



Introductory Notes: Lakeshore Technical College has a unique ecological asset in its 25-acre forest - a wooded area containing old-growth trees. This is a unique biological feature that has evolved over more than 10,000 years without any recent significant intervention. This rare and distinctive treasure located on LTC's campus will serve as the base for an educational trail. The preservation of the forest, construction of the trail, and this trail guide are the result of a volunteer partnership of concerned community members, with officials from Woodland Dunes Nature Center, UW-Manitowoc, UW-Sheboygan and LTC.

LTC lies just northeast of the "Tension Zone" that separated Wisconsin's two distinct floristic provinces at the time of European settlement: the southern hardwood forest, oak savanna, and prairie province in the southern part of the state, and the conifer and northern hardwood forest in the northern. The tension zone boasts an intermingling of species from both provinces. This forest is close enough to the tension zone to be considered a part of it since it has both the northern and southern components. Figures 1 & 2 are inside the back cover.

The forest that you are about to enter is a dynamic community, constantly changing. The process of succession has and continues to take place here. Succession is a directional, cumulative change in the species which occupy an area, through time. It does not include seasonal changes nor does it include long-term evolutionary changes. Successional changes often occur in a time span of 1-500 years. If significant changes in species composition do not occur within such a period, the community is said to be a climax community. If a community does show some directional, cumulative change, it is said to be a successional community. The entire progression of successional stages to a climax community is called succession.

You will see both old growth and successional areas in this forest. Old-growth areas are dominated by climax species such as sugar maple, beech, and basswood which are shade tolerant. They reproduce in their own shade. Successional species include white birch, white pine, bur oak, and red oak. They all need more light to become established and some consider them pioneer species. The presence of these pioneers indicates past disturbances in the forest which permitted their seeds to develop. Disturbance takes many forms and includes the effects of wind, fire, plant diseases, and logging.

Please respect this Old Growth Forest:

- 1) Stay on the hiking trail. No pets.**
- 2) Clean the soles of your shoes to avoid introducing seeds of exotic (non-native) species.**
- 3) Collecting is not allowed.**
- 4) Leave no trace.**

Hetzel Nature Trail

This trail is named and dedicated to the generations of the Hetzel family. We pay tribute to the foresight of this family that left this forest in a pristine condition by fencing it in and not harvesting the trees. They recognized the aesthetic and ecological value of the woods. LTC has now taken on the responsibility to further preserve this unique area for future generations to appreciate.

1. Oxbow South of Bridge: Centerville Creek meanders through the LTC campus as it drains farm lands from the southwest. The natural tendency of a creek or river flowing across flat country is to grow curvier or "S" shaped, forming loops as it erodes the outer side of a bend and deposits sediment on the inner side. At some point, the loop becomes so extreme that it is easier for the creek to just keep traveling in a straight line, rather than follow the curve of the "S." The creek breaks through the base of a loop, cutting off the meander, and leaves the curve behind as an oxbow. The oxbow fills with water when the creek runs high. The water diminishes during dry periods. This is an attractive area to many species that use the standing water to make a living or a breeding site, especially amphibians and mosquitoes. Proceed south to # 2.

2. White Pine: This tree exemplifies the northern forests and is potentially the largest and longest lived tree of the region. It is 100 feet high. This "Monarch" stands as a symbol of age and preservation. This white pine has survived enormous environmental and other hazards to reach this age and height. Most of the other white pines that were its contemporaries have been destroyed by harvesting, disease, insects, or fire. It is of special significance to begin the trail with this symbol of survival. White pine was the most important timber tree in the upper Midwest when logging was at its peak. Its lumber was used to construct the cities of a developing nation.

3. Oak Tree Snag: Dying and dead trees provide shelter, food and nesting opportunities for many animal species. They store carbon for long periods as they often decay slowly through time, which helps prevent global warming. Fungi are important wood decomposers.

4. Flowers: Flowering plants found in the ground layer of the forest are predominantly spring bloomers. Spring ephemerals are of short duration. They grow rapidly in early spring, bloom, produce seeds, and store energy in their underground roots or bulbs before they are shaded out by the leaves of the trees. By early June, they have died back leaving no trace. Spring beauty, trout lily and Dutchman's breeches are true ephemerals. Other flowers may retain their leaves and bloom later in spring and summer, before or after the canopy of leaves has closed. Inside the back cover are sketches of some of the flowers found in this forest.

5. Black Cherry: This tree is found throughout Wisconsin, but is more common in the southern half of the state. Young cherry trees have a relatively high degree of shade tolerance, but as they age they become more intolerant and are unable to withstand long periods of shading. When openings occur in the tree canopy, they can mature into majestic trees. At maturity, the tree develops a bark pattern resembling potato chips. The wood of black cherry has great value for use in furniture manufacturing.

6. Bluebead Lily and White Birch: Bluebead lily or *Clintonia* is a low-growing plant. It blooms with yellow flowers in May and June. The berries are blue and bead shaped, and are typical of northern Wisconsin. See flower sketches inside the back cover. White Birch is a light-demanding or "pioneer" tree often seen at the edges of a shady, old growth forest or in canopy openings within the forest. It is sometimes called a "gap-phase" tree which might invade open areas created by small local disturbances. Notice how the branches of the other trees near the edge of the woods grow towards the light. The trees near the edge of the woods tend to be shorter and have low growing branches.

7. Old Growth Forest: You are now in a fine example of an old growth forest. This northern mesic (moderately moist) forest is dominated by shade tolerant, climax species such as sugar maple, beech, and basswood with some shade intolerant red oak and white pine. These intolerant species managed to gain a place in the forest due to local disturbances to the forest canopy. The white pines can persist in a climax forest long after the canopy has closed, but the lack of pine seedlings attests to its inability to reproduce in present conditions. These mature white pines are tall "forest grown" trees without lower branches as they developed in increasing shade. Trees without lower branches produce knot-free lumber.

8. Ironwood or Hop-hornbeam: Ironwood is a small, shade-tolerant tree found throughout the state. Its heavy, hard, strong and durable wood was used for fence posts and tool handles. It produces flowers that look like the flowers of hops.

9. Wild Ginger: This low growing herbaceous plant spreads from horizontal, creeping stems to form large clones. Clones are all descendants from one plant. Its 2" to 8" wide leaves are heart-shaped. The flowers are red-brown and develop beneath the leaves. Wild ginger is usually associated with nutrient rich woods. See flower sketches inside the back cover.

10. American Beech: This is a very shade tolerant or climax species. Wisconsin is on the western edge of its geographical range. Beech grows mostly along the Lake Michigan shore counties. Though the tree produces nuts, its main mode of reproduction is from root sprouts. This results in saplings forming around the "mother tree". If a suitable canopy opening develops, these root sprouts may develop into trees. This species is almost as shade-tolerant as sugar maple, because its root sprouts may be even more shade tolerant due to their ability to be supported by the mother tree. The beech has an unusual smooth, steel-gray bark and, in winter, has very long, pointed buds.

11. Red Oak: Red oak is common throughout the state, but does best on deep, well-drained soils. Though it is the most shade tolerant of all of the oaks, it needs some light to develop. It is a "gap-phase" species much like white birch. Its large acorns, though bitter tasting, are sought out by wildlife. Mature red oaks have a unique "ski-trail" bark pattern with long, continuous vertical strips of gray bark alternating with black gaps between the strips. The wood of red oak is heavy, hard and strong; it is used for furniture, interior trim, and flooring. The best logs are often cut into veneer.

12. Animal Den: Dens such as this one are found scattered throughout the forest. Various animals use these burrows including fox, woodchucks, and other small mammals.

13. Decaying Log: The remains of fallen trees may persist for years as they slowly decay. They provide microhabitats for both animals and plants. Invertebrate animals, such as ants, millipedes, centipedes, and protozoans live here. Fungi act as important decomposers returning nutrients to soil. Decaying logs may act as nurseries for various green plants; some trees even get established as seedlings on this moist substrate.

14. Sugar Maple: This species is important throughout Wisconsin, and is considered to be the most shade tolerant tree in the state. Sugar maple produces an abundance of seeds and many of these germinate. Notice the numerous small sugar maple seedlings on the forest floor. These seedlings can survive and grow in the shade where other species cannot. A 20' sapling that grows under a tight canopy may be over 50 years old. If the canopy opens by a large tree dying or being blown down the sapling is poised for rapid growth to the top of the canopy. Once established in the canopy, sugar maple will persist for many years. The tree section of sugar maple on display in the LTC lobby is almost 300 years old! Sugar maple is well known for the high value of its wood for fine furniture, flooring, and for its syrup.

15. Basswood: This tree species is capable of sprouting from the roots, which produces a ring of shoots around the trunk. When the central tree dies, the shoots develop into mature trees which in turn, produce more shoots. This process can continue until a circle of basswood trees has formed. Note the three generations, the decaying mother tree stump, maturing trees, and the new shoots. The leaves are large and heart shaped.

16. Vernal Pond: Vernal or spring ponds are temporary (ephemeral) ponds which are shallow depressions filled with melting snow and spring rains. They usually dry up in summer, and return the following winter and spring. Because of their extreme environmental conditions, they are difficult places for organisms to inhabit. They usually exhibit three successive stages: (1) a cold water phase when it is usually frozen over and animal life is restricted, (2) a spring stage after the ice melts when animal life reaches its greatest development, and (3) a dry stage through the summer when animals survive as eggs or inactive forms in the pond bottom. Some of the species found here are fairy shrimp, daphnia, caddis fly larva, mosquito larva, snails, and clams. Vernal ponds are especially important to amphibians, such as frogs, toads, and salamanders, which return to the pond in spring to reproduce. In spring Marsh Marigolds will be seen at the periphery of the pond, blooming with yellow flowers.

17. Height of Trees: The height of trees in LTC's mature woods is 75 - 105 feet. Sugar maples are usually 70 - 90 feet tall, but can attain a height in excess of 110 feet. White pines are usually 80 - 110 feet in height. The tallest white pine in Wisconsin is 167 feet, and is located in Menominee County. As you look to the northwest, notice the asymmetrical appearance of the white pine that towers over the other trees. This reflects the drying effects of the prevailing westerly winds on these high, exposed branches.

18. Succession: Many signs of recovery in this old farm field area began to grow about 40 years ago. Green ash and white birch trees are considered to be early or successional species. Many green ash trees are now present. All ash trees have compound leaves which are opposite, the seeds are winged, and is a very hardy tree. It is common in Wisconsin, and is threatened by the Emerald ash borer. This insect is a small beetle. In 2002 the Emerald ash borer arrived in Michigan on wooden packing material from Asia, and is now expanding its range. The adult beetles nibble on ash foliage but cause little damage. The larvae (the immature stage) feed on the inner bark of ash trees, disrupting the tree's ability to transport water and nutrients, thereby killing the tree.

19. Green Ash and White Pine Regeneration: The green ash and white pines are regenerating into the area by seeds.

20. Invasive Honeysuckle Shrubs and Control: Exotic (or foreign) honeysuckles are upright deciduous shrubs that have escaped from cultivation. They originated in Eurasia and their vigorous growth and ability for early spring regrowth inhibit native plants. The major problem is the Amur honeysuckle, which crowds out other desirable vegetation. In spring, its fragrant blossoms are white or red, and in late summer its berries are red or orange. Brush piles on either side of the trail are evidence of an ongoing eradication program of honeysuckle.

21. Reed Canarygrass: Reed canarygrass is a perennial grass with creeping underground stems (called rhizomes). It can be quite aggressive as it spreads into an area.

22. Elm: Elms were once very common throughout the state but have been nearly eradicated due to the Dutch elm disease. This disease is a fungus that is spread by the elm bark beetle, and by connected root systems between adjacent elms. The fungus infects the vascular (water conducting) system of the tree, which resulted in clogging of vascular tissues, preventing water movement to the crown and causing the tree to wilt and die.

23. Goldenrod and Aster: By late summer and fall the goldenrods provide a bright touch to the landscape. They will continue to flourish even after early frosts. Goldenrods are unfairly blamed for hay fever. Hay fever is mostly caused by ragweed, which blooms at the same time of the year. Some species of goldenrods might need control due to their aggressiveness. Further down the trail goldenrod is diminishing as the shade of the trees increases. New England aster is a showy fall-blooming perennial with purple-violet flower heads. It is a great nectar plant for butterflies.

24. White Pine Needles and Cones: The carpet of pine needles and scattered pine cones forms a pleasant smelling ground cover (sometimes called “duff”) that provides a soft surface to walk on. Because pine needles decay so slowly, this layer can get quite deep. Notice the lack of vegetation below the pine trees. The pine needles change the pH of the soil making it acidic, and unsuitable for some plants.

25. Old Apple Tree: Apple trees are traced back to their deliberate planting, often near a farmhouse. Others have escaped from cultivation.

26. White Birch: White birches are early successional trees and as such, they are often found in clearings or near the edge of the woods where there is more light. See # 6.

27. Black Cherry: This species is dependant on birds for its distribution and movement into new territory. See # 5.

28. Hawthorn: These thorny shrubs or trees often invade old pastures and are eventually shaded out during the process of succession. There are many species of hard to identify hawthorns.

29. Farmers Rock Pile: Many different kinds of rocks are found here. They were placed here by farmers clearing their fields. These rocks are called glacial erratics. Glacial erratics are rocks ranging in size from pebbles to boulders which were carried here by glacial ice and deposited some distance from their place of origin. They originate from bedrock of northern Wisconsin, upper Michigan, and Canada. Some of the rocks are dolomite (gray), granite (red, white, black crystals), basalt (black), diorite (black and white crystals), and gneiss (wavy bands of gray and black).

30. Basswood: New trees are sprouting from the roots, which produces a ring of shoots around the mother tree trunk. See # 15.

31. Erosion: Below is Centerville Creek. Notice the erosion along the opposite bank. Water flow is the main source of erosion as the creek meanders through this area. Vegetation along the banks will slow erosion, but not really stop it completely. See # 1. Across the creek are old growth trees.

32. Large Ant Hill: Ants are usually considered to be “social insects” along with termites, wasps and bees. Ant hills are very complex structures with many rooms, and tunnels which can spread over long distances. As a group, ants are interesting in that they not only have a community life and build houses but also harvest crops, and keep their own domestic animals (aphids, from which they get “honeydew”).

33. Basswood Snag: See # 3. Dying and dead trees such as this provide shelter, food, and nesting opportunities for many animal species.

34. Old Growth: This rest area is surrounded by old growth trees. Across Centerville Creek is the largest section of LTC's 25 acre old growth forest. When the last glacial lobe began to melt 10,000 years ago, this area began to revegetate. Low-growing plants slowly were replaced by larger ones and eventually a boreal forest of primarily spruce, fir, and tamarack developed. As the climate continued to warm, the area evolved into a northern mesic forest with white pines. This forest type is found from #2 through #15 south of the main building. The forest type north of the creek is a southern mesic forest because it lacks white pine trees.

Before European settlement, the northern mesic forest once covered over 11 million acres or 1/3 of Wisconsin. This forest is one of the few remaining remnants in Wisconsin, which has not had any significant intervention by man. Some of the trees are over 11 feet in circumference and are over 300 years old. Other woodlots in the area differ by having been disturbed by lumbering. The trees of these harvested woodlots are much younger, and tend to have more successional species present. This Leopold Bench was designed by Aldo Leopold, ecologist and father of environmental ethics.

35. Berm: This ridge or berm was created by LTC to prevent the direct flow of water runoff from entering the creek and causing erosion of the bank. Erosion was a problem during spring and heavy rains. The berm's contained water drains into the creek via a pipe below the berm. Along the berm on this side of the creek are several eroded gullies that have stopped eroding, and are now revegetating.

36. Wild Sarsaparilla: A native perennial plant, 18 inches high. Its roots are very aromatic and were once used as a substitute for sassafras, which was used in root beer.

37. Bur Oak: The massive tree in front of you is a bur oak. The ecological amplitude (where a tree may grow and reproduce over a certain range of habitats) of this species is great. It is found throughout Wisconsin, and is the common oak in the southwestern part of the state. The tree is covered with a thick crust of corky bark. The bark is black and becomes deeply furrowed with age. Aldo Leopold referred to these trees as the "shock troops" that could invade areas dominated by grasses. The thick bark resists grassland fires, something few other trees can do. Bur oak is very intolerant of shade, and its presence is an indication that this local site was quite open hundreds of years ago, when it developed from seed. Its wood is heavy, hard, strong, tough, close-grained and durable.

38. Red Oak: This is an extremely large specimen. This oak is an “open grown” tree. As compared to “forest grown” trees, open grown trees have or had low growing branches. As younger trees develop next to them, the lower branches are shaded out and die. The protuberances or “bumps” on the trunk cover limb stubs. These stubs are the remains of lower branches that were shaded out years ago. Open grown trees often have massive trunks and are relatively short compared to “forest grown” trees (See # 7) that are straight, taller and have most of their branches high on the trunk. This old oak began its life in a more open situation with ample sunlight but succession has seen younger, often more shade tolerant trees move in.

39. Prickly Ash: This shrub is armed with prickles. It is often found in open sites and is gradually shaded out as climax conditions start to develop. Its bark has a citrus scent and was once used as a treatment for toothaches.

40. Erosion control in the stream: Note the placement of rocks on both sides of the creek below.

41. Blue Beech or Muscle tree: It is usually a low growing tree with a fluted trunk, smooth, gray bark and zigzag branches. It prefers a deep rich moist soil along the borders of streams. It is often found in climax forests.

42. Yellow Birch: This species is characteristic of the hardwood forests of northern Wisconsin. This tree is intermediate in its shade tolerance and needs an opening in the canopy for successful establishment. Seed germination is most successful on logs or stumps that are covered by a moderate blanket of mosses. In some cases seedlings begin on the top of large logs. They put forth roots that reach the soil so that as the host log decays, and the birch matures, a prop root system develops.

43. Ostrich Fern: Ostrich ferns grow in moist soil and partial shade. This fern has two types of fronds. A sterile frond which can grow 2 to 6 feet in height, is green, and resembles an ostrich plume. The fertile frond grows up to 2 feet in height, is brown in color and produces spores as a method of reproduction. However, this fern mainly spreads by sending out stolens (underground stems) to form colonies. Immature fronds are tightly curled and known as fiddleheads, and are considered a delicacy when cooked.

44. Witch-hazel: This shrub is unlike any other native Wisconsin plant in that it flowers in the fall from September through November. Each flower presents four twisted and curled threadlike yellow petals. It is usually an understory plant, and is very shade tolerant. The seed capsules burst and send seeds as far as 40 feet away. Extracts of witch-hazel leaves and stems are used as topical lotions to soothe irritated skin.

45. Mayapple: This perennial native reaches 20 inches in height. It has an umbrella-like shape and forms large colonies. A fragrant white flower is found under the leaves. The leaves, stems and roots are toxic. Mayapples are seen in early spring to midsummer. See Flower sketches inside back cover.

46. White Oak: This species is common in the southern half of the state. Its bark is light gray, and is broken into thin plate-like scales. Its range is slightly less than the bur oak. The white oak ranks between the bur oak and the red oak in terms of shade tolerance and susceptibility to fire damage. The wood is hard, strong, and is used in furniture and interior finish.

Hetzel Nature Trail (North Loop)

47. Forest Edge: The trees along the edge of the forest have many lower branches because more sunlight is available. These branches, growing toward the light, obscure the view into the forest. This sunnier condition favors shade intolerant trees such as hawthorn, white birch, green ash, black cherry and oaks. In contrast, mature forest trees in the shady old growth areas do not have lower branches because of deep shade and do not block visibility in the forest. The forest edge trees in time could become part of the old growth area if left undisturbed.

48. Old Growth Forest: You are entering the largest section of LTC's 25 acres of old growth forest. It is characterized by many large trees with circumferences in excess of 11 feet and ages greater than 300 years. There is little undergrowth because the canopy of leaves of the old growth trees blocks the sunlight from reaching the forest floor; thus an appearance of open areas below the trees. This section of old growth forest is classified as a **southern mesic forest**. It is similar to the **northern mesic forest** of the south loop of the trail (# 2 through # 15) except it does not have white pine trees. The dominant trees are shade tolerant climax species such as sugar maple, American beech, and basswood, with some shade intolerant red oak, bur oak, and green ash.

Other woodlots in the area differ by having been lumbered, which opens the canopy of leaves and allows more sunlight to reach the forest floor. As a result those woodlots have more undergrowth, younger, faster growing trees, and tend to have more shade intolerant trees present.

In spring the forest floor will be covered by a carpet of flowers. **Please stay on the trail** so as not to disturb these fragile flowers and enjoy your walk. Sketches of some flowers are found on the inside back cover.

49. Old Creek Bank and Flood Plain: You are standing among three large red oak trees (See #11), on the ancient bank of Centerville Creek. As the glacier melted 10,000 years ago, it formed Centerville Creek which drained the melt water forming this bank. The creek through the ages continued to erode and meander between this bank and the bank to the distant south to form a flood plain. In this area are the remains of numerous meanders and oxbows that have formed many different levels of old creek beds. See # 1.

50. Lower Loop: May not be hikable in early spring or when the creek is flooding. This sugar maple tree marks the beginning of this loop. See # 14.

51. Ancient Creek Bed: You are standing on the top of an ancient creek bed. Its bank is the slope above. A few feet further along the trail you will step down into the remains of a smaller younger oxbow. The lower the level an oxbow is, the younger it is. This is one of the numerous different levels that have been carved out by many reoccurring oxbows as the creek meandered throughout its flood plain. The trail continues along the side of the most recent active oxbow. This oxbow fills with water when the creek runs high, and drains into the creek. The water diminishes during dry periods. This is an attractive area to many species that use the standing water to make a living or a breeding site, especially amphibians and mosquitoes. The creek continues to erode its banks, as it meanders within its flood plain.

52. Bur Oak and Multi-Stemmed Basswood: Bur oak See # 37. Basswood with multiple new stems sixty feet down the trail. See # 15.

53. Tip-Up Mound and Depression: A mound and depression are the tell-tale features left behind by a tree that was blown over with roots attached to the tree trunk. The remains of the decaying tip-up tree crosses the trail. The depression is where the roots once were and the mound is the remains of the soil that was attached to the roots.

54. Green Ash and Bottomland: This is a "bottomland" (wet area) tree. Most of the green ash trees in this forest are on lower land. This area is slightly above flood plain but may, occasionally, experience high water of a very wet springtime as the creek could rise above the flood plain. Bur oak and basswood are other species that live in similar wet areas.

55. Skunk Cabbage: Skunk Cabbage in this moist area can be seen in early spring. It has the ability to generate heat to help melt snow around it. Its early arrival in spring and its foul odor attracts early carrion feeding insects which pollinate the flower. See flower sketches inside back cover.

56. Recent Tip-Up: This sugar maple did not have to develop a deep root system since the ground water level is high. In this spot the shallow root system and wet soil allowed the tree to be more vulnerable to being blown down by a strong wind. As the wood of this shallow root system rots and the soil falls away from the roots, a small mound will be formed. Next to the mound a small depression will persist where the roots of the tree once were as seen at # 53.

57. Canopy Opening: A strong wind blew over several large trees in this area. That event permits sunlight to reach the forest floor, allowing shade tolerant and intolerant trees to begin growing and compete to become mature trees. Numerous maple seedlings and saplings have begun to grow here. Trees that have a shallow root system or are in soil that does not adequately hold the roots tend to be blown over and create tip-ups. In contrast, trees that are rotted or weakened at the base tend to break off.

58. Red Elder or Elderberry: This shrub with smooth gray bark grows to 13 feet in height. Corky bumps cover slender branches with spongy white pith inside. It has a compound leaf with 5 – 11 opposite leaflets each 3 – 4 inches long. In late spring it bears fragrant, tiny-branched lacy white flowers. Dark red berries ripen in late summer, and can be used to make wine and jams.

59. Sugar Maple Age 296 Years: The cross section on display in LTC's main building's lobby was taken from this downed sugar maple. The tree fell down in 2006. Therefore it started to grow about 1710. Its height was 105 feet and circumference is over 10 feet. Where the cross section was made, the diameter of this tree after 100 years of growth was only 4 inches. The next 100 years its diameter increased to 13 inches and the next 96 years increased to 29 inches in diameter. This indicates it took up to 100 years before this tree was well established in the canopy to receive full sunlight before it started rapid growth in the girth of its trunk. There are even larger and older trees in this forest.

60. Bracket Fungus: These fungi make shelves or brackets to produce spores. They are known as polypores (many pores) because the spore producing cells line the many pores, underneath the bracket. Woody shelves may be several years old. They add a new layer of spore tissue every growing season. The old layer is covered by the new one. These layers look like growth rings in a tree. Ten layers may mean the shelf is 10 years-old if there is only one growing season (spring). If there are two growing seasons per year (spring and fall), it may only be 5 years-old.

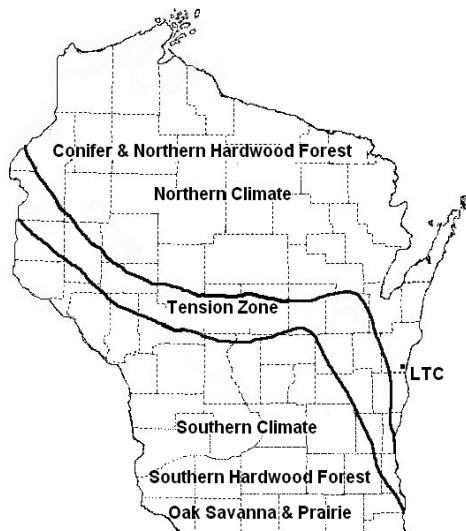
61. Yellow Birch: See # 42.

62. American Beech and Beech Drops: Beech tree See # 10. Beech Drops are brownish maroon, 6 – 24” in height, lacks leaves, has no chlorophyll and is parasitic on beech tree roots. It flowers from August through October, and are difficult to find. The dried stems of beech drops can often be found through winter. See flower sketches inside back cover.

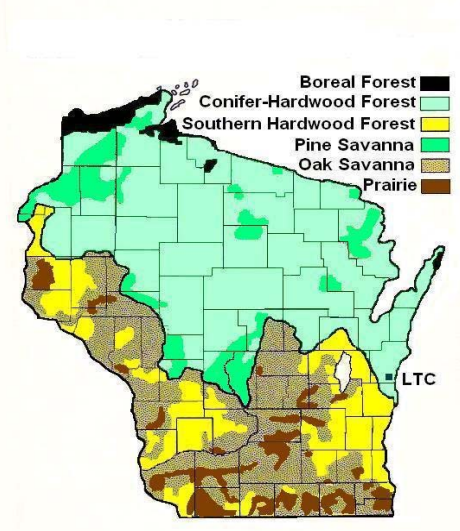
63. Farmers Rock Pile: See # 29.

Figures 1 & 2: Tension Zone and Plant Communities: Many species of plants and animals reach the limit of their ranges in this zone. In Wisconsin, the tension zone delineates the northern hardwood and coniferous forest from the southern forest, oak savanna, and prairies. Vegetation response to climate is the major reason for the position of the tension zone. In Wisconsin, climate is determined by the interaction of three major air masses; the cool dry Arctic, dry Continental, and warm moist Gulf air, which results in a northern and southern climate. North of the tension zone, the climate is characterized by a high frequency of cool, dry arctic air from Canada. Winters are longer with more snow and colder temperatures. South of the tension zone, the climate is controlled by the Continental air mass from the Great Basin, meeting with tropical air from the Gulf of Mexico. These interactions produce warmer winters with less snow and longer warmer summers with more rainfall. As the climate warms the Tension Zone will move northward.

Wisconsin Tension Zone



Major Plant Communities 1840





Spring Beauty



Trout Lily



Dutchman's Breeches



Wood Leek



Hepatica



Jack in the Pulpit



Trillium



Bloodroot



Skunk Cabbage



Mayapple



Wild Ginger



Blue Cohosh



White & Red Baneberry



Beech Drops



Virginia Waterleaf



Beadlily

Shade Tolerant



Sugar Maple



Beech



Basswood

Shade Intolerant



Red Oak



White Oak



Bur Oak



White Pine



Green Ash



White Birch

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For more information go to www.gotoltc.edu.