

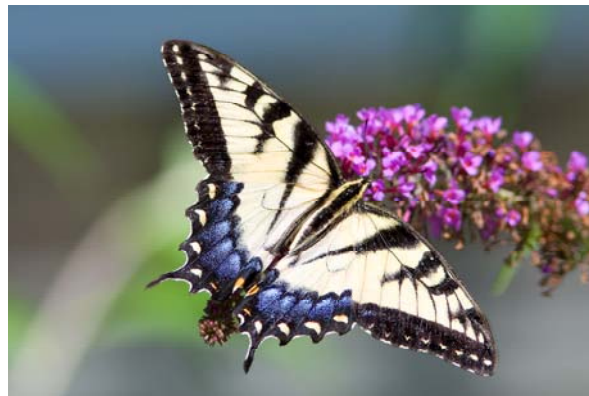
Kalamazoo
Nature
Center



Oshtemo Township Parks Natural Features Inventory

**Flesher Field Park
Oshtemo Township Park
April – October 2010**

**Prepared by
Sarah Reding
VP For Conservation Stewardship**



**Kalamazoo Nature Center
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John Brenneman
Anna Korneolje
Torrey Wenger
Ryan Colliton**

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Introduction	2
Overview	2
Oshtemo Township circa 1800’s Land Cover	2
Study Areas	3
Methods and Details of Surveys	3
Vascular Plant Inventory	3
Animal Inventory	4
Survey Results and Discussion	5
Flesher Field Park	5
Land cover circa 1800’s	5
Soils	5
Current Vegetation Status	5
Birds	6
Mammals	9
Amphibians and Reptiles	9
Lepidoptera (Butterflies and Skippers)	10
Odonata (Dragonflies and Damselflies)	11
Oshtemo Township Park	11
Land cover circa 1800’s	11
Soils	12
Current Vegetation Status	12
Birds	13
Mammals	15
Amphibians and Reptiles	15
Lepidoptera (Butterflies and Skippers)	17
Odonata (Dragonflies and Damselflies)	17
Summary Findings and Recommendations	18
Literature Cited	23
Maps	
Tables	
Appendices	

Introduction

Overview

Over the last four months the Kalamazoo Nature Center’s Conservation Stewardship team conducted a Natural Features Inventory for Oshtemo Township’s Flesher and Oshtemo Township Parks.(Map A) This report presents results from plant and animal surveys, maps of specific areas and methods of survey, vegetation coverage and maps for illustrations. The natural features surveyed at each site include vascular plants, birds, mammals, amphibian, reptiles, Lepidoptera (butterflies and skippers), Odonata (dragonflies, damselflies). During the surveys emphasis was placed on the areas within each park denoted “Areas of Interest” (Map B,C).

In addition, this report provides conservation and management recommendations. Also recommendations for interpretive planning with emphasis on visitor use have been provided to facilitate low-impact recreation and the conservation of sites for biodiversity.

Field surveys were conducted from April to October 2010. This provided a limited seasonal framework for surveying based on the resources provided by the township. These surveys were based on presence of species found in each park on a selected number of visits. Details of the specific survey methods will be described later in this report.

Oshtemo Township circa 1800’s Land Cover

Prior to settlement of non-native people, the landscape of Southwestern Michigan included many large and small tracts of prairie, Black Oak Barrens, Oak Savannas and Bur Oak openings.

Oshtemo Township at settlement time was considered a less diverse township in Southwest Michigan. The information provided by early surveyors of the township show the following percentages of each landscape category:

Oak Savanna	61%
Black Oak Forest	27%
Beech Maple Forest	6.5%
Mesic Prairie	2%
Marsh/other Wetlands	0.5%

The areas which the parks encompass are characterized by the Michigan Natural Features Inventory (MNFI) as Oak Barren and Oak Openings. Further discussion of these communities will be included in each of the specific park sections. (Map D)

Study Areas

Flesher Field Park

Flesher Field is a 24 acre park located on 9th Street, north of I-94, in section 35 of Oshtemo Township, Kalamazoo County, Michigan. The focus of the inventory was the 12 acres of woodlands on the western boundary of the park. The “Area of Interest” section surveyed is delineated to the west by an Ameritech power line corridor. Athletic fields and a playground delineate the east boundary and constitute 12 acres of the park. To the south, the woodland area borders a business and apartment complex. To the north it is bordered by the Chime School facility. This area was surveyed for all the natural features detailed below.

Oshtemo Township Park

Oshtemo Township Park is 70 acres located on West Main street/M-34, west of US-131, section 15 of Oshtemo Township, Kalamazoo County, Michigan. The study area focused on the 25 acres in the southern portion of the park. The area surveyed is delineated to the west by the Lillian Anderson Arboretum owned by Kalamazoo College. The eastern border of the park is township and private property, to the south is private property and to the north are the township offices along M-43. A disc golf course comprising approximately 45 acres is located in the northern section of the park. Due to the current and continued impact of the activity, this area was not the focus of the survey. The 25 acre woodland located in the southern section of the park was given priority due the habitat quality and minimal impact found in this area.

Methods and Details of Surveys

Vascular Plant Inventory

Plant surveys were conducted from early April through October 2010. Surveyors recorded date, time, observer, locations and notes for each

vascular plant species listed. Each observer walked 14 m line transects, running north to south in the “Area of Interest” locations at each park. These were visited in the months of April-October for various species.

Animal Inventory

Birds

Birds were surveyed by both site and sound from April to August, 2010. Data provided from The Atlas of Michigan Breeding Birds II survey by sections was also reviewed for each park area. Surveyors noted the following information for each visit: date, time, observer, species, number of individuals and park location.

Surveys utilized the point count method to document migration and possible breeding when observed. A 5-minute point count was conducted at each randomly selected point (Map C). All staff members who conducted the surveys have professional experience in ornithology fieldwork. These observations and others were documented on the data sheet. The surveys were conducted in the early morning hours. (Appendix B)

Mammals

Mammals were determined by chance observations, reports from visitors and track and scat identification found in the study areas. The mammals identified were typical of the communities and location in relation to developed land.

Amphibian and Reptiles

Amphibians were surveyed by sight and sound beginning in April through July. Data was also included which was collected with the Michigan Department of Natural Resources and Environment (MDNRE) Herp Atlas project. Small areas of standing water or ponds adjacent to the park boundaries were also searched. Reptiles were documented strictly by chance sightings or by staff or visitor reports.

Lepidoptera (Butterflies) & Odonata (Dragonflies, Damselflies)

Adult butterflies, dragonflies and damselflies were identified primarily in the open areas of the property and along trails, with some observations made in

the woods. Observations were made either by capturing live specimens with a net, then identifying and releasing them or by viewing with binoculars.

Survey Results and Discussion

Flesher Field Park

Land cover circa 1800's

Flesher Field Park prior to settlement would have been characterized as an Oak Opening. These communities are fire-dependent savannas dominated by oaks, having between 10% and 60% canopy, with or without a shrub layer. The ground layer is composed of species associated with both prairie and forest communities. Oak openings are found on dry-mesic loams in the southern Lower Peninsula, typically occurring on level to rolling topography of outwash and coarse-textured end moraines. (Map D)

Soils

Soils of oak openings are well-drained, moderately fertile, sandy loam, or loam with slightly acid to neutral pH and low to moderate water-retaining capacity. Flesher Field Park's soils are primarily loamy sands and dry and include Oshtemo (OsC, OsB) and Spinks (SpD) soils. (Map G) These soils are somewhat well drained, rapidly permeable soils. Surface runoff is medium. Erosion and drought are the two major problems with these soil types.

Current Vegetation Status

Most of the area consists of a cover of white oak as the larger canopy trees. There are red and black oaks interspersed within the canopy. Mature hickory is dominant in a small area on the south boundary.

The interior of the woodlot is dominated under some of the main canopy of oak by maple and black cherry. There are intermittent black spruce, white pine, blue spruce, red cedar and elm. Many of these appear to be planted.

The understory shrub layer is composed of approximately 90% multiflora rose* and autumn olive*. Intermittently, maple-leaf and downy arrow-wood viburnum are found. Elderberry was found in one area on the southwestern

boundary of the study area. Vines found include grapevine, moonseed, poison ivy and Eurasian bittersweet*.

The herb layer is composed of 95% Virginia creeper. Since the forest floor is dominated by Virginia creeper, only very small areas of spring ephemeral wildflowers were present. These include two very small patches of wild geranium (less than 5m²) and a patch of mayapple (2 m²) found in the study area.

The plant survey found 57 species of vascular plants at the site including 41 native species. Species type totals are: tree species (18), shrubs (8), vines (6) and forbs and grasses (25), which were predominantly found along the forest edge adjacent to the ball fields. (Table A)

Birds

Staff documented 47 species of birds in the Area of Interest within the park from April to September. Birds were identified by sight and sound using the point count method as well as observations made while conducting other portions of the survey.

Of the 47 species observed in the summer of 2010, common permanent residents such as Downy Woodpecker, Blue Jay, American Crow, Black-capped Chickadee American Goldfinch, American Robin, Northern Cardinal and Eastern Tufted Titmouse were widespread across the property. Other widespread summer residents included species such as the Gray Catbird, Red-eyed Vireo, Ovenbird, Scarlet Tanager, Rose-breasted Grosbeak, Indigo Bunting, Eastern Towhee, Baltimore Oriole and Brown-headed Cowbird. Wood Thrush and Hooded Warbler, two species of species of “Management Concern”, and Blue-winged Warbler “Bird of Concern” were also found in the area (USFWS 2008). (Table B)

Management Recommendations for Birds

One of the leading causes of decline to native species and plants in the United States is degradation and destruction of habitat. Given this, any size woodlot can play a role in diminishing impact in a given local area. The woodland area is small in size but does play a role as a contiguous forested corridor in the area. This should be considered when looking at the property and its wildlife.

Although regional fragmentation and loss of habitat is a top threat to bird populations in general, certain species can benefit from local conservation efforts on a more local scale. Four species found in the parks are on the United States Fish and Wildlife Service (USFWS) list as species of “Birds of Concern” in the Midwest Region 3. These include the Wood Thrush, Blue-winged Warbler, Northern Flicker and the Field Sparrow. Partners in Flight lists the Wood Thrush on the Watch List and 4 species, the Acadian Flycatcher, Magnolia Warbler, Eastern Towhee, and the Indigo bunting on the Stewardship List. Partners in Flight is the international organization of governmental and non-governmental ornithologists working for conservation of migrant birds in the Americas.

Several of these species nest in open and forest edge habitats. The Field Sparrow (*Spizella pusilla*) prefers early successional habitats, such as old fields, meadows, grassy openings and nests on the ground or in low shrubs, vines and saplings. These habitat types are found adjacent to the park area. Vines and shrubs suitable for nesting are found within the woodlands. Similarly, the Blue-winged Warbler prefers open areas with scattered patches of trees and shrubs.

Northern Flickers (*Colaptes auratus*) will use open areas to feed primarily on ground ants and other insects and seeds. They need dead or dying trees in the woodlands for nesting holes they excavate in the soft wood. In order to benefit Flickers and other cavity nesting birds, dead trees should be retained on the property unless they pose imminent threats to safety or property.

The Hooded Warbler (*Wilsonia citrine*) is a species of special concern in the State of Michigan and ranked as “rare or uncommon”(S3) in the state (MNFI 1999). Hooded Warblers were found on the property. This warbler nests in the understory of deciduous woodlands in areas with dense shrubs. multiflora rose* (*Rosa multiflora*), an introduced species, is very dense in the woodland area, although it is unknown if the warblers are using them to nest in at this time.

Although the elimination of Multiflora rose* and other aggressive alien plant species is desirable, species such as the Hooded Warbler may benefit from this dense shrub cover. If removed, it is very important to replace the non-native shrubs with natives, which will provide nesting habitat for the

* denotes non-native species

Hooded Warbler and other low nesting birds. These shrubs will provide a source of, nutritious food.

Native trees and shrubs already occur on the property which would be appropriate to replace the multiflora rose. Additional native shrubs and saplings would also need to be planted due to the density of non-natives found in the woodland area. Recommended species include: flowering dogwood (*Cornus florida*), gray dogwood (*Cornus foemina*), maple-leaf viburnum (*Viburnum acerifolium*), downy arrow-wood viburnum (*Viburnum rafinesquianum*) and a variety of tree saplings such as maple (*Acer sacchararum*) and sassafras (*Sassafras albidum*).

It would not be advisable to clear all the shrub cover and understory of the woodland area without careful consideration of how replacement of these non-native species will be done. Due to the large density of invasives as the understory it is suggested to develop a long-term strategy as to where and how to begin to remove and replace the non-native shrubs.

Looking at this forest patch in relationship to the adjacent woodlands is also important in deciding the management of this area for birds like the Hooded Warbler. The percentage of canopy cover, size of woodlot and size of trees also influence the suitability for the Hooded Warbler during breeding season. They usually nest in areas of 35 acres or more with tall trees and a large percentage of canopy. Acreage smaller than this creates increased rates of cowbird parasitism by forcing the bird to nest close to the edge of the forest. This woodlot has the tree size and canopy density, yet lacks the acreage preferred by this species. However, there are adjoining woodlots which would influence the suitability for the warbler to breed.

The Wood Thrush is one species on the national Partners in Flight “Watch List”. Partners in Flight classifies this species as “moderately” in need of conservation attention within their core range. Management recommendations are viewed in a broad conservation context and related to habitat. A well-developed and dense understory of native shrubs is essential to Wood Thrush during nesting season.

In summary, the area supports 36 species of birds, including 4 species on the USFWS “Birds of Concern” Midwest list and 4 species on the Partners in Flight list, one on the “Watch List” and 3 on the “Stewardship List”. The Hooded Warbler is a bird of Special Concern in Michigan.

Although the woodland area is small (12 acres) there are 36 species which use this site during migration and breeding season. Controlling non-native plants in the forest will improve the quality of the forest for migrant birds by reducing competition between native and non-native plants and favoring native plants that producing high energy fruits during migration. The woodlands adjacent to this site play a role in enlarging the area which the birds will inhabit and should be investigated further in relation to the township property.

Mammals

Staff observations, tracks and scat identified 6 species: Eastern Chipmunk, Eastern Fox Squirrel, Red Squirrel, Eastern Cottontail, Whitetail Deer and Raccoon. Smaller mammals expected on the property would be Eastern Mole, Meadow Vole and Short-tailed Shrew. Conducting trapping and a longer survey period could provide additional species which occur on the property. No surveys were conducted for crepuscular or nocturnal animals. A few additional mammals likely occurring on the site include Virginia Opossum, Flying Squirrel, Striped Skunk and bats.

To ensure the continued presence of forest-dwelling mammals on the property recommendations are similar to those given for forest birds earlier in this report: plan for the conservation of the woodland habitat through connected patches with wooded corridors comprised of local species; foster a well-developed and diverse understory of herbaceous native plants. Consider the adjacent properties which include similar forest types and recommend the management of those to adjacent land owners public or private (Table C).

Amphibians and Reptiles

Very few amphibians and reptiles were found on the property during the field season, due to the lack of natural wetlands in the study area. Field staff documented American Toad, Red-backed Salamander, and Eastern Gray Tree Frog on the property. Other species that could also occur on the property are the Eastern Box Turtle, Eastern Garter Snake.

The Red-backed salamander is not an aquatic breeder, unlike most other species. Therefore they can survive in upland forests without a source of

standing water (Harding and Holman 1992). They do need moisture and down logs or rotten wood which provide the habitat needed for them to survive. It is important that downed logs and leaf debris be left on the forest floor to decay.

The American Toads typically inhabit open woodlands and wood edges. They will move during periods of rainy or humid nights. During dry spells they will bury themselves in moist soil or plant debris. Males will travel in April to early May to ponds, ditches, sloughs and flooding for breeding. They eat a wide variety of insects as well as spiders and insects.

The Gray Tree Frog is found in damp woods and have adapted well to farmland and suburban areas. It is common for them to call throughout the summer, outside their breeding season. They were heard in the trees within the woodland area (Table D).

Lepidoptera (Butterflies and Skippers)

Eight species of butterflies were identified, including 2 species of skippers that were observed on the Flesher Field Park woodlands from April to October. Lepidoptera diversity was not great but this was expected due to the size of and habitat quality of the areas of study. Most of the species observed were located on the forest edge, which may include many flowers and grasses, which butterflies depend on. Few were seen within the woodland area due to the dense canopy and lack of sunlight. Many host and nectar plants are found on the forest edge, which provide for a variety of Michigan butterfly species. However, the limited scope of time spent at the site, the focus on the woodland area surveys and conditions of the day of the survey may have limited the species identified (Table E). Some of the nectar plants found along the forest edge include: common milkweed, Queen Anne's lace*, ox-eyed daisy*, thistle*, blackberry, goldenrods, hawkweed*, dandelion*, sumac, honeysuckle*. Caterpillars of the Monarch butterfly feed solely on the common milkweed, Great Spangled Fritillary favors violets, and the satyrs favor grasses.

Maintaining host and nectar plants on site will provide what the butterflies and skippers need throughout their life cycles. Preserving these natural habitats on the site will continue to provide the variety of plants and microhabitats for the diversity of these species that live on the property. The woodland edge plant area could be increased by reduced mowing and

enhanced host and nectar native plantings would provide for a larger diversity of butterflies and skippers (Table F).

Odonata (Dragonflies and Damselflies)

Thirty-four dragonflies and damselflies were observed during the survey. This is a good number supported by this area. Dragonfly and damselfly nymphs are restricted to aquatic environments. Adults patrol for food and may travel great distances from their aquatic homes. Odonata are extremely valuable insects, in the nymph form as food for aquatic organisms and as predators of mosquitoes and other pests. About 15% of North American dragonfly species are at risk of extinction in the foreseeable future.

Feeding dragonflies can be found along forest edges and fencerows, which was true on this site. They prefer sunny, minimally windy areas. The forest edges with forbs and grasses act as great roosting, flight and feeding sites. These areas discussed before are a key area for this species. A conscious effort should be made to provide continued habitat for the adults (Table G).

Oshtemo Township Park

Land cover circa 1800's

Oshtemo Township Park prior to non-native settlement would have been characterized as a Black Oak Barren. Oak barrens are found on well-drained, nearly level to slightly undulating sandy glacial outwash and less often sandy moraine. In the southern Lower Peninsula, typically in the driest landscape positions, such as ridge tops, steep slopes, south to west facing slopes or flat sand plains. These communities were commonly referred to as barrens due to the generally poor, infertile soil.

These communities were fire-dependent, dominated by black oaks (*Quercus velutina*), but also pin oak (*Q. ellipsoidalis*), occasionally white (*Q. alba*) and red oak (*Q. rubra*) may have been intermixed. Small numbers of shagbark (*Carya ovata* and pignut hickory (*Carya glabra*) also occurred in these savannas. The canopy was composed of 10% to 60% of these species, which occurred with or without a shrub layer. The ground layer was composed of species associated with both prairie and forest communities. (Map D)

Soils

Soils of oak barrens are infertile, course textured, well-drained sandy or sandy loams that have a medium, slightly acidic or neutral pH and low water-retaining capacity. Oshtemo Township Park soils are dry, primarily loamy sands and include Oshtemo (OsC,OsD), Coloma (CoB,CoD) and Spinks (SpC) soil types (Map H). All of these are well drained, rapidly permeable soils. They contain little organic matter and lack fine textured alluvial horizons associated with the richer and more productive soils of oak openings. Surface runoff and permeability are rapid. Water retaining capacity is low. Drought, wind blowing and instability of soil are problems with these soil types.

Current Vegetation Status

The surveys of this park were focused on the “Area of Interest” (Map C) which makes up 25 acres of the total 69 acres of the park. This mature oak forest with a large and complete canopy (70% or more cover) has a wonderful display of spring ephemerals, with some small native shrubs in the understory. There is very little evidence of non-native species within this area. Garlic mustard was found in some areas near the boundary of the disc golf course and the “Area of Interest”.

Due to the impact created by the disc golf course, surveys of the area covered by the course were only done along the trails. The many of the species of trees and plants identified within the course were non-native. The course will remain, so steps need to be taken to reduce the spread of invasive into the “Area of Interest”.

The herb layer is 95% spring ephemerals. There is a great diversity of native plants such as Jack-in-the-pulpit, mayapple and wild geranium. Gooseberry shrubs, shadbush, and flowering dogwood are found intermittently throughout this woodlot.

The plant survey found 72 species of vascular plants at the site including 48 native species. Tree species totaled (15), shrubs (8) species, vines (4), ferns (2), and forbs and grasses (43). (Table H)

Woodland area is not very large but its connection to the neighboring properties does make it a much larger piece as a wildlife habitat. The

properties which surround this area should be taken into consideration in regards to management of plants and animals associated with this “Area of Interest”.

Birds

Staff documented 53 species of birds in the “Area of Interest” and within the park from April to September. (Table I) Birds were identified by sight and sound using the point count method.

Of the 53 species observed in the summer of 2010, common permanent residence such as Downy Woodpecker, Blue Jay, American Crow, Black-capped Chickadee, American Goldfinch, American Robin, Northern Cardinal, Eastern Tufted Titmouse were widespread across the property. Widespread summer residents included common species such as the Gray Catbird, Red-eyed Vireo, Ovenbird, Scarlet Tanager, Rose-breasted Grosbeak, Indigo Bunting, Eastern Towhee, Baltimore Oriole and Brown-headed Cowbird.

Management Recommendations for Birds

One of the leading causes of decline to native species and plants in the United States is degradation and destruction of habitat. Given this, any size woodlot can play a role in diminishing impact in a given local area. The woodland area is small in size but does play a role in a contiguous forested corridor adjacent to the park to the south and west. This should be considered when looking at the property in regards to overall management for all species.

Although regional fragmentation and loss of habitat is a top threat to bird populations in general, certain species can benefit from local conservation efforts on a more local scale. There were 4 species on the United States Fish and Wildlife Service (USFWS) list as species of “Birds of Concern” in the Midwest Region 3. These include the Wood Thrush, Acadian Flycatcher, Northern Flicker and the Field Sparrow. Partners in Flight lists the Wood Thrush on the Watch List and 4 species, the Acadian Flycatcher, Magnolia Warbler, Eastern Towhee, and the Indigo bunting on the Stewardship List. Partners in Flight is the international organization of governmental and non-

governmental ornithologists working for conservation of migrant birds in the Americas.

The 25 acre woodlot “Area of Interest” is intact and of high quality for an oak woods. It is recommended to develop a buffer zone and an invasive species rapid response plan for this area. There are many invasive species within the disc golf course and it would take endless work to remove all of them. It is important to monitor for the invasive species encroaching in the woodlot area. The spring ephemerals will remain as long as invasive species are kept under control. At this point, damage done by deer browsing on these wildflowers has been minimal but close watch must be kept on this area.

Looking at this forest patch in relationship to the adjacent habitats is also important in deciding the management of this area for birds like the Acadian Flycatcher. They prefer mature deciduous forests near streams or shallow ponds. This area does border on two shallow pond areas outside the boundaries of the park. The flycatcher can be found in smaller urban woodlots 24-35 hectares in size but it has been decreasing in nest survivorship, re-nesting after predation and low site fidelity over subsequent nesting periods. This woodlot has the adjacent wetland component and possible size when combined with neighboring properties which would be preferred by this species as a possible breeding site. (MBBA II 2011)

Partners in Flight considers the Wood Thrush as moderately in need of attention to conservation within their core range. Management recommendations are viewed in a broad conservation context and related to habitat. A well-developed and dense understory of native shrubs is essential to Wood Thrush during nesting season.

In summary, although the woodland area is small (25 acres), there are 53 species of birds which use this site during migration and the breeding season. Birds supported include 4 species on the USFWS Birds of Concern Midwest list and 4 species on the Partners in Flight list, one on the Watch list and 4 on the Stewardship list.

The woodlands adjacent to this site play a role in connecting these areas that the birds will inhabit and should be investigated further in relation to the township property. Keeping a close watch on invasive species encroachment will also be important.

Mammals

Observations or track and scat identification found 6 species: Eastern Chipmunk, Eastern Fox Squirrel, Red Squirrel, Eastern Cottontail, Whitetail Deer, Raccoon. Smaller mammals expected on the property would be Eastern Mole, Meadow Vole and Short-tailed Shrew. Conducting trapping and a longer survey period could provide additional species which occur on the property. No surveys were conducted for crepuscular or nocturnal animals. A few additional mammals likely occurring on the site include Virginia Opossum, Flying Squirrel, Striped Skunk and bats. (Table J)

To ensure the continued presence of forest-dwelling mammals on the property it is recommended to plan for the conservation of the woodland habitat through connected patches with wooded corridors comprised of local species; keep and foster a well-developed and diverse understory and herbaceous native plants. Consider the adjacent properties which include similar forest types and recommend the management of those to adjacent land owners public or private.

Amphibians and Reptiles

Seven amphibians and reptiles were found on the property during the field season. There are no wetlands on the property but just across to the south park boundary there are two wetland complexes adjacent to the study area. One is part of the Lillian Anderson Arboretum; the other is on private property. Field staff documented American Toad, Red-backed Salamander, Spring Peeper, Eastern Garter Snake, and Eastern Gray Tree Frog on the property. The Eastern Box Turtle and Blanding's Turtle, species of Special Concern in Michigan, were observed. These adjacent wetland complexes are important to the success and sustainability of a Blanding's Turtle and Box Turtle as well as other amphibians. (Table K)

The Blanding's Turtle (*Emydoidea blandingii*) prefers shallow, mucky ponds, marshes and other wetland areas (Harding and Holman 1990, Harding 1997). During the mating season they will occupy terrestrial habitat. They will nest in the spring in open, sunny areas with moist but well drained sandy or loamy soil.

Due to the delayed sexual maturity, small clutch size, and long adult lives, the adults need a 93% survivorship and juveniles need a 72% rate to remain a stable population (MNFI 1997 Holman).

Habitat loss and degradation are the main reason for their designation as a Michigan Special Concerns species. Clean wetlands are a key element to their long term survival. They are very sensitive to habitat alteration. Habitat fragmentation can pose a threat as well as nest predation by opossum, raccoon and other mammals.

Protection of large and small wetland systems connected to the upland habitat is critical to this species. Those areas mention before, inside and outside the park boundaries are very important to this turtle species. This turtle could survive quite well in this park as well as the surrounding wetlands and woodlots.

The Box Turtle (*Terrapene carolina*), a Michigan species of Special Concern, was also recorded within the park. This turtle species once was common in the Southwestern Lower Peninsula but due to the conversion of woodland and wetlands to agriculture over the past century, this caused for the elimination of them in their former range. Specifically, in Southwest Michigan, due to less conversions of woodlands and wetlands, they are locally common and have been reported in most of the counties in are area.

This is Michigan's only truly terrestrial turtle which inhabits forested areas with sandy soils near sources of water. They also can be found in adjacent thickets and old fields. Unshaded nesting sites are critical for successful reproduction.

Nesting mortality in Michigan's Box turtle population ranges between 70% to 100% and juvenile mortality is nearly as high. Raccoons, skunks, and foxes are the main predators of their eggs. Small juveniles are eaten by shrews, birds and snakes. The female's sexual maturity is not reached until they are 10 years of age. Thus, if predation is high it is difficult to keep the populations sustainable. Box Turtles have been known to live up to 50 years.

Present fragmentation and suburban development has isolated the remaining population. The domestic and international pet trade encourages poaching and their continued decline. Protecting large tracts of habitat from development and additional roads, will eliminate potential for increased predation or turtle car accidents and assist in the preservation of this species.

Lepidoptera (Butterflies and Skippers)

Eleven species of butterflies were identified including 2 species of skippers that were observed on the Oshtemo Township Park woodlands from April to October. Most of the species observed were located on the trails, sunny grass openings and woodland areas, where it is common to find specific butterflies.

Many host and nectar plants are found on the site which provide for a variety of Michigan butterfly species. (Table E) Some of the nectar plants found along the forest edge include: common milkweed, Queen Anne's lace*, yarrow, thistle*, blackberry, goldenrods, hawkweed*, dandelion*, sumac, honeysuckle*. Caterpillars of the Monarch butterfly feed solely on the common milkweed. The Great Spangled Fritillary favors violets, and the Mourning Cloak favors elms as one of their host plants.

Maintaining host and nectar plants on site will provide what the butterflies and skippers need throughout their life cycles. Preserving these natural habitats on the site will continue to provide the variety of plants and microhabitats for the diversity of these species that live on the property. The woodland edge plant area could be increased by reduced mowing and enhanced host and nectar native plantings would provide for a larger diversity of butterflies and skippers. (Table L)

Odonata (Dragonflies and Damselflies)

Ten dragonflies and damselflies were observed during the survey. Dragonfly and damselfly nymphs are restricted to aquatic environments. Adults patrol for food and may travel great distances from their aquatic homes. Odonata are extremely valuable insects, in the nymph form as food for aquatic organisms and as predators of mosquitoes and other pests. About 15% of North American dragonfly species are at risk of extinction in the foreseeable future.

Feeding dragonflies can be found along forest edges and fencerows, which was true on this site. They prefer sunny, minimal windy areas. The forest edges with forbs and grasses act as great roosting, flight and feeding sites. These areas discussed before are a key area for this species. A conscious effort should be made to provide continued habitat for the adults. (Table M)

Summary Findings and Recommendations

Flesher Field Park

- This park has an “Area of Interest” with a mature canopy that supports migratory and resident birds. It has small patches of spring ephemerals and minimal native shrubs. The areas which border and surrounding private properties provide contiguous wildlife corridors and enhancement of this section. Steps should be taken to ensure this area is continually monitored and maintained.
- Investigate adjacent property owner’s intent concerning the future of the property and future management plans, particularly large forest tracts and wetland areas. Involve them in the management processes which are occurring within the park boundaries as a way to educate them about possibilities and importance of their property as part of the whole.
- Develop a rapid response process to monitor this area for invasive non-native plant species colonizing this area. Monitor the areas where there are patches of spring ephemeral for the Virginia creeper taking over the natives.
- Restrict or preferably eliminate the use of chemicals, if used, that could impact birds, such as Northern Flickers which ground feed on the open grass type areas, and insect species. This action would also eliminate the potential for groundwater contamination.
- Adjacent properties should be explored for possible influence they may play in the extension of the forest as well as grasslands. Determining the ownership of the property and how these corridors connect and could play a role in more diverse, open and undeveloped space in the township.
- Increase no-mowing areas along the grass areas and consider native planting augmentation which increases the diversity for butterflies and other beneficial insects. Continuing the diversity provides important microhabitats in providing food, egg deposition, chrysalides and

roosting – critical for continued diversity of butterflies and skippers on the property. An extension of the native planting behind the library may be one option to consider.

- Demonstration gardens, such as Rain gardens, butterfly gardens or other areas around the park near buildings and parking lots could be planted with natives to maximize educational and habitat opportunities, as well as improve ground water quality by capturing storm water run-off.
- Define the trail system by providing an obvious entry way, opening up the entrance area on both ends running north and south providing a map and a sign with park rules.
- Eliminate the paths that have been created by visitors.
- Place trail markers to designate trails.
- An Interpretive Plan should be developed with a timeline as to how to implement the plan. Also, estimates and resources as to accomplish the different aspects laid out in the plan.
- Interpretive signs (8-10) could be placed on the trails. Interpretive themes for the signs could be developed from information provided in this report.
- The creation of a community “Park Stewards” group would be an asset to the NFI and management process. Building upon the information in this report, with the guidance of the KNC staff biologist, this group could provide the resources for an on-going monitoring program to gather further information, provide resources and education to the township community.

Oshtemo Township Park

- This park has an “Area of Interest” with a mature canopy that supports migratory and resident birds. It has a rich diversity of spring ephemerals and native shrubs. The buffer of the Lillian Anderson

Arboretum and surrounding private properties provide contiguous wildlife corridors and enhancement of this section. Steps should be taken to ensure this area is continually monitored and maintained.

- Investigate adjacent property owner's intent concerning the future of the property and future management plans, particularly large forest tracts and wetland areas. Involve them in the management processes which are occurring within the park boundaries as a way to educate them about possibilities and importance of their property as part of the whole.
- Collaborate with Kalamazoo College to share resources in the management of the two areas.
- Develop a rapid response process to monitor this area for invasive non-native plant species colonizing this area.
- The disc golf area soil and trees show major signs of impact. Many small pathways intersecting the course areas have been made. Disc golfers should be encouraged to stay on the fairway and move from basket to basket via these large corridors. Signage could be placed on the course to educate players about the importance of no-play areas as habitat. This would improve habitat for potential nesting birds and reptiles in the no-play areas.
- Tree guards have been used to protect the trees. There are some new trees on which these guards could be placed and other trees on which the guards should be replaced.
- The disc golf course is mainly composed of non-native species with some native plants interspersed. An invasive species management plan should be developed to ensure that the spread of these species does not impact the high quality "Area of Interest" and outside buffers surrounding the park. This plan could include mapping and designating abundance and distribution of non-natives within a large context, a timeline and plan for removal and possible replacement with natives over time. This plan would specify the time and resources needed to begin or accomplish this process. The area where the "Area of Interest" and the course meet would be a critical area to evaluate in

regards to non-native removal. The replacement with native shrubs will help to maintain the dense shrub cover needed by the resident and migrant nesting birds.

- Restrict or preferably eliminate the use of chemicals, if used, that could impact birds, such as Northern Flickers which ground feed on the open grass type areas, and insect species. This action would also eliminate the potential for groundwater contamination.
- Adjacent properties should be explored for possible influence they may play in the extension of the forest as well as grasslands. Determining the ownership of the property and how these corridors connect and could play a role in more diverse, open and undeveloped space in the township.
- Increase no-mowing areas along the grass areas and consider native planting augmentation which increases the diversity for butterflies and other beneficial insects. Continuing the diversity provides important microhabitats in providing food, egg deposition, chrysalides and roosting – critical for continued diversity of butterflies and skippers on the property. An extension of the native planting behind the library may be one option to consider.
- Demonstration gardens, such as Rain gardens, butterfly gardens or other areas around the park near buildings and parking lots could be planted with natives to maximize educational and habitat opportunities, as well as improve ground water quality by capturing storm water run-off.
- Removal of the guard rail around the park boundaries would be a major undertaking but would be more aesthetically pleasing and create a more natural setting the park. This should be assessed to see how much impact this would cause and steps needed to accomplish this.
- Eliminate the paths that have been created by visitors.
- Place trail markers to designate trails.

- An Interpretive Plan should be developed with a timeline as to how to implement the plan. Also, estimates and resources as to accomplish the different aspects laid out in the plan.
- Interpretive signs (8-10) could be placed on the trails. Interpretive themes for the signs could be developed from information provided in this report.
- As mentioned earlier, the creation of a community “Park Stewards” group would be an asset to the NFI and management process. Building upon the information in this report, with the guidance of the KNC staff biologist, this group could provide the resources for an on-going monitoring program to gather further information, provide resources and education to the township community.

Literature Cited

- Albert, Dennis A. and Comer, Patrick J. 2008. *Atlas of Early Michigan's Forest, Grasslands, and Wetlands, An interpretation of the 1816-1856 General Land Office-Michigan Natural Features Inventory*. East Lansing: Michigan State University Press
- Austin, Franklin R. *Soil Survey of Kalamazoo County, Michigan*
Soil Conservation Service USDA.
- Barner, Barnes V. and Wagner Jr., Warren H. 2004. *Michigan Trees: A Guide to the Trees of the Great Lakes Region*. Ann Arbor: University of Michigan Press.
- Brewer, Lawrence G., Thomas W. Hodler, and Henry A. Raup. 1984. [Map] "Presettlement Vegetation of Southwestern Michigan." Kalamazoo, MI: Western Michigan University, Dept. of Geography. 1 sheet.
- Brewer, Richard and McPeck, Gail A. Adams Jr., Ray. 1991: *The Atlas of Breeding Birds of Michigan*, Ann Arbor: University of Michigan Press.
- Claflin, L. 2010. Hooded Warbler (*Wilsonia citrine*) In Chartier, A.T., J.J. Baldy, and J.M. Brenneman (eds.). 2010. The Second Michigan Breeding Bird Atlas. Kalamazoo Nature Center. Kalamazoo, MI. Accessed online at:
<www.mibirdatlas.org/Portals/12/MBA2010/account.pdf>.
- Craves, J. 2010. Wood Thrush (*Hylocichla mustelina*) In Chartier, A.T., J.J. Baldy, and J.M. Brenneman (eds.). 2010. The Second Michigan Breeding Bird Atlas. Kalamazoo Nature Center. Kalamazoo, MI. Accessed online at:
<www.mibirdatlas.org/Portals/12/MBA2010/account.pdf>.
- Craves, J. 2010. Northern Flicker (*Colaptes auratus*) In Chartier, A.T., J.J. Baldy, and J.M. Brenneman (eds.). 2010. The Second Michigan Breeding Bird Atlas. Kalamazoo Nature Center. Kalamazoo, MI. Accessed online at:
<www.mibirdatlas.org/Portals/12/MBA2010/account.pdf>.
- Dunn, Gary A. 1996. *Insects of the Great Lakes Region*. Ann Arbor: University of Michigan Press
- Ewert, D. 2010. Eastern Towhee (*Pipilo erythrophthalmus*) In Chartier, A.T., J.J. Baldy, and J.M. Brenneman (eds.). 2010. The Second Michigan Breeding Bird Atlas. Kalamazoo Nature Center. Kalamazoo, MI. Accessed online at:
<www.mibirdatlas.org/Portals/12/MBA2010/account.pdf>.
- Green, J. C. 1995. *Birds and Forests: A Management and Conservation Guide*. St. Paul, MN: State of Minnesota, Department of Natural Resources.

Harding, James H. and J. Alan Holman. 1990. *Michigan Turtles and Lizards: A Field Guide and Pocket Reference*. East Lansing: Michigan State University, Cooperative Extension Service.

Kost, Michael A., Albert, Dennis A., Cohen, Joshua G., Slaughter, Bradford S., Schillo, Rebecca K., Weber, Christopher R., and Chapman, Kim A. 2007. *Natural Communities of Michigan: Classification and Description*. Michigan Natural Features Inventory, Report number 2007-21, Lansing MI.P.O. Box 30444 Lansing, MI 48909-7944 For: Michigan Department of Natural Resources Wildlife Division and Forest, Mineral and Fire Management Division

Kurta, Allen. 1995. *Mammals of the Great Lakes Region*. Revised Edition. Ann Arbor, MI: The University of Michigan Press.

Michigan Department of Natural Resources and Environment. 1996. *Herp Atlas Project 1996* <http://www.mdnre@michigan.gov>

Michigan Department of Natural Resources and Environment, 1999. *Natural Features Inventory*. 1999. Michigan's Special Animals: Endangered, Threatened, Special Concern, and Probably Extirpated. Michigan Department of Natural Resources and Environment, Natural Features Inventory. 1999. Michigan's Special Animals: Endangered, Threatened, Special Concern, and Probably Extirpated. Michigan Department of Natural Resources—Michigan Natural Features Inventory. As posted electronically August 2000 via the internet at: www.dnr.state.mi.us/pdfs/wildlife/TE_animals.pdf

Hocom, J.A. 1999. Michigan Department of Natural Resources and Environment, *Natural Features Inventory*. 1999. Michigan's Special Animals: Endangered, Threatened, Special Concern, and Probably Extirpated. Lansing: Michigan Department of Natural Resources.

Newcomb, Lawrence. 1977. *Newcomb's Wildflower Guide*. Toronto: Little, Brown and Company (Canada) Limited.

Nielsen, Mogens C. 1999. *Michigan Butterflies and Skippers, A Field Guide and Reference*. First Edition. East Lansing, MI: Michigan State University Extension.

Payne, R. 2010. Blue-winged Warbler (*Vermivora pinus*) In Chartier, A.T., J.J. Baldy, and J.M. Brenneman (eds.). 2010. *The Second Michigan Breeding Bird Atlas*. Kalamazoo Nature Center. Kalamazoo, MI. Accessed online at: www.mibirdatlas.org/Portals/12/MBA2010/account.pdf >.

Payne, R. 2010. Indigo Bunting (*Passerina cyanea*) In Chartier, A.T., J.J. Baldy, and J.M. Brenneman (eds.). 2010. *The Second Michigan Breeding Bird Atlas*. Kalamazoo Nature Center. Kalamazoo, MI. Accessed online at: www.mibirdatlas.org/Portals/12/MBA2010/account.pdf >.

Rableler, Richard K. 1998. *Gleason's Plants of Michigan A Field Guide*. Ann Arbor: University of Michigan Herbarium.

Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, T. C. Will. 2004. *Partners in Flight North American Landbird Conservation Plan*. Cornell Lab of Ornithology. Ithaca, NY.

Symonds. George W.D., 1963. *The Shrub Identification Book*. New York: William Morrow and Company.

Symonds. George W.D., 1958. *The Tree Identification Book*. New York: William Morrow and Company.

U.S.D.A. 1998. Aerial photograph of Sec. 3, Texas Township, Kalamazoo County, Michigan. U.S. Dept. of Agric., Soil Conservation Service.

U.S.D.A.-S.C.S. 1979. *Soil Survey of Kalamazoo County, Michigan*. U.S. Dept. of Agriculture—Soil Conservation Service in cooperation with Michigan Agricultural Experiment Station.

USFWS. 1995. *Migratory Nongame Birds of Management Concern in the United States: The 1995 List*. Washington, DC: Office of Migratory Bird Management, U. S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 2008. *Birds of Conservation Concern 2008*. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <http://www.fws.gov/migratorybirds/>]

Voss, Edward G. 1972. *Michigan Flora A guide to the identification and occurrence of the native and naturalized seed-plants of the state*. Ann Arbor. University of Michigan Herbarium.

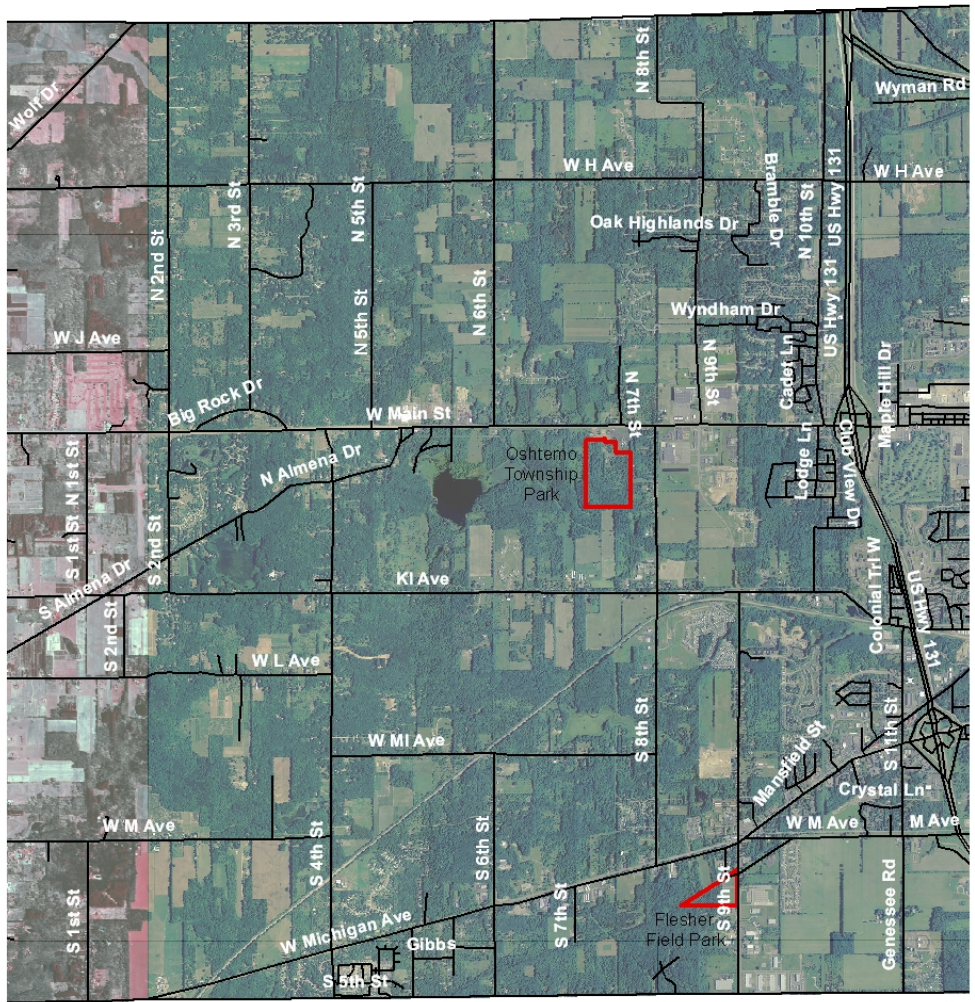
Voss, Edward G. 1985. *Michigan Flora A guide to the identification and occurrence of the native and naturalized seed-plants of the state*. Ann Arbor. University of Michigan Herbarium.

Voss, Edward G. 1996. *Michigan Flora A guide to the identification and occurrence of the native and naturalized seed-plants of the state*. Ann Arbor. University of Michigan Herbarium.

MAPS

Maps

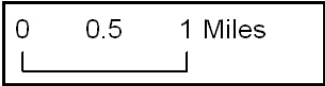
- A. Oshtemo Township Parks Locations
- B. Flesher Field Park “Area of Interest”
- C. Oshtemo Township Park “Area of Interest”
- D. Vegetation, circa 1800
- E. Flesher Field Point Count Locations
- F. Oshtemo Township Park Point Count Locations
- G. Flesher Field Park, Soil Type, SSURGO, county data
- H. Oshtemo Township Park, Soil Type, SSURGO, county data



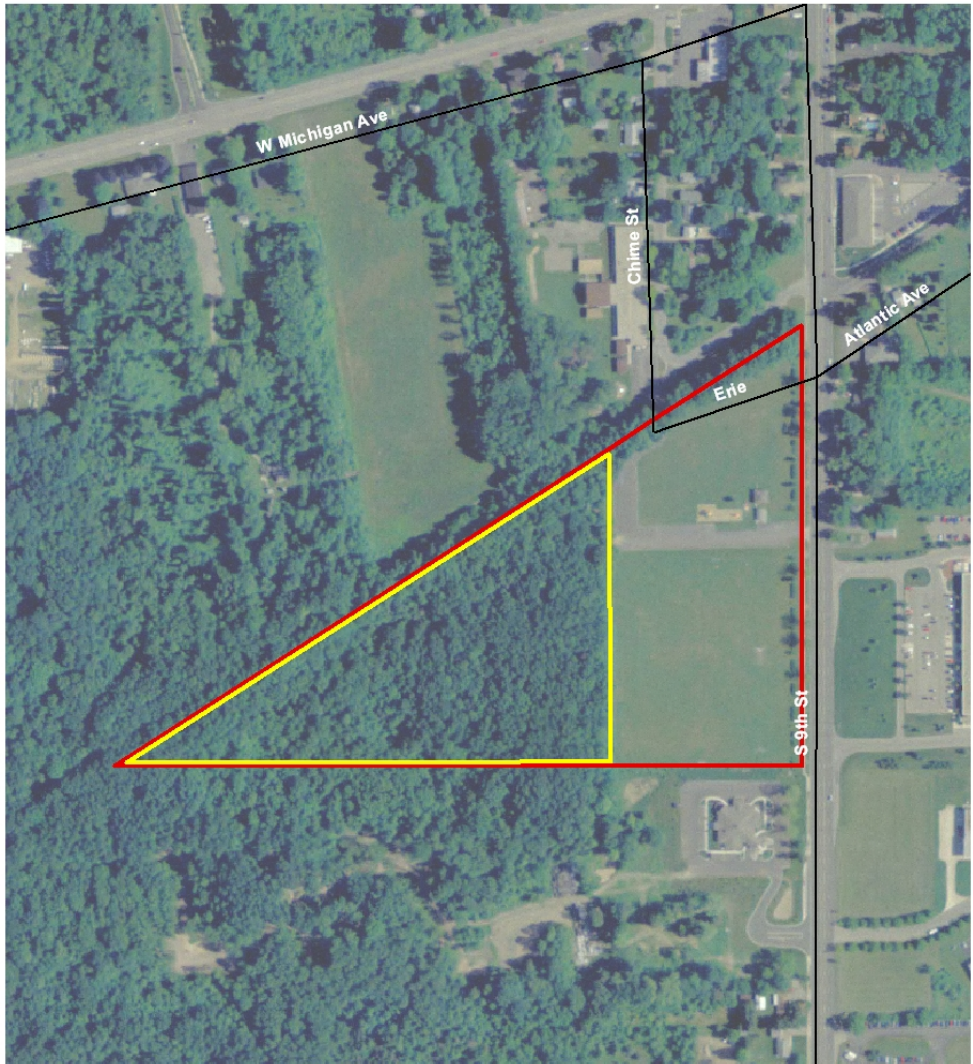
Map A

**Oshtemo
Township Park
Total Area: 69 Acres**

**Flesher Field Park
Total Area: 24 Acres**



2010. Kalamazoo Nature Center. 2005 Orthophoto from Michigan Geographic Database with Park Boundaries.

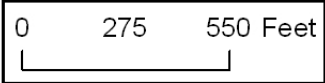


Map B

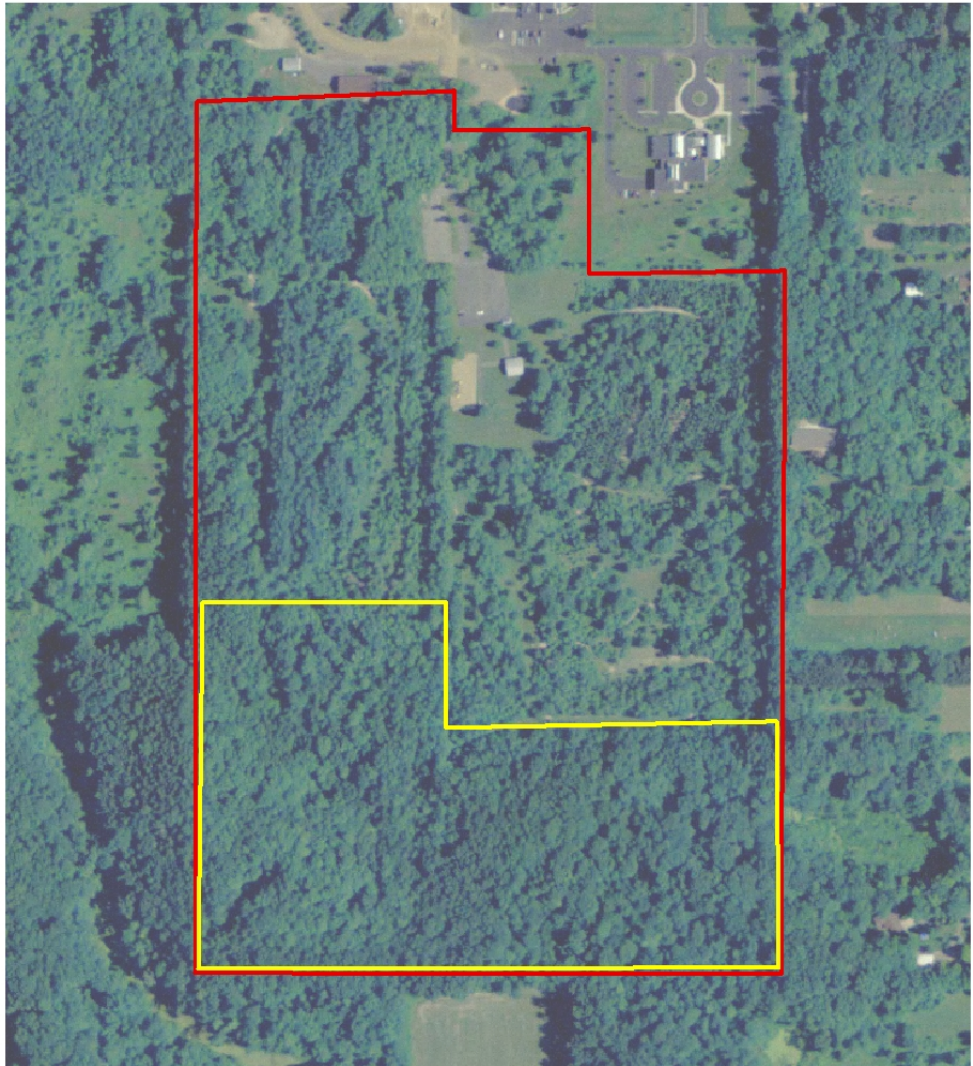
Flesher Field Park

**Total Area (Red)
24 Acres**

**"Area of Interest" (Yellow)
12 Acres**



2010. Kalamazoo Nature Center. 2005 Orthophoto from Michigan Geographic Database with Park Boundary.

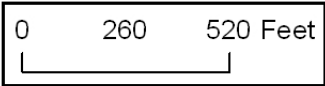


Map C

Oshtemo Township Park

**Total Area (Red)
69 Acres**

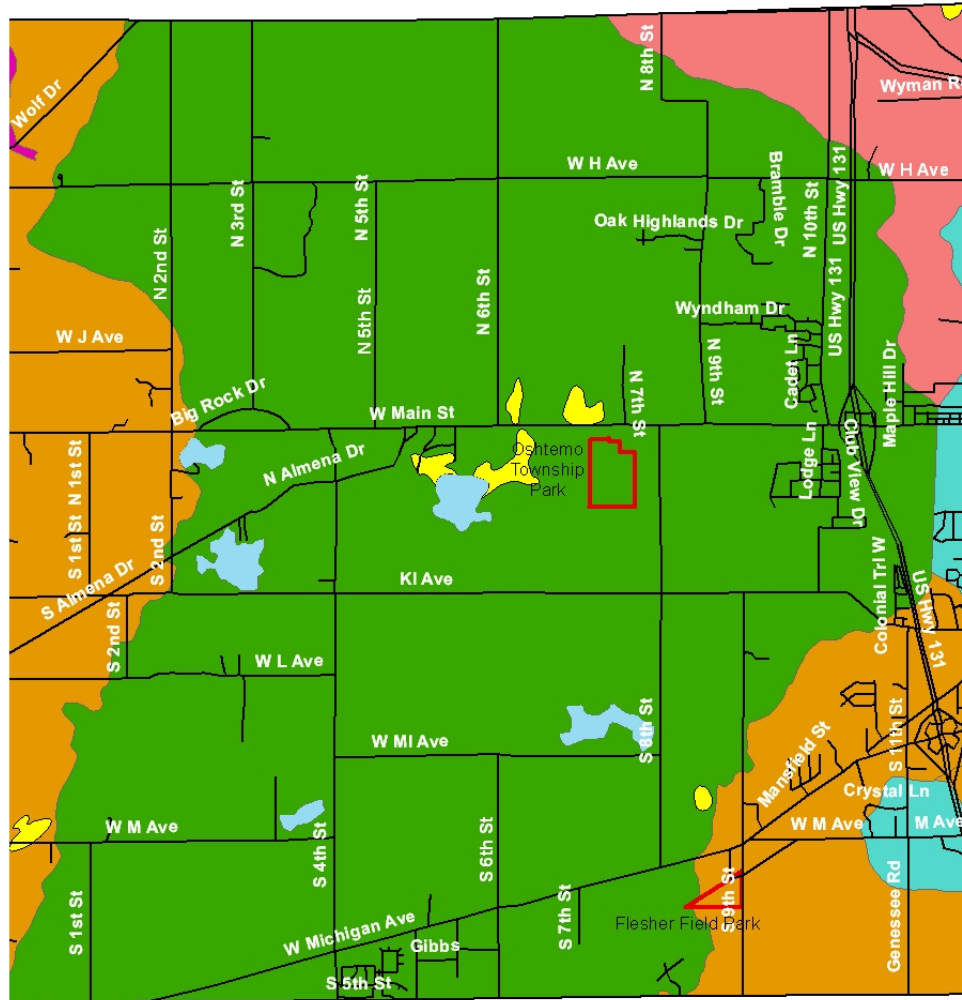
**"Area of Interest" (Yellow)
25 Acres**



2010. Kalamazoo Nature Center. 2005 Orthophoto from Michigan Geographic Database with Park Boundary.

Map D

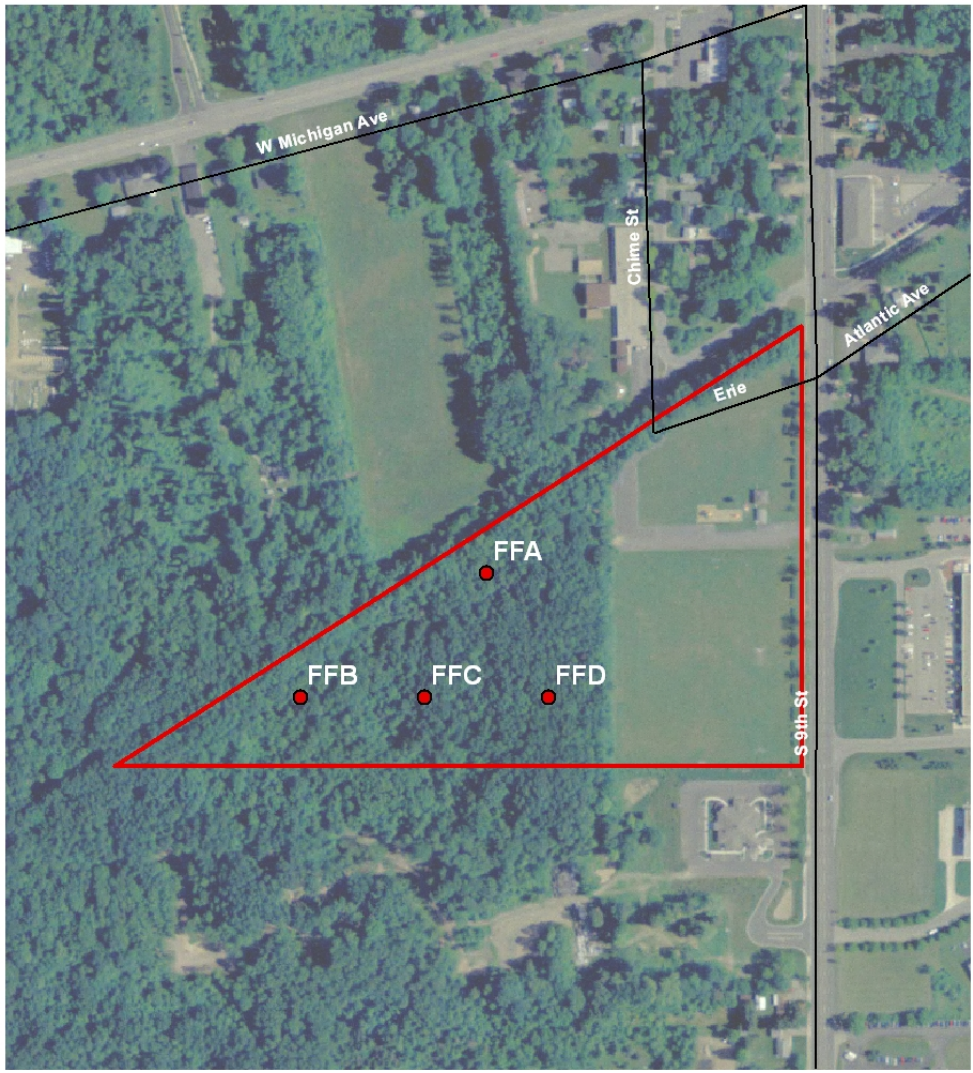
Vegetation, circa 1800 Michigan Natural Features Inventory Landcover



COVERTYPE

- BEECH-SUGAR MAPLE FOREST
- BLACK ASH SWAMP
- BLACK OAK BARREN
- GRASSLAND
- LAKE
- MIXED OAK SAVANNA
- SHRUB SWAMP/EMERGENT MARSH

2010. Kalamazoo Nature Center. Vegetation data digitized from a portion of Hodler, Brewer, Brewer, and Raup. 1981. "Presettlement Vegetation of Kalamazoo County, Michigan.", Western Michigan University. Overlay of modern road data available from Michigan Geographic Database, and park location data.

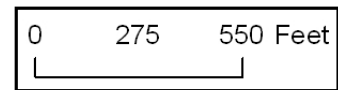


Map E

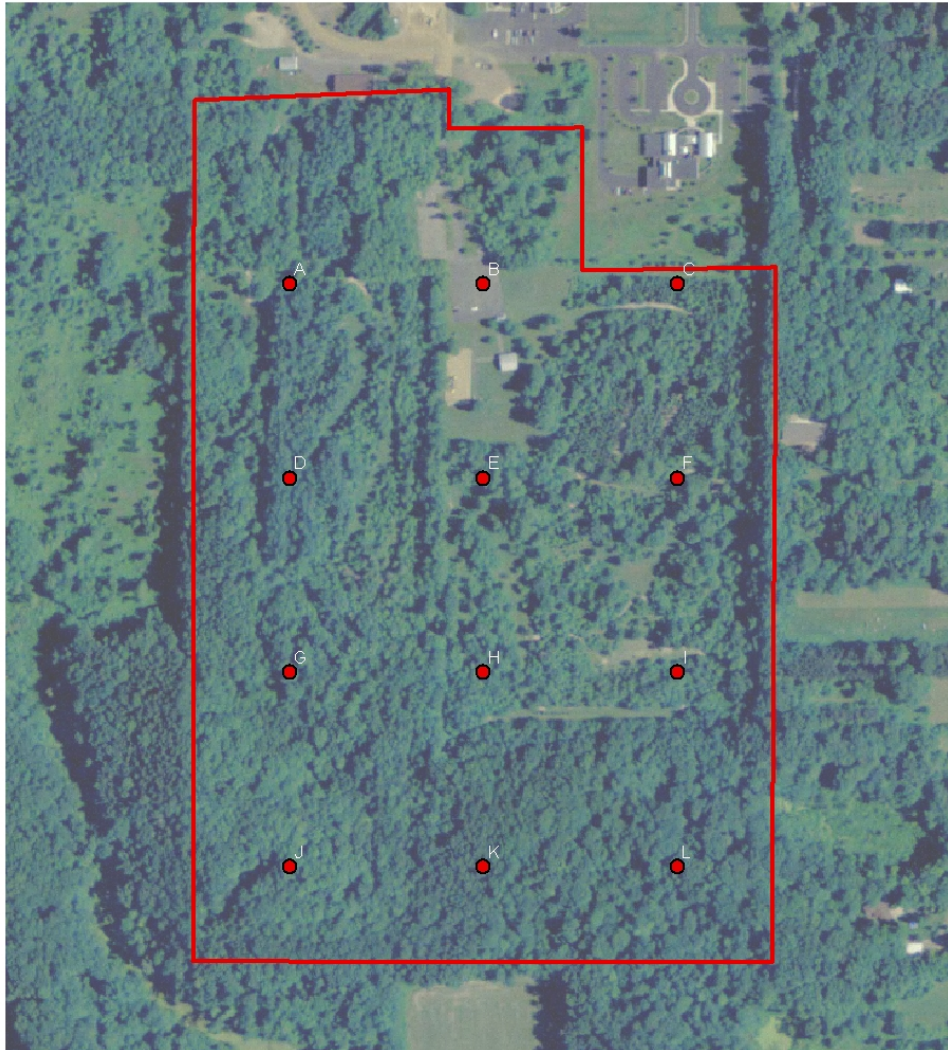
Flesher Field Park

Point Count Locations

Point	Long	Lat
A	-85.6808506	42.2546222
B	-85.6826739	42.2537275
C	-85.6814618	42.2537237
D	-85.6802497	42.2537198



2010. Kalamazoo Nature Center. 2005 Orthophoto from Michigan Geographic Database with Park Boundary.

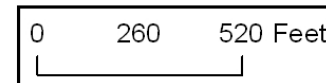


Map F

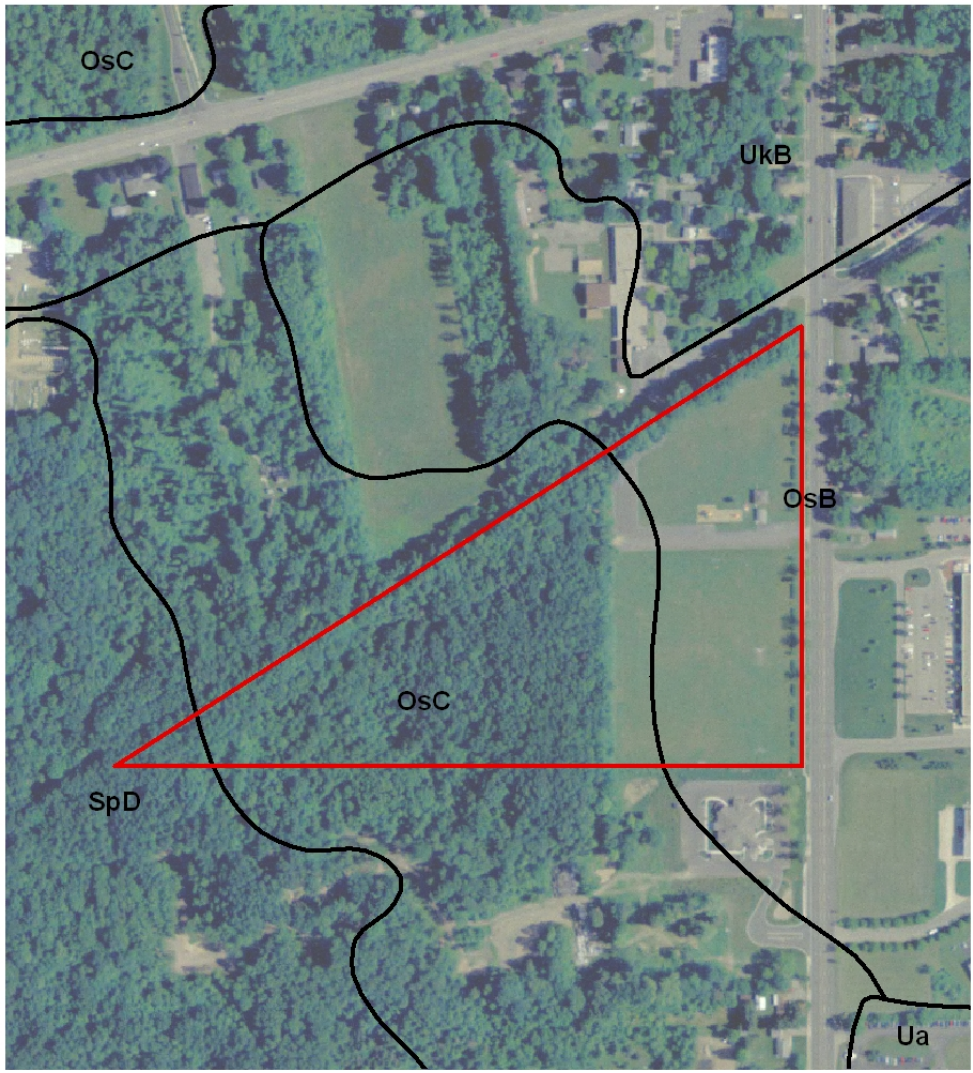
Oshtemo Township Park

Point Count Locations

Point	Lat	Long
A	42.2932512	-85.6947944
B	42.2932457	-85.6929751
C	42.2932401	-85.6911558
D	42.2919005	-85.6948019
E	42.2918949	-85.6929826
F	42.2918893	-85.6911633
G	42.2905498	-85.6948093
H	42.2905442	-85.6929901
I	42.2905386	-85.6911709
J	42.2891990	-85.6948168
K	42.2891935	-85.6929976
L	42.2891879	-85.6911784



2010. Kalamazoo Nature Center. 2005 Orthophoto from Michigan Geographic Database with Park Boundary.



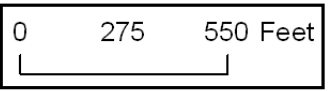
Map G

Flesher Field Park

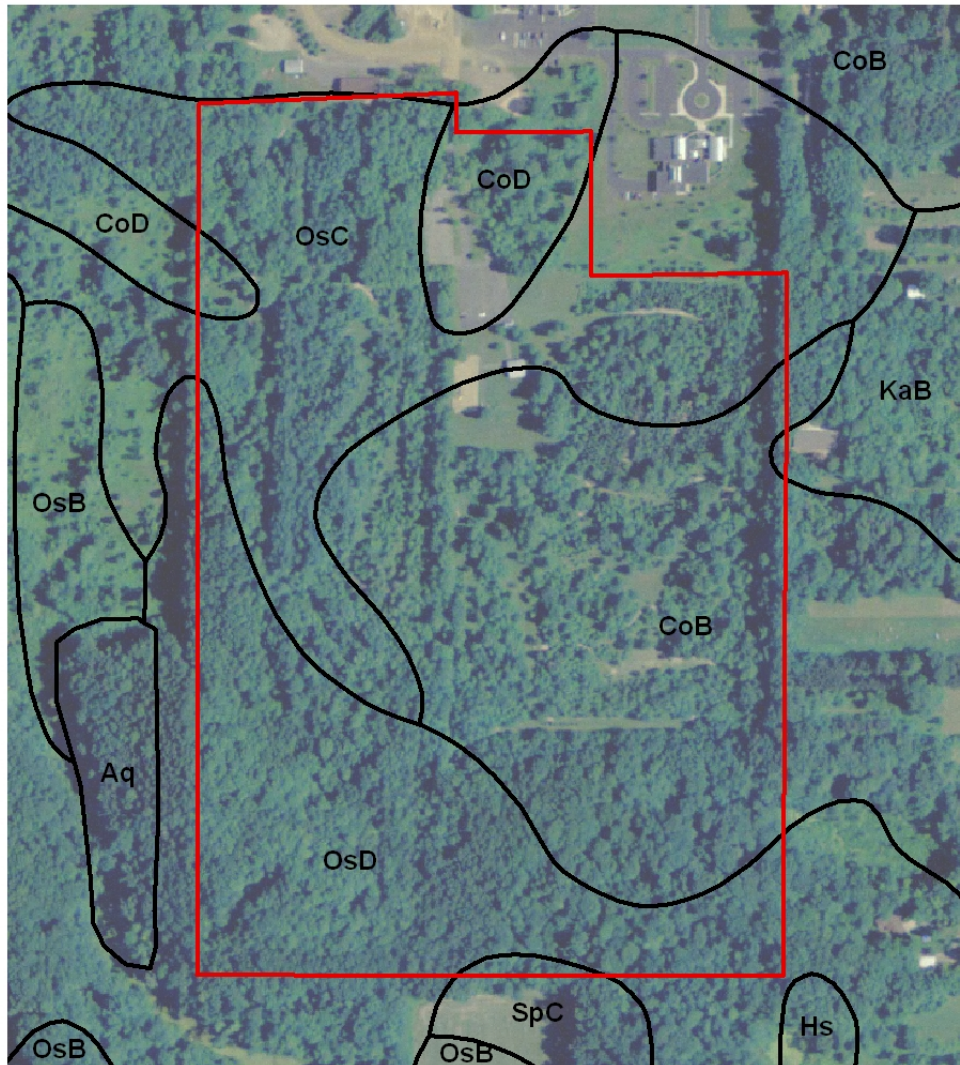
**Soil Type
SSURGO, county data**

Definitions of soil types found in:
"Soil Survey of Kalamazoo
County, Michigan."

Available at:
[http://soildatamart.nrcs.usda.gov
/manuscripts/MI077/0/
kalamazoo.pdf](http://soildatamart.nrcs.usda.gov/manuscripts/MI077/0/kalamazoo.pdf)



2010. Kalamazoo Nature Center. 2005 Orthophoto from Michigan Geographic Database with Park Boundary. Soils Data from NRCS, "SSURGO" file provided by Michigan Geographic Database.



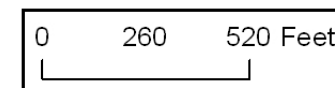
Map H

Oshtemo Township Park

Soil Type SSURGO, county data

Definitions of soil types found in:
"Soil Survey of Kalamazoo
County, Michigan."

Available at:
[http://soildatamart.nrcs.usda.gov
/manuscripts/MI077/0/
kalamazoo.pdf](http://soildatamart.nrcs.usda.gov/manuscripts/MI077/0/kalamazoo.pdf)



2010. Kalamazoo Nature Center. 2005 Orthophoto from Michigan Geographic Database with Park Boundary. Soils Data from NRCS, "SSURGO" file provided by Michigan Geographic Database.

Tables

Tables

Flesher Park

- A. Vascular Plants**
- B. Birds**
- C. Mammals**
- D. Amphibians and Reptiles**
- E. Host and Nectar Plants**
- F. Lepidoptera (Butterflies)**
- G. Odonata (Dragonflies and damselflies)**

Oshtemo Township Park

- H. Vascular Plants**
- I. Birds**
- J. Mammals**
- K. Amphibians and Reptiles**
- L. Lepidoptera (Butterflies)**
- M. Odonata (Dragonflies and damselflies)**

Flesher Field Park
April - October 2010
Vascular Plants

Table A		
Latin Name	Common Name	2010
PTERIDOPHYTES		
Aspleniaceae (Spleenwort Family)		
<i>Asplenium platyneuron</i> (L.) B.S.P.	ebony spleenwort	X
GYMNOSPERMS		
Cupressaceae (Cypress Family)		
<i>Juniperus virginiana</i> L.	red cedar	X
Pinaceae (Pine Family)		
<i>Picea abies</i> (L.) Karst.	norway spruce *	X
<i>Pinus strobus</i> L.	white pine	X
<i>Picea mariana</i>	black spruce	X
<i>Picea pungens</i>	blue spruce *	X
ANGIOSPERMS		
Aceraceae (Maple Family)		
<i>Acer saccharinum</i>	silver maple	X
<i>Acer saccharum</i> Marsh.	sugar maple	X
Anacardiaceae (Sumac Family)		
<i>Toxicodendron radicans</i> (L.) Kuntze	poison ivy	X
Apiaceae (Carrot Family)		
<i>Daucus carota</i> L.	Queen Anne's lace *	X
<i>Vinca minor</i> L.	periwinkle *	X
<i>Hedera helix</i> L.	English ivy *	X

**Flesher Field Park
April - October 2010
Vascular Plants**

Latin Name	Common Name	2010
Asteraceae (Aster Family)		
<i>Arctium minus</i> Bernh.	common burdock *	X
<i>Bidens frondosa</i> L.	beggar's tick	X
<i>Chrysanthemum leucanthemum</i> L.	ox-eye daisy *	X
<i>Cichorium intybus</i> L.	chicory *	X
<i>Cirsium vulgare</i> (Savi) Ten.	bull thistle *	X
<i>Erigeron strigosus</i> Muhl. ex Willd.	daisy fleabane*	X
<i>Hieracium aurantiacum</i> L.	orange hawkweed *	X
<i>Lactuca canadensis</i> L.	tall lettuce	X
<i>Taraxacum officinale</i> G.H. Weber ex Wiggers	common dandelion *	X
<i>Tragopogon pratensis</i> L.	common goat's beard *	X
Balsaminaceae(Touch-me-not Family)		
<i>Impatiens capensis</i>	spotted touch me not	X
Berberidaceae (Barberry Family)		
<i>Berberis thunbergii</i> DC.	Japanese barberry *	X
<i>Podophyllum peltatum</i> L.	mayapple	X
Bignoniaceae (Catalpa Family)		
<i>Campsis speciosa</i>	northern catalpa	X
Brassicaceae (Mustard Family)		
<i>Alliaria petiolata</i> (Bieb.) Cavara & Grande	garlic mustard *	X
<i>Brassica rapa</i> L.	field mustard *	X
Caprifoliaceae (Honeysuckle Family)		
<i>Lonicera</i> spp.	honeysuckle *	X
<i>Sambucus racemosa</i> L.	red-berried elder	X
Caryophyllaceae (Pink Family)		
<i>Stellaria media</i> (L.) Vill.	common chickweed *	X
Clusiaceae (St. John's wort Family)		

**Flesher Field Park
April - October 2010
Vascular Plants**

Latin Name	Common Name	2010
<i>Hypericum perforatum</i> L.	common St. John's-wort *	X
Dipsacaceae (Teasel Family)		
<i>Dipsacus fullonum</i> L.	common teasel *	X
Elaeagnaceae (Oleaster Family)		
<i>Elaeagnus umbellata</i> Thunb.	autumn olive *	X
Fabaceae (Bean Family)		
<i>Amphicarpaea bracteata</i> (L.) Fern.	hog peanut	X
Fagaceae (Beech Family)		
<i>Quercus alba</i> L.	white oak	X
<i>Quercus bicolor</i> Willd.	swamp white oak	X
<i>Quercus rubra</i> L.	red oak	X
<i>Quercus velutina</i> Lam.	black oak	X
Geraniaceae (Geranium Family)		
<i>Geranium maculatum</i> L.	wild geranium	X
Grossulariaceae (Gooseberry Family)		
<i>Ribes cynosbati</i> L.	prickly gooseberry	X
Juglandaceae (Walnut Family)		
<i>Carya ovata</i> (P. Mill.) K. Koch	shagbark hickory	X
Lauraceae (Laurel Family)		
<i>Sassafras albidum</i>	sassafras	X
Magnoliaceae (Magnolia Family)		
<i>Liriodendron tulipifera</i> L.	tulip tree	X
Menispermaceae (Moonseed Family)		
<i>Menispermum canadense</i> L.	moonseed	X

**Flesher Field Park
April - October 2010
Vascular Plants**

Latin Name	Common Name	2010
Moraceae (Mulberry Family)		
<i>Morus rubra</i>	red mulberry	X
Onagraceae (Evening-primrose Family)		
<i>Circaea lutetiana</i> L.	enchanter's nightshade	X
Poaceae (Grass Family)		
<i>Phleum pratense</i> L.	timothy	X
Polygonaceae (Smartweed Family)		
<i>Polygonum persicaria</i> L.	lady's thumb *	X
Pytolaccaceae (Pokeweed Family)		
<i>Phytolacca americana</i> L.	pokeweed	X
Ranunculaceae (Buttercup Family)		
<i>Anemone virginiana</i> L.	thimbleweed	X
Rosaceae (Rose Family)		
<i>Crataegus</i> (sp)	hawthorn	X
<i>Rosa multiflora</i> Thunb. ex Murr.	multiflora rose *	X
<i>Prunus aviaum</i>	sweet cherry	X
<i>Rubus allegheniensis</i> Porter	common blackberry	X
Salicaceae (Willow Family)		
<i>Populus deltoides</i> Bartr. ex Marsh.	cottonwood	X
Violenaceae (Violet Family)		
<i>Viola pubescens</i> Ait.	yellow violet	X
Vitaceae (Grape Family)		
<i>Parthenocissus quinquefolia</i> (L.) Planch.	Virginia creeper	X
<i>Vitis riparia</i> Michx.	riverbank grape	X

Flesher Field Park
 April - October 2010
 Vascular Plants

Latin Name	Common Name	2010
Adoxaceae (Viburnum Family)		
<i>Viburnum acerifolium</i>	maple-leaf viburnum	X
<i>Viburnum rafinesquianum</i>	downy arrow-wood viburnum	X
* Denotes non-native species		

**Flesher Field Park
April -October 2010
Bird Observations**

Table B			
Common Name	Scientific Name	Code	2010
Canada Goose	<i>Branta canadensis</i>	CAGO	X
Turkey Vulture	<i>Cathartes aura</i>	TUVU	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>	RTHA	X
Wood Duck	<i>Aix sponsa</i>	WODU	X
Mallard Duck	<i>Anas platyrhynchos</i>	MADU	X
Killdeer	<i>Charadrius vociferus</i>	KILL	X
Rock Pigeon	<i>Columba livia</i>	ROPI	X
Mourning Dove	<i>Zenaida macroura</i>	MODO	X
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	YBCU	X
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	RTHU	X
Belted Kingfisher	<i>Ceryle alcyon</i>	BEKI	X
Wild Turkey	<i>Meleagris gallopavo</i>	WITU	X
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	RBWO	X
Downy Woodpecker	<i>Picoides pubescens</i>	DOWO	X
Northern Flicker	<i>Colaptes auratus</i>	NOFL	X
Eastern Wood-Pewee	<i>Contopus virens</i>	EAWP	X
Acadian Flycatcher	<i>Empidonax vireescens</i>	ACFL	X
Least Flycatcher	<i>Empidonax minimus</i>	LEFL	X
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	GCFL	X
Yellow-throated Vireo	<i>Vireo flavifrons</i>	YTVI	X
Blue Jay	<i>Cyanocitta cristata</i>	BLJA	X
American Crow	<i>Corvus brachyrhynchos</i>	AMCR	X
Black-capped Chickadee	<i>Parus atricapillus</i>	BCCH	X
Tufted Titmouse	<i>Parus bicolor</i>	TUTI	X
Red-breasted Nuthatch	<i>Sitta canadensis</i>	RBNU	X
White-breasted Nuthatch	<i>Sitta carolinensis</i>	WBNU	X
House Wren	<i>Troglodytes aedon</i>	HOWR	X
Veery	<i>Catharus fuscescens</i>	VEER	X
Wood Thrush	<i>Hylocichla mustelina</i>	WOTH	X
American Robin	<i>Turdus migratorius</i>	AMRO	X
Gray Catbird	<i>Dumetella carolinensis</i>	GRCA	X
European Starling	<i>Sturnus vulgaris</i>	EUST	X
Cedar Waxwing	<i>Bombycilla cedrorum</i>	CEDW	X
Blue-winged Warbler	<i>Vermivora pinus</i>	BWWA	X
Hooded Warbler	<i>Wilsonia citrina</i>	HOWA	X
Yellow Warbler	<i>Dendroica petechia</i>	YWAR	X
Scarlet Tanager	<i>Piranga olivacea</i>	SCTA	X
Field Sparrow	<i>Spizella pusilla</i>	FISP	X
Northern Cardinal	<i>Cardinalis cardinalis</i>	NOCA	X
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	RBGR	X
Indigo Bunting	<i>Passerina cyanea</i>	INBU	X
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	RWBL	X
Common Grackle	<i>Quiscalus quiscula</i>	COGR	X
Brown-headed Cowbird	<i>Molothrus ater</i>	BHCO	X
Baltimore Oriole	<i>Icterus galbula</i>	BAOR	X
House Finch	<i>Carpodacus mexicanus</i>	HOFI	X
American Goldfinch	<i>Carduelis tristis</i>	AMGO	X
House Sparrow	<i>Passer domesticus</i>	HOSP	X
Total Species		47	47

Flesher Field Park
April- October 2010
Mammal Observations

Table C		
Common Name	Scientific name	2010
Eastern Chipmunk	<i>Tamias striatus</i>	X
Eastern Fox Squirrel	<i>Sciurus niger</i>	X
Comman Racoon	<i>Procyon lotor</i>	X
White-tailed Deer	<i>Odocoileus virginianus</i>	X

**Flesher Field Park
April - October 2010
Amphibian Reptile Observations**

Table D		
Common Name	Scientific Name	2010
Plethodontidae - Salamanders		
Red-backed Salamander	<i>Plethodon cinereus</i>	X
Bufoidea - Toads		
Eastern American Toad	<i>Bufo americanus americanus</i>	X
Hylidae - Tree Frogs/Chorus Frogs		
Eastern Gray Treefrog	<i>Hyla versicolor</i>	X

Flesher Field Park
 April-October 2010
 Host and Nectar Plant Observations

Table E. Food Sources and Habitats of Common Butterflies			
Butterfly Species	Caterpillar Host Plants (examples)	Adult Butterfly Nectar Plants (examples)	Habitat (general)
Papilionidae Family:			
Tiger Swallowtail	black cherry, ash, tulip-tree	milkweeds, bergamot, ironweed, blazing star	forest openings and edges, brushy fields
Black Swallowtail	carrot family	milkweeds, thistles	old fields, vacant lots, farmland
Spicebush Swallowtail	sassafras, spicebush	wild lupine, blackberry, milkweeds, blazing star	oak-hickory forest openings and edges
Pieridea Family:			
Cabbage White	mustard family	wide variety, including goldenrods	old fields, vacant lots, farmland
Clouded Sulfur	white clover, vetch, and other legumes	asters, goldenrods, blasing star, mints	open areas, clover and alfalfa fields
Orange Sulfur	legumes	asters, milkweeds, blazing star	open areas, clover and alfalfa fields
Nymphalidae Family:			
Mourning Cloak	willows preferred; also aspen, birch, elm, hickory	tree sap, overripe fruit, damp soil	forest openings, edges, swamps, meadows, stream margins, roadsides
Painted Lady	thistles and burdocks; also asters	blackberry, catnip, ironweed, knapweed, wild lupine, blazing star	old fields, meadows, disturbed areas, pastures, roadsides
American Painted Lady	pearly everlasting and pussy-toes; also burdocks	asters, red clover, chokechry, dogbane, hawkweed, milkweeds	old fields, prairies, meadows, disturbed areas, roadsides
Viceroy	willows	asters, blackberry, damp soil, scat	marshes, meadows, lake margins
Red-spotted Purple	black cherry, other cherries, aspens	dogbanes, sumacs, damp soil, sap, scat	forest openings and edges, old fields, trails
Great Spangled Fritillary	violets	bergamot, milkweeds, sumacs, black-eyed Susan	forest openings, old fields
Little Wood Satyr	grasses	milkweeds and sumacs; probably tree sap and bird droppings	deciduous forests, openings, edges, oak-pine barrens, fens, brushy old fields
Appalachian Eyed Brown	sedges	tree sap and probably bird droppings	fens, moist forests, swamps
Monarch	milkweeds	milkweeds, goldenrods, ironweed, blazing star	old fields, prairies, roadsides
Lycaenidae Family:			
Spring Azure	maple-leaved viburnum, flowering dogwood	puddles and damp areas	forest openings, edges, trails
Summer Azure	asters, dogwoods, legumes, sumacs, spirea	milkweeds, sumacs, spirea, dogbane	forest openings, brushy fields
Little (American) Copper	sheep sorrel	wide variety, including clovers, daisy, milkweeds, orange hawkweed	old fields, disturbed areas

Flesher Field Park
 April-October 2010
 Host and Nectar Plant Observations

Table E. Food Sources and Habitats of Common Butterflies			
Butterfly Species	Caterpillar Host Plants (examples)	Adult Butterfly Nectar Plants (examples)	Habitat (general)
Eastern Tailed Blue	legumes	asters, clovers, goldenrods, milkweeds	prairies, old fields, pastures
Banded Hairstreak	oaks, hickories	dogbanes, sumacs, sweet clover, fleabanes, milkweeds	forest openings and edges, old fields, roadsides
Striped Hairstreak	New Jersey tea	white sweet clover, dogbanes, milkweeds, New Jersey tea, sumacs	forest openings and edges, roadsides
Common Sootywing	lamb's-quarters	catnip, clovers, dogbane, milkweeds	old fields, disturbed areas, farms, vacant lots, gardens, parks, roadsides
Hesperiidae Family:			
Silver-spotted Skipper	legumes, including black locust and hog-peanut	blackberry, bergamot, dogbanes, honeysuckles, knapweed, sumac, black-eyed Susan, blazing star, New Jersey tea, vetch	open forests, brushy fields, disturbed areas, along streams and roads
Hobomok Skipper	blue grass, panic grasses	blackberry, red clover, dandelion, orange hawkweed, honeysuckles, lilac, wild strawberry, vetch	forest openings and edges, disturbed areas, roadsides
Checkered Skipper	mallow family	asters, red clover, dandelion, pearly everlasting, thistles	open fields, disturbed areas, farms, gardens, parks
European Skipper	grasses, especially timothy	clovers, daisy, pepper-grass, hawkweeds, milkweeds, mints, black-eyed Susan, New Jersey tree, vetch	grassy fields, pastures, prairies, urban areas, parks, roadsides
Black Dash	narrow-leaf sedge	milkweeds, swamp thistle	swamps, marshes, fens, sedgy wetlands

**Flesher Field Park
April - October 2010
Butterfly Observations**

Table F		
Common name	Scientific name	2010
Papilionidae (Swallowtails)		
Tiger Swallowtail	<i>Papilio glaucus</i>	X
Pieridae (Whites & Sulphurs)		
Cabbage Butterfly	<i>Pieris rapae</i> *	X
Clouded Sulfur	<i>Colias philodice</i>	X
Lycaenidae (Blues, Coppers, Hairstreaks)		
American Copper	<i>Lycaena phlaeas americana</i>	X
Nymphalidae (Brushfoots)		
Great Spangled Fritillary	<i>Speyeria cybele cybele</i>	X
Wood Nymph	<i>Cercyonis pegala nephele</i>	X
Little Wood Saytr	<i>Megisto cymela</i>	X
Danaiidae (Milkweed Butterflies)		
Monarch	<i>Danaus plexippus</i>	X
Hesperiidae (Skippers)		
Silver-spotted Skipper	<i>Epargyreus clarus</i>	X
European Skipper	<i>Thymelicus lineola</i> *	X
* Denotes non-native species		

**Flesher Field Park
April-October
Dragonflies and Damselflies Observations**

Table G		
Common name	Scientific name	2010
Aeshnidae (Darners)		
Common Green Darner	<i>Anax junius</i>	X
Corduliidae (Emeralds)		
American Emerald	<i>Cordulia shurtleffi</i>	X
Common Baskettail	<i>Epitheca cynosura</i>	X
Clamp-tipped Emerald	<i>Somatochlora tenebrosa</i>	X
Libellulidae (Skimmers)		
Halloween Pennant	<i>Celithemis eponina</i>	X
Eastern Pondhawk	<i>Erythemis simplicicollis</i>	X
Dot-tailed Whiteface	<i>Leucorrhinia intacta</i>	X
Widow Skimmer	<i>Libellula luctuosa</i>	X
Common Whitetail	<i>Plathemis lydia</i>	X
Twelve-spotted Skimmer	<i>Libellula pulchella</i>	X
Blue Dasher	<i>Pachydiplax longipennis</i>	X
Wandering Glider	<i>Pantala flavescens</i>	X
Cherry-faced Meadowhawk	<i>Sympetrum internum</i>	X
White-faced Meadowhawk	<i>Sympetrum obtrusum</i>	X
Ruby Meadowhawk	<i>Sympetrum rubicundulum</i>	X
Yellow-legged Meadowhawk	<i>Sympetrum vicinum</i>	X
Meadowhawk spp.	<i>Sympetrum spp.</i>	X
Black Saddlebags	<i>Tramea lacerata</i>	X
Calopterygidae (Broad-winged Damselflies)		
Ebony Jewelwing	<i>Calopteryx maculata</i>	X
River Jewelwing	<i>Calopteryx aequabile</i>	X
Coenagrionidae (Narrow-winged Damselflies)		
Common Spreadwing	<i>Lestes disjunctus</i>	X
Slender Spreadwing	<i>Lestes rectangularis</i>	X
Familiar Bluet	<i>Enallagma civile</i>	X
Marsh Bluet	<i>Enallagma ebrium</i>	X
Hagen's Bluet	<i>Enallagma hageni</i>	X
Skimming Bluet	<i>Enallagma geminatum</i>	X
Azure Bluet	<i>Enallagma aspersum</i>	X
Bluet spp.	<i>Enallagma sp.</i>	X
Blue-fronted Dancer	<i>Argia apicalis</i>	X
Powered Dancer	<i>Argia moesta</i>	X
Dancer spp.	<i>Argia spp.</i>	X
Eastern Forktail	<i>Ischnura verticalis</i>	X
Fragile Forktail	<i>Ischnura posita</i>	X
Sedge Sprite	<i>Nehalennia irene</i>	X

Oshtemo Township Park
April - October 2010
Vascular Plants

Table H		
Scientific Name	Common Name	2010
PTERIDOPHYTES		
Aspleniaceae (Spleenwort Family)		
<i>Asplenium platyneuron</i> (L.) B.S.P.	ebony spleenwort	X
Dennstaedtiaceae (Bracken Family)		
<i>Pteridium aquilinum</i> (L.) Kuhn	bracken fern	X
Cupressaceae (Cypress Family)		
<i>Juniperus virginiana</i> L.	red cedar	X
Pinaceae (Pine Family)		
<i>Pinus nigra</i> Arnold	austrian pine	X
<i>Pinus resinosa</i> Soland.	red pine	X
<i>Pinus strobus</i> L.	white pine	X
ANGIOSPERMS		
Aceraceae (Maple Family)		
<i>Acer negundo</i> L.	box elder	
<i>Acer rubrum</i> L.	red maple	X
<i>Acer saccharum</i> Marsh.	sugar maple	X
Anacardiaceae (Sumac Family)		
<i>Rhus glabra</i> L.	smooth sumac	
<i>Rhus typhina</i> L.	staghorn sumac	X
<i>Toxicodendron radicans</i> (L.) Kuntze	poison ivy	X
Apiaceae (Carrot Family)		
<i>Daucus carota</i> L.	Queen Anne's lace *	X

Oshtemo Township Park
April - October 2010
Vascular Plants

Scientific Name	Common Name	2010
Apocynaceae (Dogbane Family)		
<i>Vinca minor</i> L.	periwinkle *	X
Araceae (Arum Family)		
<i>Arisaema triphyllum</i> (L.) Schott	Jack-in-the-pulpit	X
Araliaceae (Ginseng Family)		
<i>Hedera helix</i> L.	English ivy *	X
Asclepiadaceae (Milkweed Family)		
<i>Asclepias syriaca</i> L.	common milkweed	X
Asteraceae (Aster Family)		
<i>Achillea millefolium</i> L.	yarrow *	X
<i>Ambrosia artemisiifolia</i> L.	common ragweed	X
<i>Ambrosia trifida</i> L.	giant ragweed	X
<i>Arctium minus</i> Bernh.	common burdock *	X
<i>*Bidens frondosa</i> L.	beggar's tick	X
<i>Cichorium intybus</i> L.	chicory *	X
<i>Cirsium arvense</i> (L.) Scop.	Canadian thistle *	X
<i>Eigeron annuus</i>	annual fleabane *	X
<i>Hieracium aurantiacum</i> L.	orange hawkweed *	X
<i>Senecio aureus</i> L.	golden ragwort	X
<i>Taraxacum officinale</i> G.H. Weber ex Wiggers	common dandelion *	X
Berberidaceae (Barberry Family)		
<i>Berberis thunbergii</i> DC.	Japanese barberry *	X
<i>Podophyllum peltatum</i> L.	mayapple	X
Brassicaceae (Mustard Family)		
<i>Alliaria petiolata</i> (Bieb.) Cavara & Grande	garlic mustard *	X
<i>Brassica rapa</i> L.	field mustard *	X
<i>Dentaria diphylla</i> Michx.	two-leaved toothwort	X

Oshtemo Township Park
April - October 2010
Vascular Plants

<i>Scientific Name</i>	Common Name	2010
Caprifoliaceae (Honeysuckle Family)		
<i>Lonicera</i> (spp)	honeysuckle *	X
Caryophyllaceae (Pink Family)		
<i>Stellaria media</i> (L.) Vill.	common chickweed *	X
Clusiaceae (St. John's-wort Family)		
<i>Hypericum perforatum</i> L.	common St. Johns-wort *	X
Celastraceae (Bittersweet Family)		
<i>Euonymus obovata</i> Nutt.	running strawberry bush	X
Cornaceae (Dogwood Family)		
<i>Cornus florida</i> L.	flowering dogwood	X
Elaeagnaceae (Oleaster Family)		
<i>Elaeagnus umbellata</i> Thunb.	autumn olive *	X
Fabaceae (Bean Family)		
<i>Robinia pseudoacacia</i> L.	black locust	X
Fagaceae (Beech Family)		
<i>Quercus alba</i> L.	white oak	X
<i>Quercus rubra</i> L.	red oak	X
Fumariaceae (Fumitory Family)		
<i>Dicentra cucullaria</i> (L.) Bernh.	Dutchman's breeches	X
Geraniaceae (Geranium Family)		
<i>Geranium maculatum</i> L.	wild geranium	X
Grossulariaceae (Gooseberry Family)		
		X

Oshtemo Township Park
April - October 2010
Vascular Plants

Scientific Name	Common Name	2010
<i>Ribes cynosbati</i> L.	prickly gooseberry	
Lauraceae (Laurel Family)		X
<i>Sassafras albidum</i> (Nutt.) Nees	sassafras	
Liliaceae (Lily Family)		X
<i>Allium tricoccum</i> Ait.	wild leek	
<i>Smilacina</i> (spp)	false Solomon's seal	X
Oleaceae (Olive Family)		X
<i>Ligustrum vulgare</i> L.	common privet *	
Papaveraceae (Poppy Family)		X
<i>Sanguinaria canadensis</i> L.	bloodroot	
<i>Plantago major</i> L.	common plantain *	X
Poaceae (Grass Family)		X
<i>Hystrix patula</i> Moench	bottlebrush grass	
Ranunculaceae (Buttercup Family)		X
<i>Caulophyllum thalictroides</i> (L.) Michx.	blue cohosh	
<i>Isopyrum biternatum</i> (Raf.) Torr. & Gray	false rue anemone	X
Rhamnaceae (Buckthorn Family)		X
<i>Rhamnus frangula</i> L.	glossy buckthorn *	
<i>Rhamnus cathartica</i> L.	common buckthorn *	X
Rosaceae (Rose Family)		X
<i>Fragaria virginiana</i> Duchesne	wild strawberry	
<i>Geum aleppicum</i> Jacq.	yellow avens	X
<i>Prunus serotina</i> Ehrh.	wild black cherry	X
<i>Rosa multiflora</i> Thunb. ex Murr.	multiflora rose *	X
<i>Rubus allegheniensis</i> Porter	common blackberry	X
<i>Rubus occidentalis</i> L.	black raspberry	X

Oshtemo Township Park
April - October 2010
Vascular Plants

Scientific Name	Common Name	2010
<i>Rubus pensilvanicus</i> Poir.	dewberry	X
Salicaceae (Willow Family)		
<i>Populus deltoides</i> Bartr. ex Marsh.	cottonwood	X
Scrophulariaceae (Figwort Family)		
<i>Verbascum thapsus</i> L.	common mullein	X
Simaroubaceae (Quassia Family)		
<i>Ailanthus altissima</i> (P. Mill.) Swingle	tree-of-heaven *	X
Ulmaceae (Elm Family)		
<i>Ulmus americana</i> L.	American elm	X
<i>Ulmus thomasii</i>	cork elm	X
Violaceae (Violet Family)		
<i>Viola pubescens</i> Ait.	yellow violet	X
<i>Viola sororia</i> Willd.	common blue violet	X
Vitaceae (Grape Family)		
<i>Parthenocissus quinquefolia</i> (L.) Planch.	Virginia creeper	X
<i>Vitis riparia</i> Michx.	riverbank grape	X
* Non-native species		

**Oshtemo Township Park
April - October 2010
Bird Observations**

Table I			
Common name	Scientific name	Code	2010
Canada Goose	<i>Branta canadensis</i>	CAGO	X
Turkey Vulture	<i>Cathartes aura</i>	TUVU	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>	RTHA	X
Wood Duck	<i>Aix sponsa</i>	WODU	X
Mallard Duck	<i>Anas platyrhynchos</i>	MADU	X
Killdeer	<i>Charadrius vociferus</i>	KILL	X
Rock Pigeon	<i>Columba livia</i>	ROPI	X
Mourning Dove	<i>Zenaida macroura</i>	MODO	X
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	YBCU	X
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	RTHU	X
Belted Kingfisher	<i>Ceryle alcyon</i>	BEKI	X
Downy Woodpecker	<i>Picoides pubescens</i>	DOWO	X
Northern Flicker	<i>Colaptes auratus</i>	NOFL	X
Eastern Wood-Pewee	<i>Contopus virens</i>	EAWP	X
Acadian Flycatcher	<i>Empidonax vireescens</i>	ACFL	X
Least Flycatcher	<i>Empidonax minimus</i>	LEFL	X
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	GCFL	X
Yellow-throated Vireo	<i>Vireo flavifrons</i>	YTVI	X
Red-eyed Vireo	<i>Vireo olivaceus</i>	REVI	X
Blue Jay	<i>Cyanocitta cristata</i>	BLJA	X
American Crow	<i>Corvus brachyrhynchos</i>	AMCR	X
Black-capped Chickadee	<i>Parus atricapillus</i>	BCCH	X
Tufted Titmouse	<i>Parus bicolor</i>	TUTI	X
Red-breasted Nuthatch	<i>Sitta canadensis</i>	RBNU	X
White-breasted Nuthatch	<i>Sitta carolinensis</i>	WBNU	X
House Wren	<i>Troglodytes aedon</i>	HOWR	X
Wood Thrush	<i>Hylocichla mustelina</i>	WOTH	X
American Robin	<i>Turdus migratorius</i>	AMRO	X
Gray Catbird	<i>Dumetella carolinensis</i>	GRCA	X
European Starling	<i>Sturnus vulgaris</i>	EUST	X
Cedar Waxwing	<i>Bombycilla cedrorum</i>	CEDW	X
Orange-crowned Warbler	<i>Vermivora celata</i>	OCWA	X
Northern Parula	<i>Parula americana</i>	NOPA	X
Yellow Warbler	<i>Dendroica petechia</i>	YWAR	X
Magnolia Warbler	<i>Dendroica magnolia</i>	MAWA	X
Ovenbird	<i>Seiurus aurocapillus</i>	OVEN	X
Black and White Warbler	<i>Mniotilta varia</i>	BLWA	X
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	EATO	X
Scarlet Tanager	<i>Piranga olivacea</i>	SCTA	X
White-throated Sparrow	<i>Zonotrichia albicollis</i>	WHSP	X
Dark-eyed Junco	<i>Junco hyemalis</i>	DAJU	X
Chipping Sparrow	<i>Spizella passerina</i>	CHSP	X
Field Sparrow	<i>Spizella pusilla</i>	FISP	X
Song Sparrow	<i>Melospiza melodia</i>	SOSP	X
Northern Cardinal	<i>Cardinalis cardinalis</i>	NOCA	X
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	RBGR	X
Indigo Bunting	<i>Passerina cyanea</i>	INBU	X
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	RWBL	X

Oshtemo Township Park

April - October 2010

Bird Observations

Common name	Scientific name	Code	2010
Common Grackle	<i>Quiscalus quiscula</i>	COGR	X
Brown-headed Cowbird	<i>Molothrus ater</i>	BHCO	X
Baltimore Oriole	<i>Icterus galbula</i>	BAOR	X
House Finch	<i>Carpodacus mexicanus</i>	HOFI	X
American Goldfinch	<i>Carduelis tristis</i>	AMGO	X
House Sparrow	<i>Passer domesticus</i>	HOSP	X
Total Species		53	53

**Oshtemo Township Park
April- October 2010
Mammal Observations**

Table J		
Comman Name	Species	2010
White-tail Deer	<i>Odocoileus virginianus</i>	X
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	X
Comman Raccoon	<i>Procyon lotor</i>	X
Eastern Chipmunk	<i>Tamias striatus</i>	

**Oshtemo Township Park
April- October 2010
Amphibian Reptile Observations**

Table K		
Common name	Scientific name	2010
Plethodontidae - Lungless Salamanders		
Red-backed Salamander	<i>Plethodon cinereus</i>	X
Bufo		
Eastern American Toad	<i>Bufo americanus americanus</i>	X
Hylidae - Tree Frogs/Chorus Frogs		
Northern Spring Peeper	<i>Pseudacris crucifer crucifer</i>	X
Eastern Gray Treefrog	<i>Hyla versicolor</i>	X
Emydidae - Box/Water Turtles		
Eastern Box Turtle	<i>Terrapene carolina carolina</i>	X
Blanding's Turtle	<i>Emydoidea blandingii</i>	X
Eastern Garter Snake	<i>Thamnophis sirtalis sirtalis</i>	X

**Oshtemo Township Park
April- October 2010
Butterfly Observation**

Table L		
Common Name	Species name	2010
Papilionidae (Swallowtails)		
Tiger Swallowtail	<i>Papilio glaucus</i>	X
Giant Swallowtail	<i>Papilio cresphontes</i>	X
Pieridae (Whites & Sulphurs)		
Cabbage Butterfly	<i>Pieris rapae</i>	X
Clouded Sulfur	<i>Colias philodice</i>	X
Lycaenidae (Blues, Coppers, Hairstreaks)		
American Copper	<i>Feniseca tarquinius</i>	X
Nymphalidae (Brushfoots)		
Great Spangled Fritillary	<i>Libytheana carinenta bachmanii</i>	X
Pearl Crescent	<i>Phyciodes tharos</i>	X
Mourning Cloak	<i>Nymphalis vau-album j-album</i>	X
Buckeye	<i>Vanessa atalanta rubria</i>	X
Red-spotted Purple	<i>Junonia coenia</i>	X
Danaidae (Milkweed Butterflies)		
Monarch	<i>Danaus plexippus</i>	X
Hesperiidae (Skippers)		
Silver-spotted Skipper	<i>Epargyreus clarus</i>	
European Skipper	<i>Pholisora catullus</i>	X

**Oshtemo Township Park
April - October 2010
Dragonfly and Damselfly Observations**

Table M		
Common name	Scientific name	2010
Aeshnidae (Darners)		
Common Green Darner	<i>Anax junius</i>	X
Lance-tipped Darner	<i>Aeshma constricta</i>	X
Black-tipped Darner	<i>Aeshma tuberculifera</i>	X
Libellulidae (Skimmers)		
Ruby Meadowhawk	<i>Sympetrum rubicundulum</i>	X
Yellow-legged Meadowhawk	<i>Sympetrum vicinum</i>	X
Meadowhawk spp.	<i>Sympetrum spp.</i>	X
Black Saddlebags	<i>Tramea lacerata</i>	X
Coenagrionidae (Narrow-winged Damselflies)		
Common Spreadwing	<i>Lestes disjunctus</i>	X
Northern Spread Wing	<i>Lestes disjunctus</i>	X
Violet Dancer	<i>Argia fumipennis violacea</i>	X

Appendices

Appendices

A. Natural Features Inventory Data Form

B. Oshtemo Township Point Count Data Form

Appendix A			
Natural Features Inventory Data Form- Oshtemo Parks			
Observers:			
Date:			
Notes on Weather:			
Species			
Common &/or Latin Name	Area		Notes:

Appendix B

OSHTEMO TOWNSHIP POINT COUNT DATA FORM

Location:

 Observer:

Date:

Point Number:

Time:

Wind (circle one): 0 = calm; 1 = 1-3 mph; 2 = 4-7 mph leaves rustle; 3 = 8-12 mph leaves small twigs in constant motion;

4 = 13-18 mph raises dust, small branches in motion; 5 = 19-24 mph

Sky (circle one): 0 = clear; 1 = partly cloudy; 2 = mostly cloudy (51-75%); 3 = overcast (76-100%); 5 = fog or haze; 6 = drizzle

SPECIES CODE	0-3 MIN			3-5 MIN			TOTAL
	< 50 m	> 50 m	fly-overs	< 50 m	> 50 m	fly-overs	