

Cover photos courtesy of Keenan Beals

Self-guided Trail Booklet



About this guide



Keenan Beals of Clyde Township placed 34 trail markers at scenic locations in the Pine River Nature Center as part of his Eagle Scout project. The numbers on the markers correspond to different portions of this guide. At the time this was created in 2009, Keenan was 16 and a member of Troop 216 of the Blue Water Council. His Scoutmaster was Brian Spain. Keenan is also an avid photographer and supplied many of the photos in this guide.

The text in this guide was written by Pine River Nature Center naturalists.

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Trail map



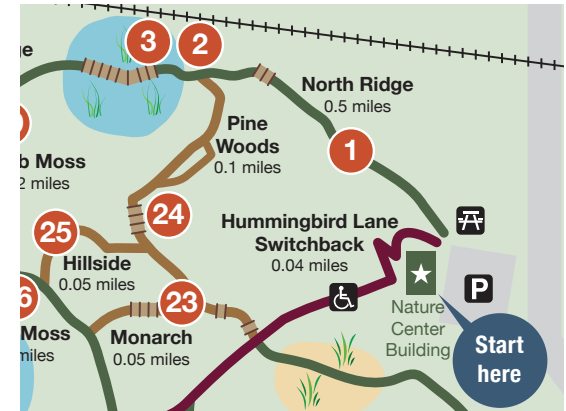
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North Ridge Trail

1

WHITE PINE FOREST

This large white pine is the mother tree for the evergreen forest ahead of you. This area was barren land in the 1940s, logged and used for pasture. Left back to nature, the pines grew in densely. Eventually, competition for light will cause the smaller, weaker trees to die creating new openings in the forest for hardwood trees that will eventually replace the white pines. The White Pine, named Michigan's State Tree in 1955, is easily recognized in Michigan by the needles that grow in groups of five. (One needle for each letter in its name, "W-H-I-T-E.") Cone production peaks every 3 to 5 years. Mature trees can easily be 200–250 years old. Trees in Wisconsin and Michigan have approached 500 years in age. White pines prefer well-drained soil and cool, humid climates, but also grow in boggy areas and rocky highlands. The most prized boards were from the white pine trees which had few knots or scars from lower branches. This is because before intense logging, the trees grew so close together that only the branches close to the canopy received sunlight and there weren't many lower branches.



A group of white pines (above); white pine foliage (top right); and cone.



Keith Kanoti, Maine Forest Service

2

SEASONAL STREAM

You have arrived at an ephemeral stream. Ephemeral means short-lived. The waters of melting snow from the upland surrounding areas, thawing ground and rains fill the stream channel in the spring. The streambed is dry during parts of summer and fall. This drainage feeds the hardwood swamp to the south. In the spring, there is standing water in the swamp, which many aquatic animals such as tadpoles and caddis flies use to make their homes.

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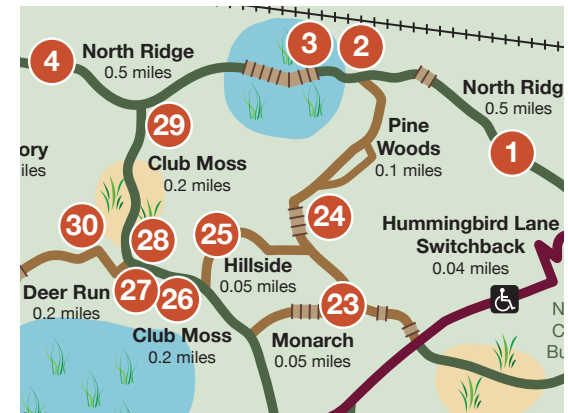
3

SHRUB SWAMP

Along this boardwalk is a shrub swamp. It is a wetland ecosystem dominated by shrubs, which include elderberry, northern witherod, as well as a few young ash trees. Many of the trees have died out and now stand as snags, or dead trees, which are important habitats for woodpeckers and other cavity-nesting birds. Along the open border of the boardwalk is a diverse grouping of wetland flowers and grasses; sensitive ferns, sedges, and spotted touch-me-not grow in abundance during the summer.



Spotted touch-me-not



4

MAYAPPLE COLONY

Underneath this red maple tree is a Mandrake or mayapple colony. It is a spring wildflower that has umbrella-like leaves. It spreads underground through rhizomes (underground stems) and has spread out in a big circle around the base of this old red maple tree. Only the two-stemmed plants will bloom and bear fruit. All parts of this plant are poisonous except for the mature fruit, which are eaten by deer.



Mayapple plant



Mayapple flower

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5

RED MAPLE FOREST

Red maple trees dominate this woodlot to the north of the trail. This area of the nature center was once an open field used for pasture. The red maples have seeded and created a second-growth forest. The seedlings are shade-intolerant, so eventually these trees will be replaced by more shade tolerant species like sugar maple and American beech.

Currently, a few other tree species, such as white birch and sassafras, are in this woodlot, but overall there is not much tree diversity. Sassafras trees are very unique; they have three different-shaped leaves all on the same tree. One leaf looks like a mitten, another looks like a dinosaur footprint, and the last is an oval-shaped leaf. Sassafras is a pioneer species that colonizes open areas; the seedlings are shade-tolerant but need an opening in the canopy and full sunlight to survive into adulthood. Therefore, they are predominantly edge plants; here they have colonized the edge of the woodlot as it opens into the meadow on the other side of the trail.



Red maple leaves



The three different leaves of the sassafras tree

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WILLOW SHRUBS

In front of you is a low area that fills with water during the spring. This small wetland harbors willow shrubs that thrive in the open, sunny conditions of the prairie. Willows are shallow-rooted shrubs that have long, thin leaves and flexible branches.

In the spring, willows are among the first plants to bloom; their flowers are called “catkins”—probably because they look like the fuzzy tail of a cat. Catkins are unisexual flowers, meaning male and female flowers bloom on different individuals; they are wind and insect pollinated. Catkins are favorite early spring source of nectar for hungry honeybees that made it through the winter.



Willow leaves



Catkins

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7

PRAIRIE RESTORATION

You have arrived at the nature center's 3-acre prairie restoration project. The planted area is in the center of the gravel-walking path; the areas outside the path were left to grow natural. The prairie was planted in the summer of 2004 with a mix of native warm-season grasses and wildflowers. To help re-establish the prairie, burning is recommended every 4 or 5 years. Most of the prairie plants come from underground, so burning what is above ground will not hurt the native prairie species growing in the area. Burning will destroy the non-native plants that are not adapted to withstanding fire. In some cases, burning is the only way to promote some of the prairie species whose growth and seed germination is directly keyed to periodic burning.



Nature center prairie restoration



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BLUEBIRD HOUSES AND BIG BLUESTEM GRASSES

Bluebird nest boxes can be seen along the outside edge of the prairie; these boxes comprise our “Bluebird Trail.” There are ten boxes in total and they are spaced in pairs. The bluebird houses are paired because house wrens, a non-native species that typically crowd out our native bluebirds, are too territorial to let another house wren occupy a nearby box, so the other box is left open for the bluebirds. So far we have had bluebirds, tree swallows and house wrens nest in the boxes. Depending on the weather, bluebirds typically arrive back to our area in late March to stake out their nesting territory. Look for their activity as they fly in and out of the boxes.

Alongside the railroad tracks are stands of Big Bluestem grass. It is a native warm-season grass found in prairies. It is very tall and can grow to eight feet. The flower appears in late summer and looks like a “turkey-foot”; hence this grass is commonly referred to as “turkey-foot grass.” It is a favorite of animals as its stiff structure holds up to the weight of winter snows. This structure provides shelter through which mice and other small mammals can make tunnels, navigate and find refuge from harsh, winter weather. In contrast, cool-season grasses tend to be flattened by the first heavy, snow.



Big bluestem grass



Eastern bluebird



House wren



Tree swallow

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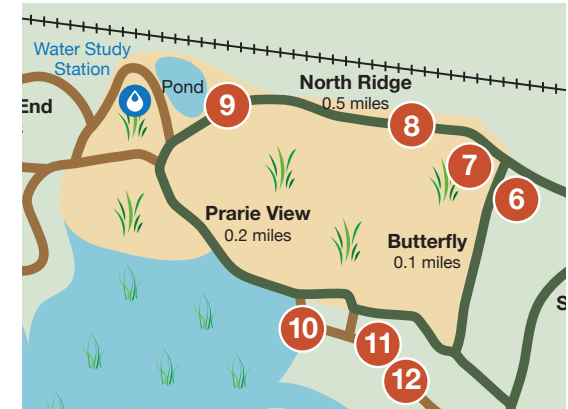
MAN-MADE POND AND CATALPA TREES

This area of the property was once a homestead and the pond is a swimming hole dug by the previous landowners. A house and barn once stood on the property when it the land was used for farming and agriculture. Cattails grow along the edge of the pond. The water level in the pond fluctuates with the seasons, in the spring it may appear almost full, in late summer it can drop five-feet or more. Many wetland animals find a home here and the pond has been stocked with crappie and blue gill.

There are two Northern Catalpa trees planted in the homestead area. Many old farms in the Thumb have these trees. Their fast-growth and durable wood made them popular for fence posts; distinctive pink flowers provide a beautiful show in early summer. They have long, cigar-shaped seedpods that hang from the branches. They look like small brown snakes when they have dried on the ground. Can you find a seed pod at the base of one of the trees?



Catalpa tree and pods



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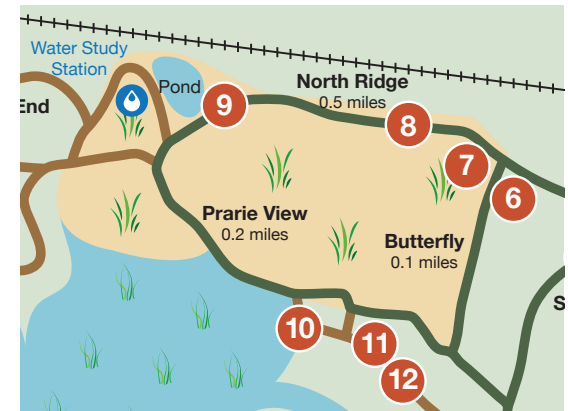
River View Trail

10

GIANT OAK TREES

You have reached one of the finest viewing areas at the nature center. In the valley is an open, wet meadow that floods during the spring. It is stunning with purples and gold in the late summer from the asters and goldenrods. At dawn or dusk, you can often see a white-tailed deer bounding across the basin.

The tall stately trees around you are oaks; notice their wide spreading branches. There are white, red and bur oaks along this ridge; unique to this particular area of the nature center are Bur Oak trees. These massive trees have an acorn with a fringed cup and their leaves look like they have a waist.



Bur oak leaf and acorn

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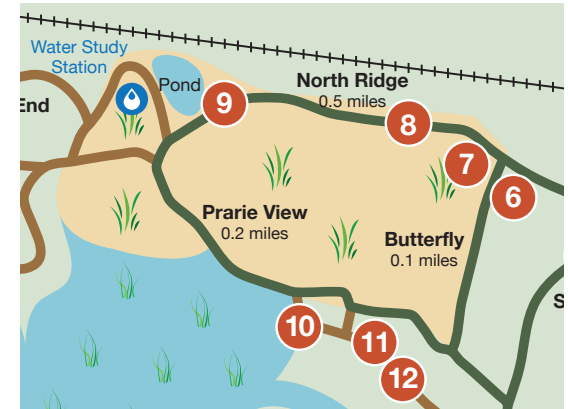
11

BLACK LOCUST TREES

Have you noticed any bean pods on the ground? These are from Black Locust trees. They were planted by a farmer long ago to help stop erosion down the hill. The wood is rot resistant and used for fence posts. Black Locust are not native to Michigan.



Clockwise from top left: Black locust tree; pods on tree; pods fallen to ground.



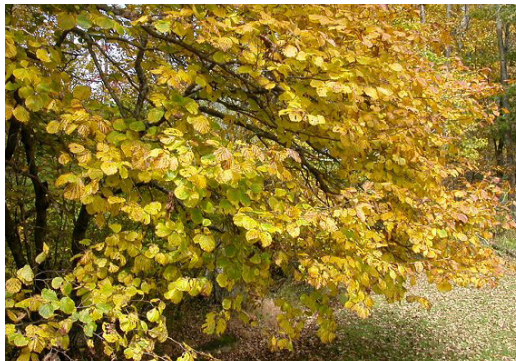
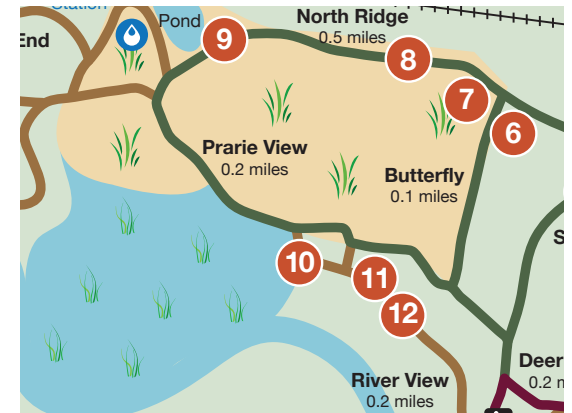
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12

WITCH HAZEL

Witch Hazel is quite unusual. After its leaves have dropped, spidery one-inch flowers will open from late September to November. When its seed capsules mature the following autumn, they burst with a pop, throwing seeds up to 50 feet in all directions. This shrub is seen frequently in damp woods where it stands only 15 feet. Witch hazel has been present for more than a century in just about every pharmacy and barber shop in the United States. Today's pharmacies regularly stock distilled witch hazel and carry ointments containing witch hazel to reduce inflammation, slow bleeding and relieve pain.

Native Americans have historically used all parts of the tree for medicinal purposes. The Oneida, Potawatomi, Ojibwa (Chippewa), Iroquois, and Menominee used witch hazel infusions—leaves and inner bark steeped in water—to extract the active ingredient, tannic acid. These brews were used as teas to relieve lung ailments, diarrhea, sore muscles, and various skin troubles. The Iroquois tried to inhibit vomiting with a witch hazel poultice, while the Ojibwa used the plant to induce it. The tree also held spiritual significance; the Menominee used witch hazel seeds as sacred beads in medicine ceremonies.



Witch hazel tree (left). The witch hazel tree blooms appear from late September to November. Native Americans used all parts of the witch hazel tree for medicinal purposes. Witch hazel is still used to today to treat skin ailments, relieve sunburns, and as a gargle for a sore throat.

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Pine River Trail

13

OLD WHITE OAK

This species is the best known of the oaks. The long pointed acorns with shallow cups were eaten by the Native Americans and are an important wildlife food. It is an outstanding lumber tree used for furniture, boats and barrels.

The floodplain has tree species that are tolerant of standing water in the spring that dries in the summer. This forest has been dominated by beech, maples and oaks, but due to succession (the natural replacement of plant species in an area over time) it will move more into a Northern-Hemlock Hardwood Community.



White oak tree, acorns

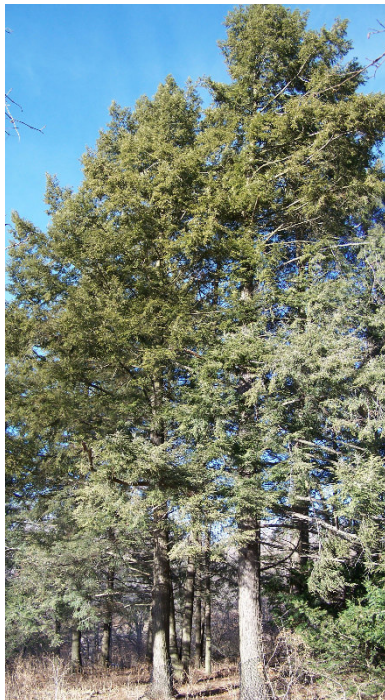


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14

EASTERN HEMLOCK

This evergreen is rich in tannin, which was used to tan animal hides. Medicinally, tannins are used to draw irritants out of your skin such as the venom from bee stings or poison ivy. Tannins are also applied to burns to help with healing and to cuts to reduce bleeding. Hemlock is a favorite food of deer. It can live 600 years.



Eastern hemlock tree (left); the Eastern hemlock has many medicinal uses.



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THE PINE RIVER WATERSHED

A watershed (another word for a drainage basin) is the area of land that drains to a particular water body. There are seven watersheds in St. Clair County. The headwaters of the Pine River are about seven miles northwest of the nature center. At the Pine River Nature Center the south branch of the Pine River meanders through the property. As you can see it is a much smaller stream than the Pine River that flows through St. Clair. The Pine River empties into the St. Clair River at the city of St. Clair.



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OXBOW TRAIL

This trail is well named for it follows a portion of the abandoned oxbow of the Pine River. The characteristic oxbow or crescent shape was once a meander of the river, which at some point got cut off. The oxbow is now a spring reservoir for water and wildlife.



17

HORSETAIL

This plant is also known as snake grass or scouring rush. It looks as if it is only a stem. However, its leaves make up most of the tall, hollow plant with 6-19 jointed sections. The leaves are scale-like and grooved. It was historically used to scour things like pots and pans made out of tin and copper.



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VERNAL POOLS

Vernal Pools are seasonal wetlands found only in a very limited area of the country. Many people would just call this area a “mud puddle” in the winter and a “dust bowl” in the summer, but living within vernal pools are an interesting array of organisms not found anywhere else. Many of the living organisms found in vernal pools are endangered due to human development.

These habitats are best known for the amphibians and invertebrate animals that use them to breed. Vernal pools dry completely by the middle or end of summer each year, or at least every few years. Occasional drying prevents fish from establishing permanent populations. Many amphibian and invertebrate species rely on breeding habitat that is free of fish predators.



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Wildflower Trail

The beginning of Wildflower Trail is the richest area on the property for spring wildflowers. There is a mature forest of American beech, red oak and black cherry that provides a dense, leafy canopy in the summer. However, in the spring, before the leaves emerge, the sun warms the forest floor and provides a beautiful display of spring wildflowers. In the springtime you can view white and red trillium, wild geranium, blue cohosh and more.

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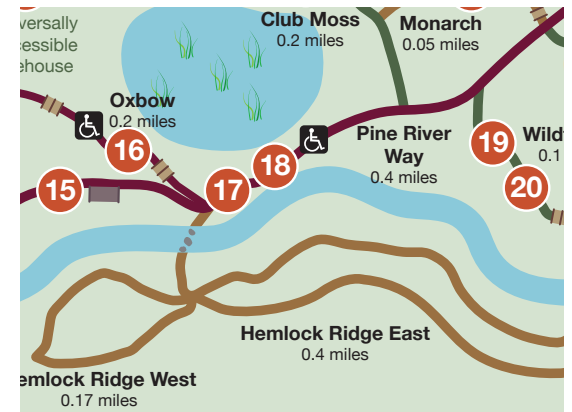
TULIP TREE

The tulip tree is an uncommon tree this far north in Michigan. It is found more commonly farther south into the Appalachian mountain region. It is a fast-growing tree that can grow to 150 feet. The flowers of this tree start forming after around 15 years and are similar in look to a tulip in shape, hence the tree's name.



Bruce Marlin

Tulip tree (left); leaves and flower of the tulip tree.



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OLD RIVERBANK GRAPE VINE

This species of grape has found a home in a grove of American beech trees. These vines thrive in the nutrient-rich environment of the floodplain and can reach 50 feet in height. Wild grapes are very valuable as a source of cover and food to many insects and animals. Bumblebees, small bees and flower flies visit the flowers, where they seek pollen. Several mammals and birds consume the fruit, including the Gray Fox, Opossum, Raccoon, Striped Skunk, Eastern Gray Squirrel as well as many different types of birds. These birds and mammals help distribute the seeds far and wide.



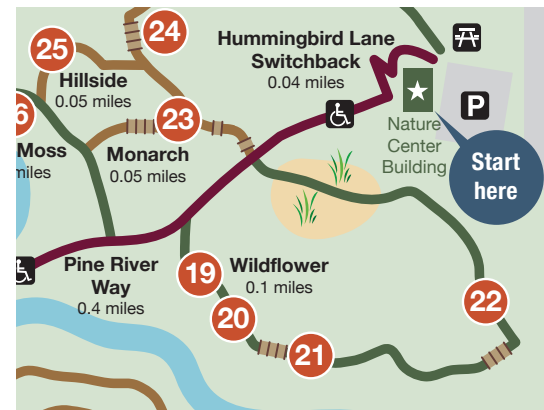
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AMERICAN BEECH TREES

The American beech is a tall, wide tree. Mature trees range in size from 90 to 100 feet tall, and spread 50–70 feet wide. The bark that grows on the tree is very smooth, pale and gray. The growth buds have a yellow tinge, looking a little like a bullet. The leaves are bright green and are about three inches in length. They start wide, and then get smaller and smaller, until they come to a point. The leaves have distinct, strong veins and toothed edges.

The American Beech tree produces a lot of paper. The animals that feed on the nuts that grow on this tree include the opossum, white-tailed deer, rabbits, ruffed grouse, red and gray squirrels and porcupines.



22

OSTRICH FERNS

Looking straight into the old river oxbow there is a large swath of ostrich ferns, which grow during summer in the bottom of the old river channel. Ostrich ferns thrive in the damp soil. In the springtime, this area is usually filled with water from melting snows, spring rains and flooding from the Pine River.



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Monarch Trail

23

SHAGBARK HICKORY

Shagbark hickory is probably the most distinctive of all the hickories because of its loose-plated bark. Common names include shellbark hickory, scalybark hickory, and upland hickory. The shagbark hickory is commonly found in association with oak trees and grows well in both dry and wet soil conditions. The wood is hard, strong, elastic, and is used in handles for tools and in athletic equipment. The wood also makes excellent firewood, and often is used in smoking meat. The sweet nuts, once a staple food for Native Americans, provide food for wildlife. It is the preferred food of squirrels and is also eaten by eastern chipmunks, black bears, gray and red foxes, rabbits, and white-footed mice. Bird species such as mallards, wood ducks, bobwhites, and wild turkey utilize small amounts of hickory nuts.

Squirrels are extremely fond of the fruit of the hickory, and some humans also use the nuts in baked goods, cookies, cakes, salads and game dishes.



Susan Sweeney



Shagbark hickory and nut.



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Pine Woods Trail

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SWAMP WHITE OAK / JEWEL WEED

The Latin name for the swamp white oak in front of you, *Quercus bicolor*, refers to the distinctive two-colored appearance of the leaves: green on the upper surface, and whitish on the under surface. Also, unlike other oaks, the dark brown bark of branches peels away in ragged curls exposing the lighter colored bark beneath. The English name of this tree refers to its preference for swamps, stream banks and bottomlands. Wood from this tree, although often more knotty, is used in much the same way as that of the White Oak.



Jewelweed is notable for having seed pods that burst when touched, spreading seeds over several square meters. Because of this, it also has the common name of Touch-me-not. Jewelweed is often used as a home remedy to treat poison ivy rashes and also contains a dye that is found in Henna. Jewelweed grows in sunny, wet areas, such as roadside ditches and fens. The orange flowers with dark spots are shaped like a shoe. When held under water, the leaves appear silvery in color (especially the underside) due to tiny air bubbles trapped across the leaf surface, possibly accounting for the plant's common name.



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Hillside Trail

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BRACHIOFERN AND PENNSYLVANIA SEDGE

Bracken Ferns are large ferns that can grow over three feet tall. Instead of leaves these ferns have fronds which are groups of mini leaves. Each frond is triangle shaped and usually has three leaflets. The fronds die in the fall and new fronds will grow the following spring. Bracken ferns grow in large groups and have thick root-like stems that grow underground in areas that have sandy and acidic soils. They are eaten by white-tailed deer and rabbits. Many animals and insects won't eat them because of chemicals that make them sick. This fern is also great cover for animals, insects, spiders and salamanders hiding from predators.



Pennsylvania Sedge also known as yellow sedge and Penn sedge looks like ornamental grasses with long, narrow leaves 4 to 18 inches long. It is native to the US in the midwest and New England areas but mainly Pennsylvania sedge is found in upland plains habitats. It is dominant in meadows of the Great Lakes area and common in forest understories.



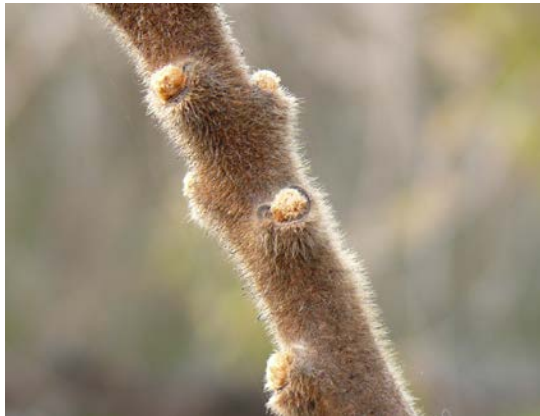
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Club Moss Trail

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STAGHORN SUMAC

Sumac is a small, fast-growing tree which is common to many parts of America. It grows 4–15 feet tall. The twigs and leafstalks are fuzzy like a “stag in velvet.” Its most distinctive feature is its bright red fruit clusters, which are present during most of the summer months. While the fruit clusters, which consist of thousands of extremely tiny, furry berries, are terribly sour and not very attractive to humans for food, birds and insects find them delicious. Native Americans made a lemonade-like drink and cough syrup from its crushed fruit. The leaves and berries of staghorn sumac have been mixed with tobacco and other herbs and smoked by Native American tribes. Tannery workers also used the tannin-rich bark and foliage as a tanning agent.



Staghorn Sumac tree leafstalk.

Aha



Staghorn Sumac fruit.

Daniel Fuchs

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WILD APPLE TREE

The truly wild Crab Apple tree has thorns. The bark is pale brown to grey and quite smooth on younger branches. On older trees it is grey-brown to mid-brown and becomes flaky in places or it can have a cracked, scale-like appearance. Some small, scattered lenticels (breathing pores) are evident. The leaves appear together with the flowers in the last half of April. In the autumn, the leaves turn brown or a ruddy gold color and the leaf stems often turn bright red. The large fragrant flowers grow in bunches of 4-7 and are pollinated by bees. They have five heart-shaped white petals, which are often tinged with pink. The apples are formed by the swelling of the stem because that is where the ovary originates. The inner wall of the ovary becomes the apple core around the seeds. The outer wall of the ovary becomes the skin around the white fleshy part of the apple.

The apples from the wild Crab apple tree, which are botanically known as 'pomes' will be ready by October. When they are ripe, they are yellow, sometimes flushed with red. They are about an inch in diameter, very acid and tart. The core holds up to 5 brown seeds.



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WILD BLACKBERRY

The berry is really made up of lots of tiny, round, shiny berries stuck together—an aggregate fruit. Each tiny berry in the cluster has its own seed, so one animal eating one fruit spreads many seeds. People sometimes confuse raspberry fruits with blackberries. A raspberry is hollow. When you pick it, it leaves a cone-shaped receptacle behind. Blackberry branches' edges are flattened, not round like raspberries. Along with the very sharp thorns, this makes them easy to recognize out of season. These brambles bear such sharp thorns, people used to plant them, along with hawthorns, along boundaries. Blackberry bushes and other brambles can take over a habitat and choke out other plants.



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HAWTHORN

These European trees were used by pioneers as hedges. The very large thorns kept animals in and predators out. The flowers are moderately fragrant, produced in late spring and have five white petals, numerous red stamens, and a single style. Later in the year they bear numerous Haws. The Haw is a small, oval dark red fruit, berry-like, but structurally a pome containing a single seed. Haws are important for wildlife in winter, particularly thrushes and waxwings; these birds eat the haws and disperse the seeds in their droppings.

Hawthorn
tree flower
(left) and
bearing
fruit.



Giancarlo Dessi

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Deer Run Trail

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PAPER BIRCH

Paper Birch is noted for its thin, papery white bark, which is very noticeable and attractive. Paper Birch is very common in native populations in the Great Lakes region from Minnesota eastward. It is often found in pure forest stands with grasses and shrubs in the under story.



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AMERICAN HORNBEAM

American Hornbeam is also occasionally known as blue-beech, ironwood, or musclewood; the first from the resemblance of the bark to that of the American Beech (*Fagus grandifolia*), the other two from the hardness of the wood and the muscular appearance of the trunk. It is not however related to the beech. The flowers are wind-pollinated pendulous catkins, produced in spring. The male and female flowers are on separate catkins, but on the same tree (monoecious). The fruit is a small nut about 3–6 mm long, held in a leafy bract. The leaves are food for the larvae of some butterflies and moths. This tree is common in the lower $\frac{2}{3}$ of the Lower Peninsula. American Hornbeam is a highly shade-tolerant, slow-growing and relatively short-lived species.



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FLOODPLAIN VIEW

A flat region located on either side of a river channel is called a floodplain. It is built of sediments deposited by the river and is partially covered by water during floods. Floodplains tend to develop on the lower and less steep sections of rivers.



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Hickory Trail

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RED OAK

Notice the scars from a very tall barbed-wire fence on the trees. This land was once a farm where deer were raised. One of the quickest ways to identify red oaks is by its distinctive bark. It has ridges topped with what appear to be almost shiny strips. Other oaks look similar but only on the upper portion of the trees. Acorns appear after the second year. They are very bitter, but eaten by birds, deer, and squirrels. The red oak is one of the most important trees in the North American lumber industry. It is widely used in home construction furniture.



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Shady Grove Trail

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SOUTHERN RUNNING PINE

Southern running pine (*Diphasiastrum digitatum*) is also known as running pine, southern ground cedar, trailing ground pine, and crowfoot club moss. It is a primitive plant reproduced by spores. Southern running pines can be identified by their fan-shaped branches lying on a horizontal plane. Branchlets are blade-like with flat cross section, medium green—not blue green—in color, and its shadow rhizome. The southern running pine is found in habitats that are dry to moist, sandy to silty areas in coniferous and mixed forests. They are found in Ontario to Newfoundland, south to Minnesota, Iowa, Illinois, Tennessee, Alabama, Georgia, and the Carolinas. This pine is protected due to over-harvesting for holiday decoration such as wreaths.



Club moss



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Pine River Nature Center

A place to discover the natural and cultural heritage of the Blue Water Area

The mission of the Pine River Nature Center is to promote the awareness, understanding and stewardship of the Blue Water Area's natural heritage. The center provides hands-on science education programming for schools correlated with the Michigan Curriculum Framework. It also offers outdoor recreation and environmental education opportunities for area residents.

The nature center is owned and operated by the St. Clair County Regional Educational Service Agency.



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