Roadside Botany of Illinois - June

Identifying Common Roadside Plants by Bloom Color



By Molly Hacker

Find your bloom color of interest in the title block of each page, and read on for a basic description and some botanical trivia. These "inventories" are based off of my 2017 observations primarily along I-57, which traverses the state north-south. Although my drives spanned four ecophysiographic divisions, the roadside assemblage mainly consists of a typical suite of weedy species - non-native ornamental or agricultural escapees and invasive species. These species are adapted to the roadside conditions and can exploit the road network as a mode of dispersal. Occasionally, more conservative species and tiny patches of remnant communities can be observed hanging on in wetlands, woodland interior, adjacent to railroads and under power lines. This list is by no means exhaustive.

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This edition contains many of the species profiled in last month's edition as a result of shorter drives on different roads. New species in June include *Asclepias syriaca* (common milkweed), *Campsis radicans* (trumpet vine), *Cichorium intybus* (chickory), *Hemerocallis fulva* (orange day lily), *Trifolium* (clovers) and *Rudbeckia hirta* (blackeyed Susan).

Coníum maculatum, Apiaceae Poison Hemlock



The Death of Socrates, Jacques Louis David, Creative Commons, 2018.



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This species appears as a large herb and grows to heights of 5-8 feet tall. Small, white flowers are in clusters called umbels (an arrangement of flowers in the shape of an umbrella typical of its family) and its alternate, divided leaves appear "lacy" or "ferny".

In ancient Greece, this plant was commonly used to execute criminals condemned to death. Its most famous casualty was Socrates, the famous philosopher and teacher of Plato. Toxicity is due to the compounds coniine and _Y-coniceine (alkaloids), which, when ingested cause paralysis of respiratory muscles - death is ultimately the result of lack of oxygen (Reynolds 2005). Even small amounts can be fatal and there is no known antidote. Ironically, this plant is everywhere. It is common in nutrient rich soils including roadsides, waste grounds and agricultural edges (Wilhelm and Rericha 2017). See "Poisonous Plants of the Midwest" on our website for more information on this species and other sinister plants.



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Erigeron spp., Asteraceae Fleabane



Erigeron species are abundant on the roadway, flowering throughout the growing season starting in May. The white flowers of this genus are small and daisy-like, with a white to pink fringe of thin petal-like appendages and yellow centers (see *Rudbeckia hirta* on page 7 for a discussion of Asteraceae floral morphology). There are four species of *Erigeron* reported in Illinois, and all of them are likely observed from the roadway.

Plants of this genus have known value in systems of traditional medicine. Research supports the medicinal value of scutellarin, a compound derived from some eastern species studied, including *E. breviscapus* (used in Chinese traditional medicine) and *E. multiradius* (from Tibetan traditional medicine), suggesting that it may be effective in treatment for postmenopausal symptoms and Alzheimer's disease (Zhu et al. 2009) and inflammation (Luo et al. 2008).



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Pycnanthemum spp., Lamiaceae Mountain Mint

Pycnanthemum species are delicate herbs with a fluffy flat-topped inflorescence of tiny white tubular flowers. The corollas (petals) are flecked with fuscia spots and beset with a few scraggly random hairs. They are native perennials of fair to high quality, commonly occur in open sunny areas, and can tolerate a bit of moisture. The species you are likely to see along the roadside would be *P. tenuifolium* and *P. virginianum*. These species can overlap in distribution, but in our northern sector, *P. tenuifolium* is usually associated with acid soils, while *P. virginianum* is associated with calcareous (basic) soils (Wilhelm and Rericha 2017). There are ten species of *Pycnanthemum* recorded in Illinois (Kartez 2015) and most are restricted to the southern portion of the state and/or are uncommon.

Pycnanthemum have a distinct and pleasant fragrance – a subtle spicy-mint with a little musky earthiness. Crush the leaves to release the essential oil and inhale deeply (through the nostrils and with the belly). Volatile oils produced by *Pycnanthemum* not only have a lovely aroma, they also have insecticidal and fungicidal properties and may be effective in pest management strategies (Boulogne et al. 2012).



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Melilotus alba, Fabaceae White Sweet Clover

Melilotus officinalis, Fabaceae Yellow Sweet Clover

There are two species of *Melilotus* likely observed from the roadway beginning in May, one with white flowers (*M. alba*) and one with yellow flowers (*M. officinalis*). *Melilotus* is important in an agricultural context and is planted to amend soil, as fodder for livestock, and forage for commercial honey bees (Ogle et al. 2008). Unfortunately, *Melilotus* are problematic non-native invasive species that invade open upland communities. Even worse, it has been reported to respond positively to fire (Wilhelm and Rericha 2017), a common management strategy of systems that it invades (i.e. prairies).

This genus is recognized in many systems of traditional medicine and compounds produced by this plant (coumarins) have known pharmacological effects that relate to the movement of fluids within the body [with anti-odemic an anti-exudative effects, and promotes flow in veins and lymph system (van Wyk and Wink 2017)]. Nutritional studies suggest high antioxidant activity and free radical scavenging effects (Pourmorad et al. 2006). FYI: Free radicals contribute to >100 human maladies. Antioxidants "scavenge" free radicals, this is why we are encouraged to consume them. But, be warned, wild food enthusiasts: know your plant and your foraging site...

Melilotus is also known to accumulate toxic hydrocarbons (mainly from fossil fuel combustion) (Parrish et al. 2005) that pollute the soil and are used in phytoremediation, a strategy that cleans up eco-toxins by using plants and their fungal associates.



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Pastinaca sativa, Apiaceae Wild Parsnip



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This bloom is a bright yellow flash of a tall herb. The flowers are arranged in an umbel, leaves are alternate and compound (divided into leaflets) with toothed and usually lobed leaflet margins. This is the wild relative of the cultivated variety of parsnip that we eat.

While it's roots are edible, the vegetation is phytophototoxic, meaning contact with the plant upon exposure to UV rays will result in skin irritation (phytophotodermatitis). The reaction has been described as being similar to a severe sunburn soreness, red patches and blistering.

Pastinaca sativa has high concentrations of furanocoumarins within the aboveground parts, lower concentrations below. These compounds likely serve as an anti-herbivory defenses. Interestingly, furanocoumarins are mutagenic – they can bond with DNA bases upon illumination (UV light) - and possibly carcinogenic (van Wyk and Wink 2017). Members of Apiaceae have high concentrations of this and other compounds with medicinal, toxic (van Wyk and Wink 2017), fungicidal and insecticidal properties (Boulogne et al. 2012).



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Rudbeckia hirta, Asteraceae Black-eyed Susan

This herb is a native and common along the roadside and other open habitats, with showy golden yellow blooms all summer long. There are two varieties in Illinois, *R. hirta* var. *hirta* and *R. hirta* var. *pulcherrima*, which can be distinguished by the width of the stem leaves. *R. hirta* var. *hirta* has broader leaves (>3 cm) than *R. hirta* var. *pulcherrima* (<3 cm).

This may be a good time to explain the morphology of a composite (members of Asteraceae, like oxeye daisy, fleabane and German chamomile (see the whites and yellows of the previous month's Roadside Botany). First, the large showy bloom is actually an inflorescence (a cluster of small flowers, or a florets). There are two types of florets, the disk and ray, and species can have one or both types. *R. hirta*'s bloom is a mix of both - the dark center consists of disk florets, while the outer whorl is composed of the rays, which give rise to the ligule (the long yellow petal-like appendage).



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Campsis radicans, Bignoniaceae Trumpet Creeper



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Campsis radicans is the woody vine with large, orange, tubular flowers that climbs over fence posts and other vegetation. It is the sole representative of the genus in the US and looks like nothing else. This species is native, likely to the southeast but has become naturalized in northern states as an ornamental escapee (Wilhelm and Rericha 2017). This is a popular landscaping plant because it is robust and showy, and often used to adorn fences and trellis'.



By Scott Namestnik

Hemerocallis fulva, Asphodelaceae Orange Day Lily

This large orange bloom arises from a tuft of long strappy basal leaves. It is a perennial non-native ornamental escapee with a widespread distribution in the US. The flowers are edible and open for a single day before fading. I tasted one recently – it was good! My closed blossom was fresh, crisp and light, reminding me of iceberg lettuce.





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Asclepias syriaca, Apocynaceae **Common Milkweed**

This species appears as a tall herb with large, simple, opposite leaves and a large pink sphere of an (umbel) inflorescence. I love the odd flower of Ascelpias. It is composed of bonus and modified floral structures: the hood and *horn* are parts of the *corona*, which is an appendage of the corolla (the petal whorl). The sex organs manifest as an elegant fusion (*avnostegium*) elevated above the petals and sepals. Additionally, this species is an important component of the monarch butterfly's life cycle, where they deposit eggs. For a detailed discussion on the interesting floral morphology and ecology of this underappreciated plant, see Scott's piece on our website http://orbisec.com/milkweed-flower-morphology-and-terminology/ (Namestnik 2014).

Creative Commons, 2018 There are 18 species of Asclepias in Illinois (Kartesz 2015), A. syriaca is the most common. At least three other species can be observed along the road through the season: A. incarnata (swamp milkweed) also has pink flowers but is shorter in stature with narrower leaves and occurs in areas with wetter soil. A. tuberosa (butterfly weed) is short with orange flowers. It is leafier with darker and narrower leaves with a pointed tip, and found in open areas with dryer soils. A. verticillata is a low delicate herb with very narrow leaves (<3 mm wide) arranged in a whorl, and white flowers in a diffuse umbel.



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Trifolium spp., Fabaceae White Clover, Red Clover, Alsike Clover



By Scott Namestnik

You are likely to see at least three species of *Trifolium* along the roadway, in white (*T. repens*), pink (*T. pratense*), and maybe even one with a graduation of white to pink, which is likely T. *hybridum* (alsike clover). Of the 11 species reported in the state, only one species is native, *Trifolium reflexum* (Kartesz 2015), also known as *Trifolium reflexum* var. *glabellum*. It is extremely rare due to its strict habitat requirements and is associated with mesic woodlands (Wilhelm and Rericha 2017). Google it – it's stunning, and let us know if you ever see it! Also, ask us about our first forensic consultation, The Case of the Unknown *Trifolium*, with a wacky connection to H.H. Holmes (yes, America's first serial killer)!



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Cichorium intybus, Asteraceae Chicory



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This common pale grey-blue-violet bloom is a nonnative herbaceous biennial/perennial with a widespread distribution throughout the United States. Although it is exotic and weedy, it does not seem to be problematic in the eastern US, where it stays confined to roadsides and waste areas. This species a greater concern out west. The bloom is one of my favorite colors, and the irregularity of the lobed and toothed margins of ascending pale narrow leaves is also quite attractive to me.

This plant has been utilized by several systems of traditional medicine and pharmacological research support choleretic and anti-inflammatory effects. Many other uses are described, including treatment f or rheumatism and gout, and as a coffee substitute/amendment as it contains caffeine and imparts a nice bitterness (van Wyk and Wink 2017).



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