

A Guide to the Wildflowers of the Royal Oak Arboretum



Donald Drife

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Cover

Clockwise from upper left:

Wild Senna, Cup Plant, Prairie Sundrops (*Oenothera pilosella*), Yellow Coneflower

Frontispiece

Clockwise from upper left:

Fringed-tip Closed Gentian, Obedient Plant, Great Blue Lobelia, Wild-bergamot

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Donald Drife



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Version 1

**Dedicated to the memory of
Ann Holcomb
1934-2014**



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The Royal Oak Arboretum is located in Royal Oak, Michigan, behind the Leo Mahony/Harold Meininger Senior Community Center at 3500 Marais Avenue.

History

Work on the Royal Oak Arboretum began in 2008. European Buckthorn removal took place the first two years. Our first major planting of one-hundred plants comprising twenty species occurred on May 22, 2010 and helped to establish our Oak Savanna area. Cardinal Flower, Great Blue Lobelia, Blue-eyed-grass, Michigan Lily and Black-eyed Susan all returned from the seedbank. A rain garden was installed in 2011 and a butterfly garden was added in 2013. European and Glossy Buckthorn removal continued during the years 2014–2016 and is an on-going project.

Introduction

This book focuses on the showy plants that you are most likely to observe in the arboretum. It is arranged into fourteen sections based on flower structure, the number of flower parts, and leaf arrangement. Flowers are either grass type, irregular, regular, or in dense heads (see figure 1). Leaves can be basal (occurring only at or near the ground), alternate (one joined to the stem at each node), opposite (joined in pairs), or whorled (three or more joined to the stem at each node) (see figure 2). Flowers with fewer floral parts occur so count multiple flowers before determining which section to look in.

Common names used in this guide are taken from Newcomb's guide and the Michigan Flora. The table of contents at the beginning of this guide gives the common and scientific names for each species. The first scientific name is the most up to date and is found in Voss and Reznicek. If the name used in Newcomb's guide is different from the accepted name it is listed second, allowing easy cross reference to this handy guide.

If you can't identify a plant found in the arboretum with this guide then check another field guide. Newcomb's *Wildflower Guide* by Lawrence Newcomb is one of the best. Another is Gleason's *Plants of Michigan: A Field Guide* revised by Richard Rabeler. This guide has a workable identification key but few illustrations. Rabeler includes more wildflowers than Newcomb along with the common grasses, sedges and woody plants. It is a bridge between a technical flora and a simpler field guide. This is the field guide that I carry. The definitive flora for Michigan is the *Field Manual of Michigan Flora* by Edward Voss and Anton Reznicek. It features workable identification keys, range maps, and many helpful hints for identifying plants and includes all species of flowering plants known in the wild in Michigan. [Http://michiganflora.net/](http://michiganflora.net/) is the on-line version of the *Field Manual* and includes photographs of many species.

Our arboretum's plant collection is ever changing. We are working toward a goal of having every species of native tree that occurs in Michigan. Visit the Royal Oak Nature Society's webpage for more information regarding the arboretum and also to see if any guided walks are offered.

Figure 1 Flower Types



Grass Type

Irregular

Regular

Dense Heads

Figure 2 Leaf Arrangements



Alternate

Opposite

Whorled

Grasses & Grass-like Plants



Big Bluestem or Turkey Foot is 6 ft.tall and has a flower spike resembling a turkey's foot. Its stem is reddish or purplish, not a true blue.



Canada Wild Rye is a distinctive grass with 2-3 in. long flower spikes that persist into winter. Its leaves are flat, pointed, and bluish-green.



Bottlebrush Grass is aptly named for those of us old enough to remember bottle brushes. It flowers in July, but the flower spikes persist for many months, sometimes into winter.

Grasses & Grass-like Plants

Switch Grass is a clump forming 'bunch grass' with a loose flower spike. Its leaves turn a pretty gold in the fall.



Indian Grass blooms in August and early September. Yellow anthers and reddish-brown hairy spikelets make this an attractive grass species.



Little Bluestem (left) is a knee-high clump forming grass. Its stems and leaves turn red in the fall.

Cordgrass (right) is a coarse species with sawtooth edged leaves. It can be 6 ft. high but normally falls over in the wind.



Grasses & Grass-like Plants



Hop Sedge has a 3-sided stem. The inflated flowers are longer than they are wide. Several leaves occur along the stem often under the flower heads.



Plantain Leaved Sedge is a woodland species that has wide, basal, semi-evergreen leaves. Yellow flowers, resembling an artist's paintbrush bloom early each spring.



False Nutsedge has a 3-sided stem and seed heads that resemble bottlebrushes. Many of the smaller leaves have a furrow running down their mid-vein.

Irregular Flowers, Alternate Leaves

Lead-plant has fine pinnate-compound leaves that are covered with white hairs. It is somewhat woody. Lead-plant gets its name because it was believed that it indicated the presence of lead.



Cardinal-flower or Red Lobelia is unmistakable with its scarlet flowers. This and the following species were native here in the 1970s and returned from the seedbank when the area was cleared.



Great Blue Lobelia flowers in August and has 3/4 in. long flowers in the leaf axils. This species will hybridize with the closely related Cardinal-flower. There is also a white flowered form.



Irregular Flowers, Alternate Leaves



Black Medick (left) has hairy flower bracts, curved seedpods, and toothed stipules. **Little Hop Clover** (right) has smooth flower bracts, straight seedpods, and entire stipules. Both are common lawn weeds.



White Sweet-clover is a distinctive, sometimes 4 ft. tall plant. Many insect species feed on its nectar.



Yellow Sweet-clover is similar to the White Sweet-clover shown above. Both are common meadow plants, established in Michigan from Europe during the 1880s.

Irregular Flowers, Opposite Leaves

Yellow Giant

Hyssop has square stems, opposite leaves, and a cluster of yellow flowers at the end of its stem. The plants are normally branched.



Turtlehead is named for its flowers that, I think, resemble a turtle's head. It is planted in the arboretum but several native stands occur in the adjoining Tenhave Woods.



Showy Tick-treefoil has a terminal spike of pink flowers and opposite compound leaves with three leaflets. The seeds will stick to animal hair and people's clothing, thereby being dispersed.



Irregular Flowers, Opposite Leaves



Wild Mint has opposite toothed leaves, square hairy stems, and clusters of white flowers tinged with pink spots that grow in the axils of the leaves. It flowers in July and August.



Spear Mint is a non-native species that is naturalized in Michigan. Square stems and dark green, opposite leaves with the veins inset help to distinguish this species. It also has tapering terminal flower spikes. Bees, flies, and butterflies feed on its nectar.



Wild-bergamot is a native mint. Square stems, opposite leaves (often with powdery mildew) and flat terminal flower clusters are characteristics for this plant.

Irregular Flowers, Opposite Leaves

Foxglove Beard-tongue has white tubular flowers covered with glandular hairs. Their leaves and seedpods turn red in the fall and can be quite stunning.



Hairy Beard-tongue has pinkish tubular flowers that hang down slightly. It is a native found in the southern half of the Lower Peninsula. Normally it is shorter than Foxglove Beard-tongue and it does not turn red in the fall.



Lopseed is less than 1 ft. tall. It has long stalked, opposite, toothed leaves. The flower spike is long and narrow with the flowers in pairs. It flowers from the bottom of the spike to its tip. The seeds hang down, hence the common name of Lopseed.



Irregular Flowers, Opposite Leaves



Obedient Plant or False Dragonhead has square stems and its 3/4 in. long pink tubular flowers occur in terminal spikes. Individual flowers when pushed into a new position will remain there, hence the name Obedient Plant.



Virginia Mountain Mint or Common Mountain Mint is an aromatic plant. Just brush your hand over the leaves and hold it to your nose. Even the winter seed heads retain this fragrance. This species has numerous, small, narrow, opposite leaves.



Orange-fruited Horse-gentian has leaves that taper at the base. The flowers are short-lived but the orange fruit persists for a long period. This is not a gentian and the plant is not associated with horses. The origin of the common name is a bit of a mystery.

Irregular Flowers, Opposite Leaves

Wood Sage is a native mint found in the oak savannas (and elsewhere). The flowers are small but colorful. They are worth looking at with a magnifying glass.



Irregular Flowers, Basal Leaves

Jack-in-the-pulpit is a springtime, woodland flower. The flowers are sometimes only a dull green but I find their shape quite interesting. The red seed clusters ripen in the fall and are often seen lying on the ground.



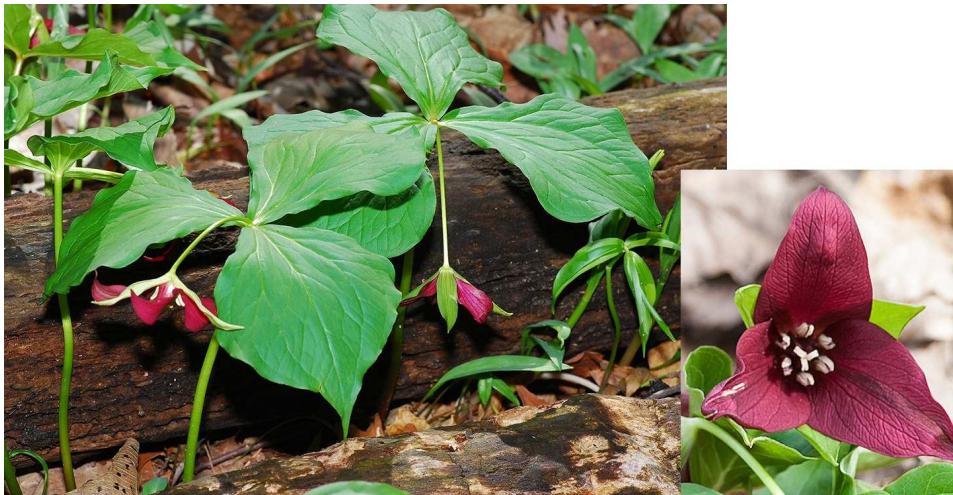
Dutchman's-breeches is one of our earliest spring wildflowers. It flowers, sets seeds, then dies back, and by the end of May it is dormant. The flowers have a resemblance to an upside-down pair of Dutch pants, hence the common name.



3-Parted Regular Flowers



Wild Ginger flowers occur in the spring and are hidden on the ground under the heart-shaped leaves. Look for them in May. The leaves, with their hairy stems, persist into autumn.



Red Trillium has maroon flowers and ovaries. Some people describe the odor of the flowers as resembling a "wet-dog." Another common name is Stinking Benjamin.



Common Trillium A handsome spring wildflower. Unfortunately, our plants in the arboretum often are eaten by deer before they can flower. The white flowers turn pink with age.

2-Parted Regular Flowers

Enchanter's-nightshade is less than 1 ft. tall. It grows in the wooded section of the arboretum. Its seeds will stick to clothing and animal fur.



4-Parted Regular Flowers

Several species make up the **Evening Primrose** group. They are 2-4 ft. tall and have distinctive flowers and seedpods.

Prairie Sundrops is less than 1 ft. tall and is pictured on the cover.



Virgin's Bower is a native Clematis. White 4-petaled flowers on a climbing vine distinguish it. Its seeds give the appearance of a plant with a beard.



4-Parted Regular Flowers



Culver's-root has whorled leaves and a white flower spike that tapers toward its upper end. Plants are around 3 ft. tall.



Celandine Poppy or **Wood Poppy** is a native, large flowered, yellow poppy. Its fruit has a hairy body with an elongated tip.



Queen-of-the-prairie is a large herb, 3 ft. tall, with palmate-lobed leaves. Flowers are normally 4-parted but on some plants they are 5-parted.

5-Parted Regular Flowers, Alternate Leaves

Spikenard is a large herb approximately 4 ft. high and 4 ft. across. Large bi-compound leaves with heart shaped sub-leaflets, and clusters of greenish-white flowers that mature into purple fruit are characters of this species.



Yellow flowers with chocolate colored stamens are keys to **Wild Senna**. The leaves are compound. The seed pods persist through winter, look like peapods and have short whitish hairs.



Yellow Wood-sorrel is a small plant less than 8 in. tall. The leaves look like shamrocks and the seed pods have short stiff hairs.



5-Parted Regular Flowers, Alternate Leaves



Wild Columbine is a native member of the Buttercup Family. Its 5 long red spurs filled with nectar attract hummingbirds.



Roving Bellflower has bell-shaped flowers on a 1-sided spike. A European import, it is planted in our butterfly garden.



Clammy Ground-cherry with its stems, flowers, and fruits covered with long dense hairs grows in shaded areas. Its flowers hang downward and are easily overlooked.

5-Parted Regular Flowers, Alternate Leaves

Pokeweed or Poke has white flowers with rounded petals. These turn into dark purple berries that many bird species love. In pioneer times, an unstable ink was made from the berries; hence the additional common name inkberry.



Virginia Stickseed or Beggar's Lice has small, whitish flowers on a 1-sided raceme. These turn into a prickly stickseed that will adhere to clothing. This is a biennial meaning that it blooms in the second year. First year leaves are large and resemble a Black-eyed Susan.



Butterfly-weed is one of Michigan's few native orange flowered species and our only orange Milkweed. It has alternate leaves and non-milky sap. Normally it is less than 18 in. tall.



5-Parted Regular Flowers, Opposite Leaves



Blooming in June, **Poke Milkweed** is our first Milkweed to blossom. The hoods of the flowers are white or sometimes tinged with pink. The backward pointing sepals are green. Leaves are tapered at both ends and smooth.



Swamp Milkweed with its reddish to pinkish flowers puts on a good show in the arboretum for most of the summer. Its leaves are smaller than Common Milkweed and more pointed. Insects love to feed on its nectar.



Common Milkweed is coarser than the arboretum's other Milkweeds. Blunt leaves, often with reddish mid-veins, are characteristic of this species. All Milkweeds serve as a food source for Monarch butterflies and larvae often appear on our plants.

5-Parted Regular Flowers, Opposite Leaves

The flowers of **Fringe-tip Closed Gentian** or **Bottled Gentian** never fully open and appear always to be in bud. It grows in the rain garden close to the senior center.



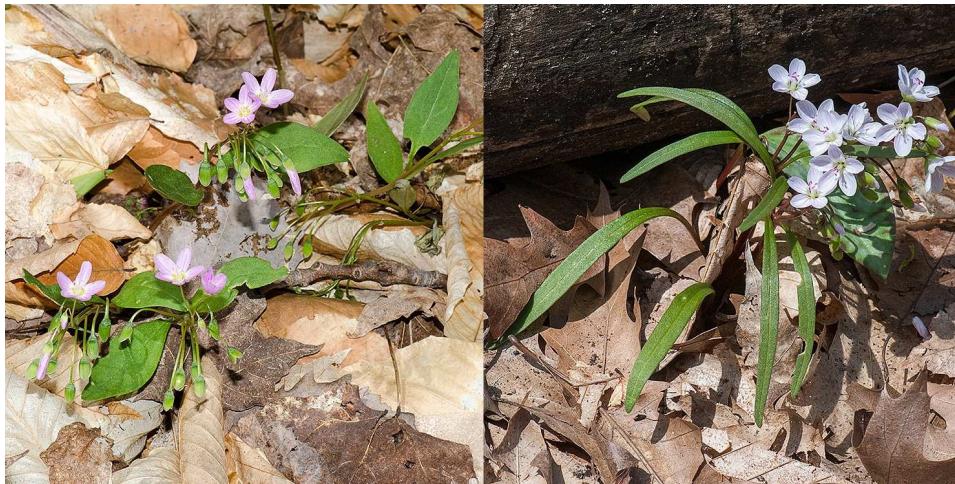
Garden Phlox is a non-native species growing in the wooded section of the arboretum. It is native south of Michigan. The edges of its leaves have fine hairs.



Blue Vervain is conspicuous in the butterfly garden bordering the parking lot. Its many branched purple flower clusters and coarse toothed leaves are distinctive.



5-Parted Regular Flowers, Opposite Leaves



Carolina Spring-beauty (left) is a wide-leaved species that occurs in Michigan north of Bay City. **Spring-beauty** (right) is narrow-leaved species occurring in southern Michigan. It occurs in large numbers in Tenhave Wood adjacent to the arboretum.



Spotted St. John's-wort is hairless, with greenish or reddish stems. Its leaves are sessile, and oval (about twice as long as they are wide.) The upper surfaces of the yellow petals are spotted with fine black dots.



Fringed Loosestrife
Large masses of this plant occur near the senior center. The leaf petioles are fringed with coarse hairs. Its spherical seedpods often persist through the winter.

5-Parted Regular Flowers, Whorled Leaves

Canada Anemone

has leaves in whorls of 3 and white flowers. The plants are about 1 ft. high.



Thimbleweed is similar to Canada Anemone (above) except its 4 or more whorled leaves have short petioles and its flowers are greenish.



Herb Robert This shade loving Geranium has a long pointed seedpod that gives the plant another common name of Stork's-bill.



6-Parted Regular Flowers



A foot tall with white to pink flowers on a bent stem, **Nodding Wild Onion** is a showy part of the summer flora. Later in the season it has black BB size seeds.



White Trout Lily has downward pointing white flowers and two mottled leaves that lay on the ground. Both Trout Lilies bloom in the spring.



Yellow Trout Lily is similar to White Trout Lily except its flowers are yellow and its leaves are more mottled. Stigmas are either yellow or reddish.

6-Parted Regular Flowers

Michigan Lily

is a native lily with whorled leaves and nodding flowers. This plant reappeared from the seedbank and was recorded in the arboretum area in the 1970s.



Large-flowered

Bellwort is a woodland species with yellow, twisted, petals (actually tepals) and perfoliate leaves (meaning the leaf surrounds the stem). It grows in clumps.



More delicate than Large-flowered Bellwort, **Merrybells** occurs as single stems, the tepals are pale yellow and not twisted, and the leaves are stalkless. The seedpods are 3-winged and can be found in the summer and autumn.



7 or more Parted Regular Flowers



Prickly-pear is unmistakable with its spiny stems and bright yellow multi petaled flowers. It is one of two species of cactus native to Michigan.



Twinleaf is an early spring wildflower with a 2-parted leaf. Often flowering before the last snowfall of the season. The seedpods have little caps that lift off when the seeds ripen.



Bloodroot is another early spring wildflower with a crinkly leaf. Normally the flowers are 8-parted but a "double" form with numerous petals is known. The arboretum's "double" plants originated from a long gone woodlot near the Middle School.

Flowers in Dense Heads

White Snakeroot is 3 ft. tall with opposite, heart-shaped, toothed leaves on long stalks. In the individual flowers the styles protrude from the white bracts. This plant is a favorite place to find hunting Praying Mantises.



Rattlesnake-masters is a member of the Carrot Family. The leaves have spines along their edges and clasp the stem. They resemble yucca leaves, hence the specific name *yuccifolium*. Great Black Wasps and Golden Digger Wasps can often be found feeding on the pollen.



Canada Thistle is an aggressive introduced weed. Our volunteers have been attempting to eradicate it from the Arboretum but its creeping root makes this difficult. Its flower heads are small and numerous. Its one redeeming trait is the fragrance of the flowers.



Flowers in Dense Heads



Mist-flower or Wild Ageratum is a non-native from south of Michigan. Its blue, flat-topped, fuzzy looking flower clusters are distinctive. Opposite, toothed, crinkled leaves also help to distinguish this species.



Boneset with its white, flat-topped flower clusters and perfoliate leaves (leaves which grow around the stem) is unmistakable.



Spotted Joe-pye-weed is a tall (to 8 ft.) plant with whorled leaves and spots along the stem. Terminal pink or reddish flower clusters can be either flat or rounded.

Flowers in Dense Heads

Rough Blazing-star's flower heads are stalkless. The bracts of the flower heads are rough edged at the tip and bordered with white. We have only a few plants of this species in the arboretum.



Northern Blazing-star has stalked flower heads. The bracts are rough edged all around and bordered in dark brown.



Field Sow-thistle has multiple flowers that resemble small dandelions. It has sharp toothed leaf margins. Later in the year cottonball-like seed heads form.



Flowers in Dense Heads



A number of **Goldenrod** species call the arboretum home. The left hand photo shows Riddell's Goldenrod with its narrow clasping leaves and large (for a Goldenrod) flowers. I am happy just to call them Goldenrods.



Close up views of **Goldenrod** flower heads. Each of the small heads are clusters of flowers. An Ailanthus Moth, one of the day flying moths, is shown on the right hand. Goldenrods attract many insect species.



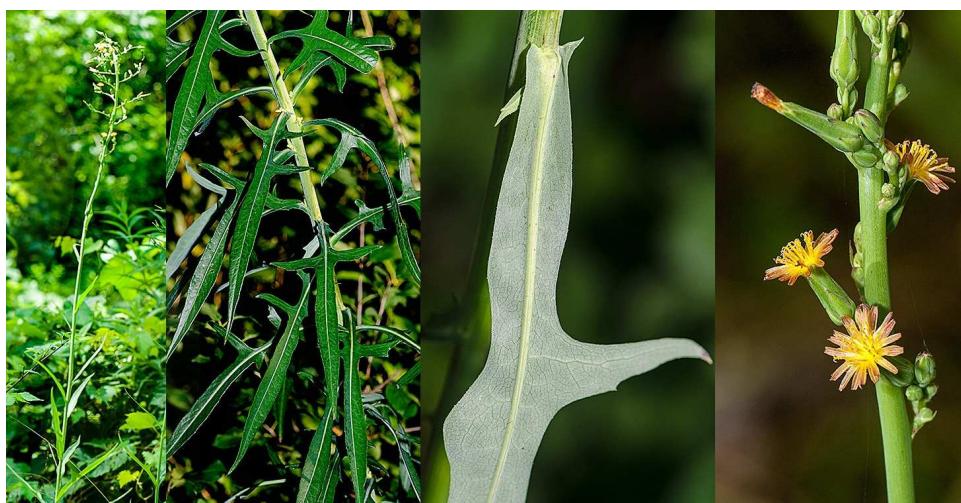
Grass-leaved Goldenrod or Lance-leaved Goldenrod is not a true Goldenrod. It is in the genus *Euthamia* not *Solidago*. It has narrow, three to five-veined leaves. The flower heads are in flat topped inflorescences.

Flowers in Dense Heads

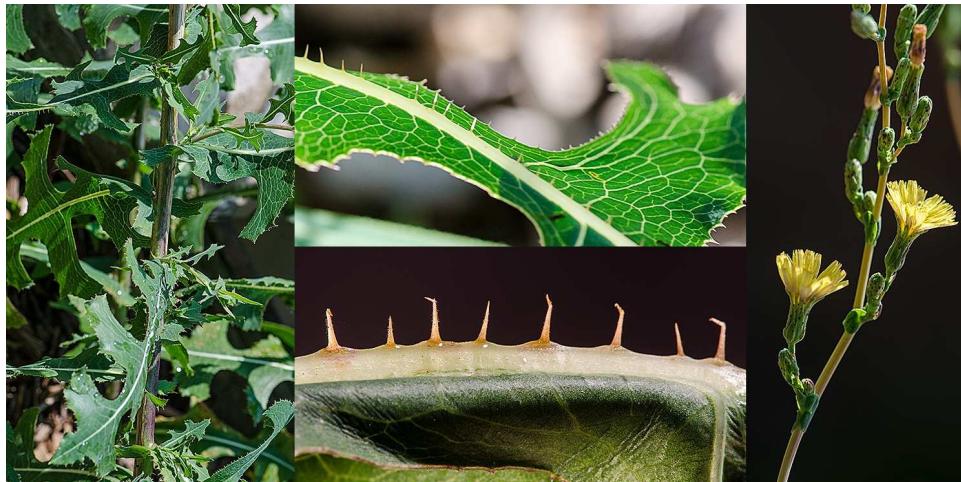
Tall Ironweed is 2-4 ft. tall. It has purple flowers that lack rays. About 25 flowers form a head. The underside of the leaves have dense hairs.



Wild Lettuce or **Tall Lettuce** can be 8 ft. tall. The variable leaves have smooth edges and are pale underneath. Flowers are yellow tinged with red. It is similar to Prickly Lettuce (see below).



Prickly Lettuce is normally shorter than 4 ft. It has sharp teeth at the leaf edges and prickles on the leaf mid-vein. The flowers are yellow with bracts that are black dotted.



Flowers in Dense Heads



Tall Coreopsis or Tall Tickseed has compound leaves with narrow leaflets. Plants are 4-6 ft. tall with yellow rays about twice as long as they are wide.



Plants about 2 ft. tall with reddish-purple reflexed rays are **Purple Coneflowers**. They are found as single plants and never in clumps.



Sneezeweed has three blunt teeth at the end of the rays. The leaf petioles often form a wing where they join the stem.

Flowers in Dense Heads

Several species of **Sunflowers** occur in the arboretum. They vary in height from the 2 ft.tall Woodland Sunflower to the 12 ft Tall Sunflower. Species differ in the amount and kind of hair on the stems and leaves.

Also some species are opposite and others are alternate. Leaf shape varies both between and within species. They hybridize and many of our plants do not run through a key.

More study of our **Sunflowers** is needed to determine which species of this difficult group we have. I just call most of them Sunflowers.



Flowers in Dense Heads



False Sunflower or Oxeye resembles one of the Sunflowers (see pg. 32). It has opposite leaves with short petioles, the disk flowers have styles, and the ray flowers have rounded tips.



Yellow Coneflower or Gray-headed Coneflower resembles Tall Coneflower (see pg. 34) with its reflexed yellow ray flowers. Yellow Coneflower has a hairy stem and the leaf tips are not as sharp.



Wing-stem is aptly named and has a pronounced wing along the main stem. It resembles Sneezeweed (pg. 31) but has fewer ray flowers and they lack the three terminal teeth. The leaves taper on both ends.

Flowers in Dense Heads

Black-eyed Susan is a familiar plant. Its stem and leaves are covered with stiff hairs. Its leaves are simple and never lobed. The seed head is more or less spherical with a blunt tip and lasts throughout the winter.



Tall Coneflower or Green-headed Coneflower is a smooth species with yellow ray and disk flowers. It can be confused with Yellow Coneflower (see pg. 33) which has brown disk flowers



Thin-leaved Coneflower or Three-lobed Coneflower resembles a small Black-eyed Susan. Its ray flowers are twice as long as they are wide. The leaves are thinner than the Black-eyed Susan and the lower ones are often lobed.



Flowers in Dense Heads



Rosin Weed's coarse leaves are sessile or clasping, and white to gray underneath. Its stems are covered in short hairs. Plants can reach 6 ft tall.



Cup Plant is aptly named because the leaf joins around the stem and can hold water. Plants are up to 10 ft. tall and are hard to miss in July and August. Stems are square and smooth.

Its yellow sunflower-like heads attract many insects. Praying Mantises often hunt prey from under the flowers.



Flowers in Dense Heads

Smooth Swamp Aster

Aster has pale blue flowers normally at the end of a simple stem. Clasping leaves with smooth upper surfaces are also characteristic of this species. At 3 ft. high it is normally taller than the Smooth Aster.



Smooth Aster is a shorter, more delicate plant than Smooth Swamp Aster. Smooth Aster has leaves that are normally no more than five times as long as wide.



New England Aster

(left hand and center photos) has purple flower heads about 3/4 in. in diameter. Its leaves clasp the hairy stem. **Hairy Aster** or **Frost Aster** (right hand photo) is a much branched species with many white flowers. Its upper leaves are sharply pointed.



Flowers in Dense Heads



Alternate, fern-like leaves, and flower clusters with 4-6 rays identify **Yarrow**. This was originally only a native species but the European element is now introduced.



Horseweed plants are 1-6 ft. tall. Larger plants can have 100+ small flower heads. This species has numerous narrow leaves.



Fireweed has numerous coarse-toothed leaves and non-descript flower heads. The right most photo shows a flower head blooming. A pink member of the Evening Primrose Family is also commonly called Fireweed.

Woody Plants

Moonseed is a native vine with grape-like fruit. Their pits are crescent shaped. The alternate leaves have a distinct 3-lobed shape and can be seen throughout the summer.



Ninebark is a native shrub with distinctive peeling bark. The flowers and fruits have branched, star-like hairs.



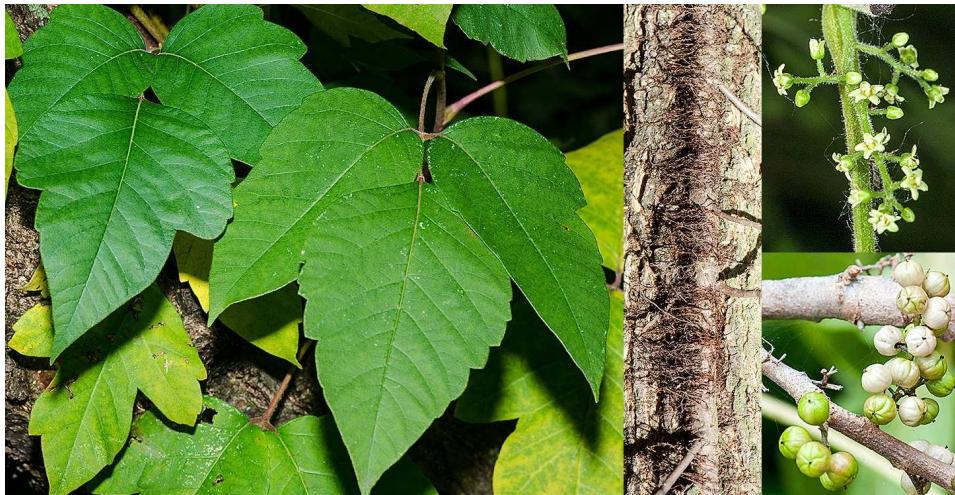
Hop-tree or Wafer-ash has alternate, compound leaves with three leaflets. The fruit has a seed that sits in the center of a flat disk. It is a member of the citrus family.



Woody Plants



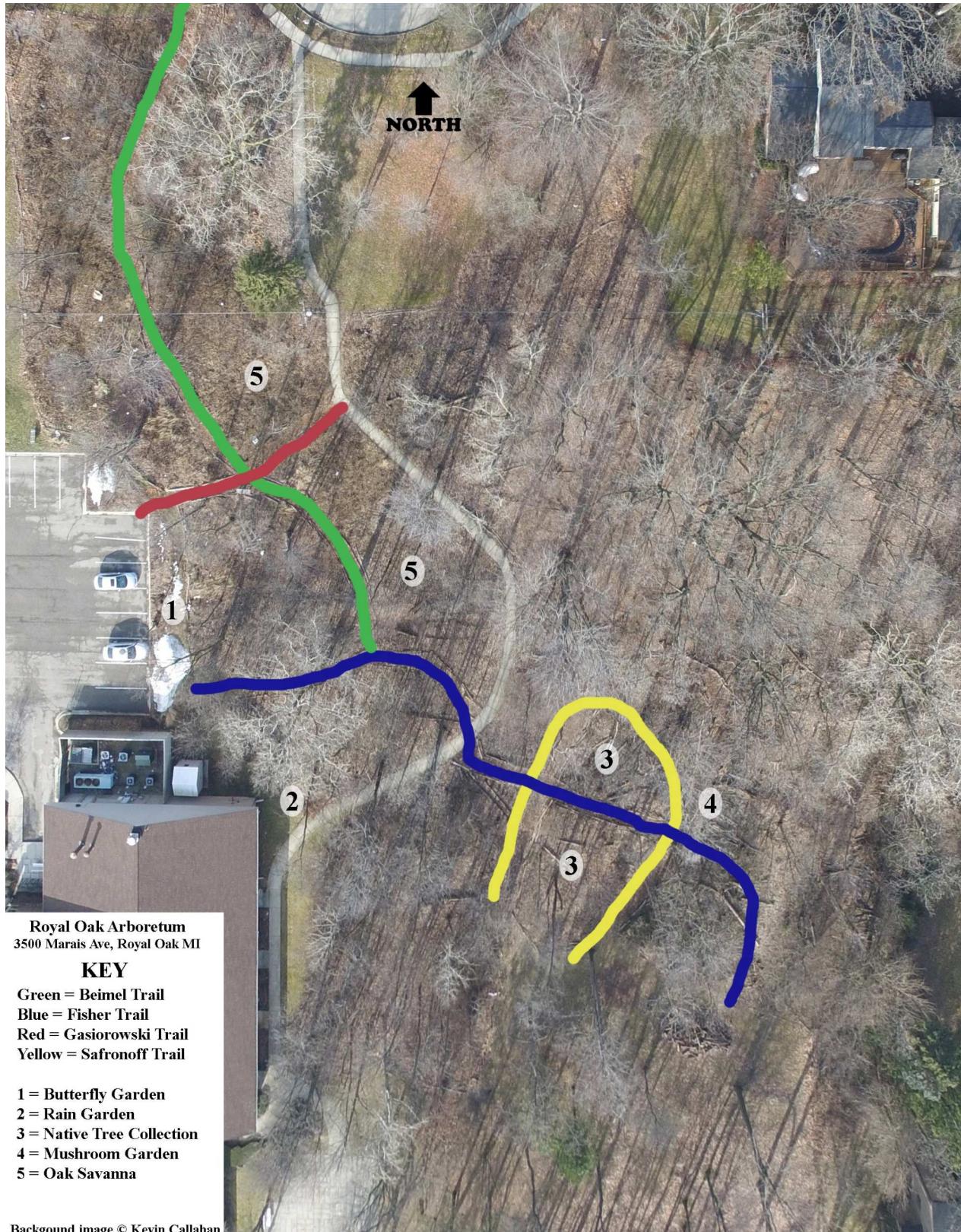
Fuzzy stems, leaves, and fruit help to distinguish **Staghorn Sumac**. The twigs resemble a deer's antler in velvet—a stag's horn. The leaves turn a brilliant red in the fall.



Poison Ivy
Three leaflets that are shiny above and have coarse teeth help to identify this plant that causes skin rashes in many people. The brown aerial rootlets along the main stem are another good character.



Prickly-ash has compound leaves with thorns along the main leaf stalk. The twigs also have thorns. The fruit resembles a tiny lime and this species is a member of the citrus family. This is a food plant for the Giant Swallowtail butterfly.



Background image © Kevin Callahan



Photo by Jessica Drife

Don is a Michigan native who grew up in Royal Oak. His family inspired him to pursue the study of the natural world as an avocation. A favorite location for him to photograph is, of course, the Royal Oak Arboretum. He is a blogger who writes at www.michigannatureguy.com where he shares his knowledge and love for the flora and fauna of the Great Lakes region.

A Guide to the Wildflowers of the Royal Oak Arboretum depicts over one hundred of the most conspicuous plant species in the "Arb." They are illustrated with over 300 photographs to aid in their identification.