



J&L CONSULTING SERVICES

- Environmental Assessments
- Mitigation Plans and Permits
- Site Evaluation and Analyses
- Wetlands Mapping

April 19, 1988

Kathryn Seitz, Deputy Clerk
Oakland Township
4393 Collins Road
Rochester, MI 48064-1098

RE: Wetland Determination, 210-Acre Parcel
Don Westphal - Divine Homes, Snell Road

Dear Ms. Seitz:

Enclosed please find the "Wetlands Map" for the 210-acre parcel in Section 25 located north of Snell Road. Wetlands amount to 51.88 acres of the total land area. You may send the mylar on to Don Westphal so that he can make copies for permit applications.

All the wetland boundaries have been flagged in the field with my pink & black surveyor's ribbon for subsequent field verification by the MDNR. Please inform the developer that the mapped wetland boundaries are approximations only as no field surveying of the flagged boundaries was done. Therefore, the developer may wish to survey and stake the wetland edge of critical boundary areas. Because of lack of geographic reference, the mapped wetland boundaries in the hardwoods in the northwest portion of the site, i.e. Wetland A, may be in error by as much as 50 feet.

Wetland Descriptions

Thirteen separate wetland areas, labelled A thru M, have been indicated on the attached Wetlands Map. The basic characteristics of these wetlands are presented below in Table 1.

TABLE 1
Characteristics of the Mapped Wetlands

| Wetland # | Size | Wetland Type | Jurisdiction | |
|-------------------|-------------|-------------------------|--------------|-------------|
| | | | MDNR | Oakland Twp |
| SMALL PORTION - A | 6.39 | Mostly Forested | Yes | Yes |
| B | 12.44 | Mostly Emergent | Yes | Yes |
| C | 1.49 | Emergent & Shrub | Yes | Yes |
| D | 20.76 | Mostly Emergent & Shrub | Yes | Yes |
| E | 3.30 | Forested & Shrub | Yes | Yes |
| F | 1.94 | Emergent & Shrub | No | Yes |
| G | 0.18 | Forested | No | No |
| H | 0.42 | Forested & Shrub | No | Yes |
| I | 1.55 | Forested | No | Yes |
| J | 0.80 | Forested | No | Yes |
| K | 0.27 | Forested & Shrub | No | No |
| L | 0.45 | Emergent & Shrub | No | No |
| M | 1.89 | Emergent & Shrub | No | Yes |
| TOTAL | 51.88 Acres | | | |

1. Wetland A consists of 6.39 acres of mostly forested wetland within the upland hardwoods in the northwest corner of the site. In addition to intermittent creeks and swales flowing downslope, there are scattered depressions where water ponds in flats 4 to 12 inches deep. Among the principal swamp trees are Red Ash, Red Maple and American Elm, along with some Eastern Cottonwood and Swamp Oak. Groundwater springs occur along the extreme northwest edge of the wetland. A small, clear creek flows southeast along the northern edge into Wetland B. Near the southern end, an intermittent creek carries seasonal runoff into a tile near the field. The boundaries of Wetland A, as mapped on the wetlands map, are only approximate due to a lack of geographic reference.

2. Wetland B is a large 12.44-acre wetland which is largely an emergent marsh along with patches of shrubs and Eastern Cottonwood saplings. Cattails, sedges, Swamp Goldenrod, and Canary Grass dominate the vegetation, along with Red Osier Dogwood and Willow shrub. An intermittent creek, about 2 - 3 feet wide with a sandy bottom, transports clear water to the northeast. The south and southwest edges of this emergent wetland were once farmed, but now have reverted back to Cattails and Swamp Goldenrod.

3. Wetland C is a 1.49-acre, irregularly-shaped wetland surrounded by gravelly hills. In the center is standing water with Buttonbush shrubs, Cattails and Sedges growing therein. Along the edges is a fringe of Dogwood shrubs and saplings of American Elm and Red Maple. A ditch on the eastern side carries overflow into the trout-stream-like creek in the extreme northeast corner of the parcel.

4. Wetland D contains 20.76 acres and trends northeast-southwest across much of the parcel. In the southern part, the wetland consists of Cattail and Sedge marshes, whereas in the northern half a mix of Cattail marshes, shrub swamps, and wet meadow prevails. In the wider part of the northern half of Wetland D, a Buttonbush swamp with standing water occurs. A fast-flowing, gravelly bottom, clean creek flows south along the far eastern edge of this wetland.

5. Wetland E consists of 3.30 acres and is located in the northeast corner of the site. Consisting of shrub and forested wetlands, the principal plant species are Willows, American Elm, Red Ash, and Red Maple. A shrub swale trends southeast just south of an upland island in the extreme eastern edge of the wetland. Again, the trout-stream-like creek flows south along the eastern edge of this wetland. A small wet spot in the old cornfield occurs approximately 650 feet south of Wetland E.

6. Wetland F consists of 1.94 acres of hydrologically isolated shrub and emergent marsh wetland. Scouring Rush (or Horsetail) is widespread in this wetland along with patches of Red Osier

Dogwood, Sedges, and Canary Grass. Standing water and wet, mucky soils were prevalent at the time of the field investigation on 4-10-88 and 4-13-88.

7. Wetland G consists of only 0.18 acres of forested and shrub wetlands along Snell Road. Among the common plant species were Red Osier Dogwood and Eastern Cottonwood. Water depths in the depressions ranged from 2 to 10 inches. No culvert was observed.

8. Wetland H is a 0.42-acre depression that is isolated from Wetland D. Herein is a mixture of trees, shrubs and marsh. Among the common species were Eastern Cottonwood, Red Maple, Red Osier Dogwood, Cattails, and Canary Grass. No standing water was observed, nor were there any inlets or outlets.

9. Wetland I contains 1.55 acres. It is largely a forested wetland with some shrub and open-water areas. Common wetland plants include Red Ash, Red Maple, Black Willow, Willow shrub, Red Osier Dogwood, and Sedges. Two pairs of Mallards were observed in the open-water area where water depths up to 2 feet were observed. Trash was noted on both the northern and southern edges of this wetland.

10. Wetland J consists of 0.80 acres of forested wetland with an open-water area in the southern part. The open-water area was smaller and shallower than that of Wetland J. Among the common plant species were Red Ash, American Elm, and Cattails. A dirt trail trends along the eastern margin, and trash, including an old car, was noted along the southern margin.

11. Wetland K is a 0.27 acre area of marginal shrub and forested wetland. This wetland is basically a depression along the northern edge of Snell Road where runoff is trapped. A culvert does transport water to the south under Snell Road. Among the common vegetation is Eastern Cottonwood, American Elm, Red Ash, Red Maple, and Red Osier Dogwood. Some siltation has previously occurred in this wetland.

12. Wetland L is a 0.45-acre mixed emergent and shrub wetland along the edge of two active cornfields. Basically this wetland is a depression where seasonal water collects and ponds. Among the common vegetation is Swamp Goldenrod, Sedges, Red Osier Dogwood, Willows, and American Elm saplings.

13. Wetland M contains approximately 1.89 acres of mixed emergent and shrub wetlands. In the northern part it is largely an emergent marsh of Swamp Goldenrod with scattered Red Osier Dogwood shrubs. The marsh grades into a mixed Willow and Dogwood shrub wetland. A ditch carries seasonal runoff southward along the edge of an active cornfield. The wetland ends abruptly in the cornfield.

DNR Jurisdiction

It is recommended that Oakland Township take jurisdiction and protect all the mapped wetlands, except for Wetlands G, K, and L. Wetland E is especially sensitive due to the high quality creek that flows through it. The smaller creek flowing through Wetland B is also important. With regard to waterfowl, Wetlands C and I are significant. Wetlands I and J could be restored by removing the trash about their perimeters.

While out in the field, a number of test pits for perc tests were observed. Some of those test pits were dug in or very near to the wetlands, and were thus poorly located.

Sincerely,


Eugene Jaworski, PhD
Wetlands Consultant

EJ/nmm

Controlled Archery Antlerless Deer Hunting at Stony Creek Ravine Nature Park (Other Township parks do not permit any type of hunting)

Oakland Township purchased Stony Creek Ravine Nature Park in March 2008 with 67% of our purchase cost being paid by a Michigan Natural Resources Trust Fund grant. One of the conditions of our receipt of this substantial grant was that we must allow controlled archery deer hunting at this park as part of the DNR's program to manage deer populations in southeast Michigan.

To meet this commitment, a maximum of four hunters per hunt date will be issued Township permits for antlerless archery deer hunting at Stony Creek Ravine Nature Park on restricted weekdays between October 1 and December 31, 2014. On the days when hunting will occur the park will be closed to other types of use. Signs are posted on the park perimeter indicating these days of closure.

Hunters will be selected on a first-come, first-served basis. To be considered for this program, applications must be submitted between 8am and 4:30pm on the below-listed Mondays.

Hunters must each hunt with a partner to participate in this program. Partners' applications must be submitted at the same time to qualify for selection. Hunters must obtain their own deer hunting license and kill tags and must obey all Township regulations and State of Michigan hunting laws. Hunters must provide their own portable blinds and will be responsible for their own field dressing and transporting of all harvested deer. No baiting of any kind is allowed.

On the application date indicated below, between 8am and 4:30pm, bring this application, a copy of your current deer hunting license, and a copy of the identification used to purchase your deer hunting license, such as a driver's license to:

Oakland Township Parks and Recreation Office,
Paint Creek Cider Mill, 4480 Orion Road, Rochester, MI 48306.

If you have questions about this procedure please call (248) 651-7810. **No mailed applications will be accepted.**

Name _____ Driver's License# _____
Address _____
City, State, Zip _____ Vehicle Plate# _____
Phone: Home _____ Work _____ Cell _____
Hunting Partner's Name _____ Phone: _____

Check the dates you are interested in for antlerless archery deer hunting only:

Monday, Sept 29 Application

For hunt dates of:

Tues/Weds, Oct 7 & 8

Tues/Weds, Oct 14 & 15

Tues/Weds, Oct 21 & 22

Monday, Oct 20 Application

For hunt dates of:

Tues/Weds, Oct 28 & 29

Tues/Weds, Nov 4 & 5

Tues/Weds, Nov 11 & 12

Monday, Nov 24 Application

For hunt dates of:

Tues/Weds, Dec 2 & 3

Tues/Weds, Dec 9 & 10

Tues/Weds, Dec 16 & 17

Waiver

☐

Safety Zone Map

☐

Hunter Phone Numbers

☐

Ordinance 38A-1 Hunter Rules

☐

Mirror Tag Permit

☐

Yellow Warbler
 Chestnut-sided Warbler
 Magnolia Warbler
 Cape May Warbler
 Black-throated Blue Warbler
 Yellow-rumped Warbler
 Black-throated Green Warbler
 Blackburnian Warbler
 Yellow-throated Warbler
 Pine Warbler
 Kirtland's Warbler
 Prairie Warbler
 Palm Warbler
 Bay-breasted Warbler
 Blackpoll Warbler
 Cerulean Warbler
 Black-and-white Warbler
 American Redstart
 Prothonotary Warbler
 Worm-eating Warbler
 Ovenbird
 Northern Waterthrush
 Louisiana Waterthrush
 Kentucky Warbler
 Connecticut Warbler
 Mourning Warbler
 Common Yellowthroat
 Hooded Warbler
 Wilson's Warbler
 Canada Warbler
 Yellow-breasted Chat
 Summer Tanager
 Scarlet Tanager
 Northern Cardinal ✓
 Rose-breasted Grosbeak
 Black-headed Grosbeak
 Indigo Bunting
 Dickcissel
 * Rufous-sided Towhee ✓
 American Tree Sparrow
 Chipping Sparrow
 Clay-colored Sparrow
 Field Sparrow
 Vesper Sparrow
 Lark Sparrow
 Savannah Sparrow
 Grasshopper Sparrow
 Henslow's Sparrow
 Le Conte's Sparrow
 Sharp-tailed Sparrow
 Fox Sparrow
 Song Sparrow
 Lincoln's Sparrow
 Swamp Sparrow
 White-throated Sparrow
 White-crowned Sparrow
 Harris' Sparrow
 Dark-eyed Junco
 Lapland Longspur
 Snow Bunting
 Bobolink
 Red-winged Blackbird
 Eastern Meadowlark
 Western Meadowlark
 Yellow-headed Blackbird
 Rusty Blackbird
 Brewer's Blackbird
 Common Grackle
 Brown-headed Cowbird
 Orchard Oriole
 Northern Oriole ✓
 Fringillidae
 Pine Grosbeak
 Purple Finch
 House Finch
 Red Crossbill
 White-winged Crossbill
 Common Redpoll
 Hoary Redpoll
 Pine Siskin
 American Goldfinch ✓
 Evening Grosbeak
 Passeridae
 House Sparrow

MICHIGAN AUDUBON SOCIETY

DAILY FIELD CHECK LIST

BIRDS OF MICHIGAN Date 08/15/05
 Locality Stony Creek Corridor Property
(Kezlarian) - second survey
 Weather Sunny Temp. 72°
 Time 9 A. M. to 11 A. M.
 Total Sp. 14 Indiv.
 Observer(s) A. Tombouljan, J. Schechter

| | |
|------------------------------|------------------------------|
| GAVIIFORMES | Green-winged Teal |
| Gaviidae | American Black Duck |
| Red-throated Loon | Mallard |
| Common Loon | Northern Pintail |
| PODICIPEDIFORMES | Blue-winged Teal |
| Podicipedidae | Northern Shoveler |
| Pied-billed Grebe | Gadwall |
| Horned Grebe | Eurasian Wigeon |
| Red-necked Grebe | American Wigeon |
| Eared Grebe | Canvasback |
| Western Grebe | Redhead |
| PELECANIFORMES | Ring-necked Duck |
| Pelecanidae | Greater Scaup |
| American White Pelican | Lesser Scaup |
| Phalacrocoracidae | King Eider |
| Double-crested Cormorant ... | Harlequin Duck |
| CICONIIFORMES | Oldsquaw |
| Ardeidae | Black Scoter |
| American Bittern | Surf Scoter |
| Least Bittern | White-winged Scoter |
| Great Blue Heron | Common Goldeneye |
| Great Egret | Barrow's Goldeneye |
| Snowy Egret | Bufflehead |
| Little Blue Heron | Hooded Merganser |
| Tricolored Heron | Common Merganser |
| Cattle Egret | Red-breasted Merganser |
| Green-backed Heron | Ruddy Duck |
| Black-crowned Night-Heron .. | FALCONIFORMES |
| Yellow-crowned Night-Heron. | Cathartidae |
| ANSERIFORMES | Turkey Vulture |
| Anatidae | Accipitridae |
| Tundra Swan | Osprey |
| Mute Swan | Bald Eagle |
| Greater White-fronted Goose | Northern Harrier |
| Snow Goose | Sharp-shinned Hawk |
| Brant | Cooper's Hawk |
| Canada Goose | Northern Goshawk |
| Wood Duck | Red-shouldered Hawk |

* On MDNR List of Species of Greatest Conservation Need
 A.O.U. Nomenclature Subspecies omitted
 Order from -

MICHIGAN AUDUBON SOCIETY HEADQUARTERS

409 West E. Ave.

Kalamazoo, Michigan 49007

Stony Creek Corridor Park Acquisition 05-102

Supplemental Material

Boreal Chickadee
 Tufted Titmouse
 Common Nighthawk
 Chuck-will's-widow
 Whip-poor-will
 APODIFORMES
 Apodidae
 Chimney Swift
 Ruby-throated Hummingbird
 CORACIIFORMES
 Alcedinidae
 Belted Kingfisher
 PICIFORMES
 Picidae
 Red-headed Woodpecker
 Red-bellied Woodpecker
 Yellow-bellied Sapsucker
 Downy Woodpecker
 Hairy Woodpecker
 Three-toed Woodpecker
 Black-backed Woodpecker
 Northern Flicker
 Pileated Woodpecker
 PASSERIFORMES
 Tyrannidae
 Olive-sided Flycatcher
 Eastern Wood-Pewee
 Yellow-bellied Flycatcher
 Acadian Flycatcher
 Alder Flycatcher
 Willow Flycatcher
 Least Flycatcher
 Eastern Phoebe
 Great Crested Flycatcher
 Western Kingbird
 Eastern Kingbird
 Scissor-tailed Flycatcher
 Alaudidae
 Horned Lark
 Hirundinidae
 Purple Martin
 Tree Swallow
 Northern Rough-winged
 Swallow
 Bank Swallow
 Cliff Swallow
 Barn Swallow
 Corvidae
 Gray Jay
 Blue Jay
 Black-billed Magpie
 American Crow
 Common Raven
 Paridae
 Black-capped Chickadee
 Northern Parula
 Nashville Warbler
 Orange-crowned Warbler
 Tennessee Warbler
 Golden-winged Warbler
 Blue-winged Warbler
 Emberizidae
 Red-eyed Vireo
 Philadelphia Vireo
 Warbling Vireo
 Yellow-throated Vireo
 Solitary Vireo
 Bell's Vireo
 White-eyed Vireo
 Vireonidae
 European Starling
 Sturnidae
 Loggerhead Shrike
 Northern Shrike
 Laniidae
 Cedar Waxwing
 Bohemian Waxwing
 Bombycillidae
 Water Pipit
 Motacillidae
 Brown Thrasher
 Northern Mockingbird
 Gray Catbird
 Mimidae
 Varied Thrush
 American Robin
 Wood Thrush
 Hermit Thrush
 Swainson's Thrush
 Gray-cheeked Thrush
 Veery
 Townsend's Solitaire
 Eastern Bluebird
 Blue-gray Gnatcatcher
 Ruby-crowned Kinglet
 Golden-crowned Kinglet
 Muscicapidae
 Marsh Wren
 Sedge Wren
 Winter Wren
 House Wren
 Bewick's Wren
 Carolina Wren
 Troglodytidae
 Brown Creeper
 Certhiidae
 White-breasted Nuthatch
 Red-breasted Nuthatch
 Sittidae
 Tufted Titmouse
 Boreal Chickadee

CAPRIMULGIFORMES
 Caprimulgidae
 Common Nighthawk
 Chuck-will's-widow
 Whip-poor-will
 APODIFORMES
 Apodidae
 Chimney Swift
 Ruby-throated Hummingbird
 CORACIIFORMES
 Alcedinidae
 Belted Kingfisher
 PICIFORMES
 Picidae
 Red-headed Woodpecker
 Red-bellied Woodpecker
 Yellow-bellied Sapsucker
 Downy Woodpecker
 Hairy Woodpecker
 Three-toed Woodpecker
 Black-backed Woodpecker
 Northern Flicker
 Pileated Woodpecker
 PASSERIFORMES
 Tyrannidae
 Olive-sided Flycatcher
 Eastern Wood-Pewee
 Yellow-bellied Flycatcher
 Acadian Flycatcher
 Alder Flycatcher
 Willow Flycatcher
 Least Flycatcher
 Eastern Phoebe
 Great Crested Flycatcher
 Western Kingbird
 Eastern Kingbird
 Scissor-tailed Flycatcher
 Alaudidae
 Horned Lark
 Hirundinidae
 Purple Martin
 Tree Swallow
 Northern Rough-winged
 Swallow
 Bank Swallow
 Cliff Swallow
 Barn Swallow
 Corvidae
 Gray Jay
 Blue Jay
 Black-billed Magpie
 American Crow
 Common Raven
 Paridae
 Black-capped Chickadee

Purple Sandpiper
 Dunlin
 Stilt Sandpiper
 Buff-breasted Sandpiper
 Ruff
 Short-billed Dowitcher
 Long-billed Dowitcher
 Common Snipe
 American Woodcock
 Wilson's Phalarope
 Red-necked Phalarope
 Red Phalarope
 Laridae
 Pomarine Jaeger
 Parasitic Jaeger
 Long-tailed Jaeger
 Laughing Gull
 Franklin's Gull
 Little Gull
 Common Black-headed Gull
 Bonaparte's Gull
 Ring-billed Gull
 California Gull
 Herring Gull
 Thayer's Gull
 Iceland Gull
 Glaucous Gull
 Great Black-backed Gull
 Black-legged Kittiwake
 Sabine's Gull
 Caspian Tern
 Common Tern
 Forster's Tern
 Black Tern
 COLUMBIFORMES
 Columbidae
 Rock Dove
 Mourning Dove
 CUCULIFORMES
 Cuculidae
 Black-billed Cuckoo
 Yellow-billed Cuckoo
 STRIGIFORMES
 Tytonidae
 Common Barn-Owl
 Strigidae
 Eastern Screech-Owl
 Great Horned Owl
 Snowy Owl
 Northern Hawk-Owl
 Barred Owl
 Great Gray Owl
 Long-eared Owl
 Short-eared Owl
 Boreal Owl
 Northern Saw-whet Owl

Red-winged Hawk
 Sharp-shinned Hawk
 Red-tailed Hawk
 Rough-legged Hawk
 Golden Eagle
 Falconidae
 American Kestrel
 Merlin
 Peregrine Falcon
 Gyrfalcon
 GALLIFORMES
 Phasianidae
 Ring-necked Pheasant
 Spruce Grouse
 Ruffed Grouse
 Sharp-tailed Grouse
 Wild Turkey
 Northern Bobwhite
 GRUIFORMES
 Rallidae
 Yellow Rail
 King Rail
 Virginia Rail
 Common Moorhen
 American Coot
 Gruidae
 Sandhill Crane
 CHARADRIIFORMES
 Charadriidae
 Black-bellied Plover
 Lesser Golden-Plover
 Semipalmated Plover
 Piping Plover
 Killdeer
 Recurvirostridae
 American Avocet
 Scolopacidae
 Greater Yellowlegs
 Lesser Yellowlegs
 Solitary Sandpiper
 Willet
 Spotted Sandpiper
 Upland Sandpiper
 Whimbrel
 Hudsonian Godwit
 Marbled Godwit
 Ruddy Turnstone
 Red Knot
 Sanderling
 Semipalmated Sandpiper
 Western Sandpiper
 Least Sandpiper
 White-rumped Sandpiper
 Baird's Sandpiper
 Pectoral Sandpiper

| Location | A | B | C | D | Location | A | B | C | D |
|------------------------|---|---|---|---|-------------------------|---|---|---|---|
| Dickcissel | | | | | Snow Bunting | | | | |
| X Rufous-sided Towhee | | | | | Bobolink | | | | |
| American Tree Sparrow | | | | | Red-winged Blackbird | | | | |
| Chipping Sparrow | | | | | Eastern Meadowlark | | | | |
| Clay-colored Sparrow | | | | | Western Meadowlark | | | | |
| X Field Sparrow | | | | | Yellow-headed Blackbird | | | | |
| Vesper Sparrow | | | | | Rusty Blackbird | | | | |
| Lark Sparrow | | | | | Brewer's Blackbird | | | | |
| Lark Bunting | | | | | Common Grackle | | | | |
| Savannah Sparrow | | | | | Brown-headed Cowbird | | | | |
| Grasshopper Sparrow | | | | | Orchard Oriole | | | | |
| Henslow's Sparrow | | | | | Northern Oriole | | | | |
| Le Conte's Sparrow | | | | | Pine Grosbeak | | | | |
| Sharp-tailed Sparrow | | | | | Purple Finch | | | | |
| Fox Sparrow | | | | | House Finch | | | | |
| Song Sparrow | | | | | Red Crossbill | | | | |
| Lincoln's Sparrow | | | | | White-winged Crossbill | | | | |
| Swamp Sparrow | | | | | Common Redpoll | | | | |
| White-throated Sparrow | | | | | Hoary Redpoll | | | | |
| W. Red Sparrow | | | | | Pine Siskin | | | | |
| Har. Sparrow | | | | | American Goldfinch | | | | |
| Dark-eyed Junco | | | | | Evening Grosbeak | | | | |
| Lapland Longspur | | | | | House Sparrow | | | | |

Accidental Species: The species listed below have been recorded less than three times or fewer in the last ten years in the state of Michigan. Species in italics are known only from sight records; those in brackets are still under review by the Michigan Bird Records Committee (MBRC). Any sighting of an accidental species should be documented with a detailed written description or, when possible, with photographs. Please send all documentation to the address at the end of the checklist, attention: MBRC.

| | |
|-------------------------|------------------------------|
| Arctic/Pacific Loon | Fulvous Whistling-Duck |
| Northern Gannet | Trumpeter Swan |
| Magnificent Frigatebird | Garganey |
| Reddish Egret | Cinnamon Teal |
| White Ibis | Tufted Duck |
| White-faced Ibis | Common Eider |
| Wood Stork | American Swallow-tailed Kite |

| |
|---------------------------|
| Prairie Falcon |
| Black Rail |
| Purple Gallinule |
| Snowy Plover |
| Wilson's Plover |
| Black-necked Stilt |
| Eskimo Curlew |
| Common Black-headed Gull |
| Heermann's Gull |
| Sandwich Tern |
| Dovekie |
| Thick-billed Murre |
| Ancient Murrelet |
| Band-tailed Pigeon |
| White-winged Dove |
| Common Ground-Dove |
| Groove-billed Ani |
| Barn Owl |
| Burrowing Owl |
| Chuck-will's-widow |
| White-throated Swift |
| Rufous Hummingbird |
| Golden-fronted Woodpecker |
| Hammond's Flycatcher |
| Say's Phoebe |
| Vermilion Flycatcher |
| [Ash-throated Flycatcher] |
| Gray Kingbird |
| Fork-tailed Flycatcher |

| |
|-----------------------------|
| Clark's Nutcracker |
| Black-billed Magpie |
| Carolina Chickadee |
| Rock Wren |
| Bewick's Wren |
| Northern Wheatear |
| Mountain Bluebird |
| Sage Thrasher |
| White/Black-backed Wagtail |
| Sprague's Pipit |
| Virginia's Warbler |
| Black-throated Gray Warbler |
| Townsend's Warbler |
| Painted Redstart |
| Western Tanager |
| Black-headed Grosbeak |
| Blue Grosbeak |
| Painted Bunting |
| Green-tailed Towhee |
| Bachman's Sparrow |
| Cassin's Sparrow |
| Black-throated Sparrow |
| Golden-crowned Sparrow |
| McCown's Longspur |
| Smith's Longspur |
| Chestnut-collared Longspur |
| Brambling |
| Gray-crowned Rosy Finch |

Notes: 5/16: *Cornus florida* (Flowering Dogwood) - one specimen in bloom
6 spp. on MDNR list for "Greatest Conservation Need"

Order from: Michigan Audubon Society
P.O. Box 80527
Lansing Michigan 48207

Michigan Audubon Society
Michigan Daily Field Checklist of Birds (revised 1/1995)
Date 5/16/05

Localities: Kezlarian Property
Weather: overcast Temperature: 50's Time: 1-3pm
Observers: Alice Tamboulian Species: 21 Individuals:

Regular and Casual Species: The species below range from abundant to uncommon in Michigan. Casual species (in italics) were recorded more than three times in the last ten years, but were less than annual during the period.

| Location | A | B | C | D | Location | A | B | C | D |
|----------------------------|---|---|---|---|---------------------|---|---|---|---|
| Red-throated Loon | | | | | Braut | | | | |
| Common Loon | | | | | Canada Goose | | | | |
| Pied-billed Grebe | | | | | Wood Duck | | | | |
| Horned Grebe | | | | | Green-winged Teal | | | | |
| Red-necked Grebe | | | | | American Black Duck | | | | |
| Eared Grebe | | | | | Mallard | | | | |
| Western Grebe | | | | | Northern Pintail | | | | |
| American White Pelican | | | | | Blue-winged Teal | | | | |
| Brown Pelican | | | | | Northern Shoveler | | | | |
| Double-crested Cormorant | | | | | Gadwall | | | | |
| American Bittern | | | | | Eurasian Wigeon | | | | |
| Least Bittern | | | | | American Wigeon | | | | |
| Great Blue Heron | | | | | Canvasback | | | | |
| Great Egret | | | | | Redhead | | | | |
| Snowy Egret | | | | | Ring-necked Duck | | | | |
| Little Blue Heron | | | | | Greater Scaup | | | | |
| Tricolored Heron | | | | | Lesser Scaup | | | | |
| Cattle Egret | | | | | King Eider | | | | |
| Green Heron | | | | | Harlequin Duck | | | | |
| Black-crown. Night Heron | | | | | Oldsquaw | | | | |
| Yellow-crown. Night Heron | | | | | Black Scoter | | | | |
| Glossy Ibis | | | | | Surf Scoter | | | | |
| Tundra Swan | | | | | White-winged Scoter | | | | |
| Mute Swan | | | | | Common Goldeneye | | | | |
| Greater White-front. Goose | | | | | Barrow's Goldeneye | | | | |
| Snow Goose | | | | | Bufflehead | | | | |
| Ross' Goose | | | | | Hooded Merganser | | | | |

| Location | A | B | C | D | Location | A | B | C | D |
|------------------------|---|---|---|---|-------------------------|---|---|---|---|
| Common Merganser | | | | | Piping Plover | | | | |
| Red-breasted Merganser | | | | | X Killdeer | | | | ✓ |
| Ruddy Duck | | | | | American Avocet | | | | |
| Turkey Vulture | ✓ | | | | Greater Yellowlegs | | | | |
| Osprey | | | | | Lesser Yellowlegs | | | | |
| Mississippi Kite | | | | | Solitary Sandpiper | | | | |
| Bald Eagle | | | | | Willet | | | | |
| Northern Harrier | | | | | Spotted Sandpiper | | | | |
| Sharp-shinned Hawk | | | | | Upland Sandpiper | | | | |
| Cooper's Hawk | | | | | Whimbrel | | | | |
| Northern Goshawk | | | | | Hudsonian Godwit | | | | |
| Red-shouldered Hawk | | | | | Marbled Godwit | | | | |
| Broad-winged Hawk | | | | | Ruddy Turnstone | | | | |
| Swinson's Hawk | | | | | Red Knot | | | | |
| Ferruginous Hawk | | | | | Sanderling | | | | |
| Red-tailed Hawk | | | | | Semipalmated Sandpiper | | | | |
| Rough-legged Hawk | | | | | Western Sandpiper | | | | |
| Golden Eagle | | | | | Least Sandpiper | | | | |
| American Kestrel | | | | | White-rumped Sandpiper | | | | |
| M | | | | | Baird's Sandpiper | | | | |
| Falcon | | | | | Pectoral Sandpiper | | | | |
| Gyr Falcon | | | | | Purple Sandpiper | | | | |
| Ring-necked Pheasant | | | | | Dunlin | | | | |
| Spruce Grouse | | | | | Curlew Sandpiper | | | | |
| Ruffed Grouse | | | | | Stilt Sandpiper | | | | |
| Sharp-tailed Grouse | | | | | Buff-breasted Sandpiper | | | | |
| Wild Turkey | | | | | Ruff | | | | |
| Northern Bobwhite | | | | | Short-billed Dowitcher | | | | |
| Yellow Rail | | | | | Long-billed Dowitcher | | | | |
| King Rail | | | | | Common Snipe | | | | |
| Virginia Rail | | | | | American Woodcock | | | | |
| Sora | | | | | Wilson's Phalarope | | | | |
| Common Moorhen | | | | | Red-necked Phalarope | | | | |
| American Coot | | | | | Red Phalarope | | | | |
| Sandhill Crane | | | | | Pomarine Jaeger | | | | |
| Black-bellied Plover | | | | | Parasitic Jaeger | | | | |
| American Golden-Plover | | | | | Long-tailed Jaeger | | | | |
| Semipalmated Plover | | | | | Laughing Gull | | | | |

| Location | A | B | C | D | Location | A | B | C | D |
|--------------------------|---|---|---|---|---------------------------|---|---|---|---|
| Franklin's Gull | | | | | Belted Kingfisher | | | | |
| Little Gull | | | | | Red-headed Woodpecker | | | | |
| Bonaparte's Gull | | | | | Red-bellied Woodpecker | | | | |
| Mew Gull | | | | | Yellow-bellied Sapsucker | | | | |
| Ring-billed Gull | | | | | Downy Woodpecker | | | | |
| California Gull | | | | | Hairy Woodpecker | | | | |
| Herring Gull | | | | | Three-toed Woodpecker | | | | |
| Thayer's Gull | | | | | Black-backed Woodpecker | | | | |
| Iceland Gull | | | | | Northern Flicker | | | | |
| Lesser Black-backed Gull | | | | | Pileated Woodpecker | | | | |
| Glaucous Gull | | | | | Olive-sided Flycatcher | | | | |
| Great Black-backed Gull | | | | | Eastern Wood-Pewee | | | | |
| Black-legged Kittiwake | | | | | Yellow-bellied Flycatcher | | | | |
| Sabine's Gull | | | | | Acadian Flycatcher | | | | |
| Caspian Tern | | | | | Alder Flycatcher | | | | |
| Common Tern | | | | | Willow Flycatcher | | | | |
| Arctic Tern | | | | | Least Flycatcher | | | | |
| Forster's Tern | | | | | Eastern Phoebe | | | | |
| Least Tern | | | | | Great Crested Flycatcher | | ✓ | | |
| Black Tern | | | | | Western Kingbird | | | | |
| Rock Dove | | | | | Eastern Kingbird | | | | |
| Mourning Dove | | | | | Scissor-tailed Flycatcher | | | | |
| Black-billed Cuckoo | | | | | Horned Lark | | | | |
| Yellow-billed Cuckoo | | | | | Purple Martin | | | | |
| Eastern Screech Owl | | | | | Tree Swallow | | | | |
| Great Horned Owl | | | | | N. Rough-winged Swallow | | | | |
| Snowy Owl | | | | | Bank Swallow | | | | |
| Northern Hawk Owl | | | | | Cliff Swallow | | | | |
| Barred Owl | | | | | Barn Swallow | | | | |
| Great Gray Owl | | | | | Gray Jay | | | | |
| Long-eared Owl | | | | | Blue Jay | | ✓ | | |
| Short-eared Owl | | | | | American Crow | | ✓ | | |
| Boreal Owl | | | | | Common Raven | | | | |
| Northern Saw-whet Owl | | | | | Black-capped Chickadee | | ✓ | | |
| Common Nighthawk | | | | | Boreal Chickadee | | | | |
| Whip-poor-will | | | | | Tufted Titmouse | | | | |
| Chimney Swift | | | | | Red-breasted Nuthatch | | ✓ | | |
| Ruby-throat Hummingbird | | | | | White-breasted Nuthatch | | ✓ | | |

| Location | A | B | C | D | Location | A | B | C | D |
|------------------------|---|---|---|---|----------------------------|---|---|---|---|
| Brown Creeper | | | | | Nashville Warbler | | | | |
| Carolina Wren | | ✓ | | | Northern Parula | | | | |
| House Wren | | ✓ | | | Yellow Warbler | | | | ✓ |
| Winter Wren | | | | | Chestnut-sided Warbler | | | ✓ | |
| Sedge Wren | | | | | Magnolia Warbler | | | | |
| Marsh Wren | | | | | Cape May Warbler | | | | |
| Golden-crowned Kinglet | | | | | Black-throat Blue Warbler | | | | |
| Ruby-crowned Kinglet | | | | | Yellow-rumped Warbler | | | | |
| Blue-gray Gnatcatcher | | | | | Black-throat Green Warbler | | | | ✓ |
| Eastern Bluebird | | | | | X Blackburnian Warbler | | | ✓ | |
| Townsend's Solitaire | | | | | Yellow-throated Warbler | | | | |
| Veery | | | | | Pine Warbler | | | | |
| Gray-cheeked Thrush | | | | | Kirtland's Warbler | | | | |
| Swinson's Thrush | | | | | Prairie Warbler | | | | |
| Hermits Thrush | | | | | Palm Warbler | | | | |
| Wood Thrush | | | ✓ | | Bay-breasted Warbler | | | | |
| American Robin | | ✓ | | | Blackpoll Warbler | | | | |
| Varied Thrush | | | | | Cerulean Warbler | | | | |
| Gray Catbird | | ✓ | | | Black-and-white Warbler | | | | |
| Northern Mockingbird | | | | | American Redstart | | | | |
| X Brown Thrasher | | ✓ | | | Prothonotary Warbler | | | | |
| American Pipit | | | | | Worm-eating Warbler | | | | |
| Bohemian Waxwing | | | | | Ovenbird | | | | |
| Cedar Waxwing | | | | | Northern Waterthrush | | | | |
| Northern Shrike | | | | | Louisiana Waterthrush | | | | |
| Loggerhead Shrike | | | | | Kentucky Warbler | | | | |
| European Starling | | | | | Connecticut Warbler | | | | |
| White-eyed Vireo | | | | | Mourning Warbler | | | | |
| Bell's Vireo | | | | | Common Yellowthroat | | | | |
| Solitary Vireo | | | | | Hooded Warbler | | | | |
| Yellow-throated Vireo | | | | | Wilson's Warbler | | | | |
| Warbling Vireo | | | | | Canada Warbler | | | | |
| Philadelphia Vireo | | | | | Yellow-breasted Chat | | | | |
| Red-eyed Vireo | | | | | Summer Tanager | | | | |
| X Blue-winged Warbler | | ✓ | | | Scarlet Tanager | | | | |
| Golden-winged Warbler | | | | | Northern Cardinal | | | ✓ | |
| Tennessee Warbler | | | | | Rose-breasted Grosbeak | | | ✓ | |
| Orange-crowned Warbler | | | | | Indigo Bunting | | | ✓ | |

Stony Creek Corridor Park Floristic Quality, Natural Communities and Species of Greatest Conservation Need

Significant Natural Resource

| <u>Floristic Quality Index</u> | <u>Native Species Count</u> | <u>Total Species Count</u> | <u>Native Species Sq. Root</u> | <u>Index of Conservatism</u> |
|--------------------------------|-----------------------------|----------------------------|--------------------------------|------------------------------|
| 46.56* | 138 | 177 | 11.75 | 3.96 |

*Described as Important Natural Resource at the State-wide Level by Weatherbee's Botanical Surveys, August 2005

State Threatened Plant

| <u>Scientific Name</u> | <u>Common Name</u> | <u>State Status</u> | <u>Identified By</u> | <u>Date of Identification</u> |
|---------------------------|--------------------|---------------------|----------------------|-------------------------------|
| <i>Polemonium reptans</i> | Jacob's Ladder | Threatened | Weatherbee's | Summer 2005 |

Uncommon Natural Communities

| <u>Natural Community Name</u> | <u>State Rank</u> | <u>Identified By</u> | <u>Date of Identification</u> |
|--|---------------------|----------------------|-------------------------------|
| Dry-mesic southern forest (Oak forest) | S3 (uncommon, rare) | Weatherbee's | Summer 2005 |
| Southern floodplain forest | S3 (uncommon, rare) | Weatherbee's | Summer 2005 |

Species of Greatest Conservation Need

| <u>Scientific Name</u> | <u>Common Name</u> | <u>State Status</u> | <u>Identified By**</u> | <u>Date of Identification</u> |
|------------------------|--------------------|---------------------|------------------------|-------------------------------|
|------------------------|--------------------|---------------------|------------------------|-------------------------------|

Amphibians

| | | | | |
|---------------------------|-------------------------|--|-----|-------------|
| <i>Rana pipiens</i> | Northern Leopard Frog | | HRM | Summer 2005 |
| <i>Ambystoma laterale</i> | Blue-spotted Salamander | | HRM | Summer 2005 |

Birds

| | | | | |
|--------------------------------|----------------------|--|-----------------|-----------------|
| <i>Charadrius vociferous</i> | Killdeer | | Alice Tomboulia | May 2005 |
| <i>Ardea herodias</i> | Great Blue Heron | | Weatherbee's | Summer 2005 |
| <i>Pipilo erythrophthalmus</i> | Eastern Towhee | | Alice Tomboulia | May/August 2005 |
| <i>Spizella pusilla</i> | Field Sparrow | | Alice Tomboulia | May 2005 |
| <i>Toxostoma rufum</i> | Brown Thrasher | | Alice Tomboulia | May 2005 |
| <i>Dendroica fusca</i> | Blackburnian Warbler | | Alice Tomboulia | May 2005 |
| <i>Vermivora pinus</i> | Blue-winged Warbler | | Alice Tomboulia | May 2005 |

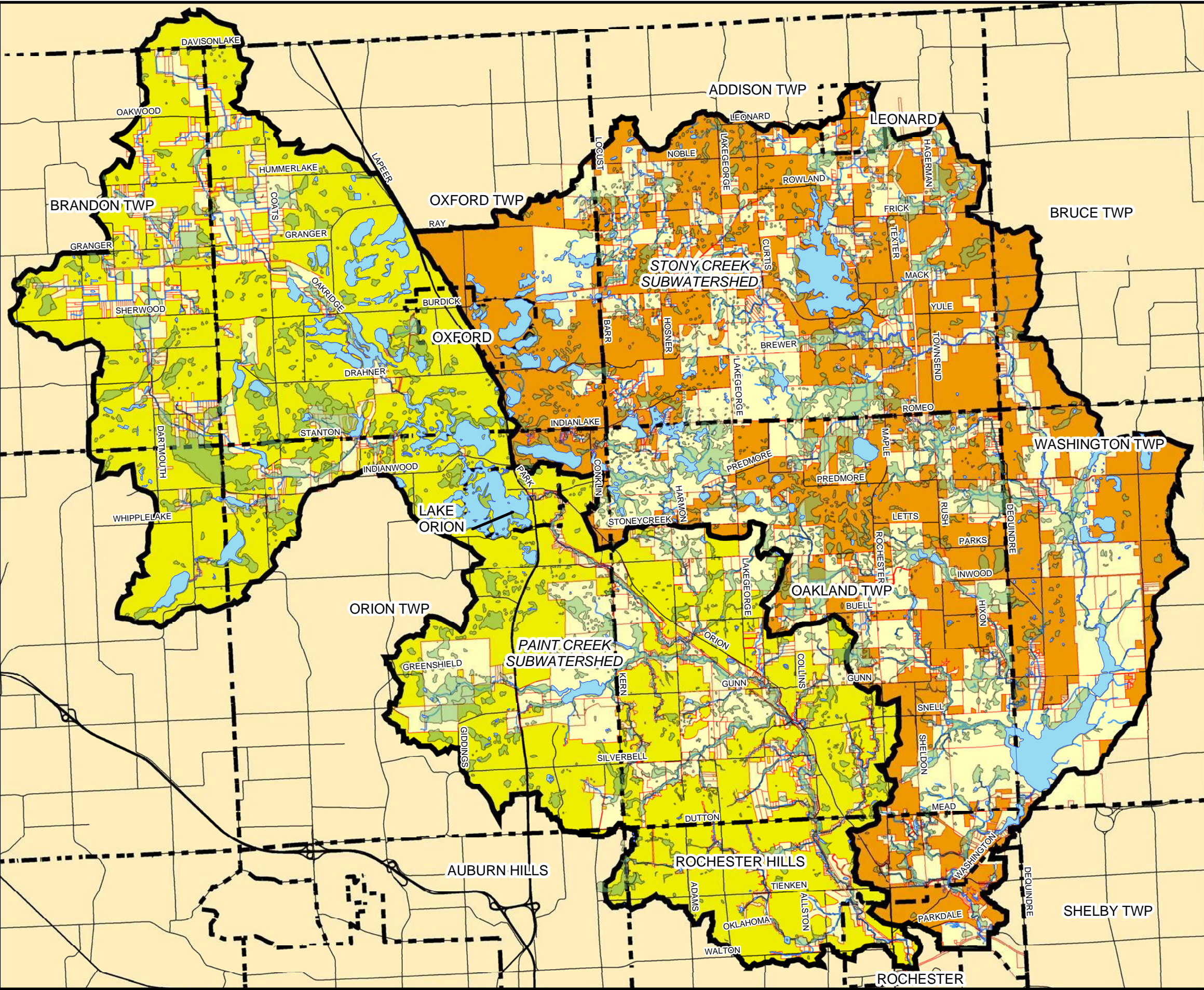
Fishes

| | | | | |
|------------------------------|-----------------|--|------------|-------------------------|
| <i>Erimyzon sucetta</i> | Lake Chubsucker | | NANFA | Continuous since 1960's |
| <i>Etheostoma flabellare</i> | Fantail Darter | | NANFA | January 2005 |
| <i>Esox americanus</i> | Grass Pickerel | | MDNR/NANFA | July 2001 |
| <i>Noturus gyrinus</i> | Tadpole Madtom | | NANFA | Continuous since 1960's |

Reptiles

| | | | | |
|----------------------------------|------------|--|-----|-------------|
| <i>Coluber constrictor foxii</i> | Blue Racer | | ECT | August 2005 |
|----------------------------------|------------|--|-----|-------------|

**HRM = Herpetological Resource & Mgt., NANFA = North American Native Fishes Assoc., ECT = Environmental Consulting & Tech.



Stony/Paint Creek Subwatershed

Figure 3.16 Critical Areas & Wetlands

- Water Course
- Road
- Community Border
- Lake
- Potential Wetland
- Critical Area
- Subwatershed
 - Stony Creek
 - Paint Creek



9-26-05
0 4,000 8,000 16,000
1" = 8000'

MAP DATA PROVIDED BY: OAKLAND COUNTY AND MACOMB COUNTY
WETLAND DATA PROVIDED BY: NWI, OAKLAND TOWNSHIP AND ROCHESTER HILLS BY NISWANDER ENVIRONMENTAL
CRITICAL AREAS DERIVED FROM ECT ASSESSMENT 2005, POLLUTANT LOADING MODEL, MACROINVERTEBRATE SURVEY, ROAD CROSSING SURVEY AND BEHI SURVEY
...CRWC-PAINT CREEK/STONY PAINT SUBWATERSHED, SUBWATERSHED PLAN/WMP UPDATED MAPS, CRITICAL AREAS WITH WETLANDS 092605 11X17.MXD



Environmental Consulting & Technology, Inc.

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FAX: (734) 769-3164
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STONY CREEK CORRIDOR PARK ACQUISITION -- ECOLOGICAL ASSESSMENT

Prepared For

**Charter Township of Oakland --
Parks and Recreation Commission
4393 Collins Road
Rochester, MI 48306-1670**

Prepared by

**Weatherbee's Botanical Surveys
11405 Patterson Lake Drive
Pinckney, Michigan
(734) 878-9178**

AUGUST 2005

INTRODUCTION

The preservation of our remaining natural areas is an important goal for a variety of reasons. Preservation of natural areas provides opportunities for viewing wildlife, protects habitats which support and maintain our state's biodiversity, provides educational opportunities, allows for access to water bodies and fishing opportunities, as well as providing a host of other active and passive recreational activities. However, most importantly, natural areas allow people, from an ever increasingly urban population, to connect with nature, to experience it "hands-on", and gain an understanding of nature and the relationship of humans to the natural world; a relationship that is critical to the future of humankind.

In support of a grant application to the Michigan Natural Resources Trust Fund (MNRTF) to preserve natural areas in Oakland Township, the Oakland Township Parks Commission (the Commission) has undertaken an ecological assessment of a tract known as the Stony Creek Corridor Park Acquisition (Stony Creek Park Corridor). The property, which totals approximately 60 acres, is located in Section 25, Township 4 North, Range 11 East, Oakland Township, Oakland County, Michigan. In its ecological characterization, the Commission is especially interested in determining whether any of the rare species identified by the Michigan Natural Features Inventory as occurring in the general area of the parks are present on the park properties. The Commission is also interested more generally in whether any of the plant, amphibian or reptile species identified by the Michigan Department of Natural Resources as Species of Greatest Conservation Need occur on the properties.

To support the Commission's efforts, Weatherbee's conducted the ecological characterization of Stony Creek Park Corridor described in this report. Weatherbee's efforts focused on characterization of the plant, mammal, amphibian and reptile communities of the park, as well as considering other non-biotic features of the property and the setting of the Stony Creek Park Corridor property in relation to two other contiguous natural areas: Knob Creek Subdivision Conservation Easement (Knob Creek Easement) and Stony Creek Metro Park.

The general approach used by Weatherbee's for this project consisted of assembly of a project team with expertise in the specific taxonomic groups of interest, review of the background information, field reconnaissance of the parcel, and preparation of this report based on the background information and field observations. The general field procedures (described in more detail below) consisted of a walkover of the site during which a list of plant species, identifiable at that time of the year, was compiled. Observations as to the various types of plant communities present on the parcel, including those that may be of special value, as well as observations of wildlife, wildlife sign, significant natural features and nature interpretation opportunities were also made during the walkover.

METHODS

Plant Species, Plant Communities and Floristic Quality Assessment

Weatherbee's conducted three separate reconnaissance efforts of the Stony Creek Corridor Park in May, July and August 2005. The field team for this effort consisted of Ms. Ellen Elliott Weatherbee of Weatherbee's Botanical Surveys and Dr. Brian Klatt of Wetland Solutions – Klatt Environmental LLC. The Weatherbee's team also conducted a reconnaissance of the Knob Creek Easement in August 2005. During the reconnaissance, a list of all plant species, in a reasonably identifiable state, was compiled for the sites. Additionally, the major plant communities, as described in *Michigan Natural Community Types* (MNFI 2003), were identified and the approximate boundaries of the communities sketched onto an aerial photograph. Because a state-threatened species (*Polemonium reptans*) was found during the reconnaissance on the Stony Creek Corridor Park site, the population of this protected species was enumerated, the reproductive condition of the plants described, and the stand of plants photographically documented. As with the protected species, other representative and significant natural features of the site were also photographically documented.

The lists of plants and plant communities are presented in the section on Findings. For each species listed, the following information is presented: scientific name, common name, coefficient of conservatism, wetland indicator status and whether the species was found on the Stony Creek Corridor Park site, the Knob Creek Easement site, or both sites. The "coefficient of conservatism" is a value ranging from 0 – 10 that has been assigned to each plant species native to Michigan. This coefficient of conservatism represents "an estimated probability that a plant is likely to occur in a landscape relatively unaltered from what is believed to be a presettlement condition." In other words, plants with a low numerical rating can be found in a wide range of habitats, while those with a high number are "almost always restricted to a presettlement remnant, *i.e.* a high quality natural area." (Herman, *et al.* 2001).

Herman, *et al.* (2001) also present the wetland indicator status for each plant species native to, or naturalized in, Michigan. Species assigned a wetland indicator status of:

- OBL (Obligate Wetland) almost always occur in wetlands under natural conditions (more than 99% probability);
- FACW (Facultative Wetland) plants usually occur in wetlands, but occasionally are found in non-wetlands (67% - 99% probability);
- FAC (Facultative) plants are equally likely to occur in wetlands or non wetlands (34% - 66% probability);
- FACU (Facultative Upland) plants occasionally occur in wetlands, but usually occur in non-wetlands (estimated 1% - 33% probability); and
- UPL (Upland) plants almost never occur in wetlands under natural conditions (less than 1% probability).

Mammals

Concurrent with the plant species inventory of the Stony Creek Corridor Park and Knob Creek Easement sites, Weatherbee's field team also noted the presence of any mammal species or sign, such as, prints, scat, nests, burrows, *etc.* Also, any observed significant habitat features (tree snags, nesting sites, *etc.*) related to mammals was noted.

Amphibians and Reptiles

The herpetofauna of the Stony Creek Corridor site was assessed by Mr. David Mifsud of Herpetological Resource and Management. The inventory efforts were conducted from early June through early August 2005. Frogs and toads were inventoried using a modified version of the Michigan Frog and Toad Survey procedures. Other sampling methods included traps, turning cover (*e.g.* logs, boards, and debris) and time-constrained visual observations. Surveys took place during both daylight and nighttime periods. Mr. Mifsud's methods are further described in Appendix A.

In addition to the specific observations regarding the flora, mammals, and herptofauna of the sites, observations as to the suitability of the areas for wildlife, wildlife viewing, and nature interpretation were made during the field reconnaissance. Though not censused specifically, anecdotal observations regarding birds were also made (intensive avifauna inventorying to be conducted by Oakland Township Parks staff and commissioners).

FINDINGS

Plant Communities and Plant Species

Floristically, Stony Creek Corridor Park and the Knob Creek Easement support a diverse flora, have high floristic quality indices, contain high quality examples of three native plant communities, as well as supporting a population of a state-threatened species (*Polemonium reptans*).

Plant Communities

The native plant communities (MNFI 2003), found on the sites are: 1) Southern Wet Meadow; 2) Southern Floodplain Forest; and 3) Dry-mesic Southern Forest. Additionally, a fourth plant community, Second-growth Forest/Old Field, widely recognized by ecologists though not described by the MNFI, also occurred on both sites. The approximate distribution of these plant communities on the sites is depicted in Figure 1. Due to the fine-grained mosaic nature of the Southern Wet Meadow areas and the Southern Floodplain Forest, these two communities are represented as a single map unit in Figure 1. Additionally, while Figure 1 depicts distinct borders between the Southern Floodplain Forest and the Dry-mesic Southern Forest, substantial ecotones typically existed for these communities in many areas of the sites.

Southern Wet Meadow. This is a sedge and grass dominated wetland community, located primarily south of the transition zone. It is typically found on muck soils, in stream valleys, along lake margins, and in depressions and channels in glacial outwash. Plant species characteristic of this community include: Canada blue joint grass (*Calamagrostis canadensis*), various sedges (*Carex*), reed canary grass (*Phalaris arundinacea*), cattail (*Typha*), Joe-Pye weed (*Eupatorium maculatum*) and boneset (*Eupatorium perfoliatum*). On the Stony Creek Corridor Park and Knob Creek Easement sites, this community was well developed and found as a series of discrete areas along the banks of Stony Creek, primarily limited to the first terrace above the creek. While this community is typically dominated by Canada blue joint grass, the community as present at the Oakland Township sites was dominated by rice cut-grass (*Leersia oryzoides*). (Photos 1 & 2)

Southern Floodplain Forest. Frequently referred to as “bottomland”, these broad-leaved, deciduous tree dominated lowlands typically occur along the banks of third order streams or greater on loams and silt loams, though they may also include sandy loams and thin mucks. Silver maple (*Acer saccharinum*) is the usual dominant of this community. Common co-dominants may include: green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), and second growth American elm (*Ulmus americana*). Other species that are also commonly associated with this community include: butternut (*Juglans cinerea*), black maple (*Acer nigra*), buckeye (*Aesculus glabra*), boxelder (*Acer negundo*), black ash (*Fraxinus nigra*), black willow (*Salix nigra*) and cottonwood (*Populus deltoides*). Surface water is a prime input to these communities, primarily due to spring flooding. However, despite it’s name, groundwater is frequently a significant component in insuring anaerobic conditions in the lower root zone in this community. At the Oakland Township sites, this community occupied low elevation areas along Stony Creek and inter-digitated with the Southern

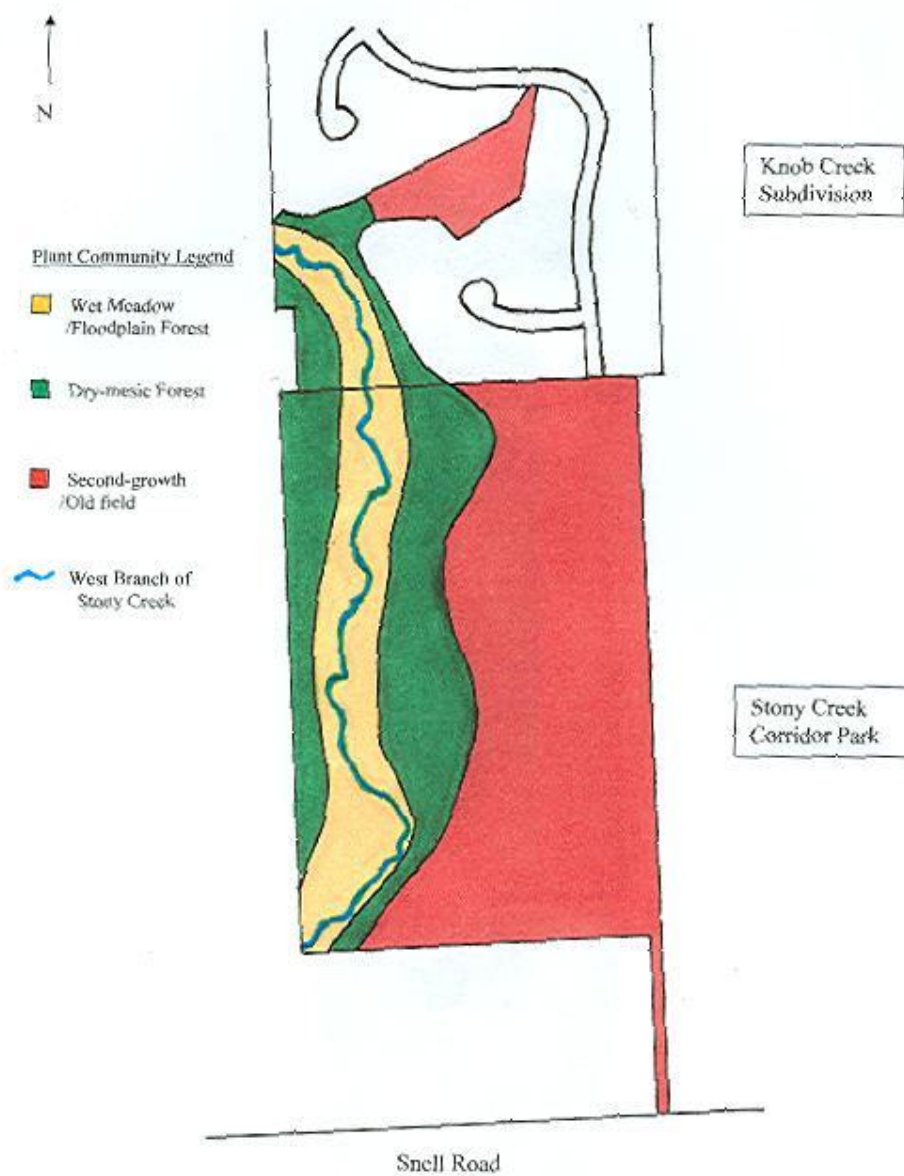


Figure 1. Plant Community Distribution. Map Not to Scale.

Wet Meadow community, sometimes forming a partial canopy over the meadow. Basswood (*Tilia americana*) replaced typical silver maple as the dominant tree species on-site. American elm (*Ulmus americana*) and hop hornbeam (*Carpinus caroliniana*) were also common, as was skunk cabbage (*Symplocarpus foetidus*) in seepage areas. (Photo 3)

Dry-Mesic Southern Forest. Dry-mesic southern forests are typically dominated by white and black oak. Other tree species frequently found in this community type include: wild-black cherry (*Prunus serotina*); shag-bark and pignut hickories (*Carya ovata* and *C. glabra*); and red maple (*Acer rubrum*), occurring on the moister, lower sections of slopes. This forest type tends to occur on dry-mesic sites in the southern half of Michigan's lower peninsula on glacial outwash, on kettle-kame topography, and on coarse-textured end and ground moraines. Most dry-mesic southern forests have at least some shrubs in the understory. The shrub species vary from native species (such as witch hazel (*Hamamelis virginiana*) to non-native, invasive honeysuckles (*Lonicera*). This community was found to occupy the steep slopes on both the Stony Creek Corridor Park and Knob Creek Easement sites. In addition to dominant species of white, black, and red oaks (*Quercus alba*, *Q. velutina*, and *Q. rubra*), this community also included some tree species considered more mesic, such as beech (*Fagus grandifolia*) and sugar maple (*Acer saccharum*). (Photo 4)

Second-growth/Old Field. While this community is not recognized and described in the *Michigan Natural Community Types*, it is nevertheless a widespread community throughout Michigan, though primarily of anthropogenic origins. As implied by the name, this community is found in areas that have been disturbed, usually by plowing or pasturing, and subsequently abandoned. The dominant plant species are highly variable and dependent on the specific agricultural history of the site. Thus, areas that were formerly plowed may be dominated by both native and non-native weedy species such as common ragweed (*Ambrosia artemisiifolia*) and foxtail grasses (*Setaria* spp.). Areas that were used for pasturing are likely to be dominated by the forage grasses planted at the site. Frequently, these are brome grasses (*Bromus* spp.) or fescues (*Festuca* spp.). The community is considered successional, but may be the dominant plant community on a site for many decades. At the Oakland Township sites, this community occupied the highest elevation sites and contained a wide variety of native and non-native species, including most commonly autumn olive (*Elaeagnus umbellata*). Despite the disturbed nature of this community, it also contained a number of areas and species of interest at the Oakland Township sites. Of particular note were a number of areas that contained species typically associated with hillside prairies or oak barrens in Michigan, such as little blue stem (*Andropogon scoparius*), bush clover (*Lespedeza capitata*), showy goldenrod (*Solidago speciosa*), and stiff-stemmed goldenrod (*Solidago rigida*) (Photo 5). The majority of the area occupied by this community appears to be undergoing succession toward Dry Southern Forest or Dry-mesic Southern Forest, with saplings or young trees of the oaks, wild black cherry (*Prunus serotina*), and black walnut (*Juglans nigra*) being common (Photo 6).

Plant Species and Floristic Quality Assessment

A complete list of all plant species found on the sites, as well as descriptive statistics of the Floristic Quality Assessment, is presented in Table 1. A total of 177 plant species was found at Stony Creek Corridor Park.; of these, 138 (78%) are native to Michigan. At Knob Creek Easement, 133 plant

species were found; of these, 106 (80%) are Michigan native species. Table 1 shows that both the Stony Creek Corridor Park and Knob Creek Easement sites have high floristic quality indices (46.05 and 39.43, respectively).

| Table 1. Plant species and floristic quality assessment for Stony Creek Corridor Park and Knob Creek Easement. | | | | | |
|---|-----------------------------------|---|-------|---------------------------|---------------------|
| (C – Coefficient of Conservatism; W. I. – Wetland Indicator Status; names in all capitals indicate the species is non-native) | | | | | |
| <i>Scientific Name</i> | Common Name | C | W.I. | Stony Creek Corridor Park | Knob Creek Easement |
| <i>Acer negundo</i> | box elder | 0 | FACW- | | X |
| <i>Acer rubrum</i> | red maple | 1 | FAC | X | |
| <i>Acer saccharum</i> | sugar maple; hard maple | 5 | FACU | X | |
| <i>Achillea millefolium</i> | yarrow | 1 | FACU | X | |
| <i>Agrimonia gryposepala</i> | tall agrimony | 2 | FACU+ | X | X |
| <i>AGROPYRON REPENS</i> | quack grass | * | FACU | | X |
| <i>AGROSTIS GIGANTEA</i> | redtop | * | [FAC] | X | |
| <i>AJUGA REPENS</i> | carpet bugle | * | UPL | | X |
| <i>Ambrosia artemisiifolia</i> | common ragweed | 0 | FACU | X | |
| <i>Amelanchier arborea</i> | Juneberry | 4 | FACU | X | |
| <i>Amphicarpaea bracteata</i> | hog-peanut | 5 | FAC | X | X |
| <i>Andropogon scoparius</i> | little bluestem grass | 5 | FACU | X | X |
| <i>Anemone cylindrica</i> | thimbleweed | 6 | UPL | | X |
| <i>Anemone quinquefolia</i> | wood anemone | 5 | FAC | X | |
| <i>Anemone virginiana</i> | thimbleweed | 3 | UPL | X | |
| <i>Apocynum androsaemifolium</i> | spreading dogbane | 3 | UPL | X | |
| <i>Apocynum cannabinum</i> | Indian hemp; hemp dogbane | 3 | FAC | X | X |
| <i>Arisaema triphyllum</i> | Jack-in-the-pulpit; Indian-turnip | 5 | FACW- | X | X |
| <i>Asclepias incarnata</i> | swamp milkweed | 6 | OBL | X | |
| <i>Asclepias syriaca</i> | common milkweed | 1 | UPL | X | X |
| <i>ASPARAGUS OFFICINALIS</i> | asparagus | * | FACU | X | X |
| <i>Asplenium platyneuron</i> | ebony spleenwort | 2 | FACU | X | |
| <i>Aster laevis</i> | smooth aster | 5 | UPL | X | |
| <i>Aster lateriflorus</i> | side-flowering aster | 2 | FACW- | | X |
| <i>BARBAREA VULGARIS</i> | yellow rocket | * | FAC | X | |
| <i>BERBERIS VULGARIS</i> | common barberry | * | FACU | X | X |
| <i>BERTEROA INCANA</i> | hoary alsyssum | * | UPL | | X |
| <i>Bidens frondosus</i> | common beggar-ticks | 1 | FACW | | X |
| <i>Boehmeria cylindrica</i> | false nettle | 5 | OBL | X | X |
| <i>BROMUS INERMIS</i> | Hungarian brome; smooth brome | * | UPL | X | X |
| <i>Caltha palustris</i> | marsh marigold | 6 | OBL | X | |
| <i>Carex blanda</i> | sedge | 1 | FAC | X | |
| <i>Carex lacustris</i> | sedge | 6 | OBL | | X |
| <i>Carex leptoneura</i> | sedge | 3 | FAC | X | |
| <i>Carex pedunculata</i> | sedge | 5 | UPL | X | |
| <i>Carex pensylvanica</i> | sedge | 4 | UPL | X | X |
| <i>Carex radiata</i> | sedge | 2 | UPL | X | |
| <i>Carex stricta</i> | sedge | 4 | OBL | X | |
| <i>Carex vulpinoidea</i> | sedge | 1 | OBL | X | |
| <i>Carpinus caroliniana</i> | hornbeam; blue- | 6 | FAC | X | X |

Table 1. Plant species and floristic quality assessment for Stony Creek Corridor Park and Knob Creek Easement.

(C – Coefficient of Conservatism; W. I. – Wetland Indicator Status; names in all capitals indicate the species is non-native)

| <i>Scientific Name</i> | <i>Common Name</i> | <i>C</i> | <i>W.I.</i> | Stony Creek Corridor Park | Knob Creek Easement |
|-----------------------------------|---------------------------------|----------|-------------|----------------------------------|----------------------------|
| | beech | | | | |
| <i>Carya cordiformis</i> | bitternut hickory | 5 | FAC | X | X |
| <i>CELASTRUS ORBICULATA</i> | Oriental bittersweet | * | UPL | X | X |
| <i>CENTAUREA MACULOSA</i> | spotted knapweed | * | UPL | X | X |
| <i>CHRYSANTHEMUM LEUCANTHEMUM</i> | ox-eye daisy | * | [UPL] | X | X |
| <i>Cicuta maculata</i> | water hemlock | 4 | OBL | X | X |
| <i>Cinna arundinacea</i> | wood reedgrass | 7 | FACW | X | X |
| <i>Circaea lutetiana</i> | enchanter's-nightshade | 2 | FACU | X | X |
| <i>CIRSIIUM ARVENSE</i> | Canada thistle | * | FACU | | X |
| <i>Cirsium muticum</i> | swamp-thistle | 6 | OBL | X | X |
| <i>CIRSIIUM VULGARE</i> | bull-thistle | * | FACU- | X | |
| <i>Claytonia virginica</i> | spring-beauty | 4 | FACU | X | |
| <i>Clematis virginiana</i> | virgin's bower | 4 | FAC | | X |
| <i>Collinsonia canadensis</i> | richweed | 8 | FAC | X | |
| <i>Conioselinum chinense</i> | hemlock parsley | 10 | OBL | | X |
| <i>Cornus alternifolia</i> | alternate-leaved dogwood | 5 | UPL | X | X |
| <i>Cornus florida</i> | flowering dogwood | 8 | FACU- | X | |
| <i>Cornus foemina</i> | gray dogwood | 1 | FACW- | X | X |
| <i>Cornus rugosa</i> | round-leaved dogwood | 6 | UPL | X | |
| <i>Cornus stolonifera</i> | red-osier dogwood | 2 | FACW | X | |
| <i>Corylus americana</i> | hazelnut | 5 | FACU- | X | X |
| <i>Cryptotaenia canadensis</i> | honestwort | 2 | FAC | | X |
| <i>DACTYLIS GLOMERATA</i> | orchard grass | * | FACU | X | |
| <i>DAUCUS CAROTA</i> | wild carrot; Queen-Anne's-lace | * | UPL | X | X |
| <i>Desmodium canadense</i> | showy tick-trefoil | 3 | FAC- | | X |
| <i>Desmodium nudiflorum</i> | naked tick-trefoil | 7 | UPL | X | X |
| <i>DIANTHUS ARMERIA</i> | Deptford pink | * | UPL | X | |
| <i>Dioscorea villosa</i> | wild yam | 4 | FAC- | X | X |
| <i>Dryopteris carthusiana</i> | spinulose woodfern | 5 | FACW- | X | X |
| <i>Dryopteris intermedia</i> | glandular or evergreen woodfern | 5 | FAC | X | X |
| <i>ELAEAGNUS UMBELLATA</i> | autumn-olive | * | [FACU] | X | X |
| <i>Elymus canadensis</i> | Canada wild-rye | 7 | FAC- | | X |
| <i>Elymus riparius</i> | riverbank wild-rye | 8 | FACW | X | X |
| <i>Elymus virginicus</i> | virginia wild-rye | 4 | FACW- | X | X |
| <i>Epilobium coloratum</i> | cinnamon willow-herb | 7 | FAC- | | X |
| <i>Equisetum arvense</i> | common or field horsetail | 0 | FAC | X | |
| <i>Equisetum hyemale</i> | scouring rush | 2 | FACW- | X | X |
| <i>Equisetum laevigatum</i> | smooth scouring rush | 2 | FACW | X | X |
| <i>Equisetum palustre</i> | marsh horsetail | 10 | FACW | | X |
| <i>Erigeron annuus</i> | annual fleabane | 0 | FAC- | | X |
| <i>Erigeron strigosus</i> | daisy fleabane | 4 | FAC- | X | |
| <i>Erythronium americanum</i> | yellow trout lily | 5 | UPL | X | |
| <i>Eupatorium maculatum</i> | joe-pye weed | 4 | OBL | X | |
| <i>Euthamia graminifolia</i> | grass-leaved goldenrod | 3 | FACW- | X | X |

Table 1. Plant species and floristic quality assessment for Stony Creek Corridor Park and Knob Creek Easement.

(C – Coefficient of Conservatism; W. I. – Wetland Indicator Status; names in all capitals indicate the species is non-native)

| <i>Scientific Name</i> | <i>Common Name</i> | <i>C</i> | <i>W.I.</i> | Stony Creek Corridor Park | Knob Creek Easement |
|--------------------------------|--------------------------|----------|-------------|----------------------------------|----------------------------|
| <i>Fagus grandifolia</i> | American beech | 6 | FACU | X | |
| <i>Fragaria virginiana</i> | wild strawberry | 2 | FAC- | X | X |
| <i>Fraxinus americana</i> | white ash | 5 | FACU | X | |
| <i>Fraxinus nigra</i> | black ash | 6 | FACW+ | | X |
| <i>Fraxinus pennsylvanica</i> | red ash | 2 | FACW | X | |
| <i>Galium aparine</i> | annual bedstraw | 0 | FACU | X | |
| <i>Galium asprellum</i> | roughbedstraw | 5 | OBL | | X |
| <i>Galium circaeans</i> | white wild licorice | 4 | FACU- | X | |
| <i>Galium lanceolatum</i> | yellow wild licorice | 4 | UPL | | X |
| <i>Galium tinctorium</i> | stiff bedstraw | 5 | OBL | | X |
| <i>Galium trifidum</i> | small bedstraw | 6 | FACW+ | X | |
| <i>Galium triflorum</i> | fragrant bedstraw | 4 | FACU+ | X | |
| <i>Geranium maculatum</i> | wild geranium | 4 | FACU | X | X |
| <i>Geum canadense</i> | white avens | 1 | FAC | X | X |
| <i>Glyceria striata</i> | fowl manna grass | 4 | OBL | X | |
| <i>Hackelia virginiana</i> | stickseed; beggar's lice | 1 | FAC- | X | X |
| <i>Hamamelis virginiana</i> | witch-hazel | 5 | FACU | X | X |
| <i>HELIANTHUS ANNUUS</i> | garden sunflower | * | FAC- | X | |
| <i>Helianthus divaricatus</i> | woodland sunflower | 5 | UPL | | X |
| <i>Hepatica americana</i> | round-lobed hepatica | 6 | UPL | X | |
| <i>HIERACIUM PILOSELLOIDES</i> | glaucous king-devil | * | [UPL] | | X |
| <i>HYPERICUM PERFORATUM</i> | common St. John's-wort | * | UPL | X | X |
| <i>Hystrix patula</i> | bottlebrush grass | 5 | UPL | X | X |
| <i>Impatiens capensis</i> | spotted touch-me-not | 2 | FACW | X | X |
| <i>Iris virginica</i> | southern blue flag | 5 | OBL | X | X |
| <i>Juglans cinerea</i> | butternut | 5 | FACU+ | | X |
| <i>Juglans nigra</i> | black walnut | 5 | FACU | X | X |
| <i>Juniperus communis</i> | common or ground juniper | 4 | [FACU] | X | |
| <i>Juniperus virginiana</i> | red-cedar | 3 | FACU | X | |
| <i>LACTUCA SALIGNA</i> | willow lettuce | * | FACU | X | |
| <i>Laportea canadensis</i> | wood nettle | 4 | FACW | | X |
| <i>Leersia oryzoides</i> | cut grass | 3 | OBL | X | X |
| <i>Lespedeza capitata</i> | round-headed bush-clover | 5 | FACU | X | |
| <i>Lespedeza virginica</i> | slender bush-clover | 7 | UPL | X | |
| <i>Liriodendron tulipifera</i> | tulip tree | 9 | FACU+ | X | |
| <i>Lobelia cardinalis</i> | cardinal flower | 7 | OBL | | X |
| <i>Lobelia spicata</i> | pale spiked lobelia | 4 | FAC | X | X |
| <i>LONICERA MAACKII</i> | Amur honeysuckle | * | UPL | X | X |
| <i>Lysimachia ciliata</i> | fringed loosestrife | 4 | FACW | | X |
| <i>MALUS PUMILA</i> | apple | * | [UPL] | X | |
| <i>MEDICAGO LUPULINA</i> | black medick | * | FAC- | X | |
| <i>MELILOTUS ALBA</i> | white sweet-clover | * | FACU | X | X |
| <i>MELILOTUS OFFICINALIS</i> | yellow sweet-clover | * | FACU | X | |
| <i>Menispermum canadense</i> | moonseed | 5 | FAC | | X |
| <i>Mitella diphylla</i> | bishop's cap | 8 | FACU+ | X | |
| <i>Monarda fistulosa</i> | wild bergamot | 2 | FACU | X | X |
| <i>Oenothera biennis</i> | common evening- | 2 | FACU | X | |

Table 1. Plant species and floristic quality assessment for Stony Creek Corridor Park and Knob Creek Easement.

(C – Coefficient of Conservatism; W. I. – Wetland Indicator Status; names in all capitals indicate the species is non-native)

| <i>Scientific Name</i> | <i>Common Name</i> | <i>C</i> | <i>W.I.</i> | Stony Creek Corridor Park | Knob Creek Easement |
|------------------------------------|------------------------------------|----------|-------------|----------------------------------|----------------------------|
| | primrose | | | | |
| <i>Onoclea sensibilis</i> | sensitive fern | 2 | FACW | X | X |
| <i>Osmunda cinnamomea</i> | cinnamon fern | 5 | FACW | X | |
| <i>Ostrya virginiana</i> | ironwood; hop hornbeam | 5 | FACU- | X | X |
| <i>Panicum columbianum</i> | panic grass | 7 | UPL | X | |
| <i>Parthenocissus quinquefolia</i> | Virginia creeper | 5 | FAC- | X | X |
| <i>Phalaris arundinacea</i> | reed canary grass | 0 | FACW+ | X | |
| <i>PHLEUM PRATENSE</i> | timothy | * | FACU | X | X |
| <i>Phragmites australis</i> | reed; giant bulrush | 1 | FACW+ | | X |
| <i>Phryma leptostachya</i> | lopseed | 4 | UPL | | X |
| <i>Pilea pumila</i> | clearweed | 5 | FACW | X | X |
| <i>PLANTAGO LANCEOLATA</i> | English plantain; ribgrass | * | FAC | X | |
| <i>PLANTAGO MAJOR</i> | common plantain | * | FAC+ | | X |
| <i>POA COMPRESSA</i> | Canada bluegrass | * | FACU+ | X | |
| <i>POA PRATENSIS</i> | kentucky bluegrass | * | FAC- | X | |
| <i>Podophyllum peltatum</i> | may apple; mandrake | 3 | FACU | X | X |
| <i>Polemonium reptans</i> <T> | Jacob's ladder | 10 | FAC | X | |
| <i>Polygonum virginianum</i> | jumpseed | 4 | FAC | X | X |
| <i>Populus deltoides</i> | cottonwood | 1 | FAC+ | X | X |
| <i>Populus grandidentata</i> | big-toothed or large-toothed aspen | 4 | FACU | X | X |
| <i>Populus tremuloides</i> | quaking aspen | 1 | FAC | | X |
| <i>POTENTILLA RECTA</i> | rough-fruited cinquefoil | * | UPL | X | X |
| <i>Prenanthes alba</i> | white lettuce; rattlesnake-root | 5 | FACU | X | X |
| <i>PRUNELLA VULGARIS</i> | lawn prunella | * | FAC | X | X |
| <i>Prunus americana</i> | American wild plum | 4 | UPL | X | |
| <i>PRUNUS AVIUM</i> | sweet cherry | * | [UPL] | X | X |
| <i>Prunus serotina</i> | wild black cherry | 2 | FACU | X | X |
| <i>Pteridium aquilinum</i> | bracken fern | 0 | FACU | X | |
| <i>Pycnanthemum virginianum</i> | common mountain mint | 5 | FACW+ | X | |
| <i>Quercus alba</i> | white oak | 5 | FACU | X | X |
| <i>Quercus bicolor</i> | swamp white oak | 8 | FACW+ | X | X |
| <i>Quercus ellipsoidalis</i> | Hill's oak; Jack-oak | 4 | UPL | X | |
| <i>Quercus macrocarpa</i> | bur oak | 5 | FAC- | X | |
| <i>Quercus rubra</i> | red oak | 5 | FACU | X | X |
| <i>Quercus velutina</i> | black oak | 6 | UPL | X | X |
| <i>Ranunculus abortivus</i> | small-flowered buttercup | 0 | FACW- | X | |
| <i>Ranunculus hispidus</i> | swamp buttercup | 5 | FAC | X | |
| <i>Rhamnus alnifolia</i> | alder-leaved buckthorn | 8 | OBL | X | |
| <i>RHAMNUS CATHARTICA</i> | common buckthorn | * | FACU | X | X |
| <i>RHAMNUS FRANGULA</i> | glossy buckthorn | * | FAC+ | X | X |
| <i>Rhus typhina</i> | staghorn sumac | 2 | UPL | X | X |
| <i>Ribes cynosbati</i> | prickly or wild gooseberry | 4 | UPL | X | |

Table 1. Plant species and floristic quality assessment for Stony Creek Corridor Park and Knob Creek Easement.

(C – Coefficient of Conservatism; W. I. – Wetland Indicator Status; names in all capitals indicate the species is non-native)

| <i>Scientific Name</i> | <i>Common Name</i> | <i>C</i> | <i>W.I.</i> | Stony Creek Corridor Park | Knob Creek Easement |
|---------------------------------|-----------------------------|----------|-------------|----------------------------------|----------------------------|
| <i>ROBINIA PSEUDOACACIA</i> | black locust | * | FACU- | X | |
| <i>ROSA MULTIFLORA</i> | Japanese or multiflora rose | * | FACU | X | X |
| <i>Rubus allegheniensis</i> | common blackberry | 1 | FACU+ | X | X |
| <i>Rubus occidentalis</i> | black raspberry | 1 | UPL | X | X |
| <i>Rubus strigosus</i> | wild red raspberry | 2 | FACW- | | X |
| <i>Rudbeckia hirta</i> | black-eyed susan | 1 | FACU | X | X |
| <i>SALIX ALBA</i> | white willow | * | FACW | | X |
| <i>Salix exigua</i> | sandbar willow | 1 | OBL | | X |
| <i>Salix nigra</i> | black willow | 5 | [OBL] | X | |
| <i>Sassafras albidum</i> | sassafras | 5 | FACU | X | X |
| <i>Scirpus atrovirens</i> | bulrush | 3 | OBL | X | |
| <i>Scirpus pendulus</i> | bulrush | 3 | OBL | X | |
| <i>Scutellaria lateriflora</i> | mad-dog skullcap | 5 | OBL | X | X |
| <i>Senecio aureus</i> | golden ragwort | 5 | FACW | X | |
| <i>Smilacina racemosa</i> | false spikenard | 5 | FACU | X | |
| <i>Smilacina stellata</i> | starry false Solomon-seal | 5 | FAC- | | X |
| <i>Solidago altissima</i> | tall goldenrod | 1 | FACU | X | X |
| <i>Solidago gigantea</i> | late goldenrod | 3 | FACW | X | X |
| <i>Solidago juncea</i> | early goldenrod | 3 | UPL | X | X |
| <i>Solidago nemoralis</i> | old-field goldenrod | 2 | UPL | X | |
| <i>Solidago rigida</i> | stiff goldenrod | 5 | FACU- | X | X |
| <i>Solidago speciosa</i> | showy goldenrod | 5 | UPL | X | |
| <i>Symplocarpus foetidus</i> | skunk-cabbage | 6 | OBL | X | X |
| <i>TARAXACUM OFFICINALE</i> | common dandelion | * | FACU | X | |
| <i>Teucrium canadense</i> | wood sage | 4 | FACW- | X | X |
| <i>Thalictrum dasycarpum</i> | purple meadow-rue | 3 | FACW- | X | |
| <i>Thalictrum dioicum</i> | early meadow-rue | 6 | FACU+ | X | X |
| <i>Tilia americana</i> | linden; basswood | 5 | FACU | X | X |
| <i>Toxicodendron radicans</i> | poison-ivy | 2 | FAC+ | X | X |
| <i>TRAGOPOGON DUBIUS</i> | goat's beard | * | UPL | X | |
| <i>TRIFOLIUM PRATENSE</i> | red clover | * | FACU+ | X | |
| <i>Typha latifolia</i> | broad-leaved cat-tail | 1 | OBL | X | |
| <i>Ulmus americana</i> | white or American elm | 1 | FACW- | X | X |
| <i>ULMUS PUMILA</i> | Siberian elm | * | UPL | X | |
| <i>Urtica dioica</i> | nettle | 1 | FAC+ | | X |
| <i>Vaccinium angustifolium</i> | blueberry | 4 | FACU | | X |
| <i>VERBASCUM THAPSUS</i> | common mullein | * | UPL | X | X |
| <i>Verbena hastata</i> | blue vervain | 4 | FACW+ | X | X |
| <i>Verbena urticifolia</i> | white vervain | 4 | FAC+ | X | X |
| <i>Veronicastrum virginicum</i> | Culver's root | 8 | FAC | X | |
| <i>Viburnum lentago</i> | nannyberry; sheepberry | 4 | FAC+ | X | X |
| <i>VIBURNUM OPULUS</i> | European highbush cranberry | * | [FAC] | X | |
| <i>Vitis riparia</i> | riverbank grape | 3 | FACW- | X | X |
| <i>Zanthoxylum americanum</i> | prickly-ash | 3 | UPL | X | X |
| | | | | | |

| Table 1. Plant species and floristic quality assessment for Stony Creek Corridor Park and Knob Creek Easement. (C – Coefficient of Conservatism; W. I. – Wetland Indicator Status; names in all capitals indicate the species is non-native) | | | | | |
|--|-------------|---|------|------------------------------|---------------------|
| <i>Scientific Name</i> | Common Name | C | W.I. | Stony Creek Corridor Park | Knob Creek Easement |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | Floristic Quality Assessment | |
| | | | | Stony Creek | Knob Creek |
| | | | | | |
| Mean Value of Index of Conservatism = | | | | 3.96 | 3.83 |
| Native Species Count = | | | | 138 | 106 |
| Total Species Count = | | | | 177 | 133 |
| Square Root of Native Species Count = | | | | 11.75 | 10.30 |
| Floristic Quality Index = | | | | 46.56 | 39.43 |

Of particular note was finding of Jacob's ladder (*Polemonium reptans*), which is a state threatened species (Photo 7). The population of *P. reptans* was found on the Stony Creek Corridor Park site, on the west side of Stony Creek in an area transitional between Dry-mesic Southern Forest and Southern Floodplain plant communities (Photo 8). The population consisted of approximately 120 individual stems or rosettes. None of the individuals were in flower or fruit at the time of the survey. The population was roughly circular, with a diameter of about 5.5 meters. Other species associated with the population included: white oak (*Quercus alba*), American elm (*Ulmus americana*), black raspberry (*Rubus occidentalis*), poison ivy (*Toxicodendron radicans*), wild black cherry (*Prunus serotina*), and Amur honeysuckle (*Lonicera mackii*). A voucher specimen was collected and will be submitted to the University of Michigan Herbarium.

Wildlife

Evidence of 24 different species of wildlife, both game and non-game, including mammals, birds, reptiles, and amphibians were observed on, or reported from, the Stony Creek Corridor Park site. Table 2 presents a complete list of the fauna observed directly, inferred by sign, or reported by Oakland Township Parks staff. Evidence of white-tailed deer, raccoon, and eastern chipmunks in the forms of scat, feeding stations, prints, and game trails, was particularly evident throughout the area. So too, sightings of, and indirect evidence of turkey was wide-spread. It was noted during the reconnaissance that the area supports a population of the black morph of the gray squirrel.

It is notable that the blue-spotted salamander, great blue heron, and the blue racer, all found on the site, have been identified as "Species of Greatest Conservation Need" by the Michigan Department of Natural Resources.

| Table 2. Animal species or sign observed, or species reported from Stony Creek Corridor Park. | |
|--|-----------------------------|
| <i>Scientific Name</i> | Common Name |
| MAMMALS | |
| <i>Blarina brevicauda</i> | short-tailed shrew |
| <i>Canis latrans</i> | coyote |
| <i>Microtus pennsylvanicus</i> | meadow vole |
| <i>Odocoileus virginianus</i> | white-tailed deer |
| <i>Procyon lotor</i> | raccoon |
| <i>Scalopus aquaticus</i> | eastern mole |
| <i>Sciurus carolinensis</i> | gray squirrel (black morph) |
| <i>Tamias striatus</i> | eastern chipmunk |
| BIRDS | |
| <i>Ardea herodias</i> | great blue heron |
| <i>Contopus virens</i> | eastern wood pewee |
| <i>Corvus brachyrhynchos</i> | American crow |

| Table 2. Animal species or sign observed, or species reported from Stony Creek Corridor Park. | |
|--|-------------------------|
| <i>Scientific Name</i> | Common Name |
| <i>Cyanocitta cristata</i> | blue jay |
| <i>Dendrocopos pubescens</i> | downy woodpecker |
| <i>Meleagris gallopavo</i> | turkey |
| <i>Parus atricapillus</i> | black-capped chickadee |
| <i>Pipilo erythrophthalmus</i> | rufous-sided towhee |
| <i>Richmondia cardinalis</i> | northern cardinal |
| | |
| | |
| REPTILES | |
| | |
| <i>Thamnophis sirtalis sirtalis</i> | Eastern garter snake |
| | |
| FROGS AND TOADS | |
| | |
| <i>Bufo americana</i> | American toad |
| <i>Hyla versicolor</i> | gray treefrog |
| <i>Rana clamitans</i> | green frog |
| <i>Rana sylvatica</i> | wood frog |
| | |
| SALAMANDERS | |
| | |
| <i>Ambystoma laterale</i> | blue-spotted salamander |
| <i>Plethodon cinereus</i> | red-backed salamander |
| | |

DISCUSSION

From an ecological and conservation perspective, the Stony Creek Corridor Park Acquisition tract is an extremely high-quality site. This opinion is based on a number of factors that will be discussed in greater detail below, but include:

- variable topography
- presence of a stream with natural meanders intact
- variety of habitats that can supply needs for wildlife populations
- wide-spread evidence of existing wildlife populations
- presence of multiple, well-developed native plant communities
- remnants of other native plant communities
- high plant species richness
- high percentage of native plant species
- intact native soil systems
- presence of extensive wetland complex
- position of the site in landscape, allowing it to act as wildlife corridor

The dominant feature of the Stony Creek Corridor Park site is, of course, the West Branch of Stony Creek. In the project area, this creek retains its free-flowing, natural meanders and, based on the lack of excessive algae build up on rocks by late summer, appears to have good water quality. The creek flows through a valley, the size of which, suggests that the creek was much larger in times past. It is likely that this valley carried melt water during end of the last glaciation. Indeed, the creek valley and surrounding topography is typical of many areas in southern Michigan that were subject to glaciation, which appears to largely explain the topography of the site. Based on observation and topographic maps, the various topographic features on the site appear to be the result of ice contact, whereas the creek valley was an area of meltwater run-off. Regardless of their origin, which can be the subject of future study, the hills and valley are important topographic features which affect surface water runoff patterns and, in combination with groundwater elevations, aspect, and changes in elevation, have a large impact on microhabitat conditions, which, in turn, determine small-scale vegetation patterns. In short, the variety of topographic and consequently varying physical conditions result in a large variety of habitats and microhabitats, all of which contribute to the functioning of the site as an ecosystem, including the wildlife which is supported in that ecosystem.

The wetland complex along Stony Creek (Wet Meadow/Floodplain Forest), the oak-hardwood forest (Dry-mesic Southern Forest) on the slopes bordering the wetland complex, and the Second-growth/Old Field areas on the higher elevations provide a significant amount of wildlife habitat. Perhaps the most significant aspect of these areas is their areal extent and lack of habitat fragmentation. The wetland complex and bordering upland forest is particularly noteworthy from this respect. The fact that these areas comprise continuous mosaics of native Michigan communities is important for two reasons. First, it is well established that habitat fragmentation is associated with decreased species diversity. That is, a one-acre area of continuous (*i.e.* unfragmented) habitat will support more species than one acre of habitat comprised of a number of fragments, all other things

being equal. The greater the degree of fragmentation, the fewer the species (plant and animal) the site is likely to support.

Secondly, the mosaic nature of the plant communities provides a variety of habitats and complementary resources for wildlife. For example, during the reconnaissance, coyote scat was found in a portion of the oak-hardwood forest; however, the scat was located near the wetland areas. While coyotes require well-drained soils for their dens, the wetlands provide a ready source of water and will support a greater abundance of prey items than will the forest. Similarly, the deciduous forest areas provide cover from predators, nesting structure and food for squirrels and canopy nesting birds; the low lying floodplain forest and valley provide winter shelter and perching sites for non-migratory birds, and may be especially good habitat for owls; the shrub communities in the oak-hardwood forest and old field areas provide food in the form of fruits or nuts, and nesting areas for small birds and browse for deer. The wetlands and forest provide habitat for the amphibians and reptiles, such as the frogs, toads and salamanders that were observed or heard during the reconnaissance. The frogs, in turn, can provide food for the great blue herons that were found on-site, as well as for raccoons, which appear to be plentiful. Thus, the combination of uplands, wetlands, forests, shrubs, and open areas provide a wide array of resources for wildlife use in both the wetland and upland areas.

With respect to wildlife viewing, the area provides a wealth of opportunities for strategic placement of trails and boardwalks and the prevalence of deer, chipmunks, turkey, and the unusual black squirrels, should provide ample opportunities for the public to enjoy this activity. The black-colored squirrels that occur on the Stony Creek Corridor site appear to be taxonomically *Sciurus carolinensis*, commonly referred to as the gray squirrel. This is a naturally occurring color morph for this species in Michigan and has been known from the state since early settlement times. Though the morph is not extremely rare, it does provide visual interest and could be used from an interpretive standpoint. Even in the absence of wildlife at any particular moment, the trails and boardwalks will also provide opportunity for aesthetic appreciation of the creek and wetlands (Photo 9). It is also important to note that the trail development can occur with minimum disruption to habitats and resultant fragmentation.

In addition to the wildlife aspects of the Stony Creek Corridor Park site, the high quality of the site with respect to vegetation is notable. To interpret values of the Floristic Quality Index, the Michigan Natural Heritage Program provides the following guidance, “Most of the remaining undeveloped land registers floristic quality indices (FQI) of less than 20 and has minimal significance from a natural quality perspective. Areas with a FQI higher than 35 possess sufficient conservatism and richness that they are floristically important from a statewide perspective. Areas registering in the 50s and higher are extremely rare and represent a significant component of Michigan’s native biodiversity and natural landscapes”. The FQI for the Stony Creek site was calculated to be 46.56, and there was a total of 177 plant species identified. It should be kept in mind that this FQI is based on a just a few days reconnaissance and that more thorough reconnaissance, or additional reconnaissance at different times of the growing season would likely increase the FQI, perhaps even putting it above the 50 level. Indeed, the site was found to support a state-threatened species, and other rare species are known to occur on the nearby Stony Creek Metro Park (e.g. ginseng (*Panax*

quinquefolius)) and appropriate habitat for these species exists on the Stony Creek Corridor site. Nevertheless, even without further species, or a higher FQI, *the Stony Creek Corridor Park site is an important natural resource at the state-wide level.*

From a broader perspective, the extensive wetland complex provides many of the “wetland functions” for which society values wetlands and has protected them:

- As noted above, they provide a very substantial wildlife function through the provision of: nesting and breeding habitat to various species of birds, reptiles, and amphibians; food, both in the form of plant material and prey items; and water.
- One of the functions that wetlands provide is aesthetic enjoyment. The Stony Creek Corridor Park project calls for development of a walking trail which will take advantage of the upland, wetland, and open water areas. For visitors to the park, aesthetics will be a prime function of these wetlands.
- The wetlands receive surface water from other areas of the site. Thus, from a more physical standpoint, they, no doubt, provide function with respect to stormwater storage, downstream flood attenuation, erosion control, and groundwater recharge.
- One of the primary functions wetlands provide is contaminant removal. The primary mechanisms through which wetlands perform this function are physical trapping of contaminants that are either attached to particulates, or are particulates themselves (*i.e.* suspended solids), and through breakdown of organic compounds or uptake of excess nutrients by bacteria and plants. In the former case, wetlands trap contaminants by slowing down the velocity of water flowing through them. The slower velocity allows the solids to settle out as sediment. In the latter case, storage of water in the wetland allows time for bacteria and plants to biodegrade pollutants and take up nutrients. In effect, the existing heavily-vegetated areas around the wetlands and the wetlands themselves act as “biofilters” for any contaminants and sediments that would be flowing into the local drainage system. Indeed, Thompson (1974) considered the vegetated borders of most streams and lakes in the Township a primary factor in keeping the water “clear”.
- Opportunities for nature interpretation and education at the Stony Creek Corridor site are almost unlimited. As noted throughout this discussion, the site is of high ecological integrity and exhibits a high degree of biodiversity. This combination provides excellent opportunities to interpret nature at a wide range of levels and with different focuses; to list a few possibilities:
 - Animal/wildlife diversity
 - Conservation and stewardship
 - Ecosystems
 - Forests/Trees
 - Geology
 - Habitats
 - Hydrology
 - Soils
 - Taxonomic groups (mammals, birds, etc.)
 - Watersheds
 - Wetlands

Thus, of the functions normally attributed to wetlands, namely: wildlife habitat, refuge for rare species, biodiversity maintenance, flood attenuation, contaminant removal, erosion control, groundwater recharge/discharge, aesthetics, and education; there is clear evidence of a significant role for the Stony Creek Corridor wetlands in all of these functions.

As evidenced by the list of animals reported from the site, and from the preceding discussion regarding wildlife and wildlife viewing opportunities, it should be evident that it is the opinion of Weatherbee's that the Stony Creek Corridor Park site constitutes an important wildlife resource. This importance stems not only from the range of upland and wetland habitats available, but also from their position in the greater landscape of Oakland Township. The site is located just north of Stony Creek Metro Park, which is an extremely significant natural area, and just south of the Knob Creek Subdivision Conservation Easement. As is clear from Table 1, and the photographs in Appendix B, the Knob Creek Conservation Easement is a very significant ecological area in and of itself. As noted above, habitat fragmentation has a deleterious effect on many wildlife populations, especially for those species that require forest interior, or are sensitive to nearby human activity. Having areas of suitable habitat near one another can have an ameliorating effect on habitat fragmentation in an area. The strategic position of Stony Creek Corridor Park between the Knob Creek Conservation Easement area and Stony Creek Metro Park would be important in the future by providing relatively closely located areas of suitable habitat. Thus, the extent and position of the Stony Creek Corridor site is an important aspect in the context of preserving and protecting significant natural resources in Oakland Township.

CONCLUSION AND RECOMMENDATIONS

It should be clear from the preceding discussion that the Stony Creek Corridor site provides a wide variety of ecological functions. To summarize, these functions include: provision of wildlife habitat containing a wide variety of food for herbivores and predators alike, nesting sites, summer and winter cover, a variety of upland and wetland habitats, wildlife corridors, biofilters in the form of the extensive wetland areas which protect additional wetlands and high quality natural areas, high biodiversity, a wide array of plant and animal communities, and opportunities for aesthetic enjoyment and environmental education.

Because of the quality and extent of the Wet Meadow/Floodplain Forest, Dry-mesic Southern Forest, lack of fragmentation of these areas, the contiguity of these areas with Knob Creek Subdivision Conservation Easement and Stony Creek Metro Park, we feel that the Stony Creek Corridor site represents a significant natural resource and Weatherbee's makes the following specific recommendations:

1. Oakland Township should continue to pursue acquisition of this parcel.

Once acquired:

2. Because of the relative lack of invasive species in the wetland complex and oak-hardwood, these areas should be closely monitored for the establishment and spread of invasive species, especially purple loosestrife, *Phragmites* (which is in the area), and garlic mustard.
3. A prescribed burn regime should be devised and implemented in the oak-hardwood forest, but protecting the area where beech-maple has already been established.
4. The area should be made accessible to the public, but on a limited basis (designated trails, boardwalks, viewing stations, and fishing access).
5. Develop a monitoring and protection plan for the population of *Polemonium reptans*.
6. Continue inventorying of the plant and animal communities to further determine the presence or absence of protected species known to occur in the area.
7. Develop and implement a restoration plan for the old field areas, especially those areas containing remnant prairie and oak barren species (*e.g.* showy goldenrod, little bluestem, stiff goldenrod). Due to the size of the area, it provides an excellent opportunity to develop an "adaptive management plan" approach.
8. Consider culling the deer herd, which appears to having a depressing effect on the wildflowers of the oak-hardwood areas.

REFERENCES

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APPENDIX A
Oakland Township
Herpetological Survey Report
(Herpetological Resource and Management – 2005)

APPENDIX B

PHOTOGRAPHS



Photograph 1. Wet Meadow at Stony Creek Corridor Park



Photograph 2. Wet Meadow at Knob Creek Easement



Photograph 3. Skunk cabbage in Floodplain Forest – Stony Creek



Photograph 4. Dry-mesic Southern Forest on steep slope – Stony Creek.



Photograph 5. Showy goldenrod in opening among autumn olive – Stony Creek



Photograph 6. Second-growth Forest, autumn olive and Old Field – Stony Creek



Photograph 7. *Polemonium reptans*.



Photograph 8. *Polemonium reptans* habitat.



Photograph 9. Scenic view along West Branch of Stony Creek.

Oakland Charter Township

Oakland County, Michigan

Map 1 Trails and Pathways Master Plan

October 26, 2010

Legend

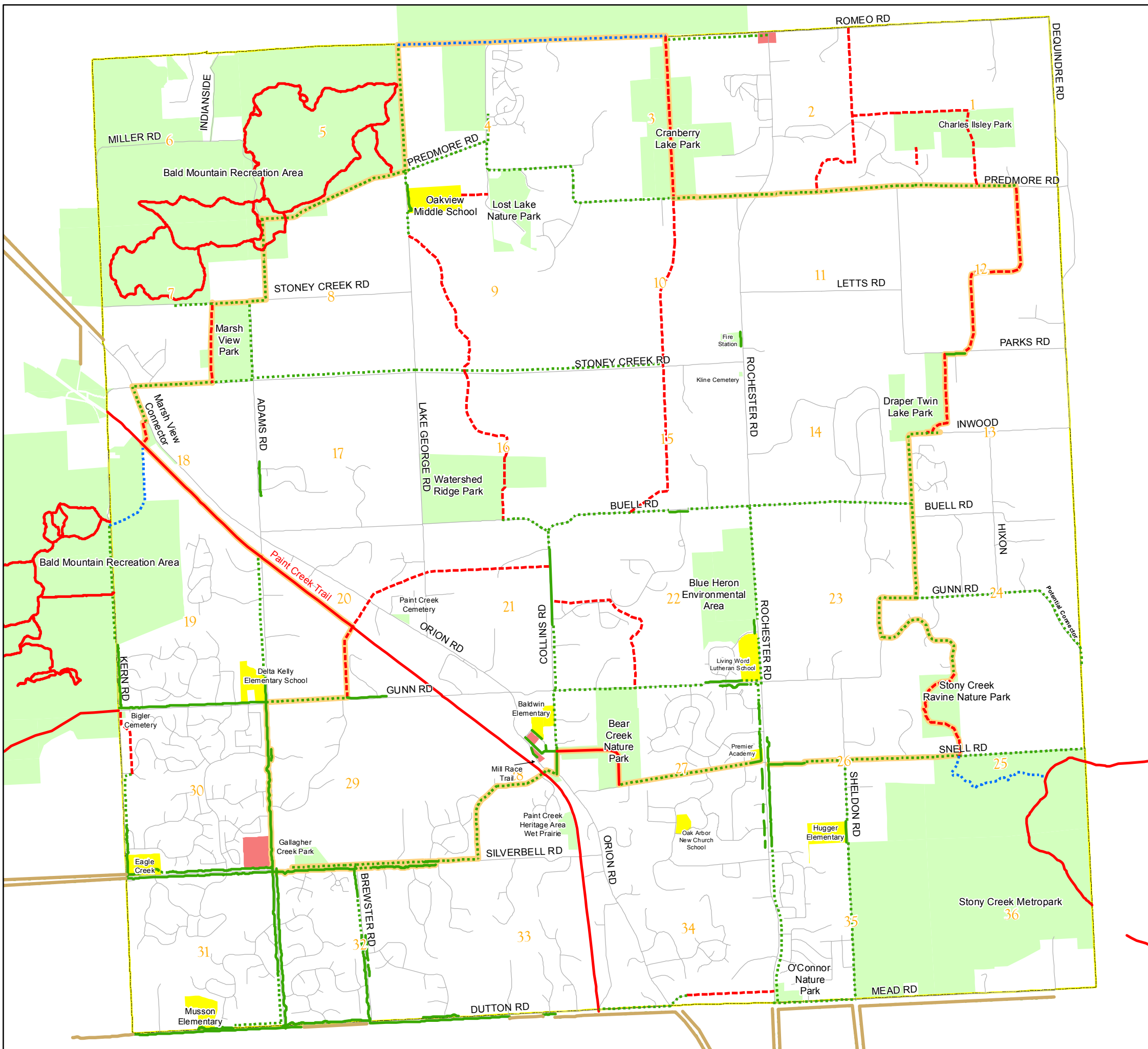
- Existing/Proposed Paths/Trails in neighboring communities
- Safety/Side Path, Existing
- Safety/Side Path, Proposed
- Trail, Existing
- Trail, Proposed
- Proposed by others
- "The Loop"
- Road Centerline
- Commercial Areas
- Public Parks
- School

Park and Trail Committee: Mindy Milos-Dale, Jim Foulkrod,
Marc Edwards, Alice Tomboulia, and Jim Creech

1 inch = 3,250 feet

0 1,625 3,250 6,500 Feet

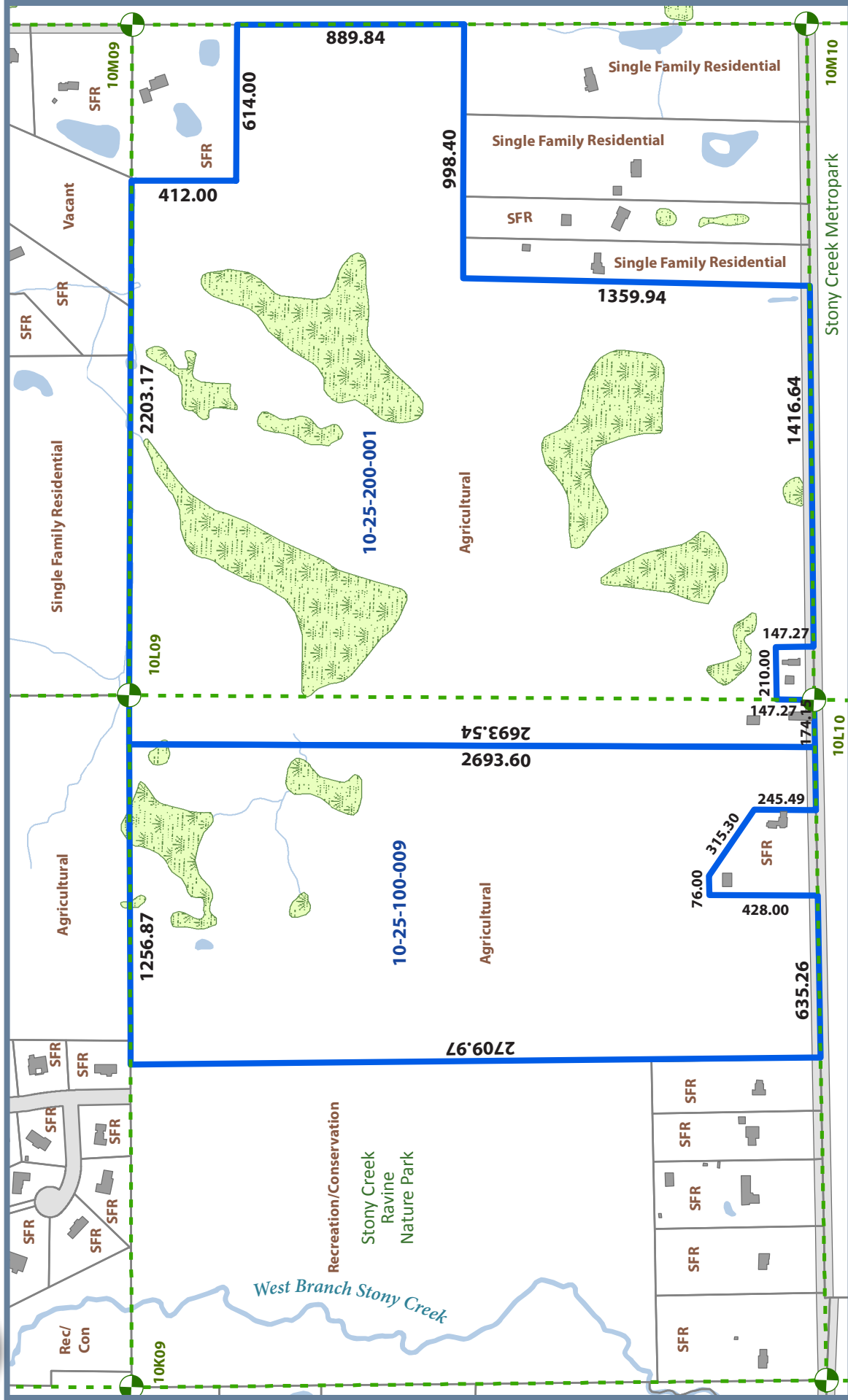
Williams & Works
engineers · planners · surveyors
a tradition of service
616.224.1500 phone · 616.224.1501 fax
549 Ottawa Avenue NW · Grand Rapids, MI 49503





Parcel Boundary Map

TF15-0130



Geographic Township of:
Oakland

TWP-SEC
10 - 25

Legend

- Sec Corner
- Sec Line
- Swamp or Marsh
- Lake
- Tax Parcel Line

Distance in Feet

0 225 550

The information contained here has been compiled from various sources, including aerial photography, survey data, and other public records. It is not a legally recorded map or survey, and it is not intended to be used as one. Users should consult the information sources mentioned above when acquiring a title.

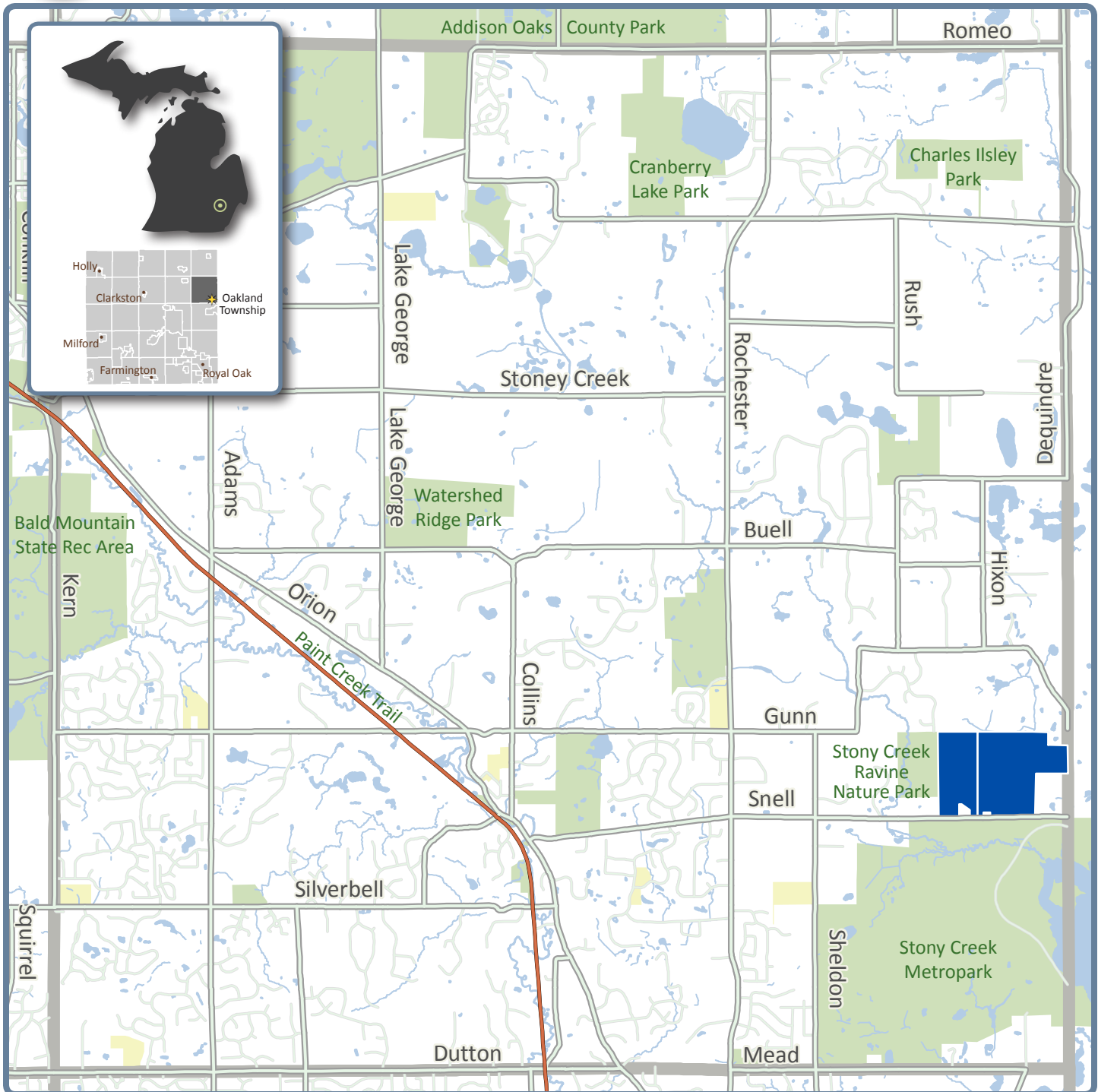
OAKLAND
ECONOMIC DEVELOPMENT
PLANNING & COMMUNITY
L. Brooke Peterson
Oakland County Executive

Additional copies can be obtained from:
Oakland County Planning & Community
2100 Waterford, Michigan 48328
www.advantageoakland.com
(248) 855-0721



Project Location Map

TF15-0130



- Paint Creek Trail
- Highway
- Major Road
- Area of Interest
- Municipal Boundary
- Lakes & Rivers
- Recreation Land
- School



Distance in Miles



Proposed park is located near:
1395 E Snell Rd, Rochester, MI 48306
42°44'02.9"N 83°06'36.0"W

Oakland Township

Stony Creek Ravine Nature Park Expansion

• 2015 Natural Resources Trust Fund Grant • Michigan Department of Natural Resources •



Map
provided by:





Iron Belle Trail- SE Michigan

TF15-0130



SEMOG

Southeast Michigan Council of Governments
1001 Woodward Avenue, Suite 1400, Detroit, Michigan 48226-1904
Phone (313) 961-4266, Fax (313) 961-4969
www.semcog.org Copyright: SEMCOG, 2014

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0 5 10 Miles

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State Plane NAD83 HARN

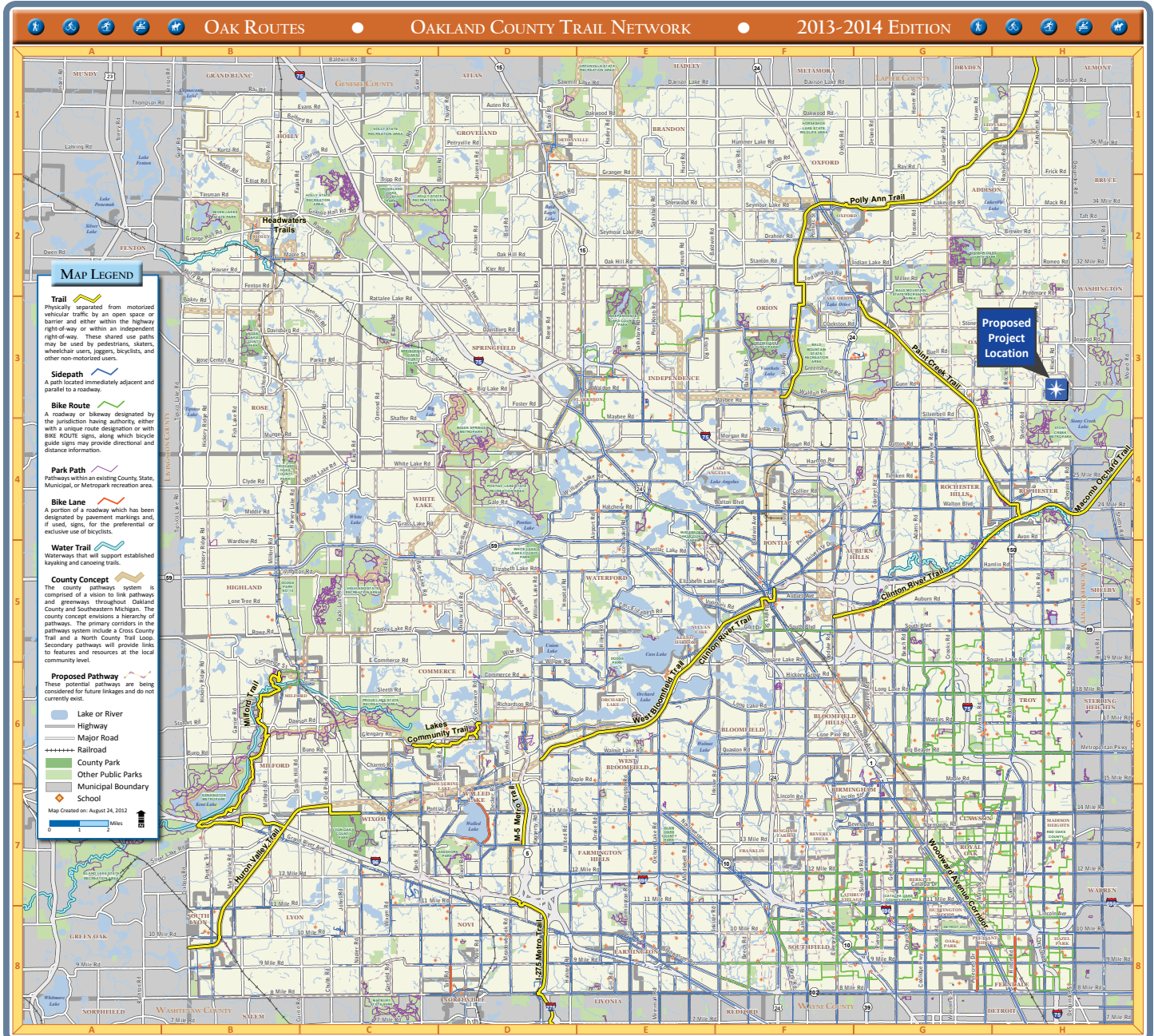
September 2014





Oakland County Trail Network

TF15-0130



City of Southfield



Shiawassee River



Pontiac Lake State Recreation Area



Milford Trail

• Oak Routes •

- Encourages Healthy Lifestyles
- Conserves Green Space
- Promotes Economic Renewal
- Preserves Historic Corridors
- Increases Property Values

Proposed park is located near:
1395 E Snell Rd, Rochester, MI 48306
42°44'02.9"N 83°06'36.0"W

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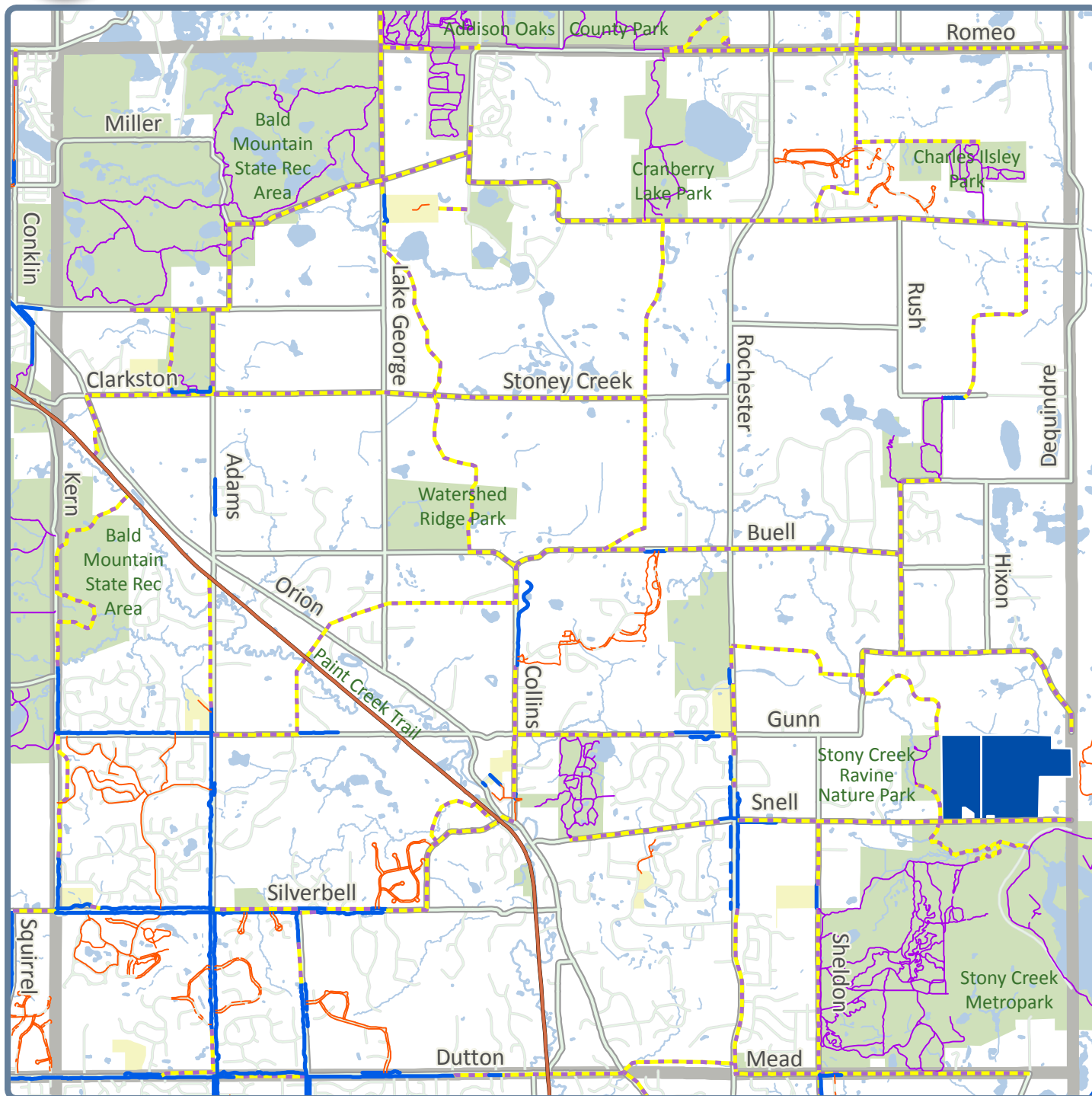
Map
provided by:





Oakland Township Pathways

TF15-0130



- Paint Creek Trail
- Sidewalk
- Sidpath
- Park Path
- Proposed Pathway
- Municipal Boundary
- Lakes & Rivers
- Recreation Land
- School
- Area of Interest



Distance in Miles



Proposed park is located near:
1395 E Snell Rd, Rochester, MI 48306
42°44'02.9"N 83°06'36.0"W

Oakland Township

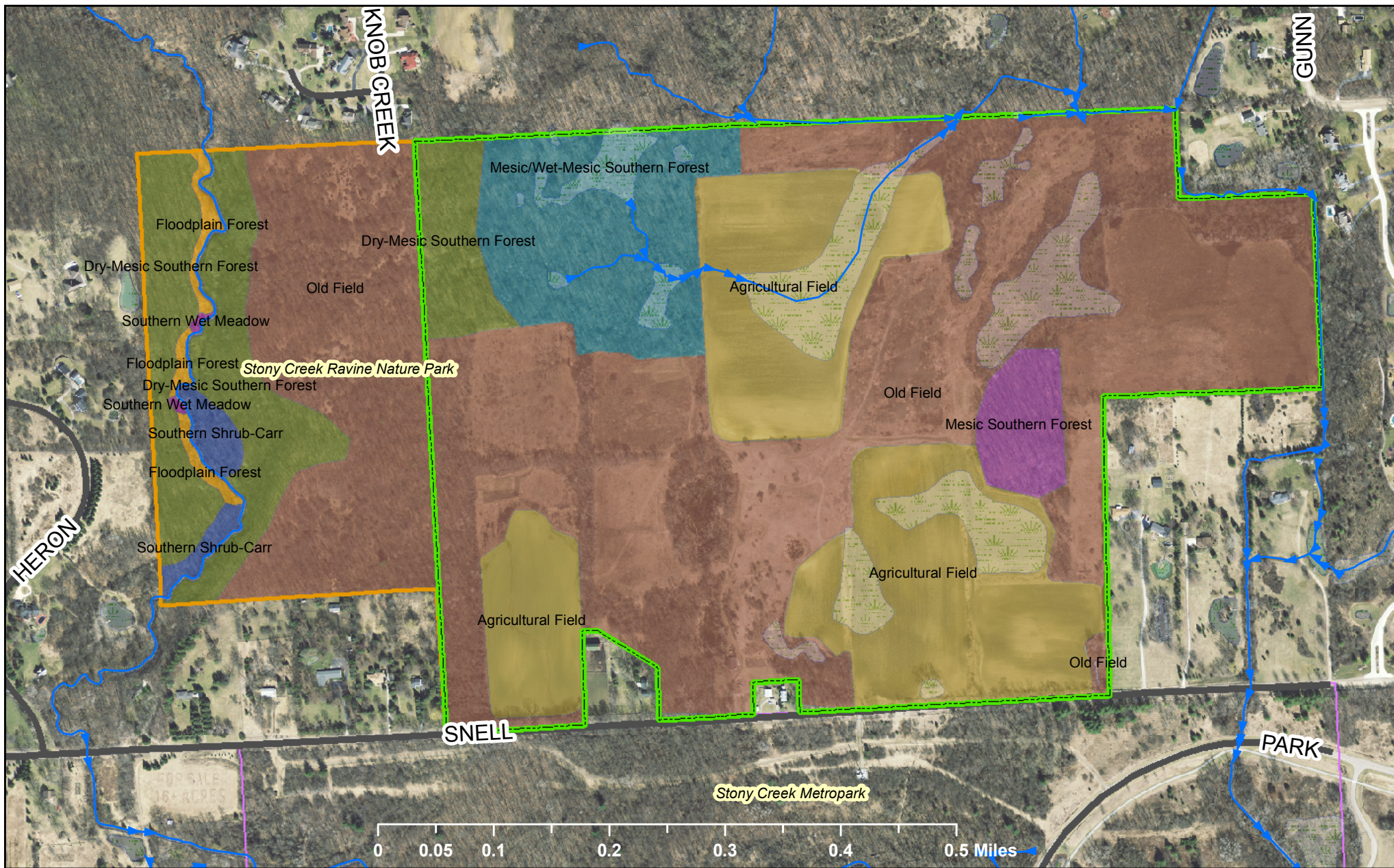
Stony Creek Ravine Nature Park Expansion

• 2015 Natural Resources Trust Fund Grant • Michigan Department of Natural Resources •



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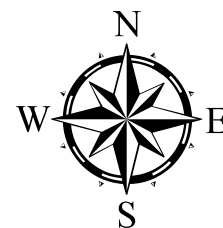




Stony Creek Ravine Nature Park

East Addition Natural Communities

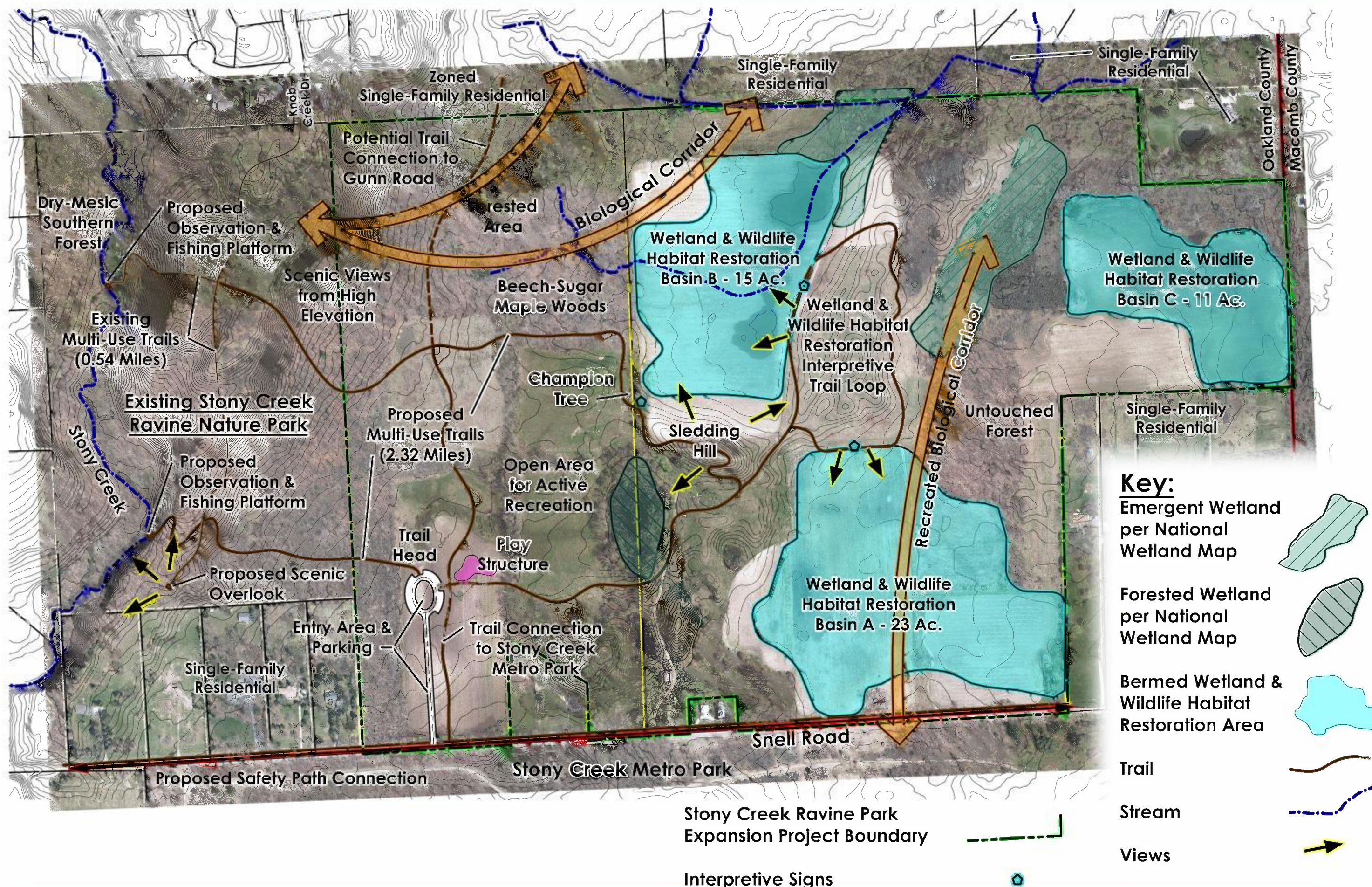
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|------------------------|---------------------------|---------------------------------|
| Streams | Agricultural Field | Mesic/Wet-Mesic Southern Forest |
| Wetlands | Dry-Mesic Southern Forest | Old Field |
| Proposed Addition | Emergent Marsh | Southern Shrub-Carr |
| Existing Township Park | Floodplain Forest | Southern Wet Meadow |
| Stony Creek Metropark | Mesic Southern Forest | |





Site Development Plan

TF15-0130



Not to Scale

Tax Parcel
2014 Aerial

**Stony Creek Ravine
Nature Park Expansion**

Oakland Township

Stony Creek Ravine Nature Park Expansion

• 2015 Natural Resources Trust Fund Grant • Michigan Department of Natural Resources •

Map
provided by:



and
Donald C. Westphal Associates



Oakland Township Parks and Recreation Spring 2015 Archery Offerings

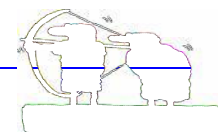
Resident registration open NOW. Non-residents begins April 1st. **Deadline for paid registration is April 17.** USA Archery certified instructors. To register call 248-651-7810, or visit us at 4480 Orion Road, Oakland Twp, M-F 8am-4:30pm or email at dgallo@oaklandtownship.org. Marsh View Park Archery Range, 3100 Clarkston Road., Oakland, MI 48363. *The archery range includes 10 universally accessible shooting lanes as well as a universally accessible observation and staging area.*

BEGINNING ARCHERY - ALL AGES (Ages 8 - Adult)

Learn the fundamentals of archery while you review equipment, learn about safety, learn basic shooting skills & have fun! All equipment provided. 5 week class. Min 10/Max 20 students per class.

Residents: \$60 Non-Resident fee: \$77

Fridays 4/24/15 - 5/29/15 no class 5/22/15 6:00 - 7:30pm



INTERMEDIATE ARCHERY - ALL AGES (Ages 8 - Adult)

This class is for archers who have taken Beginning Archery and archers with some experience. Focus will be on improving your archery form and accuracy. All equipment provided or archers may use their own equipment. No crossbows. 5 week class. Min 10/Max 20 students per class.

Residents: \$60 Non-Resident fee: \$77

Saturdays 4/25/15 - 5/30/15 no class 5/23/15 10:00 - 11:30am

OPEN RANGE SHOOT - ALL AGES (Ages 8 - Adult) Free to the public.

Drop-in opportunity to practice archery skills! Prior archery experience necessary. No instruction provided. Monitored by a safety officer. Bring your own equipment or use ours on first come-first serve basis. No broadhead or crossbows allowed.

Children between 8 and 17 years of age must be accompanied by an adult.

Saturdays 4/25/15 - 5/30/15 no class 5/23/15 8:45 - 9:45am



JUNIOR OLYMPIC ARCHERY DEVELOPMENT (Ages 8-20)

& ADULT ARCHERY PROGRAM (Ages 21+)

Archers who have completed Beginning and Intermediate Archery courses can join our JOAD Club or Adult Archery Program to begin advancing their archery techniques. Both programs are the logical "next step" for archers pursuing this lifetime sport. In addition to receiving clear instruction and coaching via our National Training System, membership in an archery club or program provides unique benefits including the opportunity to compete and earn awards, make new friends, build confidence & team building skills and a great upper body workout! In collaboration with *Rising Phoenix Archery*. USA Archery sanctioned club.

Resident fee: \$60 Individual/\$130 Family (up to 4)

Non-Resident: \$75 Individual/\$150 Family (up to 4)

Tuesdays 4/21/15 - 5/19/15 6:30 - 8:00pm 5 week class.

JOAD and AAP registrations are through Brandon Wright at 586-770-1859 or risingphoenixarchery@gmail.com



Marsh View Park Archery Range can be reserved for a workshop designed to help Scouts earn a merit badge in archery, or have your child's birthday party or even a corporate team-building event. Please contact the Parks and Recreation office at 248-651-7810 with reservation date preference and to confirm instructor availability.

Resident fee: \$150 for one and a half hour session

Non-resident: \$200 for one and a half hour session

Scouts fees to be determined.

SUMMER SESSIONS SNEAK PEEK!

Summer sessions (two five week sessions) will feature Beginning and Intermediate Archery Camps and all the classes listed above!





Explore Nature with Oakland Township Parks and Recreation Winter/Spring 2015 Programs

*We are thrilled to offer these fun, hands-on programs featuring our scenic and unique parks...
close to home but with the feeling of being 'up north'!*

Resident registration open NOW, non-resident begins two weeks before the registration deadline of each program.
Registration is required. We accept cash, check, MasterCard, Discover & American Express. Or mail a check to: 4393 Collins Rd., Rochester, MI 48306. Our office is at the Paint Creek Cider Mill Bldg., 4480 Orion Rd, 2nd floor, Oakland Township, M-F 8am-4:30pm. Call 248-651-7810 for more information and to register.

Yoga By The Lake Lost Lake Nature Park, 846 Lost Lake Trail

The holidays are over, it's cold and dreary, and you feel like hibernating....get out from under your blanket and join us at Lost Lake Nature Park for some restorative yoga! Whether you are a seasoned practitioner or newer to yoga, this gentle All Level class is just right for you! Bring your own yoga mat.

Led by Jay Williamson of YOGA REFUGE. www.yogarefuge.net

Min 6/Max 8 Adults 12+ All Levels. 6 sessions **Register by January 5th.**

All classes take place in our new and cozy nature center with a window view of the lake.

Sundays, January 11 - February 15, 2015 9:30 - 10:30 am

Residents: \$30.00 Non-residents \$60.00



Yoga On The Lake Lost Lake Nature Park, 846 Lost Lake Trail

Wouldn't you rather be outside during springtime? Step out of the studio and enjoy doing yoga in the warmth of the sun and in full view of serene Lost Lake. Whether you are a seasoned practitioner or newer to yoga, this gentle All Levels class is just right for you! Bring your own yoga mat. Led by Jay Williamson of YOGA REFUGE. www.yogarefuge.net

Min 8/Max 10 Adults 12+ All Levels. 6 sessions **Register by April 25th.**

All classes will take place on the dock. Rain location is the on-site Nature Center.

Sundays, May 3 - June 14, 2015 9:30 - 10:30 am

Residents: \$30.00 Non-residents \$60.00



Introduction to Ice Skating Marsh View Park, 3100 Clarkston Rd.

Learn how to skate with 10-time National Medalist, Tracey Daniels! Clinics will be held at Marsh View Park's NEW Outdoor Skating Rink. These clinics are for people who have little or no skill at ice skating. Each clinic will focus on basic fundamentals of ice skating like falling down, skating forward, stopping and on practicing your new skating skills. Safety is very important and we encourage skaters to wear a helmet and additional padding. Please wear weather appropriate clothing including gloves.

All clinics will be held on Saturday, January 24, see below for age groups and times. Register by January 19.

Tots 4-5 years old and Parents (45 minutes) 11 - 11:45am

\$10 each tot, parents free Min 6/Max 8 tots

Come and share the excitement of ice skating with your child! Each tot must be accompanied by a parent or guardian who can skate. For the first 30 minutes, tots will learn basic balance and skating skills. The last 15 minutes will be free skate playtime to help your tot practice their new skating skills. **All skaters 6 years old and under are required to wear either a bike or hockey helmet.**

Ages 6-11 years old (1 hour) 12 - 1pm

\$10 each Min 8/Max 12

Be like Elsa and Kristoff from the movie "Frozen" and learn how to skate! Learn the basic fundamentals and have fun practicing at our Outdoor Skating Rink!

Ages 12-15 year olds (1 hour) 1:15 - 2:15pm

\$10 each Min 8/Max 12

Learn how to skate with your friends! Come and try a fun winter activity!

Adults 16+ years old (1 hour) 2:30 - 3:30pm

\$10 each Min 8/Max 12

Have you always wanted to learn how to skate? Tracey will give you the tools to learn how!

Please arrive at least 10 minutes early to class to check-in and change into skates. Please bring a pair of your own sharpened skates, or skates may be rented for a fee of \$3 a pair. Please provide your shoe size during class registration. Please do not walk with exposed blades on parking lot or asphalt paths. Wear your skate guards when not on the ice surface.





Resident registration open NOW, non-resident begins two weeks before the registration deadline of each program. **Registration is required.** We accept cash, check, MasterCard, Discover & American Express. Or mail a check to: 4393 Collins Rd., Rochester, MI 48306. Our office is at the Paint Creek Cider Mill Bldg., 4480 Orion Rd, 2nd floor, Oakland Township, M-F 8am-4:30pm. Call 248-651-7810 for more information and to register.

Lost Lake Ice Age - Afterschool Nature Nuts (K-5th grade)

Tuesday, February 10 4:30-6pm

Lost Lake Nature Park, 846 Lost Lake Trail



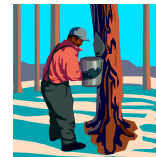
Get ready to go on an amazing adventure as we pack our bags and travel back in time to explore Lost Lake Nature Park during the ice age! What animals would we find there? Do any of the same ones still live here today? How do we know the ice age even happened? We'll search for evidence of the ice age and use those clues to imagine what it would have been like in the township when the world was frozen! Examine fossils close up and hone your geologic detective skills! Dress for the weather and wear appropriate footwear.

Min 9/Max 12 Resident: \$5 Non-resident: \$7 Register by February 3

Monster Maples - Family All Ages (2 sessions)

Sunday, March 8 11am-12pm or 12:30-1:30pm

Cranberry Lake Park, 388 West Predmore Road



Your family is sure to have a great time as we gather around the Monster Maples at Cranberry Lake Park! We'll explore the history of maple sugaring, learn how to identify a maple tree, then tap an actual tree. During the program you will also learn how to take maple sap and turn it into sweet maple syrup and get a few tasty test samples. Each family will also get to take home their own tapping toolkit with basic supplies necessary for tapping a tree in their own yard!

Min 18/Max 25 per class

Resident: \$5 Non-resident: \$7 Register by March 2

Families: Resident: \$12 Non-resident \$20 maximum

Learn to Bird - Adults

Saturday, March 28 10:30am-12pm

Lost Lake Nature Park, 846 Lost Lake Trail



Did you realize that birding is one of the fastest growing recreational activities in the country? Come see what all the excitement is about. This program will introduce you to the basics of birding...everything you need to know in order to get out in the field to watch the birds. You will learn how to select and use binoculars, how to use a field guide (and which ones are our favorites). You will also learn about the best times of the day to bird and even when and where to observe spring and fall bird migrations.

Min 9/Max 12 Resident: \$5 Non-resident: \$7 Register by March 23

Everything Eggs - Preschool Park Pals (3-5 year olds)

Wednesday, April 1 11am-12:30pm

Lost Lake Nature Park, 846 Lost Lake Trail



Eggs, eggs, everywhere there's eggs! Do all animals lay eggs? What about bugs? Birds? Bees? Yikes! We will discover some of the common egg-layers of Oakland Township and some that might surprise you! Outside we will search for eggs and indoor at the nature center we will have the chance to examine eggs up close...check out a whole bunch of different bird eggs and nests and maybe even examine some insect eggs! We will also find out what makes eggs alike and what makes them different.

Min 9/Max 12 Resident: \$5 Non-resident: \$7 Register by March 25



Explore Nature with Oakland Township Parks and Recreation Winter/Spring 2015 Programs

*We are thrilled to offer these fun, hands-on programs featuring our scenic and unique parks...
close to home but with the feeling of being 'up north'!*

Resident registration open NOW, non-resident begins two weeks before the registration deadline of each program. **Registration is required.** We accept cash, check, MasterCard, Discover & American Express. Or mail a check to: 4393 Collins Rd., Rochester, MI 48306. Our office is at the Paint Creek Cider Mill Bldg., 4480 Orion Rd, 2nd floor, Oakland Township, M-F 8am-4:30pm.
Call 248-651-7810 for more information and to register.

Fantastic Frogs - Family All Ages

Saturday, April 18 7-8:30pm

Bear Creek Nature Park, 740 West Snell Road



Spring has sprung! We'll welcome spring by taking a walk to listen to the calls of our native frogs including the spring peeper! Peep, peep! Your family will have the chance to see live frogs and listen to frog calls indoor then practice your detective skills as we try to identify what frogs are calling in Lost Lake! We'll also learn about the different frogs that call Oakland Township home and the best times to hear frog calls in the parks. We will also discover why listening to frogs is more than just fun and how you can help scientists by listening for frog calls around the township! Maybe your family will decide to become part of the township frog team!

Min 9/Max 12 Resident: \$5 Non-resident: \$7 Register by April 13

Families: Resident: \$12 Non-resident \$20 maximum

Who Flew There? - Afterschool Nature Nuts (K - 5th grade)

Wednesday, April 22 4:30-6pm

Lost Lake Nature Park, 846 Lost Lake Trail



What can we learn from Bald Eagles, Ivory Billed Woodpeckers and Passenger Pigeons? Millions of these birds were lost, or almost lost, to extinction. In this program we will learn about some cool birds that used to call Oakland Township home and what we can do to protect other animals from this fate. Let's make a difference for the animals and also have some fun making Passenger Pigeon origami too!

Min 9/Max 12 Resident: \$5 Non-resident: \$7 Register by April 15

Bird Watching Field Day - Adults

Saturday, May 9 7:30-10:00am

Cranberry Lake Park, 388 West Predmore Road



Join us as we get up with the birds and hit the trails in search of feathered friends. An experienced Dinosaur Hill naturalist will be on hand to lead this small group as we learn about what birds we might find in the parks in Oakland Township this time of year. The majority of the program will be spent taking a leisurely hike to observe and identify bird species. Whether you are just beginning your birding adventure or already have a lot checkmarks on your "life list" of birds this program will be fun for you. It is always fun to spend time with fellow birders! It is suggested that you have either had previous birding experience or have taken one of our introductory birding classes prior to participating in this program. Please bring binoculars and wear appropriate footwear and clothing for hiking. We will provide a convenient checklist of Michigan birds you can use to keep track of your sightings as well as information about nearby parks that provide good birding opportunities.

Min 9/Max 12 Resident: \$5 Non-resident: \$7 Register by May 4

Habitat Hunt - Preschool Park Pals (3-5 year olds)

Wednesday, May 27 11 am-12:30pm

Lost Lake Nature Park, 846 Lost Lake Trail



Got Habitat? Check out which critters are sleeping in the mud at the shore of the lake and which were hiding high up in the trees. A habitat is a home and every animal needs a place to live! Join a naturalist on a habitat hunt as we search for the homes of different animals. We'll learn about the different types of habitats at Lost Lake and what animals might live there. Back in the nature center you will have the chance to examine mounts of the animals up close. We'll also build our own animal habitat.

Min 9/Max 12 Resident: \$5 Non-resident: \$7 Register by May 20



Oakland Township Natural Areas Stewardship Events



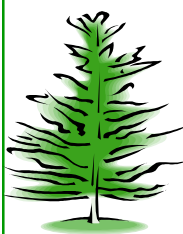
Please come out and join us for one of these free events! Drop-ins are welcome, but it's best if you email or call Ben VanderWeide in advance so that we can bring enough tools and supplies (bvanderweide@oaklandtownship.org, phone number 248-651-7810 ext 401). Updated information on these events can be found on our blog at oaklandnaturalareas.com.

Volunteer Workdays

Please remember to wear long pants and closed-toe shoes suitable for uneven terrain. We provide tools, light snacks, water, and know-how. All minors must have a waiver signed by a guardian, and minors under 14 must be accompanied by a guardian.

Prairie Restoration Workdays at Charles Ilsley Park

Prairie restoration is planned for the fields at Charles Ilsley Park, but first we need to remove the woody plants in these fields! Join us to help cut and burn brush. Tuesdays in January (6, 13, 20, 27) and February (3, 10, 17, 24), 10 am to 1 pm. Meet at Charles Ilsley Park.



Forest Cleanup Workdays

Early spring is the best time to spot tires, old fences, and other trash in the woods.

Join us for forest cleanups from 9 am - 12 pm the following dates: Saturday, March 14 at Stony Creek Ravine Nature Park; Tuesday, March 17 at Blue Heron Environmental Area; and Tuesday, March 24 at Charles Ilsley Park.

Garlic Mustard Pulls

Join us the following Saturdays from 9 am – 12 pm to compete in the Garlic Mustard Challenge: April 11 at Bear Creek Nature Park, April 25 at Blue Heron Environmental Area, and May 9 at Lost Lake Nature Park.

Educational Opportunities

Birding Walks

Join us every Wednesday from January to May to help us figure out which birds are using our parks. Some extra binoculars are available if you contact us in advance. Some experience with birding will help, but is not necessary. If you'd like to pick up basic birding skills, check out the Oakland Twp birding classes. *Starting Times:* Jan and Feb - 8:30 am. March - 8 am. April and May - 7 am. *Locations:* 1st Weds of month – Bear Creek Nature Park. 2nd Weds of month – Cranberry Lake Park. 3rd Weds of month – Lost Lake Nature Park. 4th Weds of month – Draper Twin Lake Park. 5th Weds in April - Gallagher Creek Park.

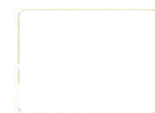


Fire as a Land Management Tool

Learn more about reasons for using prescribed fire, preparations for conducting a fire, necessary tools, roles of each burn crew member, and ignition patterns. Join us at 7 pm on Thursday, January 22, 2015 at the Paint Creek Cider Mill. Please RSVP to bvanderweide@oaklandtownship.org by Monday, January 19.

The History and Future of Prairie in Oakland Township

Learn more about the ecology of prairie and savannas, the history of grasslands in our township, and current work restoring grasslands in our parks. Join us at 7 pm on Thursday, February 19 at the Paint Creek Cider Mill. Please RSVP to bvanderweide@oaklandtownship.org by Monday, February 16.





Proposed Future Programs

at

Stony Creek Corridor Park

Sponsored by the Oakland Township Parks and Recreation Commission

In The Land of Glaciers

Saturday, January 21, 1 pm - 3 pm

Meets at Stony Creek Corridor Park



Giant 500 pound beaver, mastodons and other mega beasts disappeared with the end of the last ice age; a catastrophic event of mile-high ice that crushed, scraped and rebuilt the landscape. Today you can stand on a snow covered moraine - a ridge of glacial till - and look down at lowlands created by the great melt and visualize that almost unimaginable event. The great beasts are gone, but the land still bears the signature of glaciers. Today a great diversity of flora and fauna thrives in this diverse habitat, and can be found even on a winter's day. In the valley Stony Creek meanders and gurgles its way through 11,000 years of history as it creates its own legacy. Join the Parks Management Coordinator for a wintry look at the landscape and wildlife of Stony Creek Corridor Park.

Dress for a winter hike and bring a hot thermos!

Adults & accompanied children. Min 5/Max 20.



On Silent Wings - Going on An Owl Walk

Sunday, February 12, 8 pm - 9:30 pm

Meets at Stony Creek Corridor Park

Join the Parks Management Coordinator on the full moon night of February 12th for a winter adventure you will not soon forget: an owl walk! Great horned and screech owls both hunt the woods and fields of Stony Creek Corridor Park. These amazing raptors glide on silent wings and are nature's perfect flying mouse traps. Wear warm clothes and bring patience and a spirit of adventure as we walk silently in search of owls on the prowl. This is a great nature adventure - full of fun facts. Bring a flashlight for your exit from the park.

Evening program; dress for the weather.

Adults & older children. Min 5/Max 20.

Programs are **FREE** to **Oakland Township residents**.

Register by calling the Oakland Township Parks & Recreation office at (248) 651-7810.

Non-Residents may register starting January 16 by mailing this form with \$3.00 in advance to:
Oakland Township Parks and Recreation, 4393 Collins Road, Rochester, MI 48306



Name _____ Daytime Phone _____

Address _____

Program Title/Date _____

Number of Adults _____ Number/Age(s) of children _____



Proposed Future Programs

at

Stony Creek Corridor Park

Sponsored by the Oakland Township Parks and Recreation Commission

Cryptic Creatures - A Family Wildland Exploration

Saturday, April 22, 10 am - Noon

Meets at Stony Creek Corridor Park



11,000 years have passed since the last great glacier melted, creating a mosaic of rolling hills, small lakes, outwash plains and stream beds. Stony Creek Corridor Park is home to many of these unique land features, in addition to a high quality stream. Join our Parks Management Coordinator for an exciting spring trek over these lands as we discover secrets of the amazing flora and wildflowers in this park. We'll search for evidence of the creatures that survive in this protected area such as wild turkey, white tail deer, tracks and trails of coyote, trills of spring frogs, and songs of nesting birds. We may also discover blue-spotted and red-backed salamanders, blue racers, turkey vultures, red-tailed, and even Cooper's hawks.

Rain or shine even; dress for the weather.

Adults & accompanied children. Min 5/Max 20.



Turkey Tails And Coyote Tales

Saturday, June 17, 10:30 am - Noon

Meets at Stony Creek Corridor Park



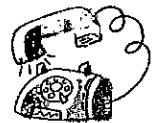
You'll never walk alone in the Stony Creek Corridor: a habitat rich with native wildlife. Many woodland species not only survive, some thrive just yards from human habitation. Wild turkey roost in bottomland trees. Coyotes hunt the edge zones for rabbits, mice and voles. Great horned owls glide silently over clearings at dusk and deer follow the muddy meander of Stony Creek. You may get lucky and find a turkey 'dust bowl', a site where wild turkey dust and preen. And in the sand, a feather from a hawk or the paw print of a coyote tell the story of predator and prey, life and death. This program is perfect for your young naturalist!

Rain or shine event; dress for the weather.

Adults & accompanied children. Min 5/Max 20.

Programs are **FREE** to **Oakland Township residents.**

Register by calling the Oakland Township Parks & Recreation office at (248) 651-7810.



Non-Residents may register starting April 17 by mailing this form with \$3.00 in advance to:
Oakland Township Parks and Recreation, 4393 Collins Road, Rochester, MI 48306

Name _____ Daytime Phone _____

Address _____

Program Title/Date _____

Number of Adults _____ Number/Age(s) of children _____