



Kansas Land Trust

Earles Woodlands Spring Walk

But Kansas is Flat: Eastern Deciduous Forest and Glaciation

- We're standing in a stunning pocket of Earth, a juxtaposition of ecosystems and natural features that support a remarkable diversity of plants and animals. Prior to settlement, this area (Douglas County) was inhabited by the Kansa, Kickapoo and other Native American tribes.
- We're barely in the historically glaciated region of northeastern Kansas, with at least two of the eight or nine glaciers that ground their way down into the northern United States during the Pleistocene (between 2.6 million and 11,700 years ago).
- Prior to Euro-American settlement, this area of forest and savanna was nearly 3700 acres. Forested land was predominantly found in places naturally protected from fire with moist soils in riparian areas along streams and rivers, and steep, moist, north-facing, rocky slopes. Agricultural development and housing have greatly reduced these native woodlands, but thanks to the hard work of the Indigenous steward of the land, the Earles Family and the Kansas Land Trust, this sacred place still exists.
- In addition to ponds and meadows, we'll hike beautiful upland oak-hickory woodlands, as well as several acres of post oak-black jack woodlands. Considered one of the western most historic stands of eastern broad-leaf deciduous forest, this land is home to beautiful remnants with vegetation that can only be supported by intact, high-quality, largely undisturbed forest.

Spring Ephemeral Wildflowers: What are they and how do they work?

- Spring ephemerals are broadly defined as the earliest spring flowers, and as plants that must complete most of their life cycle in the early spring before trees and understory shrubs leaf out and completely taking over most of the available light. These plants are mostly understory forest and woodland flora (although there's an awful lot of sun on the forest floor this time of year, decreasing each day with leaf-out). There are plants that are ephemeral in other ecotypes as well.
- These plants have evolved unique adaptations, from energy storage, floral structure and seed dispersal. A sublime gift of nature at the end of a long, cold winter.
- There are of course familiar but non-native spring ephemeral plants such as tulips and daffodils.
- Badass plants, despite their diminutive size and ephemeral nature. The early spring is a difficult time to be a plant; soil temps are low, making nutrient and water uptake difficult, all but the most robust pollinators are awake, and there's the ever-present danger of a hard frost or snowstorm. An amazing balance between being super hardy and extremely delicate.
- Most have two distinct growth phases; epigeous (above ground-fall and winter, yes! Winter; developing more roots and next seasons buds) and hypogeous (below ground-spring to early summer; leaf and flower production and reproduction in a super short time).
- Longevity is remarkable, most populations existing for decades. They're slow growers; some 3-5 year olds will only have a single small leaf. Most are extremely sensitive to disturbance.
- Not all the plants I highlight in this presentation are spring ephemerals.

Spring Beauty

Claytonia virginica

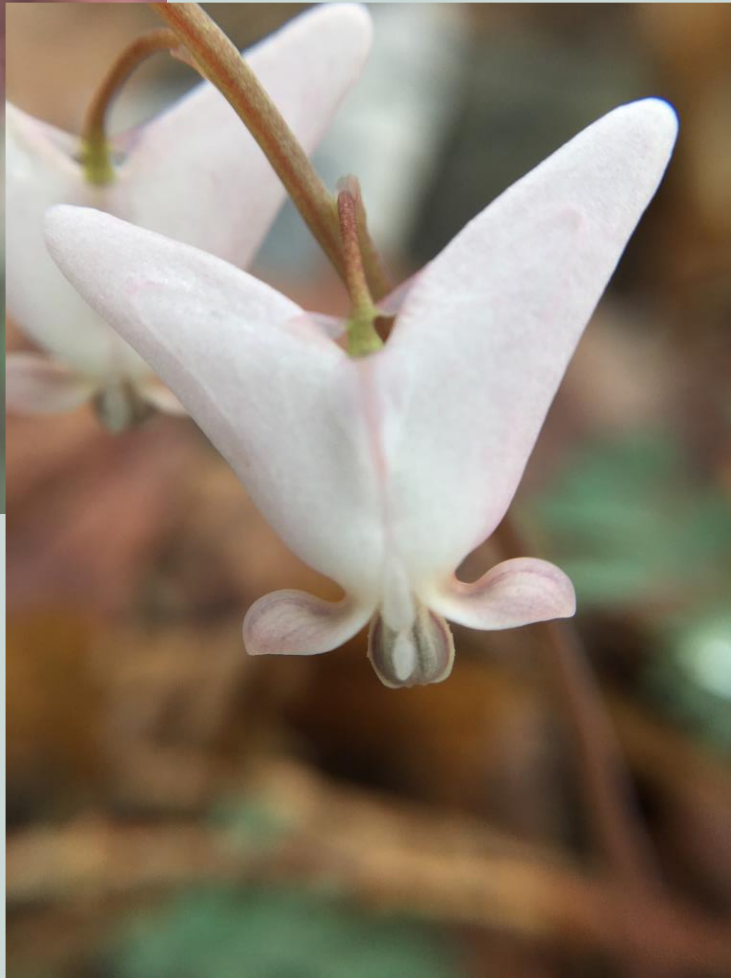
- Occurs in moist woodlands, valleys, meadow, prairie and occasionally dry upland woods. We're on the western edge of their native range, mostly found in eastern US. Can survive in more degraded habitats compared to most spring ephemerals.
- Purslane family, 2-15" tall, fairly long bloom time, 2 leaves on stalk, fleshy leaves, delicate flowers, gorgeous white/pink almost translucent five petals with pink veins (like starlight mints, directing bees and other pollinators to the reward of nectar and pollen) and matching pink anthers. Flowers close at night/cloudy days and open in sun
- Bee specialist called Spring Beauty Bee (*Andrena erigeniae*)
- Gorgeous small black shiny seeds that are ejected by a 3-part seed capsule, each seed being surrounded by a small white elaiosomes, a fleshy structure rich in lipids that attract ants to carry the seeds back to their nests. The elaiosomes are used to feed the ant larvae and the seed is discarded in the ant refuse area. Ant dispersal of seeds is called myrmecochory.
- Corm (blub like structure) has a chestnut flavor and has been used by First Nations as a food source and medicinally.
- Early spring nectar plant for many species of bees and corms also eaten by small mammals.

Bloodroot

Sanguinaria canadensis



- Occurs in rich, moist, undisturbed woodlands/forests in eastern and central North America, often in flood plains and slope near streams or bodies of water
- rhizomatous
- Papaveraceae (poppy family)
- Latin word *sanguis* means blood
- Forms large colonies
- Each flower stalk emerges in spring wrapped by one palmate, deeply-scalloped, thick-veined (palmate venation), grayish-green, basal leaf on a separate stem from the flower. Leaves shape shift over the years. Upon emergence, the leaves completely enwrap the flower bud, protecting it from the potentially harsh early spring temperatures. Most often each plant has one leaf and one flower.
- Each plant flowers and grows at separate times than its neighbors, often seen in populations with blooming and budding flowers in short proximity
- Two green sepals break apart and fall, then the many white petals begin to emerge, revealing the gorgeous yellow center (stamen clustered upright in middle, expanding outward as it blooms). Now we can see the single pistil with its divided stigma and its fat ovary at the lower end of the pistil
- The petals are so delicate, falling in wind or heavy rain and only lasting a short time. After the petals and stamens fall, the flower stalk remains, topped with its fertilized ovary. The leaf continues to grow, taller than the ovary as the seed matures.
- Seeds are surrounded by eliasomes, a nutrient rich food cherished by ants.
- Bright red interior of the rhizome gleams like blood and was used by Native Americans as a dye and medicine, although the plants contains compounds that are skin irritants, and the rootstock is caustic and poisonous if ingested.



Dutchman's Breeches (why not Vrouw Bloomers?)

Dicentra cucullaria

- Occurs in rich, rocky woodlands and forests in Eastern North America
- Papaveraceae (poppy family- same as Bloodroot)
- Deeply cut, fern-like leaves with flowers borne in a row drooping from leafless stems arching above the foliage like a small clothesline. Unique peduncle (the main stalk of an inflorescence)
- Extremely unique, double-spurred flowers that require bumblebees for pollination. Two large nectar spurs on the bottom of each flower, and only bumblebees have a tongue (proboscis) long enough to reach the nectar inside. That's the only way the plant can set seed.
- Unlike most other spring ephemerals, this plant doesn't form any mycorrhizal associations, instead relying solely on its own root structure to obtain all the water and nutrients it needs.
- Seed pods open and have eliasomes and are part of myrmecephory.
- Remarkable how this plant require both bumblebees and ants for its lifecycle.
- Related to *Dicentra canadensis* (Squirrel Corn), which has more rounded nectar spurs and fragrant flowers.

May Apple

Podophyllum peltatum

- Occurs in open deciduous forests and shady field edges, riverbanks and sometimes roadsides, growing in colonies from shallow rhizomes.
- The leaves remain furled as the stem elongates in spring, unfolding like an umbrella when the stem nears its full height.
- Each glossy green palmate leaf has 5-9 shallowly cut lobes, with mature leaves reaching as wide as 12". For 4-12 years, the plants only produce leaves. Only mature plants flower.
- A solitary flower is produced in the axil of a stem with two leaves. The nodding white flowers are short lived and hidden by the leaves. Flowers are fragrant and visited by bumblebees and other long-tongued bees.
- Pollinated flowers are followed in early summer by fleshy, ovoid to lemon-shaped fruits (a berry) containing several tan seeds. These green "apples" ripen to a golden color and can be used in jellies, preserves, lemonade and marmalade. They may also be eaten by box turtles (favorite fruit, and seeds have higher germination rate when they've passed through a box turtles' digestive tract) and other wildlife (raccoons, possums, and skunks) that disperse the seeds. Seeds are poisonous, the pulp of the berry is not.
- "Down in the shady woodland, Where fern fronds are uncurled, A host of green umbrellas, Are swiftly now unfurled, Do they shelter fairy people, From sudden pelting showers, Or are the leaves but sunshades, to shield the waxen flowers?" By Minnie Curtis Wait, 1901
- Mayapples contain a powerful anti-cancer agent called Podophyllotoxin, its derivatives are used to make several anti-cancer compounds. Other derivatives are being tested for treatment of psoriasis, malaria, and rheumatoid arthritis.



White Trout Lily/Dogtooth Violet

Erythronium albidum



- Similar species of dogtooth violets or trout lilies (*Erythronium* spp.) include Prairie Trout Lily (*E. mesochoreum*) and two yellow flowered species (*E. americanum* and *E. rostratum*). *The leaves are easily recognizable, but species can be difficult to distinguish during their vegetative growth.*
- Lily family (Liliaceae)
- Trout Lily is a colony forming plant with beautiful mottled, fleshy leaves of green, blue-green, silver and maroon (similar to trout). The horizontal roots (stolons) will form new plants, turning one plant into many.
- A single nodding flower (so modest looking) will bloom at the end of a stiff, naked stalk and only lasts a few days. These flowers offer a much needed meal to pollinators when little else is available.
- Dogtooth Violet comes from the fact that the corm (underground bulb-like structure) looks like a dog's tooth.
- Vernal Dam Hypothesis- Research shows that spring wildflowers like Trout Lily serve as nutrient pools for the entire forest. Without plants like Trout Lily, spring rains would saturate the soil, where it would then run off into local waterways, taking with it valuable nutrients like nitrogen and phosphorus. Because Trout Lilies grow well at low soil temperatures, they take up nutrients that would otherwise be lost during this time. When the warmer summer weather hits and the leaves die back, they then release a lot of nutrients back into the soil where vigorously growing plants are ready to take it up.

Woodland Phlox/Wild Sweet William

Phlox divaricata



- Polemoniaceae family and native to Eastern North America in rich woods, fields and along streams. Huge range from Quebec to Florida and west to Texas and the Rockies.
- This showy and fragrant wildflower forms mats of foliage by rhizomes (divaricate= spreading/dividing)
- Common garden plant with many cultivars
- Stems are sticky (glandular hairs) and flowers can range in color from pale blue, lavender or violet.
- Sometimes mistaken for Dame's Rocket, an invasive, non-native plant in the mustard family. Dame's Rocket has four flower petals and alternate leaves while true native Phlox has five petals and opposite leaves.
- The flowers are only pollinated by long-tonged insects including butterflies (especially tiger swallowtails), skippers, hummingbird clearwing and sphinx moths and bumblebees which are able to reach the nectar produced at the base of the long tube.
- If you come across a large group with the breeze moving in the right direction, the smell is intoxicating!



Pussytoes/Field Pussytoes/Woman's Tobacco *Antennaria plantaginifolia* and *Antennaria neglecta*

- Asteraceae family native to fields, plains, slopes, grasslands and open woodlands with a broad range in North America
- *A. neglecta* has single or double ribbed basal leaves and narrower leaves which *A. plantaginifolia* has three to five prominent veins and broader leaves
- Small stoloniferous, mat-forming plant that loves rocky, dry soils. In the right conditions, Pussytoes can spread to form an attractive ground cover and form dense colonies.
- The stems, leaves and clustered flower heads are adorably woolly (pubescent protection from cold temps).
- Flower stalk rises from the center of each basal rosette and bears a crowded terminal clusters of fuzzy white disk flowers that look like cat paws.
- Plants are dioecious (male and female flowers on separate plants; male flowers often appearing on shorter flower stalks than females) and fruiting heads look like mini dandelions.
- Both species are larvae hosts for the American Painted Lady (*Vanessa virginensis*)

Sedges

Carex species

- Incredible diversity of sedge species that are generally undervalued and underappreciated
- They only lack showiness if you're not paying close attention. Just look at those diverse flowers and fruits.
- Examples include *C. annectens*, *C. bicknellii*, *C. brevior*, *C. comosa*, *C. frankii*, *C. grayi*, *C. muskingumensis*, *C. fragilis*, *C. shortiana*, *C. vulpinoidea*
- *Carex* fruit is a one-seeded nutlet that is enclosed in a bract-derived structure known as a perigynium.
- Increasing in popularity as a “green mulch” and some species as turf alternatives. *Carex* is an important member of the matrix of many ecosystems.
- There are some non-native sedges that can be quite persistent garden weeds.





Wild Ginger

Asarum canadense

- Aristolochiaceae family, not really considered a true spring ephemeral, keeping its foliage through the season
- Part to full shade, with moist, well-drained soil
- Spreads slowly by rhizomes to form a beautiful ground cover
- Nearly stemless with two downy, heart-shaped, beautifully veined basal leaves with hidden cup-shaped, purplish brown petite flowers that appear in spring.
- Not related to culinary ginger (*Zingiber officinale*) the roots of this plant produce a scent that is reminiscent
- Likely ant pollinated and a host plant for the Pipevine Swallowtail butterfly (*Battus philenor*).
- How kind that the plant rests its flower so low, nearly on the ground, making it an irresistible shelter for ants



Maidenhair Fern and Friends

Adiantum pedatum

- *Pteridaceae* family (Maidenhair Fern Family)
- *Roots have fine delicate hairs like Venus, hence the common name*
- *Deciduous, clump-forming fern that's most often found on rich wooded slopes, ravine bottoms and damp shady woods. Finely-textured, frilly fronds which have curved dark, wiry, reddish-brown to black stalks.*
- *Unique fan-like pattern, forming a nearly perfect circle, horseshoe or C-shape*
- *Greek word adiantos meaning unwetted in reference to the water repellent foliage. Pedatum meaning cut like a bird's foot in reference to the fronds.*
- *The Earles woodlands and home to many species of fern, lichen and moss*

Wake Robin/Toadshade

Trillium sessile



- *Liliaceae* family (*Lily*)
- Latin trilix meaning “triple” in reference to the 3-part flower
- A thick rhizome sends up a 4-12” stem with three broadly oval leaves at the apex. Flower sepals are spreading and green while the petals are ascending and deep-maroon. The stalkless flower is directly above the 3 whorled leaves and appears closed, an impression created by its narrow, erect petals.
- Missouri has 7 species in the genus *Trillium*, while Kansas has only two (with *T. viridescens* Ozark *Trillium* only known occurrence in Cherokee County, KS)





Cutleaf Toothwort

Cardamine concatenate

- Brassicaceae (mustard) family occurring in rich woods and wooded slopes
- Stems rise directly from rhizomes, each having a whorl of three leaves near the middle of the stem. Each leaf is divided into three, narrow, sharply-toothed, lance-shaped segments (the common name is actually derived from tooth-like knobby rhizomes)
- A terminal cluster of four-petaled, white flowers (sometimes with pinkish blush) blooms at the top of each stem, with petals arranged in the shape of a cross. Provides much-needed nectar to early spring flying insects.
- Toothworts are sometimes called pepperroots in reference to the spicy, radish-like flavor of the rhizomes which can be added to salads.

Jack-in-the-Pulpit

Arisaema triphyllum



- Araceae (Arum) family and occurring in woodlands and forests in Eastern North America
- The intriguing bloom consists of a green and brown striped hood that conceals a spadix- or jack- covered in numerous tiny green to purple flowers. The unusual flower gives way to a cluster of bright red berries late in the summer.
- Plants can either be male or female and they can change sex from year to year, depending upon the success of reproduction the previous year. Male plants have a small hole at the bottom of the spathe which allows pollinators to escape more easily, while female plants lack the hole and pollinators are more likely to become trapped, leading to more successful pollination.

False Rue Anemone

Isopyrum biternatum (formerly genus *Enemion*)

- *Ranunculaceae* family native to Eastern North America
- Tuberos root, petite wildflower that typically grows 5-8" tall and occurs on open wooded slopes, river flood plains, and rich forest. Often seen in large colonies
- White anemone-like tiny flowers with 5 petal-like sepals and showy yellow center stamens
- Threatened by invasive plants such as Garlic Mustard
- Fruit is a star-shaped cluster of 4-6 capsules





Bellwort (or Giant Uvula Flower?)

Uvularia grandiflora

- Colchicaceae family (or Lily, depending upon the botanist you talk to), native to Eastern and Central North America, occurring in rich woodlands, on wooded slopes and in alluvial valleys
- Clump-forming, erect plant
- Bell-shaped, yellow flowers with six, partially twisted tepals (petal and sepal look-alikes) and lance-shaped bright green leaves.
- This plant has an overall droopy appearance, delicately bowing modestly.
- Genus name comes from the anatomical term uvula referring to the lobe hanging from the back of the soft palate in humans (similar to the hanging flowers)



Virginia Bluebells *Mertensia virginica*

- *Boraginaceae* family, occurring in moist, rich woods and river floodplains
- Most other member of the borage family are covered with bristly hairs, but Virginia Bluebells stands out with its smooth foliage
- Erect clump forming perennial that features loose, terminal clusters of pendulous, trumpet-shaped, blue flowers which bloom in early spring
- Flower buds are pink and flowers emerge with a pinkish cast before turning blue.
- Bees, especially female Bumblebees that fly in early spring, will often be seen visiting the flowers, but only the largest bees have the ability to push their way up the tube.
- The real champions of Bluebell pollination are butterflies and moths



False Solomon's Seal (or Starry Spikenard)

Maianthemum stellatum

- Asparagaceae family, native to moist woods, slopes, prairie and meadows with wide range in North America
- Latin Maios=May and anthemion=blossom
- Rhizomatous plant that grows 10-20" tall with a single stem clad with alternate, lanceolate, stem-clasping leaves with rounded bases and pointed tips. Leaves are finely pubescent below.
- Star shaped white flowers give way to fruits which mature from green with blue-black stripes to blackish-red to black.
- Young shoots in spring may be used as an asparagus substitute. Fruit is bitter-tart but edible.
- The flowers of true Solomon's seal (*Polygonatum*) are bell-shaped and hang from the leaf axils along the stem, whereas the flowers of false Solomon's seal are star-shaped and located in terminal clusters



Virginia Waterleaf

Hydrophyllum virginianum

- Hydrophyllaceae family and is native to moist woods with wide range in North America
- Latin means “water leaf” which is evident in the early season leaves which appear to have water droplets on them.
- Tiny white to lilac bell-shaped flowers bloom May to June in rounded clusters which extend above the upper leaves
- Flower petals are fused into a tiny bell, with hairy stamens emerging from and extending well beyond the rim of the bell.
- Can be aggressive and rhizomatous and is a great landscape plant in the right place (I have it along the north side of my house where it’s shady and wet)



Wild Geranium

Geranium maculatum

- *Geraniaceae family (Geranium), Native to much of eastern North America*
- *Beautiful dissected leaves, stunning pinkish-purple flowers*
- *Spreads readily and forms lovely patches that bees and butterflies can't resist.*
- *Interesting seed dispersion: each seed is packed into a pod and each pod is attached to a structure that resembles a crane's bill. As the bill dries, it literally catapults the seeds away from the parent plant. Each seed has a small tail-like structure that bends and moves in response to changes in humidity, which helps to drive the seed into the soil where it can safely germinate.*

Puttyroot Orchid/Adam and Eve

Aplectrum hyemale

- Orchidaceae (Orchid) family and found across the eastern U.S. and Canada.
- Produces a single dark green leaf with fine white marginally-parallel veins in the fall which stays green throughout the winter. Lower leaf is green, purplish green or dull purple.
- Flowers in spring as the leaf senesces, producing 7-15 small flowers
- The majority of plants fail to produce flowers during most years, either because of immaturity or environmental conditions are unfavorable
- The common name refers to the sticky substance produced by crushing underground corms. Adam and Eve refers to the two corms that are connected together by a slender rhizome



Rose Verbena

Glandularia canadensis



- Verbenaceae (Vervain) family with wide distribution in prairies, meadows, savannas, woodland edges, roadsides, and forest openings
- Clumping, spreading, low-growing plants that can root at the nodes that touch the ground
- Flat topped cluster of 5-petaled, rose-pink to purple flowers appear atop ascending stems in a long late spring to summer bloom.
- Deeply lobed dark green leaves
- The showiest of verbenas and the source of many garden hybrids