, moist to slightly dry soils. Will grow in rich, loamy soil, tolerates clay & rocky soils.

Description: Native erect, herbaceous, perennial forb; roots tuberous; stems 2.5-3.0', round, hairless, branched sparingly; leaves alternate, doubly pinnate, thin, 0.125", grass-like, 1-3 lobed; inflorescence compound umbell, 6.0" diameter, consisting of ca. 12 umbellets, each 1.0" diameter, with 7-21 flowers; flowers white, 5-merous, individuals 0.13" diameter; fruits (schizocarps) are small nutlets, as large as CARAWAY, ribs filled with a strong terebinthine oil; N. key features:

Comments: status: Endangered in Indiana & Tennessee. Threatened in Kentucky. Presumed Extirpated in Ohio.

phenology: Blooms April-May through June. Before blooming, the thin, grasslike vegetation blends in with the developing tall grass. Plant quickly fades & goes dormant after flowering & seeding. C3. Species is worthy of a place in many more flower gardens.

"This prairie plant has a very limited distribution being confined mostly to the prairie peninsula. We have found it in low ground near Killbuck Forest Preserve & also on Ogle Co a mile from our southern border. The tubers are fascicled." (ewf55)

Associates: Insect pollinated, attracts butterflies, & small mammals. Flowers are a nectar source, attracting small bees, wasps, flies, & beetles (see Hilty's website for a list).

ethnobotany: *Perideridia gairdneri* INDIAN CARAWAY, a western sp, was a staple food item of Native Americans, & locally harvested to the point of extinction (extirpation). The nutlike roots are crunchy, mildly sweet,

Unconvrighted draught

& resemble water chestnuts in flavor & texture. The roots were eaten baked or steamed & the seeds were used as a seasoning & said to resemble caraway seed in flavor. Uncooked tubers are reported as having a gentle laxative effect.

VHFS: [*Eulophus americanus* Nutt ex DC]

CC Baskin & JM Baskin, 2001. Propagation protocol for production of container *Perideridia americana* (Nutt ex DC) Reichenb. plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 12 August 2007). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

JM Baskin & CC Baskin (1993). The ecological life cycle of *Perideridia americana* (*Apiaceae*). Amer. Midl. Nat. 129, 75-86.

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



Perideridia americana

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

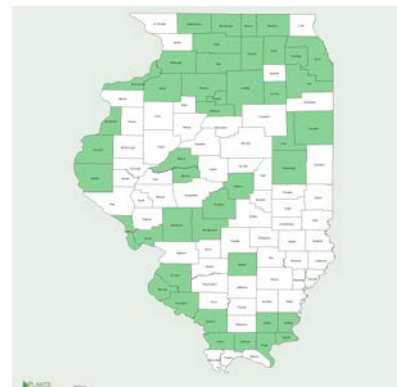
POLYTAENIA Augustin de Candolle 1830 **PRAIRIE PARSLEY, HAIRY MOSS** *Polytaenia* many tubes from Greek πολυ-, *poly-*, many, much, & *tainia*, Latin *taenia* -ae f. a fillet (in the sense of a narrow strip of material, not a chunk of meat), headband, from Greek ταινία, *tainia*, a reference to the *vittae*, or oil-tubes in the seeds. *Taenia* is a component in the generic epithets of at least four (3) Midwestern *Apiaceae*. A genus of 2 spp of herbs of North America, with pinnate leaves, not feathery, upper surface with soft hairs; compound umbels of yellow flowers, sepals ovate; fruits oval, glabrous, lenticularly compressed on the back, with a thickened corky margin; ribs obscure or obsolete; commissure with 4 to 6 *vittae*, seeds plano-convex. The fruits may have a distinctive flavor, but it is not wise to taste *Umbelliferae* fruits at all.

Polytaenia nuttallii Augustin P. de Candolle *IN, MI, TN, WI PRAIRIE PARSLEY, aka NUTTALL'S PRAIRIE PARSLEY, PRAIRIE PARSNIP, WILD DILL, (after Thomas *Nuttall* (1786-1859), of Philadelphia (the Brits refer to him as an English botanist).) upl

Habitat: Hill, gravel, sand, & dry prairies, rocky woods, & barrens. In the se USA, "occurring as a disjunct eastward in prairie-like or glade situations in Mississippi & central Tennessee" (w11). distribution/range: Throughout Illinois. "Very uncommon in our experience. A dry prairie situation on the C & NW Ry. at Fannan's Crossing west of Rockford & a low prairie west of Yale bridge in Laona Township." (ewf55)

Culture: propagation: ① "Fall sow, or cold moist treat -120 days. Light cover. Fair germination." (mfd93). ② Best planted outdoors in the fall, or 120 days cold moist stratification (pm09). ③ Sow seeds outdoors in fall, or 120 days cold moist stratification (he99). ④ Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn). ⑤ "Use dry stratified seed" (kk). ⑥ Kew Royal Botanic garden notes orthodox storage behavior, 26.4% oil content, & 5.8 grams per 1000 seeds.

seed counts & rates: 41,600; 50,750 (gnia2010), 64,000 (pm) seeds per pound.



availability: Seeds have very limited commercial availability. There are no known commercial plant sources. As a monocarpic perennial, it is probably best established from seed.

“*Polytaenia nuttallii* General prairie. Blooms June; CREAM. Harvest August-September. 2 1/2'; SEEDLING TRANSPLANT, SPRING BROADCAST. Stratify seeds 3-4 months. Rosettes first 2 or 3 (many) years; each plant always dies after it blooms & seeds.” (rs ma)

bottom line: Limited test data shows highly dormant seeds. Until proven otherwise, we are treating this as an early maturing sp similar to other hydrophilic carrots. Germ 4.0%. Dorm 66%. Test 53 days.**

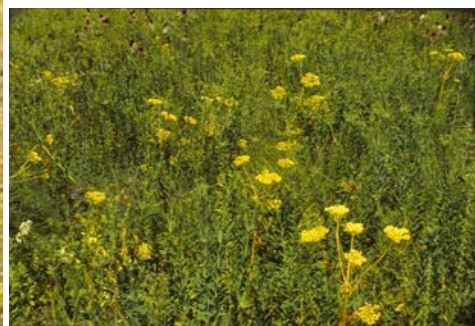
greenhouse & garden: Moist cold stratify 120 days or dormant seed.

Description: Native, erect, herbaceous, perennial (biennial) forb; from a tuberous taproot; stems 2.0-3.0 (5)'; leaves lower leaves long-stalked, oval shaped, pinnately divided; leaflets lobed, usually with a few sharp teeth; inflorescence compound domed umbel, 10-20 small umbellets with many flowers; flowers yellow, 5-merous; fruit is a schizocarp splitting into 2 mericarps, oblong, tumid, smooth, with a thick corky pericarp, flattened backs, & the flavor of turpentine; N. key features: ①Inflorescence 1.0-2.5" wide, leaves 1.0-3.0" long, deeply lobed, with narrow leaflets (fh).

Comments: status: Endangered in Indiana. Probably extirpated in Michigan. Threatened in Tennessee & Wisconsin. phenology: Blooms May-June. In northern Illinois, collect seeds in August - September. Collect seeds in se Wisconsin in August - September (he99). Landscaping. Monocarpic, short-lived, said to die after fruiting. A bag of seed bears a striking resemblance to uncooked oatmeal. The fruits are called nutlets in one source.

Associates: Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera*, *Diptera*, *Coleoptera*, & *Hemiptera*. Larval host of BLACK SWALLOWTAIL.

VHFS: [*Pleiotaenia nuttallii* (AP de Candolle) JM Coulter & Rose]





Polytaenia nuttallii

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

PTILIMNIUM Rafinesque 1819 **BISHOPWEED, HARPERELLA, MOCK BISHOP'S WEED** *Umbelliferae* Genus of 5-8 spp of herbs of temperate eastern North America.

Ptilimnium costatum (Elliott) Rafinesque *GA, KY, NC **MOCK BISHOP'S-WEED, aka BIG BISHOPWEED, EASTERN MOCK BISHOP'S-WEED, RIBBED MOCK BISHOPWEED,**

Habitat: Swampy ground in Illinois (rh02). Its habitat in the southeast USA includes tidal freshwater marshes (NC), wet prairies (GA), & bottomland hardwood forests (GA) (w07). distribution/range: Rare & disjunct over much of its range. Southeast North Carolina, south to Georgia, west to Illinois, Missouri, & Texas. Rare, southern ½ of Illinois is the northern limit of the sp range.

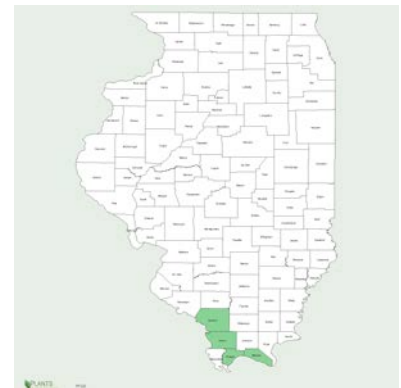
Culture: There are no commercial seed or plant sources.

Description: Erect, herbaceous, annual, native forb; leaves main leaves alternate or opposite; flowers 5-merous; fruits about 1.5 mm long; N. key features:

Comments: status: Special concern in Georgia & Kentucky. Rare in North Carolina. phenology: Blooms July-September.

Associates:

VHFS: [*Ptilimnium* × *texense* Coult & Rose (pro sp) [not hybrid], *P texense* Coult & Rose]



Ptilimnium nuttallii (Augustine de Candolle) Britton *IL, KY **MOCK BISHOP'S WEED, aka LACEFLOWER, MIDWESTERN BISHOPWEED, NUTTALL'S MOCK BISHOP'S-WEED,**

Habitat: In Illinois swampy ground (rh02). distribution/range: Jackson, Pulaski, Randolph, St. Clair, & Union cos.

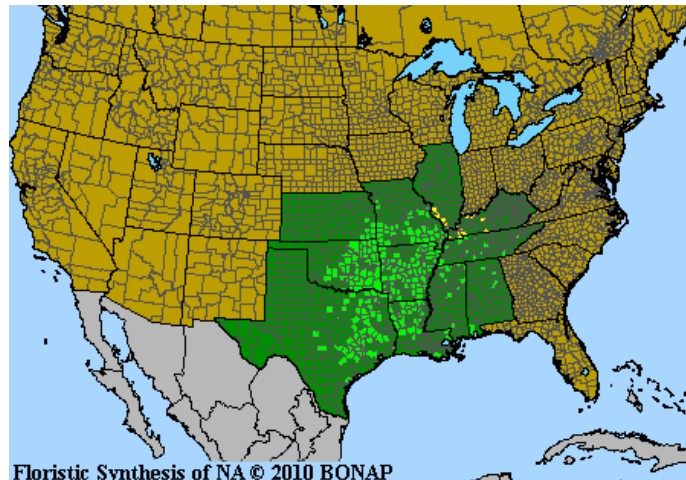
Culture: There are no commercial seed or plant sources.

Description: Erect, herbaceous, annual, native forb; roots; stems 1-3'; main leaves verticillate; flowers 5-merous; fruits 2-4 mm long; N. key features:

Comments: status: Endangered in Illinois & Kentucky. phenology: Blooms June – August.

Associates:

VHFS: [*Discopleura nuttallii* DC]



Floristic Synthesis of NA © 2010 BONAP

Ptilimnium nuttallii

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 spp.* USDA Natural Resources Conservation Service. Not copyrighted image. North America map courtesy of BONAP (2010)

SANICULA Linnaeus 1753 **SANICLE, SNAKEROOT** *Umbelliferae* *Sanicula* New Latin, from Medieval Latin, *sanicle*, probably diminutive of Latin *sanus* healthy, or from *sanare*, to heal, to cure, in reference to its reputed healing (vulnerary) powers. A genus of chiefly American (*or nearly cosmopolitan*) herbs (22 to 40 spp) having stem leaves deeply palmately compound into 3-7 broad, toothed to cut parts, not feathery, & fruit covered with hooked bristles, inflorescence pseudoracemose, compound uneven umbels (or paniced umbels) of whitish-green unisexual flowers with ovate sepals, fruits subglobose, armed with hooked prickles, carpels without ribs, *vittae* numerous.

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

“*Sanicula* spp can not be reliably determined from sterile plants. Fruits or flowers are required for identification of *Sanicula* sp. An important character is the length of the styles in relation to the calyx &/or the bristles on the fruit. In the longer-styled spp, the styles are slender & curved outward, sometimes enmeshed in the bristles, but distinctly longer than them or than the calyx. In the shorter-styled spp, the styles straight to slightly curved, shorter than or about as long as the bristles, & more or less included in the calyx. In most spp the calyx is inconspicuous, but consists of 5 deltoid to narrowly triangular (or even subulate) calyx lobes, 0.4-2.0 mm long, at the summit of the schizocarp (the fruit).” (w07)

Sanicula canadensis Linnaeus *MA, VT CANADIAN BLACK SNAKEROOT, aka SANICLE, BLACK SNAKEROOT, BUR SNAKEROOT, CANADIAN SANICLE, *SANICLE DU CANADA VARIÉTÉ DU CANADA*, SHORT-STYLED SNAKEROOT, *Mukude'widji'bik*, black root (Ojibwa), (*canadensis* -is -e (kan-a-DEN-sis) of Canada or northeast USA.)

Habitat: Woods, floodplains, & north facing bluffs (rhm02). "Not uncommon in woods" (ewf55). Dry to mesic deciduous forests & thickets.
distribution/range: Occasional to common throughout Illinois.

Culture: propagation: ①Seeds have morpho-physiological dormancy & cold moist stratified seed germinate at 20/10°C germination was greater in dark than light. (bb02) ②Kew Royal Botanic Gardens, using seed from the Chicago Botanic Garden, reports orthodox seed storage behavior, with 100% viability following drying to mc's in equilibrium with 15% RH & freezing for 23 days at -20°C at RBG Kew; 100 % germination; germination medium = 1% agar; germination conditions = 5°C, 8/16. (<http://data.kew.org/sid/SidServlet?Source=epic&ID=44606&Num=t8Z>)

seed counts & rates: 63,368 (gna09) seeds per pound.

availability: There are very few commercial seed or plant sources. Availability is very limited.

bottom line: Initial test data indicate dormant seeding for field establishment is necessary. Germ 1.0%. Dorm 87%. Test 48 days.**

Description: Native, erect, herbaceous, biennial forb; stems to 1.0-2.0(4.5)' tall; roots slender fibrous; stems; leaves 3-5 parted, palmately compound, trifoliolate, margin doubly serrate, lobed, stalks becoming shorter near the top; inflorescence an irregular, compound umbel, 2-7 flowers per umbellet, female flowers stalked; flowers white, 5-merous, sepals longer than the petals; fruit is a rounded schizocarp, splitting into 2 seeds, with stalked, hooked bristles; N. key features: Plants biennial; leaves 3-5 parted sepals longer than the petals, 2-7 flowers per umbellet, female flowers stalked; fruit rounded, bristles almost as long as the sepals (fh).

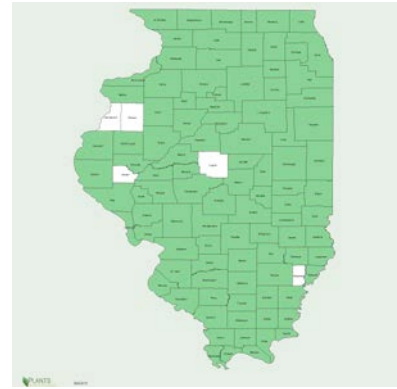
Comments: status: Threatened in Massachusetts & Vermont. phenology: Blooms 6-7. C3. Can become a weed in wildflower gardens.

Associates: Ethnobotany: Used as medicinal plant by Ojibwa for diseases of women (den28). Root said to be astringent, antispasmodic, & antiperiodic (den28).

VHFS: Mohlenbrock recognizes var *canadensis* (leaves less than 8 cm long & less than 4 cm wide, occasional to common in Illinois) & var *grandis* Fern (LARGE-LEAVED SNAKEROOT, leaves at least 8 cm long & at least 4 cm wide). The synonyms for variety *canadensis* are *Sanicula canadensis* L var *floridana* (Bickn) H Wolff, *S canadensis* L var *typica* H Wolff, *S floridana* Bickn.

CC Baskin & JM Baskin, 2002. Propagation protocol for production of container *Sanicula canadensis* L plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL:

<http://www.nativeplantnetwork.org> (accessed 10 September 2007). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.



Sanicula canadensis

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

change to *Sanicula odorata*

Unconvrighted draught

Sanicula gregaria EP Bicknell *MA, NH [*S odorata* (Raf) KM Pryer & LR Phillippe may be more appropriate]
 CLUSTERED BLACK SNAKE ROOT, aka BLACK SNAKEROOT, CLUSTERED SANICLE, CLUSTERED SNAKEROOT,
 COMMON GREGARIOUS BLACK SNAKEROOT, FRAGRANT SNAKEROOT, LONG-STYLED SANICLE, YELLOW-
 FLOWERED SNAKEROOT, (*gregarius -a -um* gregarious, companionable, belonging to a flock or growing together
 in company, but not matted.)

Habitat: Very common woodland plant. Degraded or disturbed woodlands & dry woods. In the se USA, “Mesic to dry-mesic nutrient-rich forests” (w12).

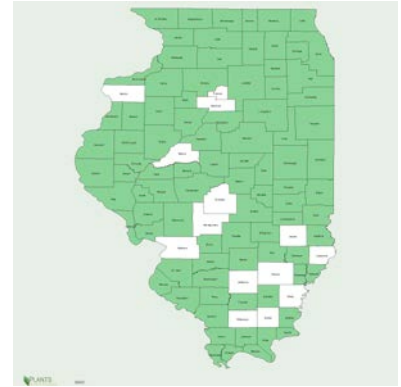
distribution/range:

Culture: There are very limited commercial seed or plant sources.

Description: Native, erect, herbaceous, perennial forb; roots; stems 1-3’; leaves 3-5 parted into palm-like shape, sharp sometimes deep teeth, stalks getting shorter towards the top; inflorescence irregular compound umbel, 12-25 flowers per umbellet, flowers green to yellow, 5-merous; female flowers stalked; N. key features: Fruit rounded, hooked bristled weak, very small, leaves 3-5 parted (Freck). The other Illinois SANICLE spp have greenish-white flowers.

Comments: status: Threatened in Massachusetts & New Hampshire.

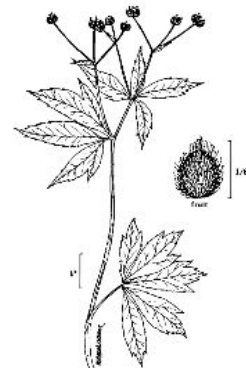
phenology: Blooms June July. Can become very weedy. 73,168 (lhn91) seeds per pound. Seed source nursery hedgerow.



“Our most common snakeroot, growing in woods & on low prairies & other moist places.” (ewf55)

Associates: Pollinated by Halictid bees, Masked Bees, & Syrphid Flies. *Hylaeus Sanicula* SANICLE MASKED BEE is a *Sanicula* spp. oligolege. The foliage is bitter & not readily grazed by deer. The bur-like fruit is dispersed on bird feathers, small mammal fur, & human clothing.

VHFS: [*Sanicula gregaria* Bickn, *S odorata* (Raf) KM Pryer & LR Phillippe, *Triclinium odoratum* Raf]



Sanicula gregaria

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 spp.* USDA Natural Resources Conservation Service. Not copyrighted image. North America map courtesy of BONAP (2010)

Sanicula marilandica Linnaeus *WA BLACK SNAKEROOT, aka MARYLAND SANICLE, SANICLE,

Habitat: Wooded slopes. “Common in woods.” (Fell 1955) In Michigan “Deciduous, mixed, & coniferous (especially cedar) forests & swamps, often at borders & in openings & moist hollows, thriving with second-growth aspen-birch-fir cover; river-bank thickets” (rvw11). In the se USA, mesic to dry, nutrient rich forests (w12).

distribution/range:

Culture: There are no commercial seed or plant sources.

Description: Native, erect, herbaceous, perennial forb; roots fibrous; stems 1-4’; leaves 5-7 parted into palm-like shape, double forward-pointing teeth, the stalks getting shorter towards top; inflorescence irregular, compound umbel, 12-25 flowers per umbellet, female flowers stalkless; flowers greenish or green to white, 0.13” diameter, 5-merous, sepals mostly as long as the petals; fruits sessile to subsessile, bases of fruit bristles prominently bulbous, with a minutely warty-reticulate surface pattern, fruit is a dry schizocarp, splitting into 2 seeds, hooked bristles stout, backward curving; N. key features: Sepals mostly as long as the petals, female flowers sessile, hooked bristles on fruit stout, curving backward, leaf 5-7 parted (fh). “The bristles on the fruit have more prominently bulbous bases than in the other spp (rvw11).

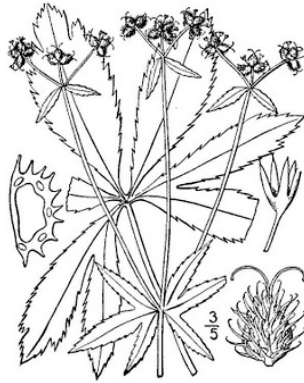
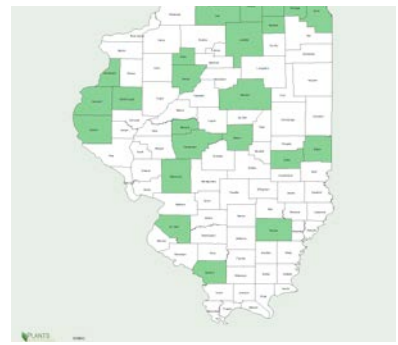
Uncopyrighted draught

Comments: status: Sensitive sp in Washington. phenology: Blooms May to July.

Associates: Butterfly host plant.

ethnobotany: Root used as medicinal plant by Ojibwa (sm32).

VHFS: [*Sanicula marilandica* L var *petiolulata* Fern, *S marylandica* orthographic variant] Variety *petiolulata* Fern, with the leaflets of 1 or 2 lower cauline leaves on petiolules 1.5-5.0 cm long (versus sessile or short petiolulate), is disjunct on the Coastal Plain of North & South Carolina & grows in more acidic habitats than the sp.



Sanicula marilandica

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

Sanicula trifoliata EP Bicknell * MN, NH, NJ LARGE FRUITED BLACK SNAKEROOT, aka BEAKED SANICLE, BEAKED SNAKEROOT, LARGE FRUIT BLACK-SNAKEROOT, LARGEFRUIT BLACKSNAKEROOT, THREE-LEAVED BLACK SNAKEROOT, (*trifoliatus -a -um* (tri-fo-lee-AH-tus) three leaved, from Latin *tri-*, three, *foliāt-us* leaved, from *folium* leaf, & *-atus*, Latin suffix indicating possession, likeness of, or 'provided with'.)

Habitat: Mesic hardwood forests, often on north-facing slopes in closed canopy forests. In Michigan “Deciduous forests, especially beech-maple & oak-hickory forests” (rvw11). In the se USA, “cove forests, other mesic, nutrient-rich forests; common (rare in Piedmont, rare in GA)” (w11). In Ohio, this sp is an indicator of old-growth forests on northeast-facing slopes (Olivera & Hix 1998).

distribution/range: Driftless Area & eastern deciduous forests? North Central Illinois is on the south west limit of this sp range.

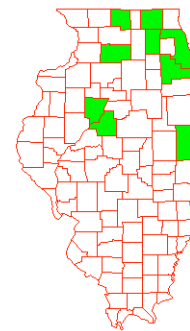
Culture: There are no commercial seed or plant sources. Germination may continue for 6 years after planting (Hawkings et al 2007).

Description: Native, erect, herbaceous, biennial, native forb; roots fibrous; stems 2.0-2.5'; leaves 3-parted into palm-like shape; leaflets coarsely double-toothed & often deeply lobed, the stalks getting shorter towards top; inflorescence an irregular, compound umbel, with 3 leafy umbells at the base, 2-7 flowers per umbellet; flowers white, female flowers stalkless, 5-merous, sepals longer than the petals; fruit stalkless, oblong, dry, splitting into 2 seeds, hooked bristles; N. key features: Leaf three-parted, coarsely double-toothed & often deeply lobed; 2-7 flowers per umbellet, female flowers stalkless, sepals longer than the petals, fruit oblong (Freck). *Sanicula trifoliata* is distinguished from the others by having flowers with styles shorter than the calyx, & the calyx extending beyond the uppermost bristles of the fruit (MnDNR). *S canadensis* has leaves with 3 subdivisions, but the basal one is so deeply lobed that it almost appears that there are 5 subdivisions. *S marilandica* has leaves with 5 (appearing to be almost 7) subdivisions.

Comments: status: Special Concern in Minnesota. Threatened in New Hampshire. Endangered in New Jersey. phenology: Blooms mid-May - June. Seed dispersal begins in August & may continue through a year or more as the seeds persist on dead stems.

Associates: Seeds are dispersed by attaching to animal fur.

VHFS:



Sanicula trifoliata

TS Hawkins, J M Baskin, & CC Baskin. 2007. Seed morphology, germination phenology, & capacity to form a seed bank in six herbaceous layer *Apiaceae* spp of the eastern deciduous forest. *Castanea* 72(1):8-14.
<http://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PDAPI1Z0L0>



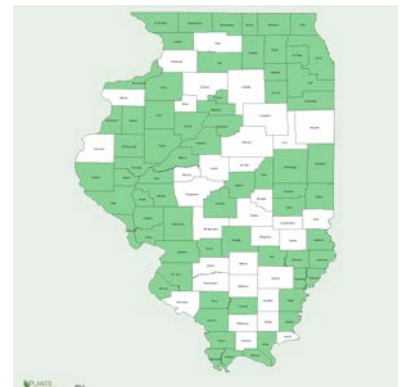
Sanicula trifoliata

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

SIUM Linnaeus 1753 **WATER PARSNIP** *Umbelliferae* *Sium* New Latin, from Greek *sion*, a marsh plant, perhaps the water parsnip or marshwort; alternately Celtic *siw*, water, an allusion to the aquatic nature. A genus of about 14 spp of herbs of the Northern Hemisphere, two spp in North America north of Mexico. Perennial herbs to more than 6.0'; main leaves more than once divided into 5 or more leaflets, not feathery; White; compound umbels of white flowers; fruit nearly oval; carpels with 5 obtusish ribs, & several *vittae* in each interval; carpophore 2-parted.

Sium suave Walter TALL WATER PARSNIP, aka *BERLE DOUCE*, HEMLOCK WATERPARSNIP, WATER PARSNIP, (*suavis, suavis, suave* sweet, pleasant, agreeable, similar to Latin *suadis*, pleasant, sweet, Greek ἡδύς, *hedys*, sweet, Sanskrit *svādhis* sweet, *svādāti* to be sweet; from **swādwis*, from IndoEuropean root *swād-*, which eventually evolved into Old English *swēte*, & English sweet, in reference to the plant's sweet scent.) obl

Habitat: Marshes & ditches, ponds, low woods, & swamps. In Michigan, "Marshes, swales, & ditches; swamps, potholes in forests; shores & borders of rivers, ponds, & lakes; often in shallow water (even to 6 dm deep)" (rvw11). In the se USA, freshwater marshes, brackish marshes, & swamp forests (w12). distribution/range: Newfoundland west to Alaska, south to Panhandle Florida, northern peninsular Florida, west to California. Also in eastern Russia, China, Korea, & Japan.



Culture: propagation: ①60 days cold moist stratification (pm09).

②"Fall plant or cold stratify for 1 to 2 months for best results. Sow seeds on soil surface at 70°F & water." (ew12)

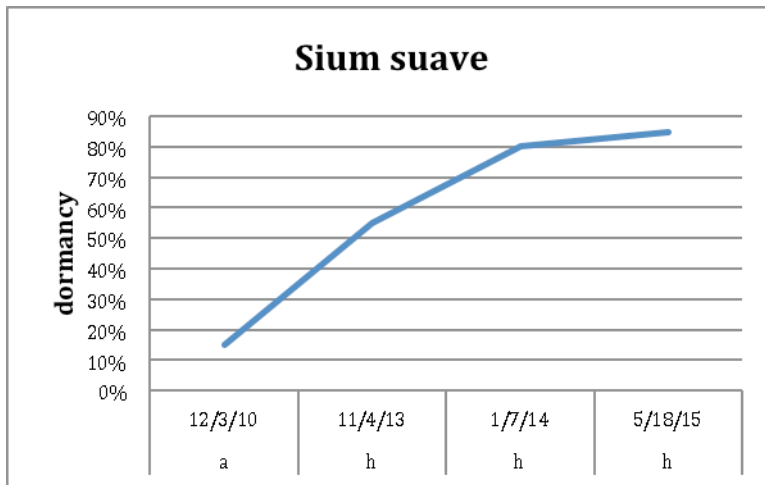
seed counts & rates: 152,000 (aes10), 750,993 (gnh13), 800,000 (pm10,ew12) seeds per pound.

availability: There are few commercial seed or plant sources. Availability is very limited.

cultivation: Space plants on 2.0-3.0' centers. Wet soils, full sun to part shade.

bottom line: Dormant seeding is best. Germ/dorm mechanisms are highly variable. Flipflop species.

Germ 33.3, 24.5, 7.0, sd 29, r7.0-77 (70)%. Dorm 58.8, 67.5, na, sd 27.7, r15-85 (70)%. Test 34, 35, na. r27-39 days. (#4)**



Description: Native, erect herbaceous, perennial (or annual?) forb; roots fibrous; stems 2.0-6.0(-9.0)', usually tall, branched, smooth, stems solitary, angular, stout; leaves pinnately divided into 7-17 long, narrow, sharply-toothed leaflets; inflorescence 1.5-4.5" compound umbel, with 6 or more compact umbellets; flowers white, 5-merous, compound umbel 2-3" across, sepals lacking, outer petals sometimes larger; fruit schizocarp oval, splitting into 2 strongly ribbed seeds; N. **key features:** Corrugated stems (Ilpin).

Comments: **status:** **phenology:** Blooms 7,8,9. Fruits mature August to October. C3. Wetland restoration, wet rain gardens, & pond edges. Fragrant. Genetic source Hume & Prophetstown Twp, Whiteside Co.

. Fruits mature August to October. C3. Wetland restoration, wet rain gardens, & pond edges. Fragrant. Genetic source Hume & Prophetstown Twp, Whiteside Co.

"Other common plants, which presented themselves at different places on our route through the prairies." *S. suave* Walt. as *Sium latifolium sensu auct. non L.* [Short (1845) & Mead (1846)] (Short 1845).

"Common in wet places. Marked variation in the leaf cutting is a characteristic." (ewf55)

Associates: Attracts butterflies.

ethnobotany: Root used for food by Chipewyan & Cree (Fernald & Kinsey 1943). Ilpin notes the roots may be edible, but remember the roots of wild members of the carrot family may be mighty tasty or mighty deadly. This plant is very similar to the deadly *Cicuta maculata* & should be avoided. Burned for a hunting charm by Ojibwa (sm32).

VHFS: [*Apium cicutifolium* (Schrank) Benth & Hook, *Critamus dauricus* Hoffm, *Falcaria dahurica* DC, *Sium brevifolium* Schrank, *S cicutaeifolium* Schrank, *S cicutifolium* Schrank, *S floridanum* Small, *S heterophyllum* Greene, *S lineare* Michx, *S rugosum* Raf, *S suave* Walt var *floridanum* (Small) CF Reed]





Sium suave

Line drawing Britton & Brown (1913) courtesy of Kentucky Native Plant Society. 2nd line drawing Mark Mohlenbrock, USDA-NRCS PLANTS Database / USDA NRCS *Wetland flora*:

SPERMOLEPIS Rafinesque 1825 **SCALESEED, SPERMOLEPIS** *Umbelliferae* A genus of 5 spp of herbs of North America, Argentina, & Hawaii. 4 spp in the United States.

Spermolepis echinata (Nuttall ex Augustin de Candolle) AA Heller
BRISTLY SCALESEED, BRISTLY-FRUIT SCALESEED, BRISTLEFRUIT
SPERMOLEPIS, HOOKED SPERMOLEPIS,

Habitat: Sandy roadsides & disturbed areas. distribution/range: Native of south-central United States & northern Mexico (Coahuila & Tamaulipas). Confined to the southern ¼ of Illinois. Southern Illinois is at the northern limit of this sp range.

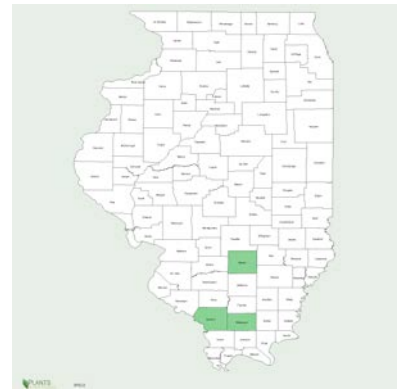
Culture: There are no commercial seed or plant sources.

Description: key features:

Comments status: phenology: Blooms April – June.

Associates:

VHFS: [*Apium echinatum* (Nutt ex DC) Benth & Hook f ex S Wats]



Spermolepis echinata

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

Spermolepis inermis (Nuttall ex Augustin de Candolle) Mathias & Constance **SCALESEED, aka RED RIVER SCALESEED, ROUGH-SEEDED SPERMOLEPIS, SAND HILL DILL, SPREADING SCALESEED, WESTERN SPERMOLEPIS,**

Habitat: Sand prairies, sandy soils. In the se USA, calcareous prairies in the mountains & disturbed areas in the Coastal Plain (w07). distribution/range: Occasional in the northwest ¼ of Illinois, rare or absent elsewhere.

Mohlenbrock considers it introduced from the western USA. It is thoroughly naturalized at McCune Sand Prairie, but northwestern Bureau Co has many spp of western affinities. Native in sc. United States & northern Mexico (Coahuila), scattered eastward as a native (w12).

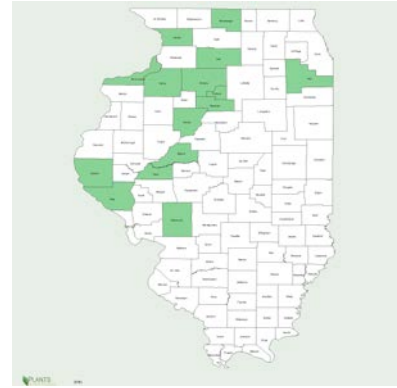
Culture: ? There are no commercial seed or plant sources.

Description: Native (in part?), erect, annual forb, entire plant pale, off-green; roots; stems 1.0-1.5'; leaves; flowers yellow, 5-merous; N. key features:

Comments: status: phenology: Blooms May – June. SCALESEED is a wispy, thin-leaved plant, & very easily overlooked, even in bloom, even when you are looking for it. It is probably more common then recorded.

Associates:

VHFS: [*Apiastrum patens* (Nutt) C & R, *Spermolepis patens* (Nutt ex DC) BL Robinson]



Spermolepis inermis, growing with *Opuntia humifusa*

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

TAENIDIA (Torrey & A Gray) Drude 1898 **YELLOW PIMPERNEL** *Umbelliferae* *Taenidia* New Latin, from Greek *tainidion* small ribbon, diminutive of *tainia*, Latin *taenia* -ae f a fillet (in the sense of a narrow strip of material, not a chunk of meat), headband, from Greek *ταυνια*, *tainia*, a reference to the oil-tubes in the seeds. In entomology, a spiral sclerotized fiber that stiffens the walls of the tracheae of insects. Monotypic genus of temperate eastern North American, a herbaceous perennial, with leaves divided into distinct, ± equal leaflets 2-3 X pinnate, oval, margins of all leaflets strictly entire; compound umbell, umbel & umbellets without bracts or bractlets, the rays & pedicels smooth, fruit smooth. The closely related *Pseudotaenidia*, MOUNTAIN PIMPERNEL, is sometimes included in this genus. “Cronquist (1982) has suggested that *Pseudotaenidia* be submerged in *Taenidia*. Cronquist's argument that the two monotypes are most closely related to one another is very possibly correct & has been generally followed since, but awaits further assessment with molecular methods” (w12).

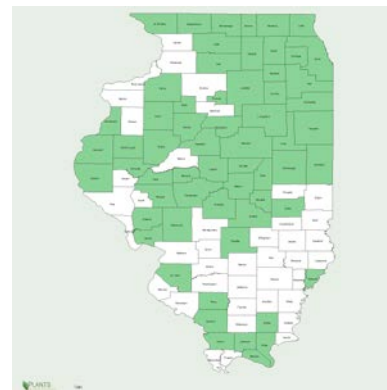
Historically, *Taenidia* has been considered a subgenus of *Zizia*. *Taenidia*, *Thaspium*, & *Zizia* have an interwoven past, with the spp & genera intermingled. They have also been placed in *Cnidium*, *Ligusticum*, *Sison*, *Smyrnum*, & *Thapsia*.

Taenidia integerrima (Linnaeus) Drude * CT, RI, VT **YELLOW PIMPERNEL**, aka GOLDEN ALEXANDER, YELLOW-PIMPERNEL, upl

Habitat: Prairies, dry, often rocky woods, mesic savanna, open woods & woodland edges. “Common on prairies especially low ones but also on roadsides & other drier places” (ewf55). In Michigan, “Jack pine plains & other sandy (or rocky), savannas on plains or low dunes, with oak, pines, &/or aspen; deciduous forests, especially along borders & in openings; river- & stream-bank thickets” (rvw11). In the SE USA, dry to dry-mesic forests & woodlands over mafic or calcareous rock (w07), or “in rocky, dry to dry-mesic forests & woodlands over mafic or calcareous rock, such as diabase, amphibolite, calcareous siltstone, calcareous shale, or limestone; common

(uncommon in NC & SC, rare in DE)” (w11). distribution/range: Tallgrass Prairie & eastward, not common in the south. Occasional throughout Illinois.

Culture: ①Best planted outdoors in the fall, or 60 days cold moist stratification. (pm09). ②Sow seeds outdoors in fall, or (60 days not stated) cold moist stratification (he99). ③Fall plant or cold stratify for 2 to 3 months for best results. Sow seeds just below the soil surface at 70°F & water.” (ew12) ④Kew Royal Botanic gardens, with seed from the Chicago Botanic Garden, note seed storage behavior orthodox, thousand seed weight 3.95 grams; 85% viability following drying to mc's in equilibrium with 15% RH & freezing for 3 weeks at -20°C; 85% germination; germination medium = 1% agar; germination conditions = 5°C, 8/16; (RBG Kew)



seed counts & rates: 96,000 (pm01, ew12), 134,002 (gnhm14), 146,336 seeds per pound.

availability: Seed & plants have very limited commercial availability. Both sell out early. Availability is limited to the extent sp should not be part of any general seed mix.

cultivation: Space plants on 1.0-1.5' centers. Medium soils, savanna to woodland.

bottom line: Preliminary data indicate dormant seeding is strongly beneficial, with 77-86% dormant seed.** Germ 7.0-11%. Dorm 77-86%. Test 21 days.**

greenhouse & garden: Easy from seed, moist cold stratify 120 days or dormant seed in an unheated coldframe.

Description: Native, erect, herbaceous, perennial forb; roots thickened, tuberous; stems 1-3', smooth, branched, with a celery odor; leaves smooth edged, long-stalked, lower leaves usually 3 times divided, upper leaves with clasping stalks encircling the stem & 1-2 times divided; inflorescence terminal, loose, open compound umbel, 7-16 spreading stalks with umbellets, with the outer stalks longer; flowers yellow, 5-merous, female flowers are at the outer edges of the umbellets; N. key features: ①Plant has a celery odor; flower compound umbel loose open; leaves smooth edged (fh). ②An easily recognized, smooth (even glaucous) sp, our only umbellifer with yellow flowers & strictly entire leaflets (rvw11). ③Other similar native carrots have toothed edged leaves.

Comments: status: Endangered in Connecticut. Historical in Rhode Island. Threatened in Vermont. phenology: Blooms 5,6,7. Fruits mature June - July. Collect seeds in se Wisconsin in July (he99). Useful in landscaping, shade gardens, near woodland paths, butterfly gardens, & aroma gardens (plant is mildly aromatic). Seed source nursery production original material from Kane, Will, & DuPage cos (Bob Horlock) & Stark Co (Jones's Timber).

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.

Of the native yellow-flowered umbellifers, this is the most delicate & dainty sp, with very fine texture compared to *Thaspium* & *Zizia*. The umbels are so open, airy, & fine, this sp is easily overlooked. Install massed plantings near a woodland path or drive where they may be appreciated.

Associates: Larval host of OZARK SWALLOWTAIL BUTTERFLY.

ethnobotany: Used as medicinal plant by Menominee (sm32). Seeds were smoked in a pipe to attract deer by Ojibwa (sm32).

VHFS: [*Sison integerrimus* Spreng, *Smyrniium integerrimum* L, *Zizia integerrima* (DC),]



Taenidia integerrima

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

THASPIUM Nuttall 1818 **MEADOWPARSNIP** *Umbelliferae* *Thaspium* New Latin, irregular from *Thapsia*, from Latin, a poisonous plant of the ancient allied genus *Thapsia*, especially the DEADLY CARROT, *Thapsia garganica*, from Greek, from *Thapsi*, an island, or *Thapsos*, town & peninsula in Sicily, now Magnisi. A small genus of herbs found in eastern North America (3 or 4-5 spp) that have lower leaves either undivided or 2-3 X pinnate, compound umbels of flowers yellow, purple, or white (pale creamy yellow), all flowers stemmed, ovate sepals, fruits elliptical, compressed laterally & didymous (schizocarp (or cremocarp, a specific type of schizocarp) splitting into 2 mericarps), carpels convex, with 5 prominently winged ribs on partially to fully mature fruits, the lateral margined; intervals with single *vittae*. *Zizia aurea* was once thought to be a *Thaspium*, & the genus then had the common name GOLDEN ALEXANDERS. *Thaspium* is sometimes abbreviated as *Th*.

T barbinode & *T pinnatifidum* have linear embryos, that are intermediate between rudimentary & spatulate embryos (Martin 1946, Baskin et al 1992). *T pinnatifidum* is a rare sp of the southeastern USA. Fall sown seeds of *T pinnatifidum* germinated in an unheated greenhouse at 76%. Germination also occurs after cold moist stratification at 5°C for 12 weeks. Gibberilic acid did not substitute for cold moist stratification. Embryos in fresh seed were 0.7 mm long, but prior to germination, they were between 1.5 & 3.6 mm long. *T pinnatifidum* seeds have deep morpho-physiological dormancy. *T pinnatifidum* appears to be biennial or a monocarpic perennial. (Baskin et al 1992) Dormant seed or moist cold stratify 120 days.

CC Baskin, EW Chester, JM Baskin, 1992, Deep Complex Morphophysiological Dormancy in Seeds of *Thaspium pinnatifidum* (*Apiaceae*), International Journal of Plant Sciences, Vol. 153, No. 4 (Dec., 1992), pp. 565-571.

Current FNA accepted nomenclature

Thaspium Nutt -- accepted FNA -- MEADOWPARSNIP

Thaspium aureum (L) Nutt -- not accepted FNA

Thaspium aureum var *trifoliatum* (L) JM Coult & Rose -- not accepted FNA

Thaspium barbinode (Michx) Nutt -- accepted FNA -- HAIRYJOINT MEADOWPARSNIP, HAIRYSPINE

THASPIUM

Thaspium barbinode var *angustifolium* JM Coult & Rose -- not accepted FNA

Thaspium chapmanii (JM Coult & Rose) Small -- not accepted FNA; accepted Weakley, Reznicek et al,

Freckmann

Thaspium montanum A Gray -- not accepted FNA

Thaspium sp 1 accepted Weakly

Thaspium pinnatifidum (Buckley) A Gray -- accepted FNA, Weakley -- CUTLEAF MEADOWPARSNIP

Thaspium trifoliatum (L) A Gray -- accepted FNA, BONAP, ILPIN, Reznicek et al, USDA, -- PURPLE

MEADOWPARSNIP, PURPLE THASPIUM

Thaspium trifoliatum var *aureum* (L) Britton -- accepted FNA, USDA, Weakley, -- PURPLE

MEADOWPARSNIP

Thaspium trifoliatum var *flavum* SF Blake -- not accepted FNA, accepted Freckmann, ILPIN,

Thaspium trifoliatum var *trifoliatum* (L) A Gray -- accepted FNA, USDA, Weakley -- PURPLE

MEADOWPARSNIP

updated 10/21/12

Thaspium barbinode (Michaux) Nuttall *WI HAIRY MEADOW PARSNIP, aka BEARDED MEADOW-PARSNIP, HAIRY-JOINT MEADOWPARSNIP, HAIRYJOINT MEADOWPARSNIP, HAIRYSPINE THASPIUM, MEADOW PARSNIP, *Busidji' bikuguk*, plump root (Ojibwa), (*barbinodis -is -e* New Latin hairy or bearded at the nodes, from Latin *barba*, beard, *-i-*, & *nodis*, from *nodus*, a knot, & *-is*, adj suffix.) upl

Habitat: Woods, red oak woodlands, rich woods, woodland border, mesic prairies, savannas, & moist woods, usually near streams. In Bureau County, growing in a Red Oak woods with *Diarrhena*. distribution/range: Occasional in north ½ of Illinois, rare or absent elsewhere. “Common but less so than the next (*T trifoliatum*)” (ewf55). Oddly, known and mapped from Bureau Co. Excluded from Wisconsin.

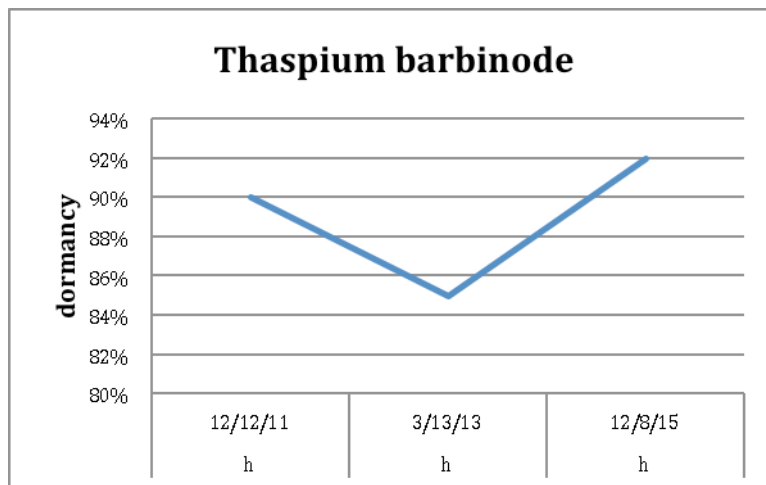
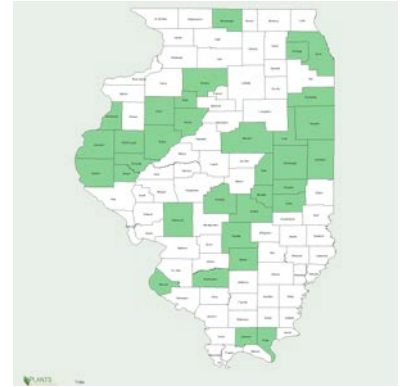
Culture: ①Dormant seed or moist cold stratify (120), easily? grown.

seed counts & rates: 90,720; 129,863 (gnh15), 137,715 (gnh11), 227,227 (gnh13) seeds per pound. Availability is limited to the extent sp should not be part of any general seed mix, ever.

availability: Availability is as vague as the wind. There are almost no commercial seed and no plant sources. Rarely if ever in the seed trade.

bottom line: Initial test data indicate dormant seeding is strongly necessary. If you ever score some of this, hand rake, dormant seed, under existing overstory only. Germ 5.0, 4.0, na, sd 2.2, r3.0-8.0 (5.0)%. Dorm 89, 90, na, sd 3.0, r85-92 (7.0)%. Test 33, 34, na, r28-38 days. (#3).**

greenhouse & garden: Easy from seed, moist cold stratify 120 days or dormant seed in an unheated coldframe. Works well by successional restoration in fire managed, shaded areas, where, once established, self sows.



Description: Native, erect, herbaceous, perennial, forb, 4.0-5.0'; lower leaves triternate, upper biternate; flower petals deep yellow (pale to creamy yellow), fruits are strongly winged. key features: Stems pubescent at the nodes. “The hispid, purple-tinged leaf sheath is a good additional character for this sp” (w11).

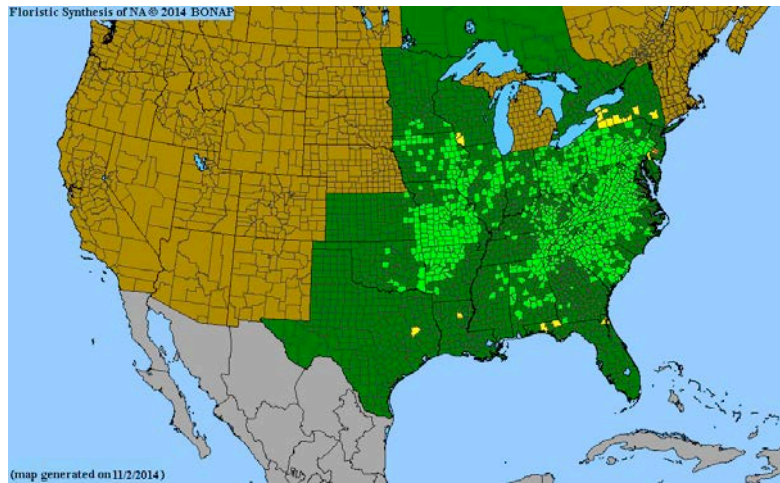
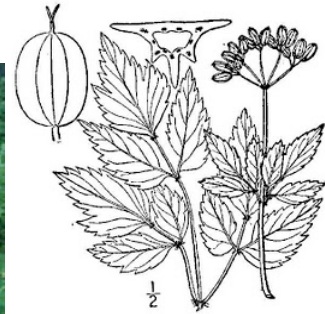
Comments: status: Endangered in Wisconsin (as *T chapmanii*?). phenology: Blooms 5,6. In northern Illinois, collect seeds in late August - September. Landscaping, shade gardens. Genetic source Lawton’s Woods, Buda, Concord Twp, Bureau Co. Fruits are called achenes in one source. This blooms at the same time as *Zizia aurea*, but it is taller & a very different yellow.

Associates: Yellow flowers pollinated by *Diptera* & other insects. Attracts butterflies. Walnut tolerant.

ethnobotany: Used as medicinal plant by Ojibwa for colic (den28).

VHFS: [*Ligusticum barbinode* Michx, *Thaspium barbinode* (Michx) Nutt var *angustifolium* Coult & Rose, *T chapmanii* (Coult & Rose) Small, *T chapmanii* (Coult & Rose) Small] The latter is sometimes treated as a sp, see below.

The USDA (<http://plants.usda.gov>) recognizes 3 spp, with *T chapmanii* within *T barbinode*. BONAP <http://www.bonap.org/BONAPmaps2010/Thaspium.html> & Weakley (2011) recognize 4 spp including *T chapmanii*. The ranges of *T barbinode* & *T trifoliatum* according to the USDA & BONAP are quite similar. BONAP maps *T chapmanii* from Ontario, Ohio, Kentucky, Tennessee, Alabama, Georgia, & Florida, while Weakley (2011) gives a range of southwest Pennsylvania, southern Ontario, southern Michigan, southwest Wisconsin, & southern Minnesota south to Panhandle Florida & east Texas. Reznicek et al (2011) comments about the “southern & eastern *T barbinode*” are confusing (*vide infra* key features). *T chapmanii* & *T pinnatifidum* are the southern & eastern spp, not *T barbinode*.



Thaspium barbinode, nursery and red oak woods, south Bureau County.

Thaspium chapmanii (JM Coulter & Rose) Small *WI MEADOW PARSNIP, AKA HAIRY MEADOW-PARSNIP, HAIRY-JOINTED MEADOW-PARSNIP (*chapmanii*, in honor of Alvan Wentworth *Chapman*, a 19th century American botanist.)

Habitat: In Michigan “In dry to moist soil of open oak forest & savanna, river bluffs, roadsides, borders of wetlands” (rvw12). Woods & prairies.

distribution/range: BONAP maps it from Ontario, Ohio, Kentucky, Tennessee, Mississippi, Georgia, & Florida. Known from the Driftless Area in Wisconsin & six cos in southern lower Michigan (fh & rvw11).

Culture: ? There are no commercial seed or plant sources.

Description: Native, erect, herbaceous, perennial, forb, tall; roots; stems branched on top, fuzzy, with small stiff hairs around upper nodes; leaves basal & main stem leaves 2-3 times pinnately divided, leaflets irregularly toothed; inflorescence 1.0-2.5” compound umbel, just exceeding the leaves, 8-16 umbellets, all flowers stalked; flowers yellow to cream, 5-merous; fruits dry schizocarp, splitting into 2 seeds, with at least some of the ribs broadly winged; elliptical, large, 0.25” long, 6-winged; N. key features: ①“Our few specimens have all been annotated as *T chapmanii* by B E Wofford & D Estes, which differs from the more southern & eastern *T barbinode* in generally being taller, with more dissected & more pubescent leaves, pale yellow-cream flowers, & fruits that are granular-pubescent between the wings.

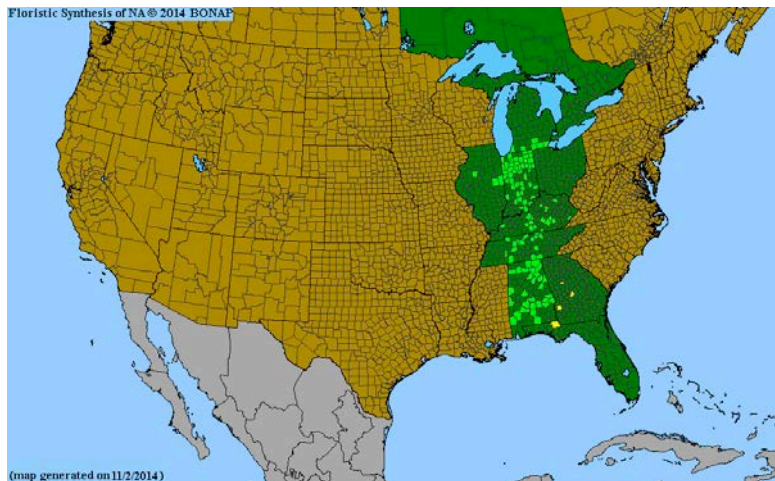
Thaspium barbinode is generally a shorter plant with less dissected & less pubescent leaves, bright yellow flowers, & fruits that are usually nearly smooth between the wings.” (rvw11) ②All flowers stalked, umbell just barely taller than the leaves; leaves 2-3 times pinnately divided; leaflets irregularly toothed. (fh)

Comments: status: Endangered in Wisconsin. phenology: Blooms May - June.

Associates:

VHFS: USDA lumps this with *T barbinode*. [*T barbinode* var *angustifolium* Coult & Rose, *Th barbinode* (Michx) Nutt, *Th barbinode* var *angustifolium*, *Th barbinode* var *chapmanii* Coult & Rose]

In speaking of *T pinnatifidum*, Weakley (2012) notes “the distribution & rarity of this plant is complicated because of confusion with *T chapmanii*.” Species is not included in Mohlenbrock (2014).



Thaspium chapmanii

Thaspium pinnatifidum (Buckley) A Gray CUTLEAF MEADOWPARSNIP,

Habitat: In the se USA, “Forests & woodlands over calcareous rock, such as limestone, dolostone, or calcareous siltstone” (w11). distribution/range: Georgia, Kentucky, North Carolina, & Tennessee. “The distribution & rarity of this plant is complicated because of confusion with *T chapmanii*” (w12).

Culture: propagation:

Description: key features:

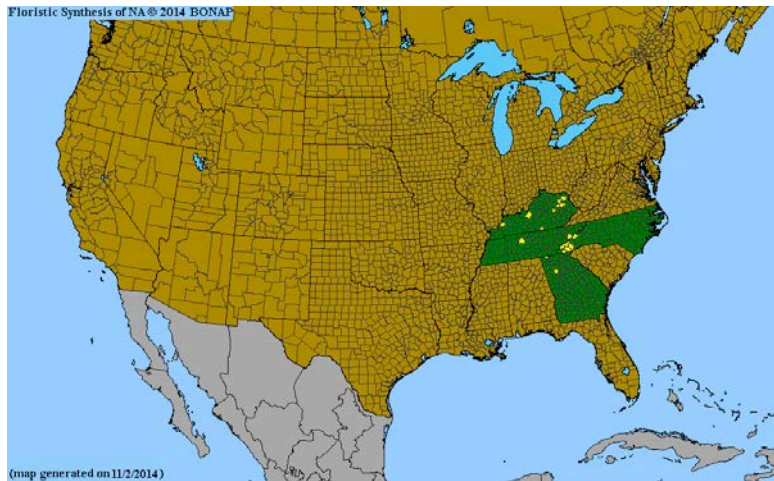
Comments: status: phenology: Blooms May - June. Fruits mature June-July.

This is not a Midwestern sp, but it is included to help illustrate the *T barbinode*-*T pinnatifidum* confusion.

Associates:

ethnobotany:

VHFS: Weakley (2012b) lists an as yet unidentified sp of calcareous woodlands & forests, endemic to Kentucky, formerly included in *T pinnatifidum*.



Thaspium pinnatifidum

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

Thaspium trifoliatum (Linnaeus) A Gray var **flavum** Blake *MD, WI YELLOW MEADOW PARSNIP, aka SMOOTH MEADOW PARSNIP, Some authors insist the yellow flowered plants can be called PURPLE MEADOW PARSNIP, PURPLE MEADOW-PARSNIP. I think they work for the government, probably Illinois CMS & Chicago ACOE. (*trifoliatum* -a -um (tri-fo-lee-AH-tus) three leaved, or with three leaflets; *flavus* -a -um bright, almost pure yellow; pure, pale yellow, from Latin *flavus*, yellow, for the yellow flowers of this variety.) upl

Habitat: Mesic to dry prairies & mesic savannas. Prairies, rocky woods, thickets. "Oak-hickory & oak forests & forest edges, sometimes in moister forests & thickets; occasionally in prairie remnants" (rvw11).

distribution/range:

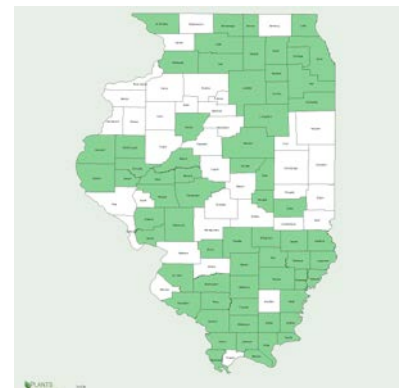
Culture: ①120 days cold moist stratification, or best planted outdoors in the fall. Seeds germinate most successfully in cool soil. (pm09). ②Sow seeds outdoors in fall, or 120 days cold moist stratification. Seeds germinate most successfully in cool soil. Sow in early winter through early spring. (he99) ③Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn).

seed counts & rates: 144,000 (pm09), 146,320 seed per pound. Availability is limited to the extent sp should not be part of any general seed mix.

availability: There are very few commercial seed or plant sources. Availability very limited.

bottom line: Initial data indicate dormant seeding is necessary. Germ 3.0-9.0%. Dorm 82-85%. Test 33-36 days. (#5).**

Description: Native, erect, herbaceous, perennial forb; stems upright, 1.0-2.0', stems mostly smooth, with few branches, hollow, ridged; leaves basal usually simple, not divided, oval, base cordate, upper leaves oddly pinnate



with 3-5 finely toothed leaflets; inflorescence 1.0-3.0" compound umbels, with 6-10 small umbellets on irregular stalks, flowers yellow, 5-merous, fruit schizocarp, dry, splitting into 2 seeds (carpels) or mericarps, elliptical, 3/4 as long as wide including the broad wings, fruits black, oval, with 3 prominent, paler, winged ridges on each side; N. key features: Differs from the similar *Zizia aurea* by the middle flower in each umbel being stalked & fruits are winged not ribbed.

It, to wit, is apparently far more difficult to describe the uniqueness of this sp than it is to see its quite apparent *Gestalt*. "Frequently confused with the much more common *Zizia aurea*, which usually grows in wetter, sunnier places. When a sessile bisexual flower is evident in the center of an umbellet, the plant is clearly *Zizia*; however, this is not always easily seen in very young inflorescences, or if the central flowers are staminate, as they are in some umbellets of *Zizia* & all umbellets of *Thaspium*. The prominent broad wings on all sides of the fruit in *Thaspium* become evident (more than mere ribs) in even young fruit (at a stage when it is nearly smooth in *Zizia*). A comparative character, difficult to describe, is that the teeth on the leaflets of *T. trifoliatum* are obtuse with a prominently thickened pale border & callous tip, while in *Zizia* the teeth tend to be acute with less well-developed border & callus.

This sp closely resembles the rare *Zizia aptera*, also of dry ground, but the petiolar sheaths are narrower at any given level on the stem; sheaths on midcauline leaves, for example, are less than 5 mm broad in *Thaspium trifoliatum* & more than 5 mm broad in *Z. aptera*." (rvw11)

Perhaps the plants we had from Dot Wade were too mundane.

Comments: status: Variety *purpureum* is Endangered in Maryland. Special concern in Wisconsin. phenology: Blooms 5,6,7. In northern Illinois, collect seeds in October. Collect seeds in se Wisconsin in August - September (he99). Landscaping. Seed origin DeKalb Co.

"Our plants being var *flavum* Blake, the petals are always yellow. Usually in thickets, edge of woods & along streams." (ewf55)

Associates: Butterflies.

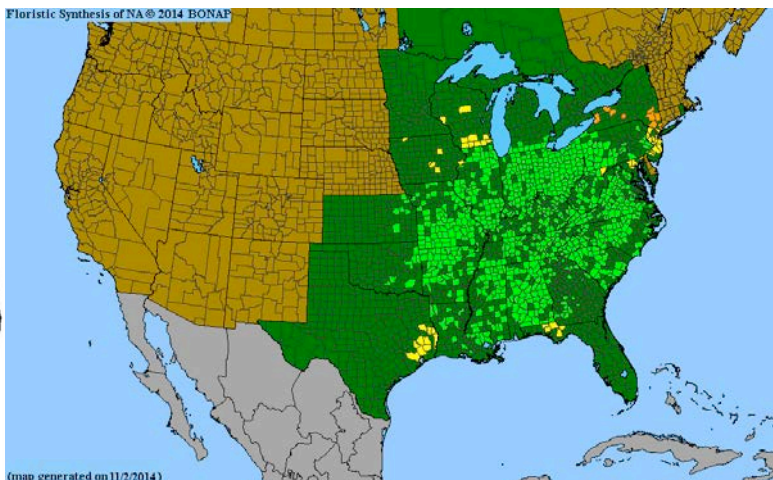
VHFS: [*Thaspium aureum* (L) Nutt, *T. aureum* (L) Nutt var *trifoliatum* (L) Coult & Rose, *Thaspium trifoliatum* (L) A Gray var *aureum* (L) Britt, *Thaspia trifoliata* L, *Smyrniium cordatum* Mx, *Zizia cordatum* DC]

The sp, PURPLE MEADOW PARSNIP, has maroon or purple flowers, & is endangered in Maryland.

The USDA includes the variety with the sp.

Some authors separate the varieties strictly on petal color. Fernald (1950) separates variety *aureum* not necessarily by color, but as a robust variety with larger fruits (4.5 mm long versus 3.0-4.0 mm long). The ranges overlap, but variety *trifoliatum* is more southern & eastern, while variety *aureum* is more western & northern. (w07, plants.usda.gov/).

"Various workers have differed on the characters used to separate two varieties in *T. trifoliatum*. Radford, Ahles, & Bell (1968), & Gleason & Cronquist (1991) separate the two strictly on petal color; Fernald (1950), however, allows var *aureum* to sometimes have purple petals, seeming to regard the critical differences to be var *aureum*'s generally more robust size & larger fruits (4.5 mm long vs. 3-4 mm long). It is presently not clear how two varieties should be separated, or, indeed, if varieties are warranted. Though the ranges overlap, var *aureum* is generally more northern & western, var *trifoliatum* more southern & eastern." (w11, 12)



Thaspium trifoliatum

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

ZIZIA W. D. J Koch **GOLDEN ALEXANDERS, MEADOW PARSNIP** *Umbelliferae* or *Apiaceae* *Zizia* (ZI-zee-a or zi-ZEE-a) New Latin, from I. (Johann) Baptist *Ziz*, late 18th - early 19th century German (Rhenish) botanist & New Latin *-ia*. The common name ALEXANDERS is for the golden flowers, “the color of royalty” in reference to Alexander the Great.

A genus of about 4 (3) spp of herbs of temperate North America, with compound umbels of yellow flowers; petals carinate, apex acuminate, inflexed, sepals triangular, central flower of each umbellet either staminate & pedicelled, or pistillate & sessile; fruits all pedicelled in some umbellets (those with a staminate central flower), or the central fruit sessile in some umbellets (those with a pistillate central flower), fruits oval, slightly ribbed (with rounded, cordlike ribs), lacking thin-edged wings, contracted at the commissure & didymous, carpels with 5 slightly prominent ribs; intervals with 3 *vittae*, commissure with 4; carpophore 2-parted; seeds terete or 5-angled. Fruits are nutlets by one source. (after Weakley 2011)

There is some confusion as to what comprised this genus in the past. Torrey & Gray (1838-40) had *Zizia* subgenus *Euzizia* (the good *Zizias*), with *Z aurea*, & subgenus *Taenidia*, with *Z integerrima*; also listing an old generic synonym *Pentacrypta*, Lehm.? In Wood (1873), *Z aurea* was in *Thaspium*, & *Z integerrima* was sounding suspiciously like *Taenidia*.

Attracts butterflies, larval host. *Zizias* are among the early spring prairie and woodland flowers.

Zizia has a certain public stigma about it. Those that do not know native plants invariably misidentify these yellow spring flowers as POISON PARSNIP. Having *Zizias* on a roadside may result in hard feelings from neighbors, or a roadside being mowed or sprayed by a “friend” who is doing you a “favor”.

Seeds mature in summer, turning burgundy then brown. Code B (cu00). Cool soils. “Fall sow, or if not possible moist cold treatment 120 days & sow in early spring. Light cover. Good germination.” (d93). Germinates in about 2 weeks with GA-3 (jlh). Some say use fresh seed, which needs long stratification, but dried seed fall planted OK works with us. Dormant seed or moist cold stratify (120 days). Seeds are semi-recalcitrant, & are best stored in ziplocks & refrigerated.

Some seed testing data indicate this may be somewhat short-lived seed, with significant lose of viability 6 months after ripening. It ripens early summer, but is slow to dehisce. A seed being slow to dehisce is usually a sign of tolerance to dry storage. Be safe & try sowing fresh seed in summer in serious stewardship work.

A third sp, *Zizia trifoliata* (Michx) Fern, MEADOW ALEXANDERS, aka MOUNTAIN GOLDEN-ALEXANDERS, of moist forests & woodlands, is native to southeastern US.

Zizia aptera (A Gray) Fernald *CT, IN, MI, RI HEART-LEAF ALEXANDERS, aka GOLDEN ALEXANDERS, *HJÄRTZIZIA* (SW), HEARTLEAF ALEXANDERS, HEART-LEAVED GOLDEN ALEXANDERS, HEART-LEAVED MEADOW PARSNIP, MEADOW PARSNIP, MEADOWPARSNIP, MEADOW ZIZIA, PRAIRIE GOLDEN ALEXANDERS, (*apterus -a -um* without wings, wingless, from Latin (late or medieval?) *apteros*, *apter*, without wings, from Greek *απτερο*, *α-πτερον*, *aptero*, *a-pter*, & *-us*, Latinizing suffix, wingless, said of petioles, seeds, &c.) *facu*

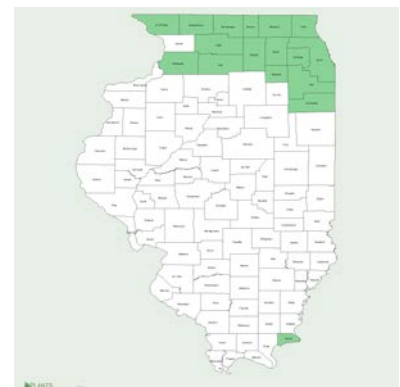
Habitat: Mesic, dry, & gravel prairies, open oak woods, prairies, & rocky woods, not common. Wooded bottomlands, streambanks, floodplains, & moist meadows. In Michigan 4 cos, very rare & local, on dry shaded bluffs (rvw11). Woods, thickets, glades, & prairies (mbg). In the se USA, “moist forests, openings, & woodland edges” (w11). distribution/range: Northern 1/5 of Illinois & Hardin Co in se Illinois. Known from, but not mapped from Bureau Co.

Culture: ①120 days cold moist stratification, or best planted outdoors in the fall. Seeds germinate most successfully in cool soil. ②Seeds germinate most successfully in cool soil. Sow in early winter through early spring. (he99)

③Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn).

④Seeds exhibit morpho-physiological dormancy. Seeds

are placed in cold moist stratification for 150 days. Germination occurs at 18° to 21° C. (bb02) ⑤Fall plant or cold stratify for up to 2 to 3 months for best results. Sow just below the soil surface at 60°F & water. (ew11)



©LBJ recommends planting stratified seed in the fall, but one never plants cold moist stratified seed in the fall. This is an oversight on an otherwise excellent website.

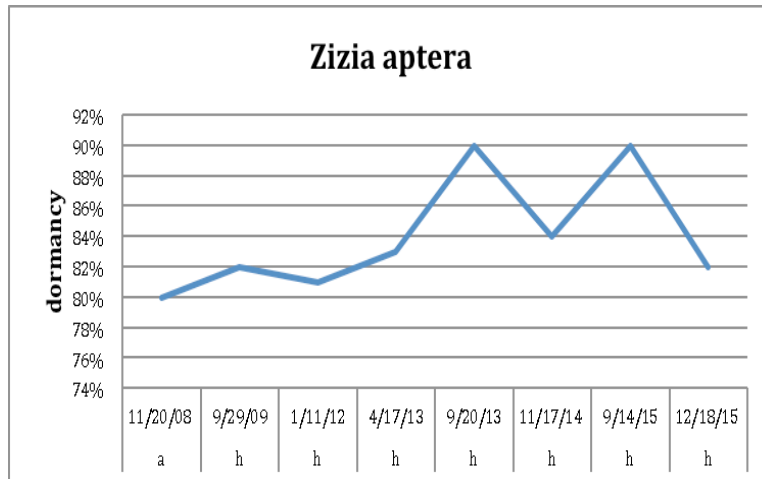
seed counts & rates: 142,016 (wns01), 144,000 (pn02, jfn04), 168,000 (ew11), 180,800 (aes10), 191,642 (gna06), 192,000 (pm02), 211,212 (gna06), 255,631 (gnh09), 262,427 (gnhm11) seeds per pound. In mixes use 0.031 to 0.188 pls lb per acre. Seeds & plants have good commercial availability, but either may sell out late in the planting season.

“*Zizia aptera* Mesic to dry prairie. Blooms late May to Mid June: YELLOW. Harvest August. 1 1/2'; SEEDLING TRANSPLANT; stratify longer than most; blooms 2nd year & reliably thereafter.” (rs ma)

asexual propagation: Mature plants can be divided in spring or fall.

cultivation: Space plants 1.25-1.5' centers. Mesic soils, full sun to partial shade. Moist sandy or sandy clay soils. Tolerant of alkaline soils. Zone 3-8. Reported to be short lived (lbj), but not in our experience.

bottom line: Genesis test data indicate dormant seeding is significantly to strongly required. Germ 7.9, 7.5, 6.0, sd 4.2, r0.0-14 (14)%. Dorm 84, 82.5, 82, sd3.6, r80-90 (10)%. Test 33, 35, 35, r17-43 days. (#8:4).**



Description: Native, erect, herbaceous, perennial forb; roots are a thickened cluster; stems 1.0-3.0', branched, smooth, sometimes reddish, spread 1.0-1.5'; leaves basal, simple, undivided, with heart-shaped base, coarsely toothed, long-stalked; upper leaves ternate or biternate (once or twice 3-parted), margins serrate, crenate; inflorescence compound umbel, each umbellet with many flowers, central flower sessile or stalkless; flowers yellow, 5-merous; mature fruits split into 2 seeds, seeds roughly pentagonal in cross section; N. key features: The central flower often not stalked & the basal leaves are simple, undivided, with a heart-shaped base (fh).

Comments: status: Endangered in Connecticut. Rare sp in Indiana. Threatened in Michigan. Historical Species in Rhode Island. phenology: Blooms 4,5,6. One of the early mesic prairie flowers; ours flower about two weeks earlier than the *Z aurea*. C3. In northern Illinois, collect seeds in July - August. Collect seeds in se Wisconsin in September (he99). Attractive cut flowers & dried seed heads. Great in the landscape, full sun to shade, good spring color, best in massed plantings, used in prairie restoration, shade gardens, butterfly gardens, understory in shrub borders, & naturalizing. Seed source nursery production, genetic source County Line Prairie, Hamilton Township, Lee Co (pre-Foley Prairie collection).

“Common in meadows & other low places. Much like *Thaspium*, growing in the same places & flowering about the same time, but the central flower is sessile. The basal leaves are simple.” (ewf55)

Associates: Pollinated by bees & *Diptera*. Species is of special value to native bees. Attracts butterflies, larval host OZARK SWALLOWTAIL BUTTERFLY. Reported to be deer resistant. Species has no serious insect or disease problems.

VHFS: This is listed in Britton & Brown as *Zizia cordata*. [*Thaspium trifoliatum* (L) Gray var *apterum* Gray, *Zizia cordata* WDJ Koch ex DC, *Z aptera* (Gray) Fern var *aptera*, *Z aptera* (Gray) Fern var *occidentalis* Fern]

CC Baskin & JM Baskin. 2002. Propagation protocol for production of container *Zizia aptera* (A Gray) Fern plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL:

<http://www.nativeplantnetwork.org> (accessed 27 October 2012). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.



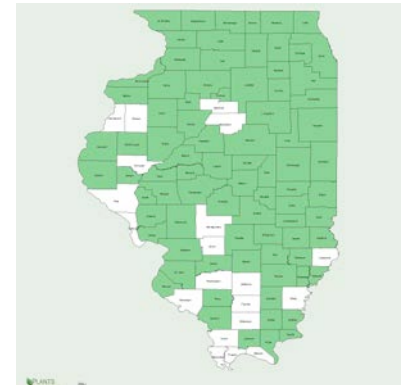
Zizia aptera

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

Zizia aurea (Linnaeus) WDJ Koch. * RI GOLDEN ALEXANDERS, aka COMMON GOLDEN ALEXANDERS, GOLDEN ZIZIA, GULDZIZIA (SW), (*aureus -a -um* golden, ornamented with gold, from Latin *aurum, auri, n.*, gold, things made of gold.) fac+

Habitat: Wet & mesic prairies, mesic & wet savannas, woodlands, moist woods & prairies, fens. Meadows, woods at bluff bases, open woods. In Michigan, “forests, especially swampy ones; more often in fens & sedge meadows, with tamarack & poison sumac, in openings & thickets on river banks; & fencerows” (rvw11). In Missouri, often in small colonies in moist woods & meadows, thickets, glades, & prairies (mbg). In the se USA, moist forests (w12). distribution/range: Established in Queensland, Australia (?) Occasional in northern ¾ of Illinois, less common southern ¼.

Culture: ①120 days cold moist stratification, or best planted outdoors in the fall. Seeds germinate most successfully in cool soil. (pm09) ②Sow seeds outdoors in fall, or 120 days cold moist stratification. Seeds germinate most successfully in cool soil. Sow in early winter through early spring. (he99) ③Fall plant or cold stratify for up to 2 to 3 months for best results. Sow just below the soil surface at 60°F & water. (ew11) ④Sow at +2 to +4°C (34-39°F) for 12 wks, move to 20°C (68°F) for germination (tchn). ⑤Seed for field grown plants is drilled with a Love seeder with seed covered 1 times its depth at 3.6 ounces per 45 linear feet. Beds should be hydroseeded with annual, cool season grass for protection. Plants are topdressed twice, once in May and once in June with 13-13-13 at a rate of 200 lbs. (Flood et al 2001). ⑥Seeds exhibit morpho-physiological dormancy. Seeds are placed in cold moist stratification for 150 days. Germination occurs at 18 to 21° C. (bb02)



⑦Kew Royal Botanic gardens, with seed from the Chicago Botanic Garden, note seed storage behavior orthodox, thousand seed weight 2.1 & 2.59 grams; 84% viability following drying to mc's in equilibrium with 15% RH & freezing for 45 days at -20°C; 84% germination; germination medium = 1% agar; germination conditions = Unconvrighted draught

5°C, 8/16; (RBG Kew, Wakehurst Place.)

seed counts & rates: 94,969 (gna05), 152,000 (sh94), 162,000 (lhn01), 168,416 (dhorvath), 172,000 (ecs), 173,824 (wn01), 176,000 (pm01), 182,807 (gna04), 184,000 (ew11), 190,592 (gnhenv02), 192,000 (pn02, jfn04, aes10), 193,603 (gna04), 216,190 (gnh01), 225,882 (gn00), 247,075 (gna06) seeds per pound. Seeded alone plant 11 lbs per acre or 4.4 ounces per 1000 (sh94). In mixes use 0.063 to 0.125 pls lb per acre (gni).

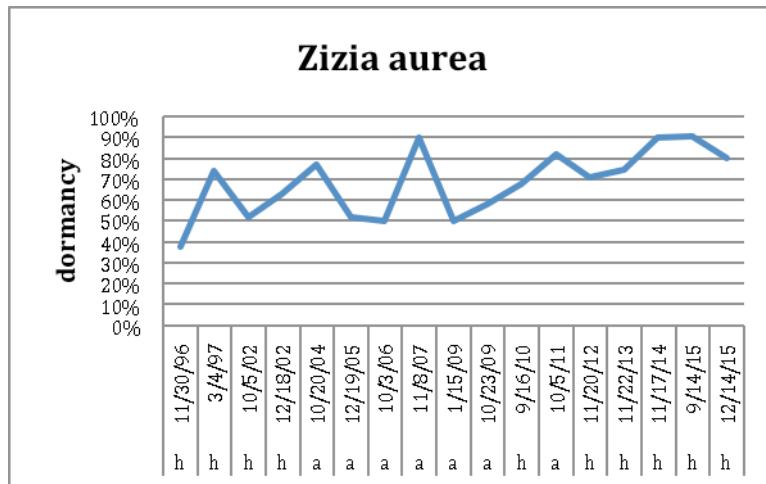
availability: Seeds & plants have good commercial availability. Plugs may sell out early.

“*Zizia aurea* Moist to mesic prairie. Blooms mid May to mid June YELLOW. Harvest August. 20”;
SEEDLING TRANSPLANT; needs long stratification; blooms 2nd year & thereafter.” (rs ma)

cultivation: Space plants 1.25-1.5' centers. Full sun to partial shade, moderate moisture to wet, in sandy or loamy soils. Prefers rich, humus soils. Clay soil tolerant. Calcareous soils. Zone 3-8(9). Reported as short-lived, but not in our experience.

bottom line: Genesis test data indicate dormant seeding is significantly to strongly required. Germ 16.4, 12, 2.0, sd 11.8, r 2.0-38 (36)%. Dorm 68.3, 71, 52, sd 15.7, r38-91 (53)%. Test 35, 37, 34, r17-46 days. (#17:4).**

greenhouse & garden: Easy from seed, moist cold stratify 120 days or dormant seed in an unheated coldframe. Cool soils.



Description: Native, erect, herbaceous, perennial forb, 1.0-3.0', 1.5-2.0' spread; roots; stems branched, smooth; basal leaves biternate, 2 times three parted, upper leaves trifoliate (3-) 5-11 leaflets with fine, even teeth, margins serrate; inflorescence compound umbel, 10-18 umbellets many flowers on irregular stalks, central flower often sessile or stalkless; flowers yellow, 5-merous; mature fruits split into 2 seeds, seeds roughly pentagonal in cross section; N. key features: Central flower often not stalked, basal leaves twice ternate (twice three-parted), leaflets with fine, even teeth (fh).

Comments: status: Special Concern in Rhode Island. phenology: Blooms 4,5,6. C3. Blooms after the shady spring ephemerals & is among the first mid-spring burst of color in the prairie. In northern Illinois, collect seeds in July - August. Collect seeds in se Wisconsin in August - September (he99). Attractive cut flowers & interesting dried seed heads. Important early spring color & attractive light purple fall foliage color. Landscaping, shade gardens, woodland gardens, rain gardens, meadows, naturalizing, & one of the top choices for pollinator gardens. Seed sources nursery production plots, with genetic sources railroad remnants near Big Rock, Kane Co, RI railroad prairie remnant near Wyant, Bureau Co, old B&N RR east of La Moille, Bureau Co, & mesic railroad remnant near Binghampton, Lee Co, & Squaw Grove Twp, DeKalb Co.

“Common in low prairies & other damp places. Basal leaves compound.” (ewf55)

Associates: Pollinator friendly, very desirable, a good source of pollen & nectar. Pollinated by long-tongued bees, short-tongued bees, other *Hymenoptera*, *Diptera*, *Lepidoptera*, & *Coleoptera*. Species is of special value to native bees. Attracts butterflies, host plant for OZARK SWALLOWTAIL, *Papilio polyxenes* BLACK SWALLOWTAIL, (*Papilio joanae*, MISSOURI WOODLAND SWALLOWTAIL BUTTERFLY?). Reported as deer resistant. Walnut tolerant. Species has no serious insect or disease problems.

ethnobotany: “Used medicinally as a febrifuge, vulnerary, & for syphilis. The Fox Indians snuffed a stem decoction for headaches.” (jlh98)

VHFS: [*Zizia aurea* var *acuminata* (Sm) DC, *Z a f aurea*, *Z a* var *bebbii* JM Coult & Rose, *Z a f obtusifolia* (Bissell) Fern, *Z a* var *obtusifolia* Bissell, *Smyrniium aureum* L (basionym)]

CC Baskin & JM Baskin, 2002. Propagation protocol for production of container *Zizia aptera* (A. Gray) Fern. plants; University of Kentucky, Lexington, Kentucky. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 21 June 2014). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.

RM Flood, G Blessman, DJ Horvath, 2001. Propagation protocol for production of field-grown *Zizia aurea* (L.) W.D.J. Koch plants (1+0 bareroot); Illinois Department of Natural Resources - Mason State Nursery, Topeka, Illinois. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 21 June 2014). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.



Zizia aurea, note self sown seedlings

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

Time flies like an arrow. Fruit flies like a banana. Groucho Marx

End Celery Section

Omnia dicta fortiora si dicta Latina

Endnotes & abbreviations

** 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.

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, WP RBG Kew, Wakehurst Place
aes10 (AES 2010)
apl (Applewood)
wade (Alan Wade, various years, 95, &c)
bb02 (Baskin & Baskin 2002, 2001, &c.)
cb03 (CC Baskin 2003, 2001, &c.)
crfg California Rare Fruit Growers
tchn tomclothier.hort.net
cu00 (or cu02, Cullina 2000, 2002, 2008)
nd91 (Norm Deno, 1991, 1993)
den28 (Densmore 1928)
do63 (Dobbs 1963)
mfd93 (Mary Fisher Dunham 1993)
dh87 (Dirr & Heusser 1987)
ecs (Ernst Conservation Seeds)
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)
gni (Genesis Nursery, Inc)
gc63 (Gleason & Cronquist 1963, 1991)
gran (Granite Seeds)
he99 (Heon et al 1999)
hk83 (Hartman & Kester 1983)
jlh (JL Hudson, Seedsman, (if the phone doesn't ring its me))
krr (Kenneth R Robertson)
llpin (Illinois Plant Information network)
lbj (Lady Bird Johnson Wildflower Center Native Plant Information Network)
m14 (Mohlenbrock 2014) also m86, m99, m02, m05, m06, &c
mbg (Missouri Botanic Garden)
nyfa (New York Flora Atlas)
pots (Plants of the Southwest 2000)
pm09 (Prairie Moon 2009) also pm02, pm11, &c
pnnd (Prairie Nursery no date)

Unconvrighted draught

pph (Prairie Propagation Handbook)
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)
sh94 (Shirley Shirley 1994)
sk08 (Stuppy & Kessler 2008)
sm23 (Smith 1923) also sm32, sm33, sm28
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
ws92 (Wilhelm & Swink 1992)
ry64 Richard Yarnell 1964)
yy92 (Young & Young 1992)