



Metropolitan Detroit's Bird Agenda

*Metropolitan Detroit Nature Network
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Report Credits:

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EXECUTIVE SUMMARY

There are over 350 species of birds that are regularly observed and recorded in Metropolitan Detroit area. Some are permanent residents that both breed and spend the majority of the year in the Detroit area. Others spend winters in Central and South America, but breed here. Others pass through on their migratory routes and use local habitats for feeding and resting during their journeys.

Key avian attributes of our metropolitan region include:

- It is situated at the intersection of the Atlantic and Mississippi Flyways;
- Over 350 species of birds have been identified in the corridor;
- 30 species of waterfowl have been documented using the corridor;
- More than 300,000 diving ducks use the lower Detroit River as stopover habitat during migration;
- The lower Detroit River is one of the three best places to watch raptor migrations in the U.S., with 23 species of raptors migrating across the river;
- Pointe Mouillee, Erie Marsh, and St. Clair Flats, one of the largest freshwater deltas in the world, are important stopover points for feeding for migratory shore birds during fall migration;
- The corridor has four “Important Bird Areas” designated by National Audubon Society;
- In 2011, Ducks Unlimited identified Metropolitan Detroit as one of the top ten metropolitan areas for waterfowl hunting in the U.S.;
- Detroit River and western Lake Erie offer exceptional birding opportunities – a ByWays to FlyWays Bird Driving Tour features 27 unique birding sites in southwest Ontario and southeast Michigan;
- This corridor has been recognized for its biodiversity in the North American Waterfowl Management Plan, the United Nations Convention on Biological Diversity, the Western Hemispheric Shorebird Reserve Network, and the Biodiversity Investment Area Program of Environment Canada and U.S. Environmental Protection Agency;
- Humbug Marsh in Trenton and Gibraltar, Michigan has been identified as a “Wetlands of International Importance” under the International Ramsar Convention;
- The Detroit River and western Lake Erie are part of the Detroit River International Wildlife Refuge, the only international wildlife refuge in North America;
- The Detroit River is the first river in North America to receive both American Heritage River and Canadian Heritage River designations; and
- There are many important upland sites for neo-tropical migratory songbirds during spring and fall migration.

This Metropolitan Detroit Bird Agenda has:

- Summarized the Urban Conservation Treaty for Migratory Birds Program and Metro Detroit's accomplishments to date;
- Identified key issues currently facing migratory and resident birds in Metropolitan Detroit; and
- Outlined high priority actions and “next steps” that Metropolitan Detroit partners will take over the next five years.

It is not feasible to move forward on all next steps due to resource limitations and time constraints. Therefore, the following actions are identified as high priorities over the next five years:

Habitat loss and fragmentation:

- Recruiting new partners to the Metro Detroit Nature Network that will participate in the Urban Bird Treaty as described in this document
- Expanding cooperative programs for bird habitat conservation (e.g., creating more stop over habitat and wildlife corridors, expanding corporate wildlife habitat programs like Wildlife Habitat Council)
- Supporting and expanding green infrastructure programs

- Expanding school yard and backyard habitat projects

Hazard Reduction:

- Expanding Safe Passage
- Promoting Bird Friendly Bird Design including offering training for architects on bird friendly design
- Coordinating the timing of construction and re-vegetation projects (e.g., mowing schedules, etc.)

Citizen Science Programs:

- Compiling long-term, citizen science, trend data on peregrine falcon and osprey in southeast Michigan and broadly disseminate this information to show the value and benefit of such programs
- Expanding peregrine falcon and osprey monitoring through citizen science to ensure long-term sustainability of these programs
- Expanding black tern and grassland bird monitoring programs under the leadership of Detroit Audubon
- Expanding participation in Christmas Bird Counts
- Expanding backyard feeder watch program
- Expanding monitoring under the Safe Passage Program

To help recruit new partners and volunteers for this important bird conservation work the Metro Detroit Nature Network will convene an Urban Bird Summit within one year. This Urban Bird Summit will review progress on key issues, recruit new partners, and to help identify and seek small grant funding to support the above projects. This important Bird Agenda work will also be helpful in addressing the Metro Detroit Nature Network and the U.S. Fish and Wildlife Service's Urban Wildlife Conservation Program goals of developing develop the next generation of conservationists in urban areas because that is now where 80% of all U.S. citizens live.

INTRODUCTION

In 2016, the Metro Detroit Nature Network (MDNN) was established to work cooperatively among conservation and outdoor recreational partners to bring conservation to cities and make nature part of everyday urban life. The vision of the Network is that all people in the metropolitan Detroit region have access to and actively steward nature and promote ecosystem sustainability. Over 20 partners signed a partnership agreement in the first four months and it is projected that over 100 partners will eventually join the Network. Currently the following MDNN organizations will be participating members of this Urban Bird Treaty: Detroit River International Wildlife Refuge, Detroit Zoological Society, Detroit Audubon Society, City of Detroit, Michigan Department of Natural Resources, Oakland County Parks, University of Michigan Dearborn, The Nature Conservancy, Friends of the Detroit River, International Wildlife Alliance, Six Rivers Land Conservancy, Michigan Recreation and Park Association, Greening of Detroit, Detroiters Working for Environmental Justice, Southeast Michigan Council of Governments (SEMCOG), and Macomb County Parks. One of the next steps is to have more organizations, especially those managing land, to sign on this partnership agreement.

The MDNN is represented by the entire Southeast Michigan Council of Governments (SEMCOG) seven county area that includes the counties of Wayne, Macomb, Oakland, Livingston, Washtenaw, Monroe, and St. Clair (Figure 1). For the purpose of this treaty, this area will be referred to as Metro Detroit. It is a diverse geographical area that has dense urban areas, sprawling suburbs, sparsely populated agricultural land, and is bordered on the east by the Great Lakes ecosystem from the St. Clair River to western Lake Erie. According to SEMCOG, there are 4.3 million that live in Metro Detroit and there are almost 200,000 acres of public parkland and conservation land.

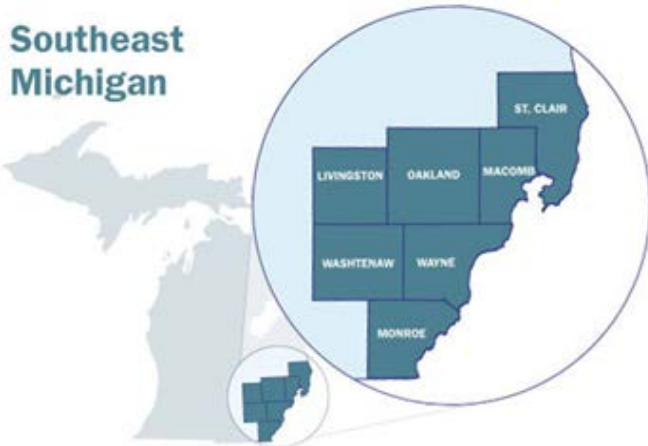


Figure 1. Metro Detroit Nature Network geographical area.

The MDNN partners support pursuing an Urban Conservation Treaty for Migratory Birds designation with the U.S. Fish and Wildlife Service and developing urban bird conservation plan. Through the MDNN partnership agreement the partners have made long-term commitments to help protect and conserve Detroit area birds through the following actions:

- Habitat conservation and management
- Reduce avian hazards
- Citizen education and engagement
- Species specific management actions

This Metropolitan Detroit Bird Conservation Plan will:

- Summarize the Urban Conservation Treaty for Migratory Birds Program and Metro Detroit's accomplishments to date;
- Identify key issues currently facing migratory and resident birds in Metropolitan Detroit; and
- Outline high priority actions and "next steps" that Metropolitan Detroit partners will take over the next five years.

A nomination letter is presented in Appendix A and a letter of support from the City of Detroit is presented in Appendix B.

METRO DETROIT BIRD COMPOSITION

Introduction

Over 350 species of birds have been observed in the Detroit Metro Area. Some northern breeding species winter in southeast Michigan, while millions of others utilize the area during spring and fall migrations. Birds that breed in the Detroit Metro area can be categorized as permanent residents, migratory species that are here from spring to fall, and nuisance species.

Migratory Species

Situated at the intersection of the Atlantic and Mississippi Flyways, the Metropolitan Detroit area is an important migration corridor for thousands of raptor, shorebirds, colonial waterbirds, waterfowl, and neotropical species (Figure 2). An estimated three million ducks, geese, swans, and coots migrate annually through this region. The region contains extensive feeding and resting habitats for waterfowl. For

example, over 300,000 diving ducks stop each year to rest and feed on beds of wild celery in the lower Detroit River during their fall migration from western Canada to the east and south. This corridor has been recognized for its biodiversity in the North American Waterfowl Management Plan, the United Nations Convention on Biological Diversity, the Western Hemispheric Shorebird Reserve Network, and the Biodiversity Investment Area Program of Environment Canada and U.S. Environmental Protection Agency.



Figure 2. Waterfowl flyways of North America.

The corridor has four “Important Bird Areas” designated by National Audubon Society – St. Clair Flats (the world’s largest freshwater delta) and Harsen’s Island, Lake St. Clair, Detroit River, and the western Lake Erie basin. The Detroit River supports outstanding migrant and wintering waterfowl and waterbird concentrations; early winter surveys have recorded high counts of 79,300 Canvasbacks or over 10% of the estimated global population, over 1,900 Tundra Swans, 1,000 American Black Ducks, 10,000 Mallards, and 3,500 Common Mergansers., Ducks Unlimited has identified Metropolitan Detroit as one of the top ten metropolitan areas for waterfowl hunting in the U.S.

The lower Detroit River is one of the three best places to monitor fall raptor migrations in the U.S., with 23 species of raptors migrating across the river. To give you a feel of the magnitude of hawk migrations through the lower Detroit River, dedicated volunteers recorded an astounding 190,121 broad-winged hawks on September 17, 2011 at Lake Erie Metropark, representing the third highest single-day total recorded at this site (Stein, 2011).

Many migratory colonial waterbirds nest in throughout the corridor including Black Terns, Forster’s Terns, and Common Terns, Great Blue Herons and Black-crowned Night-Herons, and Herring and Ring-billed Gulls, but are only censused every ten years in conjunction with the Great Lakes Decadal Survey. Pointe Mouillee State Game Area is not only utilized by migratory waterfowl, but is an important stop for many migratory species including a stop-over site for shorebirds as they migrate from their northern breeding sites to the winter range. It even occasionally supports white pelicans before they start fall migration.

The corridor is also an important site for songbird migration in spring and fall. Belle Isle State Park and Lake St. Clair Metro Park are filled with warblers, thrushes, and sparrows during migration. Allen Chartier, a long-term birding expert from Detroit, has recorded over 20 species of warbler in the spring, including Golden-winged, Hooded, and Prothonotary Warblers. He recently observed on Belle Isle the first Pileated Woodpecker in Wayne County in more than 100 years. The birding experience is also excellent in other seasons as evidenced by the following quote from Allen Chartier “One fall day in 2005 I experienced hundreds each of White-throated Sparrow, Yellow-rumped Warbler, both Kinglets, and Hermit and Swainson’s Thrushes, many feeding on the abundant food crop in the swamp woods. Northern Saw-whet Owls also migrate through Belle Isle, and sometimes over-winter in the tangles in the

woods.” Many of the other managed lands in the Metro area are utilized by migratory birds in both the spring and fall. One of the goals of the UBT will be to utilize existing data, such as e-bird, to identify important lands that can be cooperatively managed for migratory birds.

Metro Detroit Nesting Species

There are many species that utilize urban, suburban, and rural areas during nesting season. Species such as Robins, Grackles, Cardinals, Downy Woodpeckers, Black-capped Chickadees, and Goldfinches utilize even the most urbanized habitats. Sharp-shinned and Cooper’s Hawks commonly prey on these species. The larger suburban and urban areas provide nesting opportunities for many migratory species. The Great Lakes corridor and the many inland lakes have nesting waterbirds including Black-crowned Night-Herons, Great Blue Herons, three Tern species, and nesting Bald Eagles.

Additional species have become dependent on human made structures for nesting sites. Purple Martins almost exclusively depend on martin houses while Barn Swallows utilize manmade structures throughout the metro area. Eastern Bluebirds, Tree Swallows, and House Wrens use specific nesting boxes. Chimney Swifts have adapted to nest in masonry chimneys, but as these have disappeared “artificial chimneys” are being utilized. Both Osprey and Peregrine Falcons have been reintroduced to metro Detroit by utilizing specific nesting boxes or man-made structures such as cell towers.

Nuisance Species

Native and non-native bird species generally are considered a nuisance species when their populations increase to the point that it creates human/wildlife conflicts. Native species such as Canada Geese are found throughout Metro Detroit and create conflict on local lakes, golf courses, sport fields, and public parks. The non-native Mute Swan population has grown and destroys wetland habitat, endangers native waterfowl, and can threaten the public on watercraft and near shore. Both of these species are managed by the Michigan DNR. Other non-native species such as European Starlings and House Sparrows out-compete with native cavity nesting species. Rock Pigeons nest and forage in large flocks leaving droppings that can create a human health hazard and damage buildings. All of these species have the potential to create a negative bird opinion to the public.

DEMOGRAPHICS OF SOUTHEAST MICHIGAN AND DETROIT

As of the U.S. 2010 Census, southeast Michigan has a population of 4,704,809 and is projected to remain steady with a population of 4,646,938 in 2020.

Within southeast Michigan, 68.5% of the population identifies as White, 21.6% identifies as Black, 3.9% as Hispanic, 3.6% as Asian, 2% Multi-Racial, and 0.4% as Other.

The highest levels of education within southeast Michigan are as follows: 28.5% High School Graduate, 23.2% Some College, 17% Bachelor’s Degree, 12.2% Did not Graduate from High School, 11.5% Graduate/Professional Degree, and 7.7% Associate Degree.

As of the U.S. 2010 Census, the city of Detroit has a population of 713,862, following the trend of decreasing population since the city’s population peak in 1950 of 1,849,568. The population is projected to continue to steadily decrease to 628,000 by 2020.

Historically, the suburbanization after World War II stripped the city of Detroit of much of its population. Housing discrimination blocked access out of the city for African Americans, which left the city extremely segregated. Detroit is composed of various ethnic groups with the majority of residents identifying as Black. The 2010 US census reported the population of Detroit as: 82.2% Black, 7.8% White, 6.8% Hispanic, 1.7% Multi-Racial, 1% Asian, and 0.5% other.

The highest level of education within Detroit are as follows: High School Graduate 34%, 24.7% Some College/No Degree, Did not graduate high school 23.2%, Bachelor's Degree 7.2%, Associate Degree 6.3%, and Graduate/Professional Degree 4.6%.

A number of the education and outreach programs included in this agenda aim to reach disadvantaged youth in the Metro Detroit Area. The Title 1 program provides financial assistance through state educational agencies to local educational agencies and public schools with high numbers or percentages of poor children to help ensure that all children meet challenging state academic content and student academic achievement standards. Title 1, formerly known as Chapter 1, is part of the Elementary and Secondary Education Act of 1965, and is committed to closing the achievement gap between low-income and other students. Federal funding is provided to states and school districts for instructional activities and program improvement. The number of Title 1 students reached by each program within this agenda is listed below with each relevant education program description.

HABITAT CONSERVATION

Managed Lands

Introduction

The Lake Huron to Lake Erie Corridor lies within the northern limits of the Eastern Deciduous Forest Region. The Corridor is regarded as part of the "Carolinian Life Zone" because of its link with forest communities located farther south. Many of the species found here are at the northern boundaries of their range. The Corridor also is a transition area between the hardwood forests of the east and the prairies of the west.

The Corridor is made up of the St. Clair River, Lake St. Clair and Detroit River, as well as the watersheds of southwestern Ontario and southeastern Michigan that drain into these large waterways. Water in this corridor flows from the mouth of Lake Huron through the St. Clair River, Lake St. Clair, the Detroit River, into Lake Erie. The tributary rivers, creeks, streams and drains in the watersheds connect the surrounding lands to the Corridor.

SEMCOG 2008 Land Use study identified 212,086 acres of parks, recreation and open space (Figure 3). These areas have different managers including federal and state agencies, metro park system, county and local governments, corporations, and universities. These lands are managed for a variety of purposes, but provide the foundation for habitat restoration, invasive species control, and species management. An effective management approach requires cooperative projects with shared management objectives.

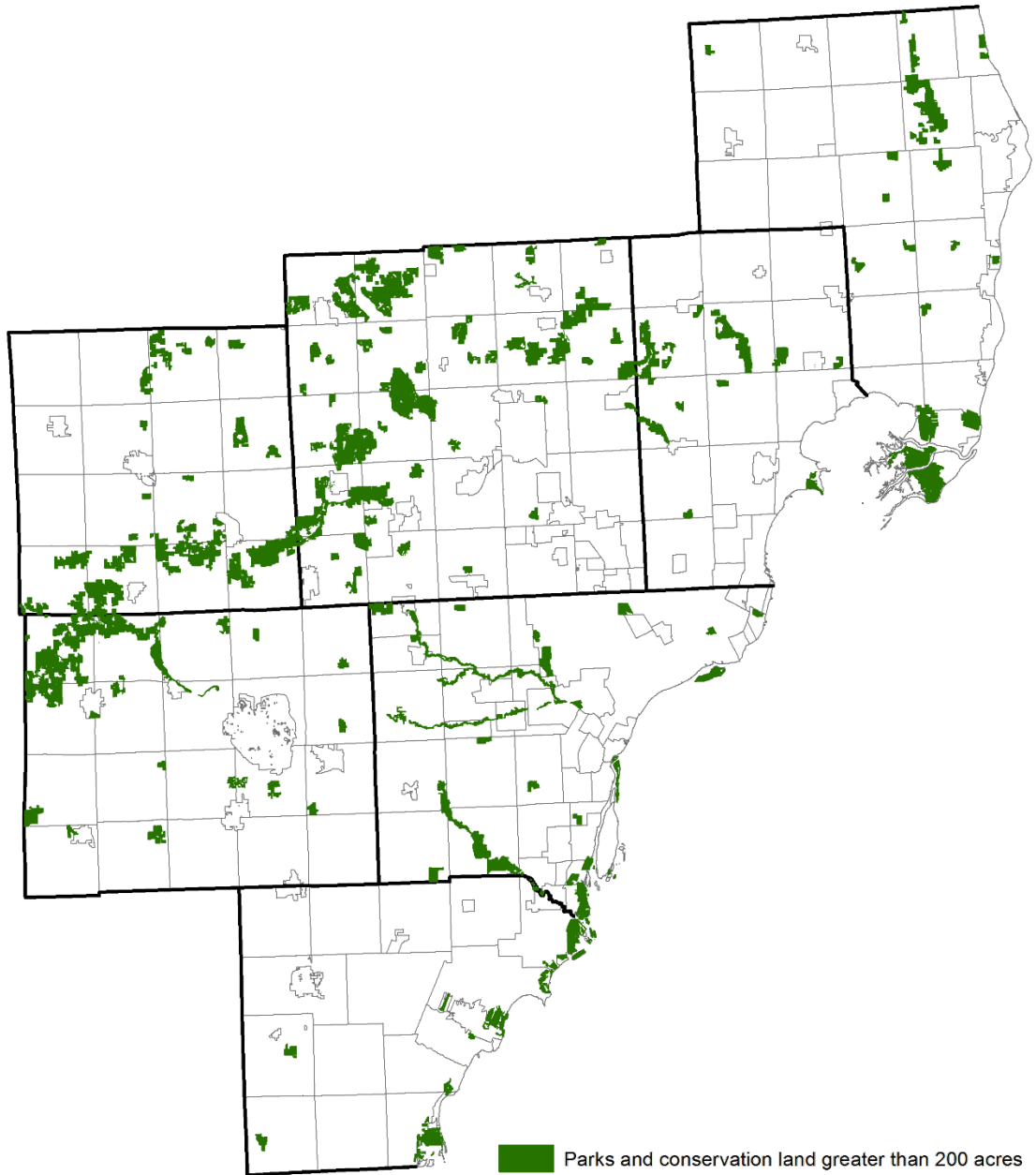


Figure 3. Parks and conservation lands greater than 200 acres in southeast Michigan (credit: Southeast Michigan Council of Governments).

State Managed Lands

The Michigan Department of Natural Resources manages nearly 12,000 acres of land, including State Parks (SP), State Recreations Areas (SRA), State Game Areas (SGA), or Wildlife Management Areas (Table 1). Each of these lands has different missions that include recreation, hunting and fishing, bird watching, and wildlife conservation. This includes five state parks, six state recreating areas, six state game areas, and three wildlife areas.

- Belle Isle SP, Lake Erie SP, Seven Lakes SP, Algonac SP, Wetzel SP
- Petersburg SGA, Pointe Mouillee SGA, Holly SGA, Bald Mountain SGA, Horseshoe Lake SGA, Port Huron SGA, Gregory SGA,
- St Clair Flats Wildlife Area, Dickinson Island, St Johns Marsh Wildlife Area
- Pinckney SRA, Island Lake SRA, Brighton SRA, Pround Lake SRA, Highland SRA, Pontiac Lake SRA.

Table 1. Selected examples of conservation and outdoor recreational lands in southeast Michigan.

| Organization | Units/Locations | Amount of Land |
|---|---|-----------------------------------|
| Huron Clinton Metropolitan Authority | 13 Metroparks | Over 25,000 acres |
| Michigan Department of Natural Resources | Erie State Game Area, Sterling State Park, Pointe Mouillee State Game Area, Milliken State Park, Belle Isle State Park, and St. Johns Marsh and Wet Prairie | 11,997 acres |
| Southeast Michigan Land Conservancy | 19 nature preserves and 18 conservation easements | 3,410 acres |
| Washtenaw County Parks | 12 parks and 23 nature preserves | Over 5,000 acres |
| Wayne County Parks | Parks and nature areas | Over 5,600 acres |
| U.S. Fish and Wildlife Service | Detroit River International Wildlife Refuge | 6,107 acres |
| Detroit Riverfront Conservancy | 5.5 miles of waterfront greenway trails and parks | Over 100 acres |
| University of Michigan-Dearborn | Rouge River Bird Observatory | 290 acres |
| Community Foundation for Southeast Michigan | Greenways Initiative | Over 150 miles of greenway trails |
| Detroit Zoological Society | Detroit Zoo | 125 acres |
| The Nature Conservancy | Erie Marsh Preserve | 2,217 acres |

| | | |
|-----------------|-------------------------------------|-------------|
| Monroe County | Parks | 221 acres |
| Macomb County | Parks, nature areas, and greenspace | 9,566 acres |
| Oakland County | Parks and nature areas | 6,800 acres |
| City of Detroit | Parks | 4,900 acres |

Federal Managed Lands

Detroit River International Wildlife Refuge

Today, the cleanup and recovery of the Detroit River represent one of the single most remarkable ecological recovery stories in North America. Out of the recovery has come the Detroit River International Wildlife Refuge that is one of 14 priority urban wildlife refuges in the county charged with bringing conservation to cities and making nature part of everyday urban life. It represents a new model for conservation – one that both restores habitats for fish and wildlife in an urban area through innovative public-private partnerships and that provides a blueprint for bringing conservation to cities across the nation. It extends along 48 miles of lower Detroit River and western Lake Erie, and focuses on conserving, protecting, and restoring habitats for 30 species of waterfowl, 113 kinds of fish, and over 300 species of birds. The U.S. Fish and Wildlife Service currently owns or cooperatively manages 6,107 acres of unique habitats (Table 1) and partners with Michigan Department of Natural Resource on conservation of 7,897 acres of state-owned land. A Canadian registry of lands now includes 3,797 acres of Essex Region Conservation Authority lands and 981 acres of City of Windsor lands. In total, 18,782 acres of land in southeast Michigan and southwest Ontario are now being cooperatively managed for conservation and outdoor recreation for nearly seven million people living within a 45-minute drive. This critical work is being done to help develop the next generation of conservationists in urban areas because that is now where 80% of U.S. and Canadian citizens live.

Next Steps:

- Continue to grow the refuge through public-private partnerships to 25,000 acres in both the U.S. and Canada in the next ten years.
- Expand efforts to bring conservation to cities and help develop the next generation of conservationists.
- Continue to be a leader on habitat restoration and enhancement through the Cooperative Weed Management Area.

Contact Person: [REDACTED], Refuge Manager, [REDACTED]@fws.gov

Humbug Marsh

Michigan's Only Wetland of International Importance: Following the preservation of Humbug Marsh in 2004, the Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service spent nearly three years compiling scientific data on Humbug Marsh that were used as the rationale for obtaining a Humbug Marsh "Wetland of International Importance" designation under the international Ramsar Convention. In 2010, Humbug Marsh received this designation from the International Ramsar Convention. There are over 2,200 such Ramsar designations worldwide, 38 in the United States, and only one in Michigan – Humbug Marsh. The Ramsar Convention is an international treaty that was signed in Ramsar, Iran in 1971 that provides a framework for voluntary international protection of wetlands. Humbug Marsh is considered an internationally important wetland because of its ecological importance in the Detroit River corridor and the Great Lakes Basin Ecosystem. Indeed, the Michigan Natural Features Inventory has ranked this community as globally imperiled. It serves as vital habitat for 154 species of birds, along with seven species of reptiles and amphibians, and 37 species of dragonflies and damselflies. Examples of unique species include: Canada Goose, Wood Duck, Double-crested Cormorant, Osprey, Bald Eagle, Killdeer, Ring-billed Gull, Red-bellied Woodpecker, Northern Flicker,

Warbling Vireo, Tree Swallow, Blue-grey Gnatcatcher, Cedar Waxwing, Yellow Warbler, and Song Sparrow.

Next Steps:

- Expand citizen science bird surveys.
- Open Humbug Marsh and Refuge Gateway to public use in 2017.
- Co-locate Hawk Migration Association of North America in the Refuge's Visitor Center in 2017.

Contact person: [REDACTED], Assistant Refuge Manager, Detroit River International Wildlife Refuge, [REDACTED], [REDACTED]@fws.gov

Local Government Managed Lands

Huron-Clinton Metroparks has 13 regional parks and each county in the Metro Detroit area maintains a park department. There are additional parks managed by city or township municipal governments. Only Oakland County Park system has signed the Urban Bird Treaty to date.

Regional Park System Lands

The Huron-Clinton Metroparks consist of 13 parks, covering over 25,000 acres throughout Southeast Michigan, encompassing Wayne, Oakland, Macomb, Washtenaw and Livingston counties.

Next steps:

- Have HCMA become a partner of the UBT.
- Work with HCMA staff to describe the bird habitats at each park.
- Develop cooperative bird conservation management programs.

County Park Systems

All of the counties in the Metro area have park systems with several counties including Wayne, Oakland, Washtenaw and Livingston managing a significant acreage of park lands.

Oakland County Parks

The Oakland County Park System includes 13 parks that total 6,743 acres. The park system has worked with the Michigan Natural Features Inventory (MNFI) to identify potential natural areas, many that could be managed for bird conservation. A total of 3,213 acres are currently under natural resource management and the park system participates in a number of citizen science programs. See Table 1 for park description. See Appendix C for more information on Oakland County parks.

Next Steps: Contact HCMA, the remaining six counties and the municipalities with larger park systems and encourage them to sign the Partnership Agreement for the Metro Detroit Nature Network and to participate in the UBT and work cooperatively in bird conservation programs.

Non-Governmental Organizations Lands

The Detroit Zoo

The Detroit Zoo is a 125-acre park in a suburban setting. The Zoo has two lakes, numerous water features, and large open spaces. Unique to the area is a nesting Black-crowned Night-Heron colony of over 50 pairs that is visible to the visitors and attracts a significant number of Turkey Vultures.

Next Steps:

- Complete nesting survey on Zoo grounds.

Contact person: [REDACTED], [REDACTED]@dzo.org

Other NGO Lands

There are other organizations that manage land in the Metro Detroit area including The Nature Conservancy, Southeast Michigan Land Conservancy, and Six Rivers Land Conservancy, among others.

The protected lands survey done by SEMCOG found 232 easements and 94 preserves, totaling 21,865 acres of protected lands within the region.

Important Bird Areas

Important Bird Areas (IBAs) is a global initiative of BirdLife International that conserves areas important to bird conservation. Michigan IBAs are administered by Audubon Great Lakes and includes 103 IBA sites, seven of which are in Metro Detroit. IBAs provide critical habitat for one or more bird species and can include public or private land that may or may not be protected. The sites in the metro area include St. Clair Flats and Harsen's Island, Lake St. Clair, Detroit River, Western Lake Erie basin, Pinckney State Recreation Area, and Lake Erie Metropark Hawk. More information on Michigan's IBAs can be found at <http://www.audubon.org/important-bird-areas/state/michigan>.

Contact Person: [REDACTED]; [REDACTED]@audubon.org

Corporation Lands

There are a number of large corporate campuses that contain significant habitat in the metro Detroit area. Though some companies consider wildlife in their land management decisions, none have signed on as partner in the UBT.

Next Steps:

- Identify potential corporate partners and determine the importance of their campuses for bird conservation.
- Have at least three corporations become members of the UBT.

University Lands

There are several universities that have significant tracts of land that have are not UBT partners. These include Oakland University, Wayne State University, Lawrence Tech, University of Detroit Mercy, and University of Michigan's Ann Arbor campus.

University of Michigan Dearborn's Rouge River Bird Observatory

Rouge River Bird Observatory was established in 1992 to explore an understudied yet increasingly critical area of research: the importance of urban natural areas to birds. In our rapidly urbanizing world, habitat fragments in metropolitan areas become more critical to birds. Understanding how birds use them is essential for conservation. We are the longest-running, full-time urban bird research station in North America. In 2016, 28 Title 1 students visited the Rouge River Bird Observatory.

Next Steps:

- Secure sustained funding for the Observatory's ornithologist
- Expand educational programming

Contact Person: [REDACTED], [REDACTED]@umd.umich.edu

Invasive Species Control

Invasive Vegetation in Urban Natural Areas

Invasive plant species are among the biggest challenges facing our urban natural areas, and hence, the habitat our native bird populations depend upon. Next to outright conversion of land, invasive species and

climate change are generally considered the most important threats to biodiversity. Invasive species play a significant role in altering the landscape and fundamental ecosystem processes, decreasing biodiversity, and damaging infrastructure. In an urbanized and fragmented area, invasive species pose a particularly acute threat to remaining natural habitats. Invasive species generally outcompete native plant species, and provide less food, cover and nesting value for native birds than native vegetation does. Species such as reed canarygrass and English and Irish ivies are capable of homogenizing the structure and biota of habitats, creating biological deserts, which provide few, if any, resources for native birds. The change in species composition in grasslands and forest understories is decreasing habitat for native birds as well. The spread of rhizomatous, perennial grasses and understory weeds such as garlic mustard eliminates bare ground which many native ground-nesting birds require. As mentioned under “Timing of Construction and Revegetation Projects” above, another issue related to managing invasive vegetation is how and when the management occurs. Removing invasive species during the nesting season can be disruptive or even cause nest failure. It is important to plan and implement invasive species removal to coincide with times best for eradication and to avoid disturbance to nesting birds. Introduced and invasive birds can out-compete native birds for essential resources such as food and nesting sites, with aggressive non-native birds such as house sparrows and European starlings often usurping and/or depredating native bird nests and even killing native competitors. These actions can have drastic negative effects on native bird populations already stressed by alteration of their historic habitat.

Detroit River-Western Lake Erie Cooperative Weed Management Area

This project is a partnership to more efficiently and effectively treat invasive species, restore coastal wetlands, and perform research and monitoring to support adaptive management. Partners include: BASF Corporation, DTE Energy, Ducks Unlimited, Eastern Michigan University, Huron-Clinton Metropolitan Authority, International Wildlife Refuge Alliance, Michigan Department of Natural Resources, Monroe Conservation District, Southeast Michigan Council of Governments, Stewardship Network, The Nature Conservancy in Michigan, the U.S. Fish and Wildlife Service, Wildlife Habitat Council, the City of Monroe, National Park Service, and others. In 2015, a \$211,000 grant was awarded from the Michigan Invasive Species Grant, resulting in surveys of priority invasive plants and treatment of 700 acres of *Phragmites*.

Next Steps:

- Seek grant funding to support this effort
- Expand the number of partners
- Ensure strong science component to strengthen the science-policy linkage

Contact person: [REDACTED], Detroit River International Wildlife Refuge, [REDACTED]@fws.gov

Habitat Restoration Efforts

Habitat Loss and Fragmentation

Numerous studies show that habitat loss and fragmentation are the leading cause of bird population declines. In urban areas, this is especially true as native habitat tends to get destroyed, degraded or increasingly fragmented with increasing development. These habitat fragments lose important ecological functional value.

In the SEMCOG region, the rate at which land conversion is occurring in the urban-rural interface is a huge threat and impact, resulting in the continued loss of quality habitat to development. Conservation and preservation areas and parks within Metropolitan Detroit and surrounding areas provide sanctuary to neotropical migratory landbirds for the breeding season, but also during migration as stopover habitat. It is within these areas that retention of snags and downed wood is most likely. These elements are essential to many bird species for cover, shelter, food, nesting, roosting, and perching. Yet, they are often removed by both public and private landowners because of perceived hazards or for aesthetics.

Protection and restoration of the Detroit River International Wildlife Refuge, Metroparks and city parks, creation of new habitats like for common terns and grassland birds, preservation of existing quality habitats, and increasing habitat connectivity for birds to move safely across the landscape are needed to ensure birds can successfully use and traverse the urban landscape throughout the year. Backyards of homes, urban agriculture, and vacant lots can provide some of these important habitats for birds, and should not be overlooked.

Timing of Construction and Revegetation Projects

For years, the City of Detroit's Planning Department had only two City Planners on staff. In the last year and a half, the number of City Planners has grown to 30. As the Planning Department prepares to address the many infrastructure and parks and recreation needs of the city, it is vital that the areas in question are assessed prior to project implementation to determine if nesting birds will be impacted. Many urban activities and projects can potentially impact nesting birds: stream enhancement; re-vegetation; mowing; construction, removal and maintenance of structures; water-level management; and projects that include native or non-native invasive vegetation removal. Planning projects to avoid disturbances to birds by scheduling project activities outside of the nesting season is the most effective way to ensure birds will not be harmed. Detroit Audubon's Conservation Committee is working on a mowing schedule, with direct recommendations to the City for vacant lot maintenance, that will not disturb ground-nesting birds (i.e. mowing the perimeter or window pane of the vacant lot and doing so only in early Spring and Fall, to avoid the nesting season).

Six Rivers Land Conservancy

Six Rivers has several citizen science efforts, ranging from participation in the annual butterfly count with the North American Butterfly Association to training volunteers to do field assessments of property. This latter effort is the most intensive and returns the most amount of detail. Six Rivers has developed parcel level land conservation priorities using GIS mapping with data layers that include natural feature, parcel size, proximity to other protected land and similar attributes. Other conservation professionals are consulted for insight and guidance, and citizens and communities are consulted to factor in their interests. Once the priorities have been created and mapped, Six Rivers then recruits and trains volunteers to field verify the accuracy of the information, ranging from "windshield" surveys to determine if a property remains undeveloped, to site assessment if the landowner is interested knowing more about the natural features on their property. This information informs Six Rivers' ongoing land protection efforts, eliminating properties that have been developed and providing detail for conservation easements, baseline documents and funding applications. Examples include providing the detail necessary to complete applications for Michigan DEQ 319 grant funds, and providing the descriptions of flora, fauna and features that are part of baseline documents for easements.

These efforts are based on the Huron River Watershed Council's "Bio Reserve" project. They have been adapted to the land conservation mission of Six Rivers and replicated in other watersheds we work in, including most recently serving as a critical component of grant projects in the Clinton and Belle watersheds that focused on identifying lands most important to protect in order to preserve water quality.

Six Rivers currently has 23 easements totaling 1,705 acres and six preserves totaling 120 acres.

Next Steps:

- Working with Macomb County Planning, Economic Development Corporation, and Ducks Unlimited to acquire and preserve a 300 acre globally rare mesic flatwoods forested wetland complex to create Anchor Bay Woods Preserve. This is a critical habitat for both waterfowl and migratory songbirds.
- Secure the remaining funding needed to complete the project.
- Develop a program with MI Science Center which brings kids out to natural areas.

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Detroit Audubon's Vacant Land Project

Detroit Audubon's Conservation Committee partnered with Urban Neighborhood Initiatives (UNI) on a small grant to convert an empty lot in Southwest Detroit into native habitat. Trash was removed, and invasive species and weeds were pulled, by UNI volunteers. Native grasses and flowers were planted and an education group led by Detroit Audubon made bird houses that were installed in the lot. Detroit Audubon's Conservation Committee wrote a booklet on gardening for birds as part of this partnership with UNI, which is available on their website. Detroit Audubon has co-hosted bird walks with Urban Neighborhood Initiative students in the area that circle the restored lot.

The Conservation Committee is also working with the City of Detroit Planning Department and the Open Spaces Working Group to convert 5 unused city parks to intentional meadows per the City's 2016 Parks and Recreation Improvement Plan. Ultimately the goal is to replicate this conversion process for other unused city parks that have also been recommended to become meadows per the Improvement Plan.

Next Steps:

- Network with Greening of Detroit, UNI, Detroit Future City and City Planners on acquiring access to city-owned vacant lots and unused parks.
- Create mowing schedule that would reduce impact on breeding birds.
- Acquire new funding to restore these lots to native habitat, and get educational plaques in the lots to inform the community about the importance of the habitat.
- Add a public program component to inform communities of the importance of being stewards of these converted vacant lots and lead bird walks in these areas.
- Create a network of volunteers to assist with restoration, education and outreach and monitoring of the restored lots to ensure garbage dumping and vandalism do not occur.
- Disseminate the booklet on Gardening for Birds more widely.
- Interface with Detroit Future City's and National Audubon's national database and tool kits for restoring native grasslands.

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Detroit Audubon's Detroit Area Native Grasslands Initiative

In its early stages, this project was established by the Detroit Audubon board of directors in Fall 2015. Through this initiative, Detroit Audubon in collaboration with other environmental groups promotes the preservation of, maintenance and expansion of native grasslands habitats in the Detroit metro area. Detroit Audubon is also embarking on educational programs for schools and youth groups on the importance of native grasslands. Detroit Audubon held its annual conference at the Belle Isle Nature Zoo on Nov. 5, 2016 with a major emphasis on bringing together experts and concerned citizens to think and strategize about how to expand native grasslands in the Detroit area.

Next Steps:

- Expand grassland education program and dissemination of materials to the general public, public officials, and agencies with authority over vacant land.
- Work with city officials and other environmental groups to identify one or more large tracts (500 acres or more) that could be restored to native prairie similar to what our neighbor across the river, Windsor, Ontario has done at Ojibway Prairie. An interpretive center might eventually be incorporated as well.
- Have staff and key leaders participate in developing a management plan for key parks like Belle Isle State Park that keeps key areas in native grasslands in perpetuity.
- Produce a film extolling the virtues of native grasslands using the ring-necked pheasant as an entry point and symbol—one of Detroit Audubon's board members is an independent filmmaker who is committed to making such a film when funding can be found.
- Creating public service announcements about the importance of native grasslands to air on local radio and television stations, and advertise about the importance of native grasslands on key billboards around the Detroit area similar to the Michigan Wildlife Council.

- Produce a float extolling the virtues of native grasslands in the Michigan Thanksgiving Parade which is telecast around the country and the world. Need major funding or a business to sponsor such a float. Hold a contest for school children to actually submit designs for such a float.

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Open Spaces Working Group

A unique feature of Detroit that is full of potential for habitat creation is its vacant lots. The City of Detroit has over 24 square miles of vacant open space within city limits. An Open Spaces Working Group, made up of partners such as Detroit Future City, Greening of Detroit, Detroit Audubon, Keep Growing Detroit, and others, is working with Detroit City Planners with the hope of seeing an Open Spaces Strategic Plan come into effect in 2017 and beyond. The Open Spaces Working Group will work together to advocate for, educate each other about, and advance the vision laid out in the Detroit Future City report Achieving an Integrated Open Space Network in Detroit. The collaborative effort between non-profits, community organizations and the City Planning Department, would aim to carefully select land parcels and convert them into intentional habitat including meadows, grasslands, woodlands or wetlands. Other land uses proposed within the working group include: stormwater infrastructure, buffers, parklands, greenways, and production of solar energy and urban agriculture. Still in its early stages, the Open Spaces Working Group is in the process of determining how best to engage the community and get input from the neighborhoods that will directly benefit from the conversion of vacant land parcels.

The habitat most likely to benefit from the Open Spaces Strategic Plan will be grasslands, as letting turf grass 'go wild' is the most affordable option for habitat creation, until more funding is obtained for removal of turf grass and plantings of native grasses and wildflowers. One key component to the success of this plan is public perception of grasslands as unkempt lots that should be mowed and well-groomed. Education and outreach will be a necessary aspect of restoration in order to promote stewardship and long-term success of restored or converted vacant lots. Grasslands may be the most endangered habitat in North America of which 42 bird species rely.

Next Steps:

- Continue working with partners to create a Community Engagement Plan.
- Establish policy initiatives and positions focused on the creation of an open space network, addressing immediate and long-term issues.
- Develop and advocate for a decision-making tool to determine where and what type of open space is appropriated or desired. Educate and inform ourselves and others on open space, including opportunities and technical information.

Other Habitat Restoration Projects

There have been a number of programs that received federal funding for habitat improvement projects including two projects coordinated by Friends of the Detroit River restoration of Blue Heron Lagoon on Belle Isle and Stony Island, a DNR owned island that has a large great blue heron colony. The Nature Conservancy has been involved in the restoration of oak savannah grasslands at Petersburg State Game Area.

Next Steps:

- Define scope of these projects and identify any other significant habitat restoration efforts that have occurred.
- Monitor sites for changes in how birds use the habitats.

Backyards and School Yards for Wildlife

Urban and suburban backyards can provide significant habitat for native bird and butterfly species, especially those adapted to an urban environment. Properly planting yards with native plants can also provide refueling stations for migratory birds.

Next Steps:

- Detroit Zoo will plant an example of Backyard Habitat on Zoo grounds and install informative signage for visitors
- Detroit Audubon's Conservation Committee has written a small booklet on Gardening for Birds, which will get distributed at Spring events and advertised on online.

HAZARD REDUCTION

Cat Predation

A study published in 2013 by the Smithsonian Conservation Biology Institute and the U.S. Fish and Wildlife Service has found that outdoor cat predation results in the death of 1.3 to 4 billion birds annually in the U.S., a much larger number than previously estimated. The study showed that outdoor owned cats still hunted like their unowned counterparts, however, it was clear that unowned cats were responsible for a majority of the estimated bird deaths (~69%). The feral cat population in Metro Detroit has been estimated at 657,000 by Petsmart Charities. This population often strains animal control and animal welfare groups in the area. Educating the public about the new insights into cat-caused bird deaths may encourage cat owners to leave their pets indoors. Promoting the spaying and neutering of pet cats and encouraging the spaying and neutering (or removal or containment) of feral cats on one's property, would help decrease the population of feral cats and the consequential number of birds they prey upon.

Next Steps:

- Create pet cat and feral cat predation education program and disseminate materials to the general public.

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Dogs in Natural Areas

Metropolitan Detroit made national headlines when it was estimated that 50,000 feral dogs roamed the city streets in 2013. Since then two other surveys have been conducted estimating 3,000 and 7,500 stray dogs within the city. With such disparate estimates, further surveys of the city are needed. All surveyors agreed that vacant neighborhoods and buildings provide stray dogs with shelter and areas to breed, much like stray cats. The demolition of 10,000 additional vacant homes in 2017 should help reduce the populations of stray dogs and cats within the city. Encouraging people to spay and neuter their dogs, not abandon their pets, and not tether them outside, would help decrease the stray dog population within the city.

People take their pet dogs to natural areas as well to run and exercise. While dogs are allowed in some natural areas on leash, letting a dog run free in land that has been set aside for wildlife is not appropriate. Dogs in natural areas can harm wildlife through direct predation, disruption of nesting (especially ground nesting birds), and harassment. Education and outreach and informative signage in natural areas could help prevent this kind of disturbance.

Public Activity in Sensitive Areas

Many of the most valuable habitats that remain in Metropolitan Detroit are under public ownership. It is important that public use and access are carefully sited and managed to ensure that habitat values do not become diminished due to human disturbances and habitat degradation. Many of Metropolitan Detroit's parks and recreation departments have developed plans for habitat management and trails. These plans

use a set of guiding principles that makes habitat protection and restoration the highest priorities. Many conservation partners work with neighbors and local schools on stewardship activities to enhance and restore natural areas. While many of the plans are well thought out, there are sometimes instances where plans are not adhered to and thus natural area values are lost. Education and support of top-level management and local area managers would help mitigate this problem.

Climate Change

There is growing scientific evidence that some birds are already responding to the changing climate. National Audubon Society's 2014 Climate Change Report used statistical models based on the North American Breeding Bird Survey and Audubon Christmas Bird Count datasets to assess geographic range shifts for 588 North American bird species through the end of the century. 314 of these species were classified as climate-endangered or threatened. In many cases both winter and summer ranges are reduced or lost entirely. Many of the species projected to disappear or whose ranges might shrink are those that feed on insects, which are key components of the diets of many of our migratory birds. See Appendix D for a list of Metro Detroit birds that are projected to be threatened most by Climate Change.

Among the most important things that can be done to prepare and mitigate adverse effects is to protect, buffer and connect habitats, and help restore resilient ecosystems.

Structural Hazards Communication Tower Collisions

A 2012 study funded in part by the American Bird Conservancy and Defenders of Wildlife estimates avian mortality at communication towers in the U.S. and Canada to be 6.8 million birds per year. Neotropical songbirds, which migrate at low elevations and at night, are particularly susceptible to collisions. In an effort to understand which communication tower characteristics attracted migrating songbirds most, a Central Michigan University post-doc now FAA Biologist Joelle Gehring, led a study that monitored communication towers in MI in 2003. With the help of the U.S. Fish and Wildlife Service, this study discovered that towers with solid lights were most dangerous, compared to towers with non-flashing and flashing lights. If steady lights were replaced with flashing lights, avian mortality could be reduced by up to 70% nationwide. The Federal Aviation Administration changed their lighting standards for newly constructed communication towers in 2015. U.S. Fish and Wildlife Service recently began to work with owners and operators of existing towers across Michigan to switch to flashing lights. There are six FCC registered cell phone towers within the City of Detroit.

Next Steps:

- Contact communication tower owners and encourage them to switch to flashing lights.
- Conduct outreach to community members regarding communication tower-bird collisions.

Window Strikes and Confusion and Mortality from Artificial Lights in buildings six stories or higher.

Collisions with windows have emerged as a significant threat to migratory birds in the U.S. and around the world. A 2014 study ran a statistical analysis on 23 local studies, and estimated that between 365 and 988 million birds are killed in the U.S. annually by building collisions. Windows deceive the healthiest individuals as readily as the weakest ones. During the day, birds are confused by reflections of trees, clouds, and even skyline reflected in building glass, and may fly head-on into it because it appears to be habitat. At night, it is thought that the lights on tall buildings confuse the navigation systems of birds unlucky to have such buildings in their flight path. They circle the buildings repeatedly and either die of exhaustion or by colliding with the illuminated building.

Window strikes are most common among low-rise buildings between four and 11 stories tall, accounting for 56% of collisions. Neotropical migrants that travel at night are most impacted, likely due to confusion caused by the artificial lights of these buildings. The 2014 study found that many nationally listed Birds of Conservation Concern were highly vulnerable to building collisions: Wood Thrush, Canada Warbler, and Golden-winged Warblers. Black-throated Blue Warblers and Ruby-throated Hummingbirds, while not Birds of Conservation Concern, are also highly vulnerable to building collisions.

Safe Passage-Great Lakes

Endorsed by the Sierra Club, Detroit Audubon's Safe Passage: Great Lakes project aims to save thousands (optimistically tens of thousands) of birds each year during night migration by encouraging tall buildings to turn their lights off during Spring and Fall migration. According to scientists at the Field Museum in Chicago, avian mortality at these buildings could be reduced 80% if building lights were off. Turning out those lights will not only spare birds, but money and energy, reducing pollution as well. It can be a win-win-win situation for the environment, building owners and managers, and the birds. The Detroit Audubon Society has requested building organizations, government agencies and property owners in Detroit and surrounding cities to reduce the carnage by turning off lights in tall buildings from 11:00 p.m. to dawn from the second weekend in March through May and from the second weekend in August through October.

Former Michigan Governor Jennifer Granholm showed her support of this effort by issuing a proclamation naming "Safe Passage Great Lakes Days" – March 15 through May 31, and August 15 through October 31, where all state buildings must turn off their lights at 6pm. The City of Southfield also wrote a resolution to encourage building owners to turn off their lights during this sensitive time. Detroit Audubon has been gratified to receive support also from DTE Energy and Ford Motor Company.

Next Steps:

- Work with Michigan Audubon in the effort to inform people throughout our state of the benefits of simply turning out lights during the bird migration season.
- Led by Detroit Audubon's Research Coordinator and Safe Passage Committee, improve our building monitoring efforts with the help of citizen scientist volunteers, and start a database of avian mortalities and injuries caused by building collisions.
- Improve our Honor Roll system, so buildings who participate in Safe Passage are better acknowledged and aware that they have received this honor.

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Bird-Friendly Building Guidelines

Bird populations face many threats including habitat destruction or degradation in wintering, breeding, and stop-over grounds, however collisions with buildings is one of the more serious man-made mortality factors. It is estimated that between 100 million and one billion birds die annually in the United States from bird collisions. Numerous cities including Chicago, New York, and San Francisco have used local surveys to document the incidents of fatal bird strikes. The surveys address the elements of building architecture that pose the greatest risks to birds. Detroit Audubon will be continuing its efforts with citizen-led bird casualty surveys that cover downtown Detroit, Southfield, and Troy. Washtenaw Safe Passage, a branch of Washtenaw Audubon, also has a very sophisticated survey program in Ypsilanti and Ann Arbor. The information collected can then be used in the development of Bird Friendly Building Designs and to convince owners to turn-off lights during migration.

Next Steps:

- Collaborate with American Bird Conservancy (ABC) to host a one-day certified continuing education seminar with local architects to address incorporating bird friendly features into building design.
- Consult with other cities that have implemented bird friendly programs.
- Host a one-day workshop with local architects, light engineers, city planners, developers, etc. to discuss the challenges of implementing bird friendly design.
- Detroit and Washtenaw Audubon will work with ABC to distribute their materials and information to architects and architects in training about bird safe building design.
- Metro Detroit Nature Network and Detroit Audubon will collaborate with Fatal Light Awareness Program (FLAP) Canada and ABC to circulate their materials to homeowners for reducing bird strikes in residential buildings.

- Seek endorsement of bird friendly building design measures from local governmental agencies.
- The Detroit Zoological Society will demonstrate the types of building designs that can be used to reduce hazards. Interpretive signage will accompany these demonstration buildings to inform homeowners.

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Invasive Vegetation in Urban Natural Areas

Invasive plant species are among the biggest challenges facing our urban natural areas, and hence, the habitat our native bird populations depend upon. Next to outright conversion of land, invasive species and climate change are generally considered the most important threats to biodiversity. Invasive species play a significant role in altering the landscape and fundamental ecosystem processes, decreasing biodiversity, and damaging infrastructure. In an urbanized and fragmented area, invasive species pose a particularly acute threat to remaining natural habitats. Invasive species generally outcompete native plant species, and provide less food, cover and nesting value for native birds than native vegetation does. Species such as reed canarygrass and English and Irish ivies are capable of homogenizing the structure and biota of habitats, creating biological deserts, which provide few, if any, resources for native birds.

The change in species composition in grasslands and forest understories is decreasing habitat for native birds as well. The spread of rhizomatous, perennial grasses and understory weeds such as garlic mustard eliminates bare ground which many native ground-nesting birds require. As mentioned under “Timing of Construction and Revegetation Projects” above, another issue related to managing invasive vegetation is how and when the management occurs. Removing invasive species during the nesting season can be disruptive or even cause nest failure. It is important to plan and implement invasive species removal to coincide with times best for eradication *and* to avoid disturbance to nesting birds. Introduced and invasive birds can out-compete native birds for essential resources such as food and nesting sites, with aggressive non-native birds such as house sparrows and European starlings often usurping and/or depredating native bird nests and even killing native competitors. These actions can have drastic negative effects on native bird populations already stressed by alteration of their historic habitat.

Pesticide Reduction

Pesticides can have negative environmental impacts, including those that adversely affect, and even kill, birds.

Next Steps:

- Work on education to help minimize use and promote best management practices
- Promote household hazardous collection programs
- Expand awareness in partnerships with environmental and conservation organizations

CITIZEN EDUCATION AND ENGAGEMENT

Introduction

Whether it’s counting birds, listening for frogs, spotting salamanders, watching butterflies or dragonflies, or identifying aquatic invertebrates collected from sediments— there is an increasing and ardent need for citizens to participate in science (Hartig 2014). Further, natural resource and environmental management agencies are frequently challenged with limited resources to properly collect and analyze data to adequately inform management decision-making. Therefore, need for and interest in citizen science is growing.

Citizen science is scientific research and monitoring conducted, in whole or in part, by amateur or nonprofessional scientists (Hartig 2014). One easy way to think of it is as public participation in scientific research and monitoring. Formally, citizen science has been defined as the systematic collection and analysis of data, development of technology, testing of natural phenomena, and the dissemination of these activities by researchers on a primarily advocational basis. For example, a fundamental premise of citizen science is that anyone who watches birds, from backyards to city streets to remote forests, can

help make a contribution of our scientific understanding and management of birds, their habits, and their habitats.

But it is not just scientists that benefit. Being an amateur scientist can be very rewarding as volunteers gain hands-on experience with scientific methods, learn about ecological principles and practices, make a contribution of to the growth and expansion of scientific knowledge, often help solve environmental and natural resource problems, and network with others who have a common interest) . Many volunteers welcome the opportunity to just be outside and participate in fieldwork.

Citizen Science Programs

Detroit River Hawk Watch

Each fall it is amazing to watch hundreds of thousands of raptors migrate across the lower Detroit River from their eastern Canadian breeding grounds and head south to their wintering grounds, some as far away as South America. Raptors use thermals to varying degrees to aid in their migration to save energy for their long journey. Thermals are rising columns of warm air that are caused by the heating of the earth by the sun. A raptor will literally ride up on a thermal, set its wings, and glide downward to the next thermal using little energy. Thermals do not form over water, so as these raptors head south and come upon lakes Erie and Ontario, they have one of two choices: fly east around Lake Ontario or fly west around Lake Erie. Those that move west follow the northern shore of Lake Erie until they reach the mouth of the Detroit River. Turning back is not an option, so they are forced to cross the 4-mile river mouth near Holiday Beach in southwest Ontario to southeast Michigan in the vicinity of Lake Erie Metropark, Humbug Marsh Unit of the Detroit River International Wildlife Refuge, and Pointe Mouillee State Game Area. Lake Erie Metropark is the primary location for the Detroit River Hawk Watch program and hosts an annual Hawk Fest that attracts more than 5,000 birders. These raptors lose altitude as they cross the lower Detroit River, making it easier for them to be observed. To give you a feel of the magnitude of hawk migrations through the lower river, dedicated volunteers recorded an astounding 190,121 broad-winged hawks on September 17, 2011 at Lake Erie Metropark, representing the third highest single-day total recorded at this site.

This predictable hawk migration phenomenon provides U.S. Fish and Wildlife Service (USFWS) with a unique opportunity to involve birders in the systematic collection of annual raptor migration data. The USFWS, its friends group called the International Wildlife Refuge Alliance, and avid birders undertake Detroit River Hawk Watch on an annual basis to: systematically count hawks during their migration season; review and analyze the data; prepare summary reports; and disseminate the data and findings to both managers and the public. A paid counter is employed to work with volunteer counters to collect the data. USFWS oversees the Detroit River Hawk Watch monitoring effort, including quality assurance/quality control and report preparation. A Detroit River Hawk Watch Advisory Committee has also been established to provide citizen advice on all aspects of Detroit River Hawk Watch. Such hawk watch data are invaluable in tracking raptor migrations and providing an early warning signal for changes in trends. Further, these data are also entered into the Hawk Migration Association of North America database to help understand raptor population status and trends on a continental scale.

Website: www.drhawkwatch.org/

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Detroit Audubon Society's Citizen Science Programs

Metroparks Grassland Bird Surveys

Detroit Audubon volunteers who are experienced birders do these surveys once per week for 45-minutes to an hour (early mornings) for four weeks in the month of June providing base-line data and later data to evaluate landscape management program success. Participants walk a transect through a piece of grassland habitat and record bird observations (sighting, songs, fly-overs) at set stops along the transect.

For the last two years, we have been doing surveys in Oakwoods Metropark, in partnership with the Huron-Clinton Metroparks.

Next Steps:

- Continue with monitoring efforts at Oakwoods Metropark.
- Expand grassland monitoring efforts to Lake St. Clair Metropark.

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Maheras-Gentry Park Restoration – Fall Migration Stopover Survey

Detroit Audubon is a subcontractor on a Greening of Detroit Grant to do bird surveys in this park in November 2016 prior to a project to create native grassland habitat. Monitoring efforts will be conducted at a nearby control site, Alfred Brush Ford Park, that is not to undergo restoration. Restoration is scheduled for early Spring 2017. We could use volunteers who are experienced birders to help with this survey.

Next Steps:

- Continue monitoring the park after restoration is complete and compare our dataset with that of the control site.
- There is potential to apply for other restoration grants with Greening of Detroit with breeding bird survey data as our priority. We have looked at other grassland restoration sites as well as shoreline restoration sites along the Detroit River.

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Chimney Swift Surveys

Detroit Audubon recently hired a Research Coordinator to help make this program and other Citizen Science projects more sustainable. Due to the population decline of Chimney Swifts and reduction of accessible chimneys for nesting and roosting, Detroit Audubon has made Chimney Swifts an area of focus for their population monitoring efforts. Detroit Audubon has partnered with the Swift Sanctuary in Farmington, MI which has a chimney with what we think is the highest concentration of Chimney Swifts in a roost in North America. The swifts using this chimney have been counted every morning by Larry Schwitters since 2015, who set up a LiveCam from his remote location in Seattle. The live video feed, known as the Stephen Stackpole Memorial Chimney Swift Live Cam can be viewed on Detroit Audubon's website in real time from April through October.

Next Steps:

- Expand current Chimney Swift monitoring efforts during the migration and breeding seasons.
- Recruit a network of volunteers to monitor historical roosting sites and to search for new roosting sites.
- Ultimately, catalyze the formation of a Chimney Swift Monitoring Network throughout the species entire range.

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Detroit Audubon Christmas Bird Count

Nationally, the Christmas Bird Count is in 117th year in 2016. Volunteers spend the day from before sunrise (for owls) to sunset counting both species and numbers of each species as part of this network of counts throughout North America. This count circle (all circles are 15 miles in diameter) is in what is now

mostly urban and suburbanized areas of Oakland County. We need experienced birders to volunteer. This count is usually held the third Sunday of December.

Next Steps:

- Recruit network of volunteers to ensure all routes are covered each year.
- For less experienced volunteers, we'd like to provide training in bird identification over the course of 1-2 weeks, ending in a bird ID quiz.

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Rockwood Christmas Bird Count

This is a similar count to the "Detroit Audubon Christmas Bird Count", but in the Downriver area with the center of the circle in Rockwood. This circle includes Grosse Ile, Trenton and Elizabeth Park, Oakwoods Metropark, Lake Erie Metropark, Detroit River International Wildlife Refuge, and Point Mouillee. Usually held the closest Saturday to Christmas, but because of the way the holiday falls in some years, it can be on weekdays between Christmas and New Year's Day. Detroit Audubon manages the Grosse Ile route and will be managing the International Wildlife Refuge route in 2016 and beyond, as it requires a permit which often deters volunteers. Detroit Audubon hopes to recruit more volunteers this year to help with local Christmas Bird Counts that need routes covered. This count also features a program for two hours on Grosse Ile where we invite the public to join the count to see what it is like.

Next Steps:

- Recruit network of volunteers to ensure all routes are covered each year.
- For less experienced volunteers, we'd like to provide training in bird identification over the course of 1-2 weeks, ending in a bird ID quiz.

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Project Feeder Watch in February

Detroit Audubon has been advertising this joint program with Cornell Lab of Ornithology and National Audubon for people to count species and species abundance at their feeders or a feeder at a nature center for one day in February. Detroit Audubon is in the process of creating partnerships with school groups in the area to provide bird feeders and seed (donated to us by Wild Birds Unlimited) to so that classrooms can participate in data collection. The project will be highlighted to members in Detroit Audubon's Winter Newsletter and their website.

Next Steps:

- We hope to have a more organized effort in the future in the Detroit Metro Area, including a public program at the Belle Isle Nature Zoo.
- We hope to include more classrooms in this project.

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Great Backyard Bird Count

Similar to Project Feeder Watch, Detroit Audubon has been promoting this joint program between Cornell Lab of Ornithology and the National Audubon Society that encourages people to go birding in their backyards for as little as 15 minutes on one or more days of the four-day event in February and report their sightings online at birdcount.org. Nationally, the Great Backyard Bird Count is in its 20th year and the data collected has highlighted changes in bird movements from population irruptions as well as warm weather patterns.

Next Steps:

- Promote and encourage Detroit Audubon members and the general public to participate in this bird count.
- We hope to include this in a Public Program at the Belle Isle Nature Zoo.

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e-Bird

Detroit Audubon field trip leaders enter bird sightings on our field trips into this international database, and we encourage our members to do this after every birding trip they do on their own. Additionally, we enter bird sightings from our days in the field monitoring Black Terns and grassland birds.

Next Steps:

- Link Detroit Audubon's eBird profile, complete with all birding lists, to our website and Facebook page.
- Consistently use eBird at all birding events and days in the field.

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Education and Outreach

Detroit Audubon's Environmental Education Programs:

Young Birder's Program

Detroit Audubon has all season programs specifically for young birders between the ages of 6 and 18. These programs are aimed at helping young bird enthusiasts expand their knowledge of birds and birding, and allow them to explore career pathways. All youths are encouraged to attend. Detroit Audubon provides field guides and binoculars to borrow at Young Birder Events. We provide an annual scholarship to 1-2 lucky young birders to attend a birding camp for one week.

Next Steps:

- We hope to be able to offer more scholarships to our young birders each year.
- We are planning on expanding to a younger age group in creating the Young Birder's Nestling Program.

Contact Person: [REDACTED], Detroit Audubon Program Coordinator, [REDACTED]@detroitaudubon.org or [REDACTED].

Detroit Audubon Birding Field Trips

Detroit Audubon leads approximately 30 field trips in and around the Metro Detroit Area providing binoculars, field guides, and a birding guide to help with bird identification. Birding field trips are designed and planned for both beginning and expert birders.

Next Steps:

- Create a network of experienced birder volunteers to help lead these field trips and take our members and other Detroit Metro Area citizens to new birding hotspots.
- Continue these field trips into 2017 and beyond.
- Continue to introduce birding to new audiences.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED],
[REDACTED]@detroitaudubon.org

Belle Isle Nature Zoo Summer Day Camp

Detroit Audubon partnered with the Belle Isle Nature Zoo for Summer 2015 and Summer 2016 providing environmental education programs focused on birds for the Summer Nature Day Camp. This weekly summer camp has an innovative curriculum designed to meet the social and developmental needs of young campers while giving them enriching experiences in nature. Students investigated the plants and wildlife on the island, while discovering how they can care for the natural world around them. Belle Isle Nature Zoo Summer Nature Camp is divided into two age groups of students: The Grasshoppers at 5 to 7 years old, and the Dragonflies at 8 to 12 years old. Programming focused on mindfulness in nature; with every student group, they were asked to slow down and pay attention to the birds around them. 160 Title 1 students participated in this Summer Camp.

Next Steps:

- Continue education programs at the Summer Nature Day Camp in 2017 and beyond.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Classroom visits

Detroit Audubon visits classrooms providing environmental education programs focused on birds. Past visits have included lessons on nature sketching, lessons on bird watching basics, programming around preserved museum specimens, Project FeederWatch, and sensory lessons for special needs classrooms. Detroit Audubon has reached approximately 320 students through classroom visits during 2016, 129 of which were Title 1 students.

Next Steps:

- Continue to make connections with Detroit Public Schools and teachers that are interested in our programs.
- Create our own curriculum kits for classroom visits that we can use multiple times.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Children's Hospital of Michigan

Detroit Audubon is working with the Child Life Services of the Children's Hospital of Michigan to provide environmental education to young patients. Programming examples include: common birds of Michigan, Owl identification, and beak adaptations.

Next Steps:

- Continue relationship with Children's Hospital and expand on our lesson plans to increase number of visits made to hospital each year.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Detroit Children's Museum Bird Education and General Environmental Education Kits: The Detroit Children's Museum is owned and operated by the Detroit Public Community Schools District for the benefit of the students in the district. The museum has an astounding collection of preserved and taxidermied bird specimens that are loaned to a large number of science classes per year. Detroit Audubon is partnering with the museum to develop educational materials to accompany each kit.

Next Steps:

- Secure the services of a graphic designer or graphic design class to design the format for the educational materials to accompany these kits containing preserved bird specimens.
- Develop new kits to be disseminated to Detroit Public Community School District classrooms on topics including: citizen science, the importance of native grasslands, and the biodiversity of the Detroit River.

- Hold programs on birds at the museum as long as outside funding can be found to support them (the museum's operational funds restrict it to serving Title I students, but it can go beyond that if other funding is available to support those efforts. With external funding kits could also be provided to home schoolers and others.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Public Education Talks

Detroit Audubon gives free talks to the general public at nature centers and public libraries. Topics have included: gardening for birds, beginning bird watching, and Black Tern research.

Next Steps:

- Detroit Audubon will be holding monthly programs starting in 2017 with a wider range of topics at the Belle Isle Nature Zoo.
- We hope to continue our public programs completed in 2016 into 2017 and beyond.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Detroit Audubon Symposium

Detroit Audubon hosted a 2016 Annual Symposium with the theme "Detroit: Take a Walk on its Wild Side." This was a free series of talks at the Belle Isle Nature Zoo. Some of the topics included: Common Tern Conservation, Kirtland's Warbler Sky Art, Peregrine Falcons in Detroit, Making Detroit a Green City, Grassland Restoration, and the Comeback of Bald Eagles in Detroit. Over 60 people attended the Symposium.

Next Steps:

- We are already planning to have our next Annual Symposium in April of 2017 with an array of speakers from local organizations and non-profits.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

RiverWalk Programs

Detroit Audubon and U.S. Fish and Wildlife Service provide seasonal programs along Detroit's RiverWalk at the birding station at Gabriel Richard Park. Programs are designed to assist youth and adults in engaging with local wildlife. In 2016, 30 Title 1 students participated in this program. Winter programs focus on waterfowl that winter on the Detroit River, spring and fall programs focus on migration, and summer programs focus on nesting birds.

Next Steps:

- We hope to increase our number of walks at Gabriel Richard Park and have some education and outreach about the area to increase its use by the general public.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Chimney Swift Programs

The Swift Sanctuary of Farmington and Detroit Audubon have partnered to provide programming around roosting Chimney Swifts. We organize two Swift Night Out events each year (spring and fall) at the Swift Sanctuary, with the fall one actually a mini-festival complete with educational programming, swift observation, live music, and refreshments. This event made the front page of the Detroit Free Press in September 2016 and had over 500 people in attendance. Over 14,000 chimney swifts used the chimney for roosting each night of that two-night program in late September. Programming included a presentation on Chimney Swift natural history and a live projection of the birds inside the chimney. The

live feed is underwritten by Detroit Audubon in partnership with the Swift Sanctuary in Farmington Hills, MI and hosted on Detroit Audubon's website from April to October. In Spring 2016, there was also a program around Chimney Swift natural history to welcome the Swifts back as they migrated up from their wintering grounds in South America.

Next Steps:

- We'd like to organize an annual Swift Night Out event and other programs surrounding Chimney Swifts for the general public and school groups.
- We are planning to write Chimney Swift education programs to be used by educators in combination with the live webcam.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Maheras Gentry Park Education Programing

The Greening of Detroit and Detroit Audubon are working together to provide educational programming in conjunction with formal bird monitoring and restoration at Maheras Gentry. Students will learn about bird monitoring, how to identify local birds, and data collection with a focus on seeing themselves as scientists. Past environmental programming at Maheras Gentry with a class of 60 Title 1 students focused how litter affects local wildlife, particularly birds, and a litter cleanup before restoration began.

Next Steps:

- Restoration work will begin early Spring 2017.
- Students will return as citizen scientists for a day of education and data collection in Summer of 2017.
- Monitoring work will occur in November of 2017.
- Potential for another grant with Greening of Detroit to restore the shoreline of Maheras Gentry, which would include educational programs on shorebirds, shoreline habitat, and the importance of conserving both.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Pheasant Watch

In 2016, Detroit Audubon began a new program celebrating Ring-necked Pheasants and grassland habitat in Detroit. Currently, elementary science programming is being developed around Pheasants and Grasslands. Programming will be available for local teachers to implement and Detroit Audubon will visit classrooms for Pheasant and Grassland lessons. Planning for a Pheasant walk is also underway. As part of Pheasant Watch, Detroit Audubon is compiling a list of local Ring-necked Pheasant sightings and creating an online art gallery for Pheasant themed art.

Next Steps:

- Complete program development around Pheasants and Grasslands.
- Connect with teachers and public schools that might be interested in our programs.
- Host local Pheasant bird walks in the Metro Detroit Area.

Contact Person: [REDACTED], Detroit Audubon Research Coordinator, [REDACTED]
[REDACTED]@detroitaudubon.org

Birding Opportunities and Public Events

ByWays to FlyWays Bird Driving Tour Map

Over 350 species of birds have been identified in the Detroit River corridor by Detroit Audubon and other eBird users. With knowledge of these many exceptional birding opportunities in the Detroit-Windsor metropolitan area, Metropolitan Affairs Coalition, the U.S. Fish and Wildlife Service, Michigan Sea Grant, the International Wildlife Refuge Alliance, Wild Birds Unlimited, and the National Fish and Wildlife Foundation developed a unique “Byways to Flyways” bird driving tour map to promote 27 exceptional birding sites throughout the Windsor-Detroit metropolitan area (Figure 4). Included within these sites are many Important Bird Areas (IBAs) identified by National Audubon Society, two “Wetlands of International Importance” identified under the international Ramsar Convention (i.e., Point Pelee National Park in Ontario and Humbug Marsh in Michigan), several Christmas Bird Count sites, and two internationally recognized hawk watch sites. These world-class birding opportunities are helping to reconnect many watershed residents to stopover habitats right in their backyard.

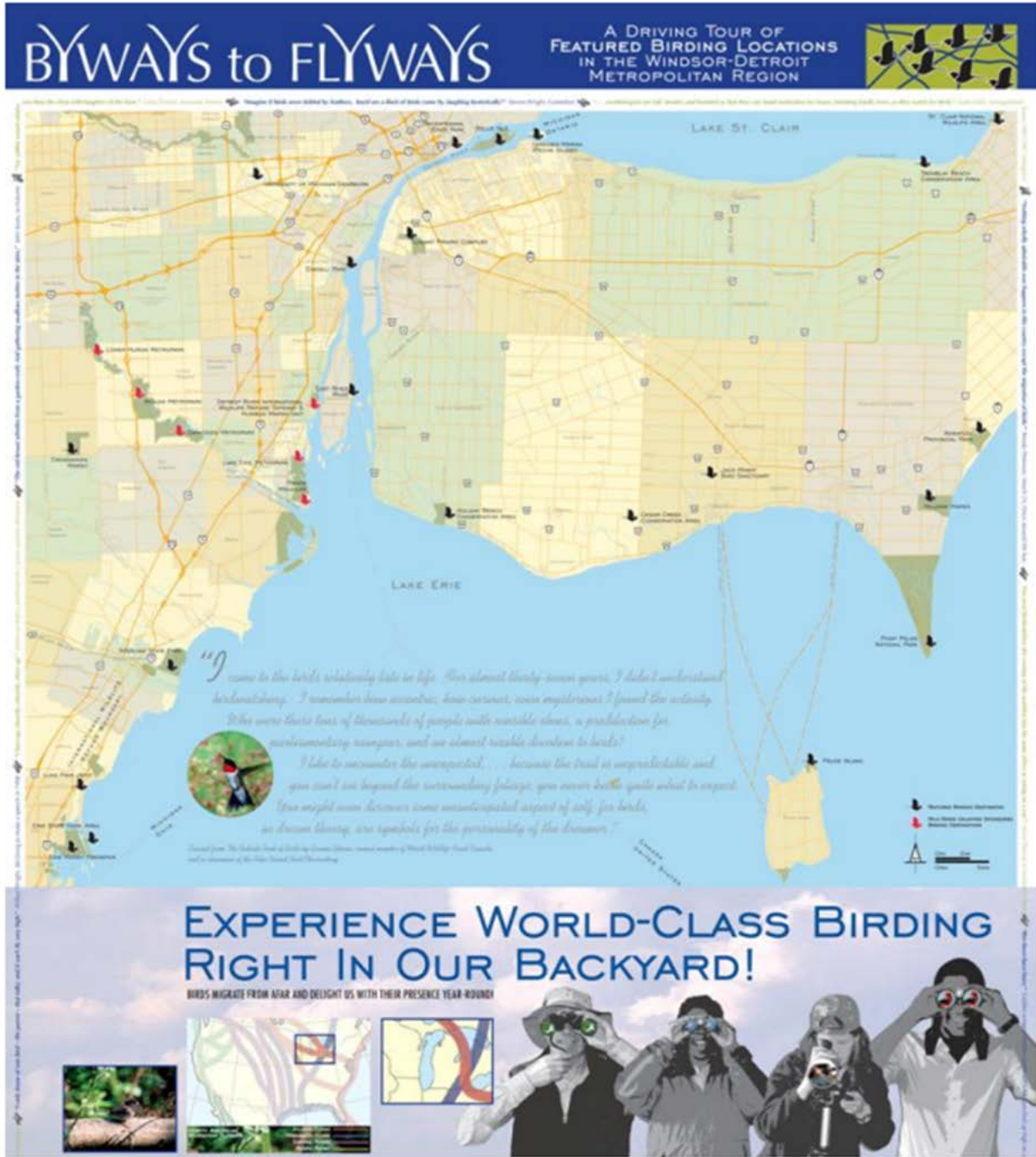


Figure 4. Byways to Flyways bird driving tour map (map credit: Metropolitan Affairs Coalition).

Hawkfest

This is a two-day event for the whole family focusing on birds of prey (eagles, hawks, falcons, and owls) and the annual fall hawk migration over Lake Erie Metropark. It is a great weekend held each September that is focused on birds of prey. It is a great weekend of games, crafts, guest speakers, and fun. Live birds of prey are also on hand. Typically, 4000 people attend Hawkfest.

International Migratory Bird Day

This event recognizes the movement of nearly 350 species of migratory birds from their wintering grounds in South and Central America, Mexico, and the Caribbean to nesting habitats in North America, and is celebrated on the second Saturday in May at three locations in Canada's Priority Natural Area and two DRIWR locations.

World Wetlands Day

Observed worldwide each year on February 2nd to celebrate in importance of wetlands, including "Wetlands of International Importance" designated under the Ramsar Convention in 1971 (over 1,200 high school students annually participate in a wetlands' program and exposition at Gibraltar Carlson High School). This event has a major emphasis on how birds use wetlands.

National Wildlife Refuge Week

This event is celebrated each October to showcase the premier land conservation network in the world that includes Detroit River International Wildlife Refuge (a major emphasis is on birds).

Pointe Mouillee Waterfowl Festival

Held annually at Point Mouillee State Game Area on the first weekend after Labor Day and right before duck hunting season opens – it is an annual tradition that showcases duck hunters' abilities, celebrates wildlife art and hunting equipment, and attracts 8,000-10,000 enthusiasts.

Eagle Tours

An annual tradition where participants watch more than 100 Bald Eagles that overwinter at DTE Energy's Monroe Power Plant in Monroe, Michigan.

Detroit River Front Bird Walks

The Detroit River Front Conservancy, the Detroit Audubon Society, the U.S. Fish and Wildlife Service, and Detroit Parks and Recreation opening a unique birding spot along the Detroit RiverWalk at Gabriel Richard Park in downtown Detroit. This unique birding spot has four wildlife spotting scopes (one universally-accessible) and an interpretive panel identifying common birds like Canvasback Ducks, Peregrine Falcons, Bald Eagles, Canada Geese, and Mallard Ducks that can be seen from this location, and educational programming that is held four times per year to promote an urban birding experience available right in our backyard.

Contact Person: [REDACTED], Visitor Services Manager, Detroit River International Wildlife Refuge.
[REDACTED]@fws.gov

Erie Shores Birding Association

Erie Shores Birding Association of Monroe, Michigan, was organized in September of 1986 for the purpose of promoting the observation and study of birds and other related wildlife, their environment and their conservation. This Association offers an opportunity to share experiences and enjoy the company of others who have an interest in bird life. Its members include all levels of expertise - from the backyard birder to world-traveled experts.

Next Steps:

- Expand field trip opportunities.
- Work in partnership with the Metro Detroit Nature Network to achieve a coordinated educational effort.

Contact Person: [REDACTED], [REDACTED]@sbcglobal.net

SPECIES SPECIFIC PROJECTS

Common Tern Monitoring and Management

Common Terns (COTE) naturally nest on gravel bars, beaches, and islands. In Michigan, they nest on an-made structures including protection piers, man-made islands, and other structures. In many cases

they are susceptible to habitat degradation, predators, weather events, and human disturbance. In southeast Michigan, they nest in several locations on the Detroit River and Lake St. Clair including Belle Isle, both Grosse Isle protection piers, and one of the lighthouses in the St. Clair Flats. This project will be coordinated by the Detroit Zoological Society (DZS) and include cooperation with the Detroit River International Wildlife Refuge (DRIWR) and the Michigan Department of Natural Resources (DNR).

Efforts to improve monitor and improve breeding success will vary by site and include:

- Belle Isle – This site is located on the Detroit Water and Sewage water intake protection peninsula on the eastern edge of the island. The location of a historic nesting COTE colony that numbered in the hundreds, but was abandoned in the early 1960s when the gravel nesting area was replaced with grass and vegetation became established throughout the site. DZS, DRIWR, and Detroit Water and Sewerage Department restored the site in 2009 to encourage common terns to nest in this location (Figure 5). Sound systems and decoys were used to attract terns and the site was visited in 2010, nesting occurred in 2011, and the first chick fledged in 2012. Low numbers of birds use the site and it needs annual habitat management and predator control.



Figure 5. Common Tern habitat restoration on Belle Isle.

- Grosse Isle – There are two colonies of terns located on the protection piers at both of the island's bridges. The county bridge site has had habitat work and monitoring by DRIWR staff, but recently succession and high water levels has reduced the use of this site by common terns. Due to bridge operations and vulnerability to predators, this is not an ideal nesting location. Discussions will occur to determine if any habitat management should occur on this site, or if vegetation should be allowed to grow making the site inhospitable for terns. If that is the case, it is expected that the terns would be displaced to other sites such as Belle Isle or even the new nesting location at Stony Island.

The second Grosse Isle colony is located at the toll bridge. This site is privately owned and inaccessible. It is recommended that the Metro Detroit Nature Network work with the bridge company to monitor the site two or three times each nesting season.

- South Channel Lights – The most northern Metro-Detroit COTE colony is located on the southern of two light houses in the St. Clair Flats (Figure 6). These decommissioned light houses are owned and managed by the non-profit Save Our South Channel Lights (SOSCL). Both lights were in disrepair before SOSCL assumed ownership and the protection area had eroded away. SOSCL restored the protection walls which included land area suitable for COTE. It is not known when this site was colonized by terns, but its use was discovered in 2011. The site was visited in 2012 and there were about 60 nesting COTE pairs between the two houses. Detroit Zoological Society and SOSCL began managing the front house for terns in late 2012 including vegetation removal and bi-weekly monitoring. All nesting shifted to the front house and it has had continued vegetation management and monitoring since. Detroit Zoological Society and SOSCL will be adding additional improvements to the site including adding a gravel base, removing hazards, and continued vegetation management.



Figure 6. Common Tern colony in the St. Clair Flats.

- Stony Island – This island is owned by the Michigan Department of Natural Resources (DNR) and is undergoing habitat restoration in 2016 and 2017. The Friends of the Detroit River has received Great Lakes Restoration Initiative funding through NOAA for the restoration effort and this project includes adding several shoals to reduce erosion on the island. Several of these shoals have been designed to provide suitable nesting habitat for common terns and once work is completed in 2018 Detroit Zoological Society will work with the DNR to determine if the use of decoys and sound system should be employed to help attract terns. The DZS has committed to monitor this site several times each nesting season.



Figure 7. Stony Island north shoal restoration.

Next Steps:

- Continue monitoring Common Terns on Belle Isle.
- Complete Restoration of Stony Island.

Contact Person: [REDACTED], [REDACTED]@dzs.org

Osprey Monitoring and Management

The Michigan DNR partnered with the Detroit Zoological Society and Huron Clinton Metropark Authority to introduce osprey to Southeast Michigan (Figure 8). This program began with the relocation of six osprey chicks from nests in northern Michigan to Kensington Metro Park in 1988. For the next nine years, up to six chicks were hacked annually at either Kensington or Stoney Creek Metro Park. Osprey migrate to South or Central America and return to nest two to three years after their hatch year (Figure 9). The first hacked osprey returned to the nesting tower in 2001 and the first recorded nesting happened the next year. The Metro Detroit population has continued to increase, utilizing not only nesting platforms but cell towers. There were at least 39 recorded nests in 2016.



Figure 8. Osprey nesting tower.

The citizen volunteers that assisted with the hacking program formed a non-profit organization, Michigan Osprey (<http://michiganosprey.org>), to continue monitoring the Osprey once they started nesting in the Metro area. This group monitors the success of each known nest and investigates reports of new nests. They work with the Michigan DNR to band chicks and coordinate with the local cell towers and service companies to access chicks nesting on the towers. Since 2013, they have been funding and coordinating the placement of satellite telemetry units on Osprey chicks to track the Osprey migratory routes, identify stopover sites and determine feeding areas during migration. They are also work on educational outreach to schools and the public.



Figure 9. Osprey migration to South America.

Next Steps:

- Compile long-term trend data on Osprey and make them publicly-accessible.
- Work in partnerships to continue to utilize technology to monitor Osprey.
- Recruit and train volunteers to support Osprey.

Contact Person: [REDACTED], [REDACTED]@michigan.gov

Peregrine Falcon Monitoring and Management

During the 1960s the United States Peregrine Falcon population declined precipitously due to pesticide use. The shells of Peregrine Falcon eggs became extremely fragile because adult birds had accumulated DDT, a pesticide that interfered with calcium metabolism. By 1968, there was no known successful Peregrine nesting east of the Mississippi River.

In the 1980s, several Midwest cities, including Michigan, began creating Peregrine Falcon Restoration Plans. After approving these plans, captive chicks from breeders were raised in hacking boxes, with minimal human contact, and once fledging occurred the young birds were left to survive on their own (Figure 10). In 1986, the Michigan Department of Natural Resources (MDNR) began hacking peregrine falcon chicks in downtown Grand Rapids. In 1987, the program was expanded to Detroit’s Guardian Building and that year, five Peregrine chicks were hacked. In 1988 seven chicks were hacked. In 1992 a pair of wild Peregrines nested on the Book Building, however, the eggs laid were on a ledge that flooded, and the eggs failed to hatch. A nesting box was installed, and on what would have been the hatching date, two “foster” chicks (from a breeder) were introduced to pair. They successfully raised and fledged from the Book Building.

Since 1993, there has been continued successful nesting of wild Peregrines in Detroit at several sites including the Book Building, and the Fisher Building. Once successful wild nesting occurred, the program focus shifted from hacking chicks, to focusing on safe and secure nesting and fledging sites. This often



Figure 10. Peregrine Falcon hacking box.

meant working in close cooperation with building managers to have nesting boxes or trays placed on the buildings, while the nest sites were actively monitored for nesting activity.

When the chicks reach 18-22 days old, they can be safely banded for future identification and tracking. Media is often invited to attend the bandings to help spread the word about peregrine recovery and to give the building managers credit for their assistance. Two specific examples stand out as excellent examples of partnerships and media.

The Michigan Metro Girl Scouts had an active peregrine nest outside of one of their offices on the Fisher Building. Each year the Girl Scouts would have some lessons about peregrines as they would earn a badge requirement. They would select a few of the scouts to be present at the banding event and were able to see the birds up-close. Always the media would be there to record the event often talking with the girl Scouts. What a thrill for the girls.

Another example occurred in 2003, at the former Campbell Ewald Building (now General Motors Tech Center building) in Warren. Video cameras were placed in strategic, non-obtrusive locations, and video of the active nest was livestreamed into Warren classrooms where teachers could use the footage for class instruction.

The original MDNR goal was to have 10 successful nesting pairs of Peregrine Falcons by the year 2000. It was thought that southeast Michigan and specifically the Metro-Detroit area, could sustain perhaps three pairs. We learned that Peregrines actually had smaller territories than what was originally thought. Currently, Detroit has 5 successful nesting sites. The Metro- Detroit Tri-County area has an additional 5 successful nesting sites, with 8 more sites in the general SE Michigan area (including Flint, Ann Arbor and Monroe County). It is phenomenal that a Federally Endangered species would go from no successful nests to 17 successful sites in the backyard of the most populated portion of the state.

While the 2000 goal was met, Peregrines are still on the Michigan Endangered Species list. To assist in further recovery, securing safe nesting and fledging sites is still a top priority. Informed observations are a key in this effort. Timing banding events for each location requires many observations. These events, with the media attention they get, bring greater education and awareness to a valued resource. Another key element in the success of the program has been in handling sick or injured Peregrines. When adult or young falcons occasionally get injured or sick, rehabilitation is a key. The Detroit Zoological Park and raptor rehabilitator Dave Hogan have been essential in assisting with rehabilitation and subsequent releases of sick or injured peregrines. The scope of handling this program has increased over the years. Informed observers help with making efficient, quick actions for recovery in these cases.

Next Steps:

- There is a need to train and inform existing volunteers where they occur, and to expand the number of volunteers at sites where there are not sufficient “eyes”. This can be done in several ways, and will need a widening of collaborative efforts with other organizations. An example would be to coordinate with a local school.
- A Peregrine Falcon education program is being developed for students in the tri-county area (Macomb, Oakland and Wayne Counties).
- Monitoring during the 2017 nest season.

Contact person: [REDACTED], Southeast Michigan Peregrine Falcon Coordinator, Michigan Department of Natural Resources, [REDACTED]@yahoo.com

Black Tern Monitoring

Detroit Audubon has sustained a working partnership with National Audubon, MI Department of Natural Resources, the Detroit Zoo, and the Fish and Wildlife Service since 2013 on a monitoring effort of the Black Tern in St. Clair Flats (Figure 11). A Species of Special Concern for the state of Michigan, the Black Tern has seen steady population declines over the last 50 years. At first volunteer-run, this project will now be spearheaded by Detroit Audubon’s Research Coordinator, who took over the volunteer effort in 2016. Additional volunteers are needed for safety and assistance in data collection. We hope to continue monitoring the St. Clair Flats colony, the largest remaining colony in MI, into 2017 and beyond. We hope our findings can determine the causes of the population’s decline and lend managers insights into strategies that will conserve the remaining population. There is potential for this monitoring project to expand to other areas where Black Tern colonies have been found in the State of MI.

Detroit Audubon leads education and outreach events on Harsens Island as well as in the metro Detroit Area regarding the Black Tern project in the form of informative talks and a fundraising cruise that allows attendees to view the Black Terns from a distance with binoculars.

Next Steps:

- Continue to improve monitoring efforts in 2017 and beyond with the help of a consistent Staff member.
- Work with National Audubon to acquire funding to expand Black Tern monitoring efforts at other colonies found in the state of MI.
- Recruit and Train a student volunteers to assist in data collection.



Photo by Diane Cheklich



Photo by Diane Cheklich

Figure 11. Black Tern monitoring.

CONCLUSIONS AND TOP PRIORITIES FOR THE NEXT FIVE YEARS

Approximately 47 million people in the United States, 16 years of age and older, observed birds around their home and on trips in 2011 (Carter 2011). A large majority, 88% or 41.3 million people, observed birds around the home, while 38% or 17.8 million people, took trips away from home to go bird watching. Participants averaged 110 days of birding in 2011. In Michigan, Carter (2011) reported that there are 2.015 million birders and that 24% of the state population participated in birding, higher than the national average of 20%.

The economic benefits of birding to local communities are remarkable. For example, the national economic benefits of birding visitation to National Wildlife Refuges alone totaled \$257 million in 2011 (Carver and Caudill 2013). This is the total monetary value of economic activity generated by birding

visits. In turn, this final demand generated \$73.9 million in job income and 3,269 jobs (Carver and Caudill 2013).

As noted in the introduction of this Metropolitan Detroit Bird Agenda, one key goal is to identify high priority actions and “next steps” that can be taken over the next five years to move forward on this important conservation issue. It is not feasible to move forward on all next steps due to resource limitations and time constraints. Therefore, the following actions are identified as high priorities over the next five years:

Habitat loss and fragmentation:

- Recruiting new partners to the Metro Detroit Nature Network that will participate in the Urban Bird Treaty as described in this document.
- Expand cooperative programs for bird habitat conservation (e.g., creating more stop over habitat and wildlife corridors, expanding corporate wildlife habitat programs like Wildlife Habitat Council).
- Supporting and expanding green infrastructure programs.
- Expanding school yard and backyard habitat projects.

Hazard Reduction:

- Expand Safe Passage.
- Promote Bird Friendly Bird Design including offering training for architects on bird friendly design.
- Coordinate the timing of construction and re-vegetation projects (e.g., mowing schedules, etc.).

Citizen Science Programs:

- Compile long-term, citizen science, trend data on peregrine falcon and osprey in southeast Michigan and broadly disseminate this information to show the value and benefit of such programs.
- Expand peregrine falcon and osprey monitoring through citizen science to ensure long-term sustainability of these programs.
- Expand black tern and grassland bird monitoring programs under the leadership of Detroit Audubon.
- Expanding participation in Christmas Bird Counts.
- Expanding backyard feeder watch program.
- Expanding monitoring under the Safe Passage Program.

To help recruit new partners and volunteers for this important bird conservation work the Metro Detroit Nature Network will convene an Urban Bird Summit within one year. This Urban Bird Summit will review progress on key issues, recruit new partners, and to help identify and seek small grant funding to support the above projects. This important Bird Agenda work will also be helpful in addressing the Metro Detroit Nature Network and the U.S. Fish and Wildlife Service’s Urban Wildlife Conservation Program goals of developing the next generation of conservationists in urban areas because that is now where 80% of all U.S. citizens live.

Finally, this important work of the Metropolitan Detroit Bird Agenda will be guided by the philosophy of adaptive management where assessments are made, priorities set, and actions taken in an iterative fashion for continuous improvement. This will also help ensure long-term sustainability of partner collaborations that will be critical to achieving our common bird conservation goals.

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Metro Detroit Nature Network

13 March 2017

██████████ National Coordinator
Urban Bird Treaty Program
U.S. Fish and Wildlife Service

Dear ██████████:

On behalf of the Metro Detroit Nature Network, we are pleased to nominate Metropolitan Detroit as an Urban Bird Treaty City. As required, attached please find a copy of our Urban Bird Treaty Action Plan.

There are over 350 species of birds that are regularly observed and recorded in Metropolitan Detroit area. Key avian attributes of our metropolitan region include:

- It is situated at the intersection of the Atlantic and Mississippi Flyways;
- Over 350 species of birds have been identified in the corridor;
- 30 species of waterfowl have been documented using the corridor;
- More than 300,000 diving ducks use the lower Detroit River as stopover habitat during migration;
- The lower Detroit River is one of the three best places to watch raptor migrations in the U.S., with 23 species of raptors migrating across the river;
- Pointe Mouillee, Erie Marsh, and St. Clair Flats, one of the largest freshwater deltas in the world, are important stopover points for feeding for migratory shore birds during fall migration;
- The corridor has four “Important Bird Areas” designated by National Audubon Society;
- In 2011, Ducks Unlimited identified Metropolitan Detroit as one of the top ten metropolitan areas for waterfowl hunting in the U.S.;
- Detroit River and western Lake Erie offer exceptional birding opportunities – a ByWays to FlyWays Bird Driving Tour features 27 unique birding sites in southwest Ontario and southeast Michigan;
- This corridor has been recognized for its biodiversity in the North American Waterfowl Management Plan, the United Nations Convention on Biological Diversity, the Western Hemispheric Shorebird Reserve Network, and the Biodiversity Investment Area Program of Environment Canada and U.S. Environmental Protection Agency;
- Humbug Marsh in Trenton and Gibraltar, Michigan has been identified as a “Wetlands of International Importance” under the International Ramsar Convention;
- The Detroit River and western Lake Erie are part of the Detroit River International Wildlife Refuge, the only international wildlife refuge in North America;
- The Detroit River is the first river in North America to receive both American Heritage River and Canadian Heritage River designations; and

- There are many important upland sites for neo-tropical migratory songbirds during spring and fall migration.

As noted in our Bird Agenda, one key goal is to identify high priority actions and “next steps” that can be taken over the next five years to move forward on this important conservation issue. It is not feasible to move forward on all next steps due to resource limitations and time constraints. Therefore, the following actions are identified as high priorities over the next five years:

Habitat loss and fragmentation:

- Recruiting new partners to the Metro Detroit Nature Network that will participate in the Urban Bird Treaty as described in this document
- Expand cooperative programs for bird habitat conservation (e.g., creating more stop over habitat and wildlife corridors, expanding corporate wildlife habitat programs like Wildlife Habitat Council)
- Supporting and expanding green infrastructure programs
- Expanding school yard and backyard habitat projects

Hazard Reduction:

- Expand Safe Passage
- Promote Bird Friendly Bird Design including offering training for architects on bird friendly design
- Coordinate the timing of construction and re-vegetation projects (e.g., mowing schedules, etc.)

Citizen Science Programs:

- Compile long-term, citizen science, trend data on peregrine falcon and osprey in southeast Michigan and broadly disseminate this information to show the value and benefit of such programs
- Expand peregrine falcon and osprey monitoring through citizen science to ensure long-term sustainability of these programs
- Expand black tern and grassland bird monitoring programs under the leadership of Detroit Audubon
- Expanding participation in Christmas Bird Counts
- Expanding backyard feeder watch program
- Expanding monitoring under the Safe Passage Program

To help recruit new partners and volunteers for this important bird conservation work the Metro Detroit Nature Network will convene an Urban Bird Summit within one year. This Urban Bird Summit will review progress on key issues, recruit new partners, and to help identify and seek small grant funding to support the above projects. This important Bird Agenda work will also be helpful in addressing the Metro Detroit Nature Network and the U.S. Fish and Wildlife Service’s

Urban Wildlife Conservation Program goals of developing develop the next generation of conservationists in urban areas because that is now where 80% of all U.S. citizens live.

Thank you for your consideration. Please don't hesitate to contact us with question.

Sincerely,

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Appendix C - Oakland County Parks

| County Park | Acreage | Habitat Note | Citizen Science Programs |
|-------------------|---------|---|--|
| Addison Oaks | 140 | 46% of the park is identified as potential natural area by MNFI, including open space, natural areas and wetlands in the headwaters of the Clinton River watershed | Grassland Bird Survey, NestWatch, Christmas Bird Count |
| Catalpa Oaks | 24 | Open space in an urban area | |
| Glen Oaks | 122 | Woodlands along west boundary and south of the creek at the north boundary. No-mow areas filter and slow rainwater before it enters the creek. | |
| Groveland Oaks | 361 | 22% of the park is identified as potential natural area by MNFI; including natural areas that can be enjoyed from the park's trail system | NestWatch |
| Highland Oaks | 302 | 45% of the park is identified as potential natural area by MNFI; including rolling hills, wetlands and old pastures in the headwaters of the Shiawassee River | Grassland Bird Survey, NestWatch |
| Independence Oaks | 1286 | 71% of the park is identified as potential natural area by MNFI; including ecologically significant wetlands and natural areas within the headwaters of the Clinton River watershed | Grassland Bird Survey, Feeder Watch, NestWatch, Christmas Bird Count, Annual |
| Lyon Oaks | 1041 | 46% of the park is identified as potential natural area by MNFI; including 800 acres of environmentally sensitive wetlands in the headwaters of the Huron River watershed | NestWatch |
| Orion Oaks | 916 | 36% of the park is identified as potential natural area by MNFI; including open space and natural areas in the Clinton River watershed | Grassland Bird Survey, NestWatch, Christmas Bird Count |
| Red Oaks | 141 | 36% of the park is identified as potential natural area by MNFI; including wooded areas surrounding the Red Oaks Nature Center | |
| Rose Oaks | 640 | 84% of the park is identified as potential natural area by MNFI; including gently rolling open meadows and wooded uplands, valuable wetlands and frontage on several glacial lakes | Grassland Bird Survey |
| Springfield Oaks | 333 | 15% of the park is identified as potential natural area by MNFI; including extensive wetlands and upland complex within the Clinton River watershed; park also contains a demonstration area for stormwater and water quality best management practices | |
| Waterford Oaks | 199 | 15% of the park is identified as potential natural area by MNFI; including | NestWatch |

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|-----------------|-----|---|--|
| | | extensive wetlands and upland complex within the Clinton River watershed; park also contains a demonstration area for stormwater and water quality best management practices | |
| White Lake Oaks | 238 | 33% of the park is identified as potential natural area by MNFI; including natural areas along the boundary; golf course also incorporates no-mow areas that filter and slow rainwater before it enters the creek | |

Appendix D - National Audubon Climate Change Report: Data Summary for Michigan Species

| Bird Names | Summer Range Lost | Winter Range Lost |
|--|-------------------|-------------------|
| <u>Bohemian Waxwing</u> <i>Bombycilla garrulus</i> | 100% | 52% |
| <u>Blackburnian Warbler</u> <i>Setophaga fusca</i> | 100% | |
| <u>Evening Grosbeak</u> <i>Coccothraustes vespertinus</i> | 98% | 58% |
| <u>Black-throated Green Warbler</u> <i>Setophaga virens</i> | 98% | 30% |
| <u>Mourning Warbler</u> <i>Geothlypis philadelphia</i> | 96% | |
| <u>Nashville Warbler</u> <i>Oreothlypis ruficapilla</i> | 95% | 35% |
| <u>Scarlet Tanager</u> <i>Piranga olivacea</i> | 94% | |
| <u>Hooded Merganser</u> <i>Lophodytes cucullatus</i> | 92% | 65% |
| <u>Magnolia Warbler</u> <i>Setophaga magnolia</i> | 92% | 44% |
| <u>American Redstart</u> <i>Setophaga ruticilla</i> | 90% | 26% |
| <u>Veery</u> <i>Catharus fuscescens</i> | 90% | |
| <u>Purple Finch</u> <i>Haemorhous purpureus</i> | 89% | 59% |
| <u>Chestnut-sided Warbler</u> <i>Setophaga pensylvanica</i> | 88% | |
| <u>Yellow-bellied Sapsucker</u> <i>Sphyrapicus varius</i> | 88% | 3% |
| <u>Pine Grosbeak</u> <i>Pinicola enucleator</i> | 87% | 37% |
| <u>Northern Harrier</u> <i>Circus cyaneus</i> | 86% | 5% |

| Bird Names | Summer Range Lost | Winter Range Lost |
|--|-------------------|-------------------|
| <u>Black-and-white Warbler</u> <i>Mniotilta varia</i> | 84% | 46% |
| <u>Red-breasted Nuthatch</u> <i>Sitta canadensis</i> | 82% | 42% |
| <u>Wood Thrush</u> <i>Hylocichla mustelina</i> | 82% | 46% |
| <u>Red-breasted Merganser</u> <i>Mergus serrator</i> | 82% | 51% |
| <u>Bobolink</u> <i>Dolichonyx oryzivorus</i> | 80% | |
| <u>Brown Creeper</u> <i>Certhia americana</i> | 79% | 20% |
| <u>White-breasted Nuthatch</u> <i>Sitta carolinensis</i> | 79% | 36% |
| <u>Bufflehead</u> <i>Bucephala albeola</i> | 79% | 42% |
| <u>Bank Swallow</u> <i>Riparia riparia</i> | 79% | |
| <u>Hairy Woodpecker</u> <i>Picoides villosus</i> | 78% | 30% |
| <u>Ruffed Grouse</u> <i>Bonasa umbellus</i> | 77% | 46% |
| <u>Common Redpoll</u> <i>Acanthis flammea</i> | 77% | 38% |
| <u>Mallard</u> <i>Anas platyrhynchos</i> | 75% | 9% |
| <u>Hermit Thrush</u> <i>Catharus guttatus</i> | 74% | 31% |
| <u>Bald Eagle</u> <i>Haliaeetus leucocephalus</i> | 74% | 58% |
| <u>White-throated Sparrow</u> <i>Zonotrichia albicollis</i> | 74% | 19% |

| Bird Names | Summer Range Lost | Winter Range Lost |
|---|--------------------------|--------------------------|
| <u>American Kestrel</u> <i>Falco sparverius</i> | 72% | 2% |
| <u>Common Merganser</u> <i>Mergus merganser</i> | 72% | 39% |
| <u>Ring-billed Gull</u> <i>Larus delawarensis</i> | 71% | 32% |
| <u>Golden-crowned Kinglet</u> <i>Regulus satrapa</i> | 70% | 17% |
| <u>Swamp Sparrow</u> <i>Melospiza georgiana</i> | 69% | 17% |
| <u>Ovenbird</u> <i>Seiurus aurocapilla</i> | 67% | 75% |
| <u>American Black Duck</u> <i>Anas rubripes</i> | 63% | 64% |
| <u>Least Flycatcher</u> <i>Empidonax minimus</i> | 61% | 93% |

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| <u>Common Goldeneye</u> <i>Bucephala clangula</i> | 61% | 35% |
| <u>Tree Swallow</u> <i>Tachycineta bicolor</i> | 61% | 57% |
| <u>Pine Siskin</u> <i>Spinus pinus</i> | 60% | 42% |
| <u>Common Loon</u> <i>Gavia immer</i> | 56% | 75% |
| <u>Wild Turkey</u> <i>Meleagris gallopavo</i> | 49% | 87% |
| <u>Herring Gull</u> <i>Larus argentatus</i> | 38% | 56% |
| <u>Baltimore Oriole</u> <i>Icterus galbula</i> | 25% | 68% |

Appendix E - 7County Regional Species List (eBird observations)

| |
|-------------------------------|
| Black-bellied Whistling-Duck |
| Greater White-fronted Goose |
| Graylag Goose (Domestic type) |
| Snow Goose |
| Ross's Goose |
| Brant |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Muscovy Duck (Domestic type) |
| Wood Duck |
| Gadwall |
| Eurasian Wigeon |
| American Wigeon |
| American Black Duck |
| Mallard |
| Mallard (Domestic type) |
| Blue-winged Teal |
| Cinnamon Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Tufted Duck |
| Greater Scaup |
| Lesser Scaup |
| King Eider |
| Common Eider |
| Harlequin Duck |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Barrow's Goldeneye |

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| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |
| Northern Bobwhite |
| Indian Peafowl (Domestic type) |
| Ring-necked Pheasant |
| Ruffed Grouse |
| Wild Turkey |
| Red-throated Loon |
| Pacific Loon |
| Common Loon |
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Eared Grebe |
| Western Grebe |
| Neotropic Cormorant |
| Double-crested Cormorant |
| Magnificent Frigatebird |
| Lesser Frigatebird |
| Northern Gannet |
| Anhinga |
| American White Pelican |
| Brown Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Snowy Egret |
| Little Blue Heron |
| Tricolored Heron |
| Cattle Egret |
| Green Heron |
| Black-crowned Night-Heron |
| Yellow-crowned Night-Heron |
| Glossy Ibis |
| White Ibis |
| White-faced Ibis |
| Black Vulture |
| Turkey Vulture |

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|------------------------|
| Osprey |
| Golden Eagle |
| Mississippi Kite |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Swainson's Hawk |
| Red-tailed Hawk |
| Rough-legged Hawk |
| Yellow Rail |
| King Rail |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Whooping Crane |
| Sandhill Crane |
| Black-necked Stilt |
| American Avocet |
| Black-bellied Plover |
| American Golden-Plover |
| Snowy Plover |
| Semipalmated Plover |
| Piping Plover |
| Killdeer |
| Upland Sandpiper |
| Whimbrel |
| Long-billed Curlew |
| Hudsonian Godwit |
| Marbled Godwit |
| Ruddy Turnstone |
| Red Knot |
| Ruff |
| Stilt Sandpiper |
| Curlew Sandpiper |
| Sanderling |
| Dunlin |

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| Purple Sandpiper |
| Baird's Sandpiper |
| Least Sandpiper |
| White-rumped Sandpiper |
| Buff-breasted Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Western Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Wilson's Phalarope |
| Red-necked Phalarope |
| Red Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Willet |
| Lesser Yellowlegs |
| Pomarine Jaeger |
| Parasitic Jaeger |
| Long-tailed Jaeger |
| Ancient Murrelet |
| Black-legged Kittiwake |
| Sabine's Gull |
| Bonaparte's Gull |
| Black-headed Gull |
| Little Gull |
| Laughing Gull |
| Franklin's Gull |
| Heermann's Gull |
| Ring-billed Gull |
| California Gull |
| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Slaty-backed Gull |
| Glaucous Gull |
| Great Black-backed Gull |

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| Least Tern |
| Gull-billed Tern |
| Caspian Tern |
| Black Tern |
| Common Tern |
| Arctic Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Barn Owl |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |
| Northern Saw-whet Owl |
| Common Nighthawk |
| Chuck-will's-widow |
| Eastern Whip-poor-will |
| Chimney Swift |
| Ruby-throated Hummingbird |
| Rufous Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |
| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Gyrfalcon |
| Peregrine Falcon |
| Olive-sided Flycatcher |
| Eastern Wood-Pewee |
| Yellow-bellied Flycatcher |
| Acadian Flycatcher |

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| Alder Flycatcher |
| Willow Flycatcher |
| Least Flycatcher |
| Eastern Phoebe |
| Great Crested Flycatcher |
| Eastern Kingbird |
| Scissor-tailed Flycatcher |
| Loggerhead Shrike |
| Northern Shrike |
| White-eyed Vireo |
| Bell's Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |
| Tree Swallow |
| Bank Swallow |
| Barn Swallow |
| Cliff Swallow |
| Cave Swallow |
| Black-capped Chickadee |
| Boreal Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |
| White-breasted Nuthatch |
| Brown Creeper |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |

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| Mountain Bluebird |
| Townsend's Solitaire |
| Veery |
| Gray-cheeked Thrush |
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |
| Varied Thrush |
| Gray Catbird |
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| White Wagtail |
| American Pipit |
| Bohemian Waxwing |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |
| Prothonotary Warbler |
| Tennessee Warbler |
| Orange-crowned Warbler |
| Nashville Warbler |
| Virginia's Warbler |
| Connecticut Warbler |
| Mourning Warbler |
| Kentucky Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Kirtland's Warbler |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |

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| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |
| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |
| Yellow-throated Warbler |
| Prairie Warbler |
| Black-throated Gray Warbler |
| Black-throated Green Warbler |
| Canada Warbler |
| Wilson's Warbler |
| Yellow-breasted Chat |
| Bachman's Sparrow |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| Le Conte's Sparrow |
| Nelson's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Lark Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |
| Golden-crowned Sparrow |
| Harris's Sparrow |
| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |
| Green-tailed Towhee |
| Spotted Towhee |
| Eastern Towhee |

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| Summer Tanager |
| Scarlet Tanager |
| Western Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Blue Grosbeak |
| Indigo Bunting |
| Painted Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Western Meadowlark |
| Eastern Meadowlark |
| Yellow-headed Blackbird |
| Rusty Blackbird |
| Brewer's Blackbird |
| Common Grackle |
| Brown-headed Cowbird |

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| Orchard Oriole |
| Bullock's Oriole |
| Baltimore Oriole |
| Gray-crowned Rosy-Finch |
| Pine Grosbeak |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |
| Hoary Redpoll |
| Pine Siskin |
| American Goldfinch |
| European Goldfinch |
| Evening Grosbeak |
| House Sparrow |

Appendix E cont... - By County Species' Lists (eBird Observations)

| Wayne County Species List |
|----------------------------------|
| Black-bellied Whistling-Duck |
| Greater White-fronted Goose |
| Graylag Goose (Domestic type) |
| Snow Goose |
| Ross's Goose |
| Brant |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Wood Duck |
| Gadwall |
| Eurasian Wigeon |
| American Wigeon |
| American Black Duck |
| Mallard |
| Blue-winged Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Greater Scaup |
| Lesser Scaup |
| King Eider |
| Harlequin Duck |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |

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|----------------------------|
| Northern Bobwhite |
| Ring-necked Pheasant |
| Wild Turkey |
| Common Loon |
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Eared Grebe |
| Lesser Frigatebird |
| Northern Gannet |
| Double-crested Cormorant |
| Anhinga |
| American White Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Snowy Egret |
| Little Blue Heron |
| Tricolored Heron |
| Cattle Egret |
| Green Heron |
| Black-crowned Night-Heron |
| Yellow-crowned Night-Heron |
| Glossy Ibis |
| White-faced Ibis |
| Black Vulture |
| Turkey Vulture |
| Osprey |
| Golden Eagle |
| Mississippi Kite |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Swainson's Hawk |
| Red-tailed Hawk |

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| Rough-legged Hawk |
| Yellow Rail |
| King Rail |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Sandhill Crane |
| American Avocet |
| Black-bellied Plover |
| American Golden-Plover |
| Semipalmated Plover |
| Killdeer |
| Upland Sandpiper |
| Whimbrel |
| Long-billed Curlew |
| Hudsonian Godwit |
| Marbled Godwit |
| Ruddy Turnstone |
| Red Knot |
| Stilt Sandpiper |
| Sanderling |
| Dunlin |
| Purple Sandpiper |
| Baird's Sandpiper |
| Least Sandpiper |
| White-rumped Sandpiper |
| Buff-breasted Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Wilson's Phalarope |
| Red-necked Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Willet |
| Lesser Yellowlegs |

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| Pomarine Jaeger |
| Parasitic Jaeger |
| Long-tailed Jaeger |
| Ancient Murrelet |
| Black-legged Kittiwake |
| Bonaparte's Gull |
| Little Gull |
| Franklin's Gull |
| Ring-billed Gull |
| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Slaty-backed Gull |
| Glaucous Gull |
| Great Black-backed Gull |
| Gull-billed Tern |
| Caspian Tern |
| Black Tern |
| Common Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |
| Northern Saw-whet Owl |
| Common Nighthawk |
| Eastern Whip-poor-will |
| Chimney Swift |
| Ruby-throated Hummingbird |
| Rufous Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |

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| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Gyr Falcon |
| Peregrine Falcon |
| Olive-sided Flycatcher |
| Eastern Wood-Pewee |
| Yellow-bellied Flycatcher |
| Acadian Flycatcher |
| Alder Flycatcher |
| Willow Flycatcher |
| Least Flycatcher |
| Eastern Phoebe |
| Great Crested Flycatcher |
| Eastern Kingbird |
| Scissor-tailed Flycatcher |
| Northern Shrike |
| White-eyed Vireo |
| Bell's Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |
| Tree Swallow |
| Bank Swallow |
| Barn Swallow |
| Cliff Swallow |
| Cave Swallow |
| Black-capped Chickadee |
| Boreal Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |

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|-------------------------|
| White-breasted Nuthatch |
| Brown Creeper |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |
| Veery |
| Gray-cheeked Thrush |
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |
| Varied Thrush |
| Gray Catbird |
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| American Pipit |
| Bohemian Waxwing |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |
| Prothonotary Warbler |
| Tennessee Warbler |
| Orange-crowned Warbler |
| Nashville Warbler |
| Virginia's Warbler |
| Connecticut Warbler |
| Mourning Warbler |

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|------------------------------|
| Kentucky Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Kirtland's Warbler |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |
| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |
| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |
| Yellow-throated Warbler |
| Prairie Warbler |
| Black-throated Gray Warbler |
| Black-throated Green Warbler |
| Canada Warbler |
| Wilson's Warbler |
| Yellow-breasted Chat |
| Bachman's Sparrow |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Lark Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |
| Golden-crowned Sparrow |
| Harris's Sparrow |
| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |

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|-------------------------|
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |
| Green-tailed Towhee |
| Eastern Towhee |
| Summer Tanager |
| Scarlet Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Blue Grosbeak |
| Indigo Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Western Meadowlark |
| Eastern Meadowlark |
| Yellow-headed Blackbird |
| Rusty Blackbird |
| Brewer's Blackbird |
| Common Grackle |
| Brown-headed Cowbird |
| Orchard Oriole |
| Baltimore Oriole |
| Pine Grosbeak |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |
| Hoary Redpoll |
| Pine Siskin |
| American Goldfinch |
| European Goldfinch |
| Evening Grosbeak |
| House Sparrow |

| Macomb County Species List |
|-----------------------------------|
| Greater White-fronted Goose |
| Snow Goose |
| Ross's Goose |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Muscovy Duck (Domestic type) |
| Wood Duck |
| Gadwall |
| Eurasian Wigeon |
| American Wigeon |
| American Black Duck |
| Mallard |
| Blue-winged Teal |
| Cinnamon Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Greater Scaup |
| Lesser Scaup |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |
| Northern Bobwhite |
| Ring-necked Pheasant |
| Ruffed Grouse |
| Wild Turkey |
| Red-throated Loon |

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|----------------------------|
| Common Loon |
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Eared Grebe |
| Magnificent Frigatebird |
| Double-crested Cormorant |
| American White Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Snowy Egret |
| Little Blue Heron |
| Tricolored Heron |
| Cattle Egret |
| Green Heron |
| Black-crowned Night-Heron |
| Yellow-crowned Night-Heron |
| Black Vulture |
| Turkey Vulture |
| Osprey |
| Golden Eagle |
| Mississippi Kite |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Red-tailed Hawk |
| Rough-legged Hawk |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Sandhill Crane |
| Whooping Crane |
| American Avocet |
| Black-bellied Plover |

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|-------------------------|
| American Golden-Plover |
| Semipalmated Plover |
| Piping Plover |
| Killdeer |
| Upland Sandpiper |
| Whimbrel |
| Marbled Godwit |
| Ruddy Turnstone |
| Red Knot |
| Stilt Sandpiper |
| Sanderling |
| Dunlin |
| Purple Sandpiper |
| Baird's Sandpiper |
| Least Sandpiper |
| White-rumped Sandpiper |
| Buff-breasted Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Western Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Wilson's Phalarope |
| Red-necked Phalarope |
| Red Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Willet |
| Lesser Yellowlegs |
| Parasitic Jaeger |
| Sabine's Gull |
| Bonaparte's Gull |
| Little Gull |
| Laughing Gull |
| Franklin's Gull |
| Heermann's Gull |
| Ring-billed Gull |
| California Gull |

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| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Glaucous Gull |
| Great Black-backed Gull |
| Caspian Tern |
| Black Tern |
| Common Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |
| Northern Saw-whet Owl |
| Common Nighthawk |
| Eastern Whip-poor-will |
| Chimney Swift |
| Ruby-throated Hummingbird |
| Rufous Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |
| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Gyrfalcon |
| Peregrine Falcon |
| Olive-sided Flycatcher |
| Eastern Wood-Pewee |
| Yellow-bellied Flycatcher |

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| Acadian Flycatcher |
| Alder Flycatcher |
| Willow Flycatcher |
| Least Flycatcher |
| Eastern Phoebe |
| Great Crested Flycatcher |
| Eastern Kingbird |
| Northern Shrike |
| White-eyed Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |
| Tree Swallow |
| Bank Swallow |
| Barn Swallow |
| Cliff Swallow |
| Black-capped Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |
| White-breasted Nuthatch |
| Brown Creeper |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |
| Mountain Bluebird |
| Townsend's Solitaire |
| Veery |
| Gray-cheeked Thrush |

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|-------------------------|
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |
| Varied Thrush |
| Gray Catbird |
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| American Pipit |
| Bohemian Waxwing |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |
| Prothonotary Warbler |
| Tennessee Warbler |
| Orange-crowned Warbler |
| Nashville Warbler |
| Connecticut Warbler |
| Mourning Warbler |
| Kentucky Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Kirtland's Warbler |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |
| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |

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| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |
| Yellow-throated Warbler |
| Prairie Warbler |
| Black-throated Green Warbler |
| Canada Warbler |
| Wilson's Warbler |
| Yellow-breasted Chat |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| Nelson's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Lark Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |
| Harris's Sparrow |
| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |
| Eastern Towhee |
| Summer Tanager |
| Scarlet Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Blue Grosbeak |
| Indigo Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Eastern Meadowlark |
| Yellow-headed Blackbird |
| Rusty Blackbird |

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|-------------------------|
| Brewer's Blackbird |
| Common Grackle |
| Brown-headed Cowbird |
| Orchard Oriole |
| Baltimore Oriole |
| Gray-crowned Rosy-Finch |
| Pine Grosbeak |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |
| Hoary Redpoll |
| Pine Siskin |
| American Goldfinch |
| Evening Grosbeak |
| House Sparrow |

| Oakland County Species List |
|------------------------------------|
| Greater White-fronted Goose |
| Snow Goose |
| Ross's Goose |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Muscovy Duck (Domestic type) |
| Wood Duck |
| Gadwall |
| Eurasian Wigeon |
| American Wigeon |
| American Black Duck |
| Mallard |
| Blue-winged Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Greater Scaup |
| Lesser Scaup |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |
| Northern Bobwhite |
| Indian Peafowl (Domestic type) |
| Ring-necked Pheasant |
| Ruffed Grouse |
| Wild Turkey |
| Common Loon |

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|----------------------------|
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Eared Grebe |
| Double-crested Cormorant |
| American White Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Snowy Egret |
| Little Blue Heron |
| Green Heron |
| Black-crowned Night-Heron |
| Yellow-crowned Night-Heron |
| Black Vulture |
| Turkey Vulture |
| Osprey |
| Golden Eagle |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Red-tailed Hawk |
| Rough-legged Hawk |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Sandhill Crane |
| American Avocet |
| Black-bellied Plover |
| American Golden-Plover |
| Semipalmated Plover |
| Killdeer |
| Upland Sandpiper |
| Whimbrel |
| Ruddy Turnstone |

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| Stilt Sandpiper |
| Sanderling |
| Dunlin |
| Baird's Sandpiper |
| Least Sandpiper |
| White-rumped Sandpiper |
| Buff-breasted Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Red-necked Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Lesser Yellowlegs |
| Bonaparte's Gull |
| Franklin's Gull |
| Ring-billed Gull |
| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Glaucous Gull |
| Great Black-backed Gull |
| Caspian Tern |
| Black Tern |
| Common Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |

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| Northern Saw-whet Owl |
| Common Nighthawk |
| Chuck-will's-widow |
| Eastern Whip-poor-will |
| Chimney Swift |
| Ruby-throated Hummingbird |
| Rufous Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |
| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Peregrine Falcon |
| Olive-sided Flycatcher |
| Eastern Wood-Pewee |
| Yellow-bellied Flycatcher |
| Acadian Flycatcher |
| Alder Flycatcher |
| Willow Flycatcher |
| Least Flycatcher |
| Eastern Phoebe |
| Great Crested Flycatcher |
| Eastern Kingbird |
| Northern Shrike |
| White-eyed Vireo |
| Bell's Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |

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| Tree Swallow |
| Bank Swallow |
| Barn Swallow |
| Cliff Swallow |
| Black-capped Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |
| White-breasted Nuthatch |
| Brown Creeper |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |
| Veery |
| Gray-cheeked Thrush |
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |
| Varied Thrush |
| Gray Catbird |
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| American Pipit |
| Bohemian Waxwing |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |

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|------------------------------|
| Prothonotary Warbler |
| Tennessee Warbler |
| Orange-crowned Warbler |
| Nashville Warbler |
| Connecticut Warbler |
| Mourning Warbler |
| Kentucky Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |
| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |
| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |
| Prairie Warbler |
| Black-throated Green Warbler |
| Canada Warbler |
| Wilson's Warbler |
| Yellow-breasted Chat |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |
| Harris's Sparrow |
| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |

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|-------------------------|
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |
| Green-tailed Towhee |
| Eastern Towhee |
| Summer Tanager |
| Scarlet Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Blue Grosbeak |
| Indigo Bunting |
| Painted Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Eastern Meadowlark |
| Yellow-headed Blackbird |
| Rusty Blackbird |
| Brewer's Blackbird |
| Common Grackle |
| Brown-headed Cowbird |
| Orchard Oriole |
| Baltimore Oriole |
| Pine Grosbeak |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |
| Hoary Redpoll |
| Pine Siskin |
| American Goldfinch |
| Evening Grosbeak |
| House Sparrow |

| Livingston County Species List |
|---------------------------------------|
| Greater White-fronted Goose |
| Graylag Goose (Domestic type) |
| Snow Goose |
| Ross's Goose |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Wood Duck |
| Gadwall |
| American Wigeon |
| American Black Duck |
| Mallard |
| Mallard (Domestic type) |
| Blue-winged Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Greater Scaup |
| Lesser Scaup |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |
| Northern Bobwhite |
| Ring-necked Pheasant |
| Ruffed Grouse |
| Wild Turkey |
| Red-throated Loon |
| Pacific Loon |

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|---------------------------|
| Common Loon |
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Eared Grebe |
| Double-crested Cormorant |
| American White Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Little Blue Heron |
| Cattle Egret |
| Green Heron |
| Black-crowned Night-Heron |
| Turkey Vulture |
| Osprey |
| Golden Eagle |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Red-tailed Hawk |
| Rough-legged Hawk |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Sandhill Crane |
| Black-bellied Plover |
| American Golden-Plover |
| Semipalmated Plover |
| Killdeer |
| Marbled Godwit |
| Stilt Sandpiper |
| Sanderling |
| Dunlin |
| Baird's Sandpiper |

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|--------------------------|
| Least Sandpiper |
| White-rumped Sandpiper |
| Buff-breasted Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Wilson's Phalarope |
| Red-necked Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Lesser Yellowlegs |
| Bonaparte's Gull |
| Franklin's Gull |
| Ring-billed Gull |
| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Glaucous Gull |
| Great Black-backed Gull |
| Caspian Tern |
| Black Tern |
| Common Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |
| Northern Saw-whet Owl |
| Common Nighthawk |
| Chuck-will's-widow |

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| Eastern Whip-poor-will |
| Chimney Swift |
| Ruby-throated Hummingbird |
| Rufous Hummingbird |
| White-eared Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |
| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Peregrine Falcon |
| Olive-sided Flycatcher |
| Eastern Wood-Pewee |
| Yellow-bellied Flycatcher |
| Acadian Flycatcher |
| Alder Flycatcher |
| Willow Flycatcher |
| Least Flycatcher |
| Eastern Phoebe |
| Great Crested Flycatcher |
| Eastern Kingbird |
| Northern Shrike |
| White-eyed Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |
| Tree Swallow |
| Bank Swallow |
| Barn Swallow |

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| Cliff Swallow |
| Black-capped Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |
| White-breasted Nuthatch |
| Brown Creeper |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |
| Townsend's Solitaire |
| Veery |
| Gray-cheeked Thrush |
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |
| Gray Catbird |
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| American Pipit |
| Bohemian Waxwing |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |
| Prothonotary Warbler |
| Tennessee Warbler |
| Orange-crowned Warbler |

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|------------------------------|
| Nashville Warbler |
| Connecticut Warbler |
| Mourning Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |
| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |
| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |
| Prairie Warbler |
| Black-throated Green Warbler |
| Canada Warbler |
| Wilson's Warbler |
| Yellow-breasted Chat |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Lark Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |
| Harris's Sparrow |
| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |

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|------------------------|
| Spotted Towhee |
| Eastern Towhee |
| Summer Tanager |
| Scarlet Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Indigo Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Western Meadowlark |
| Eastern Meadowlark |
| Rusty Blackbird |
| Brewer's Blackbird |
| Common Grackle |
| Brown-headed Cowbird |
| Orchard Oriole |
| Bullock's Oriole |
| Baltimore Oriole |
| Pine Grosbeak |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |
| Hoary Redpoll |
| Pine Siskin |
| American Goldfinch |
| European Goldfinch |
| Evening Grosbeak |
| House Sparrow |

| Washtenaw County Species List |
|--------------------------------------|
| Greater White-fronted Goose |
| Graylag Goose (Domestic type) |
| Snow Goose |
| Ross's Goose |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Wood Duck |
| Gadwall |
| Eurasian Wigeon |
| American Wigeon |
| American Black Duck |
| Mallard |
| Mallard (Domestic type) |
| Blue-winged Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Greater Scaup |
| Lesser Scaup |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |
| Northern Bobwhite |
| Ring-necked Pheasant |
| Ruffed Grouse |
| Wild Turkey |
| Red-throated Loon |

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|---------------------------|
| Pacific Loon |
| Common Loon |
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Double-crested Cormorant |
| Anhinga |
| American White Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Snowy Egret |
| Little Blue Heron |
| Cattle Egret |
| Green Heron |
| Black-crowned Night-Heron |
| White-faced Ibis |
| Black Vulture |
| Turkey Vulture |
| Osprey |
| Golden Eagle |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Red-tailed Hawk |
| Rough-legged Hawk |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Sandhill Crane |
| Black-necked Stilt |
| American Avocet |
| Black-bellied Plover |
| American Golden-Plover |
| Semipalmated Plover |

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|--------------------------|
| Killdeer |
| Upland Sandpiper |
| Whimbrel |
| Hudsonian Godwit |
| Marbled Godwit |
| Ruddy Turnstone |
| Ruff |
| Stilt Sandpiper |
| Sanderling |
| Dunlin |
| Baird's Sandpiper |
| Least Sandpiper |
| White-rumped Sandpiper |
| Buff-breasted Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Western Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Wilson's Phalarope |
| Red-necked Phalarope |
| Red Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Willet |
| Lesser Yellowlegs |
| Sabine's Gull |
| Bonaparte's Gull |
| Laughing Gull |
| Franklin's Gull |
| Ring-billed Gull |
| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Slaty-backed Gull |
| Glaucous Gull |
| Great Black-backed Gull |

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|----------------------------|
| Caspian Tern |
| Black Tern |
| Common Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Barn Owl |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |
| Long-eared/Short-eared Owl |
| Northern Saw-whet Owl |
| Common Nighthawk |
| Eastern Whip-poor-will |
| Chimney Swift |
| Ruby-throated Hummingbird |
| Rufous Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |
| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Peregrine Falcon |
| Olive-sided Flycatcher |
| Eastern Wood-Pewee |
| Yellow-bellied Flycatcher |
| Acadian Flycatcher |
| Alder Flycatcher |
| Willow Flycatcher |
| Least Flycatcher |
| Eastern Phoebe |

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| Great Crested Flycatcher |
| Western Kingbird |
| Eastern Kingbird |
| Loggerhead Shrike |
| Northern Shrike |
| White-eyed Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |
| Tree Swallow |
| Bank Swallow |
| Barn Swallow |
| Cliff Swallow |
| Black-capped Chickadee |
| Boreal Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |
| White-breasted Nuthatch |
| Brown Creeper |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |
| Veery |
| Gray-cheeked Thrush |
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |

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|-----------------------------|
| Varied Thrush |
| Gray Catbird |
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| American Pipit |
| Bohemian Waxwing |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |
| Prothonotary Warbler |
| Tennessee Warbler |
| Orange-crowned Warbler |
| Nashville Warbler |
| Connecticut Warbler |
| Mourning Warbler |
| Kentucky Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Kirtland's Warbler |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |
| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |
| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |

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| Yellow-throated Warbler |
| Prairie Warbler |
| Black-throated Gray Warbler |
| Black-throated Green Warbler |
| Canada Warbler |
| Wilson's Warbler |
| Yellow-breasted Chat |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| Nelson's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Lark Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |
| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |
| Eastern Towhee |
| Summer Tanager |
| Scarlet Tanager |
| Western Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Blue Grosbeak |
| Indigo Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Western Meadowlark |
| Eastern Meadowlark |
| Yellow-headed Blackbird |
| Rusty Blackbird |
| Brewer's Blackbird |
| Common Grackle |

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|------------------------|
| Brown-headed Cowbird |
| Orchard Oriole |
| Baltimore Oriole |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |
| Hoary Redpoll |
| Pine Siskin |
| American Goldfinch |
| Evening Grosbeak |
| House Sparrow |

| Monroe County Species List |
|-----------------------------------|
| Greater White-fronted Goose |
| Snow Goose |
| Ross's Goose |
| Brant |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Wood Duck |
| Gadwall |
| Eurasian Wigeon |
| American Wigeon |
| American Black Duck |
| Mallard |
| Mallard (Domestic type) |
| Blue-winged Teal |
| Cinnamon Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Greater Scaup |
| Lesser Scaup |
| King Eider |
| Common Eider |
| Harlequin Duck |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Barrow's Goldeneye |
| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |

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|----------------------------|
| Northern Bobwhite |
| Ring-necked Pheasant |
| Wild Turkey |
| Red-throated Loon |
| Pacific Loon |
| Common Loon |
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Eared Grebe |
| Northern Gannet |
| Double-crested Cormorant |
| American White Pelican |
| Brown Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Snowy Egret |
| Little Blue Heron |
| Tricolored Heron |
| Cattle Egret |
| Green Heron |
| Black-crowned Night-Heron |
| Yellow-crowned Night-Heron |
| White Ibis |
| Glossy Ibis |
| White-faced Ibis |
| Black Vulture |
| Turkey Vulture |
| Osprey |
| Golden Eagle |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Swainson's Hawk |
| Red-tailed Hawk |

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|-------------------------|
| Rough-legged Hawk |
| Yellow Rail |
| King Rail |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Sandhill Crane |
| Black-necked Stilt |
| American Avocet |
| Black-bellied Plover |
| American Golden-Plover |
| Snowy Plover |
| Semipalmated Plover |
| Piping Plover |
| Killdeer |
| Upland Sandpiper |
| Whimbrel |
| Hudsonian Godwit |
| Marbled Godwit |
| Ruddy Turnstone |
| Red Knot |
| Ruff |
| Stilt Sandpiper |
| Curlew Sandpiper |
| Sanderling |
| Dunlin |
| Purple Sandpiper |
| Baird's Sandpiper |
| Least Sandpiper |
| White-rumped Sandpiper |
| Buff-breasted Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Western Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Wilson's Phalarope |
| Red-necked Phalarope |

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|--------------------------|
| Red Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Willet |
| Lesser Yellowlegs |
| Parasitic Jaeger |
| Black-legged Kittiwake |
| Bonaparte's Gull |
| Black-headed Gull |
| Little Gull |
| Laughing Gull |
| Franklin's Gull |
| Ring-billed Gull |
| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Glaucous Gull |
| Great Black-backed Gull |
| Least Tern |
| Gull-billed Tern |
| Caspian Tern |
| Black Tern |
| Common Tern |
| Arctic Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Barn Owl |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |
| Northern Saw-whet Owl |
| Common Nighthawk |
| Eastern Whip-poor-will |

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| Chimney Swift |
| Ruby-throated Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |
| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Gyrfalcon |
| Peregrine Falcon |
| 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 |
| Loggerhead Shrike |
| Northern Shrike |
| White-eyed Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |
| Tree Swallow |
| Bank Swallow |
| Barn Swallow |

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| Cliff Swallow |
| Cave Swallow |
| Black-capped Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |
| White-breasted Nuthatch |
| Brown Creeper |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |
| Mountain Bluebird |
| Veery |
| Gray-cheeked Thrush |
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |
| Varied Thrush |
| Gray Catbird |
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| White Wagtail |
| American Pipit |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |
| Prothonotary Warbler |

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|------------------------------|
| Tennessee Warbler |
| Orange-crowned Warbler |
| Nashville Warbler |
| Connecticut Warbler |
| Mourning Warbler |
| Kentucky Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |
| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |
| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |
| Yellow-throated Warbler |
| Prairie Warbler |
| Black-throated Green Warbler |
| Canada Warbler |
| Wilson's Warbler |
| Yellow-breasted Chat |
| Bachman's Sparrow |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| Le Conte's Sparrow |
| Nelson's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Lark Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |

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| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |
| Eastern Towhee |
| Summer Tanager |
| Scarlet Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Blue Grosbeak |
| Indigo Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Western Meadowlark |
| Eastern Meadowlark |
| Yellow-headed Blackbird |
| Rusty Blackbird |
| Brewer's Blackbird |
| Common Grackle |
| Brown-headed Cowbird |
| Orchard Oriole |
| Baltimore Oriole |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |
| Pine Siskin |
| American Goldfinch |
| House Sparrow |

| St. Clair County Species List |
|--------------------------------------|
| Greater White-fronted Goose |
| Snow Goose |
| Ross's Goose |
| Brant |
| Cackling Goose |
| Canada Goose |
| Mute Swan |
| Trumpeter Swan |
| Tundra Swan |
| Wood Duck |
| Gadwall |
| Eurasian Wigeon |
| American Wigeon |
| American Black Duck |
| Mallard |
| Mallard (Domestic type) |
| Blue-winged Teal |
| Northern Shoveler |
| Northern Pintail |
| Green-winged Teal |
| Canvasback |
| Redhead |
| Ring-necked Duck |
| Tufted Duck |
| Greater Scaup |
| Lesser Scaup |
| King Eider |
| Harlequin Duck |
| Surf Scoter |
| White-winged Scoter |
| Black Scoter |
| Long-tailed Duck |
| Bufflehead |
| Common Goldeneye |
| Barrow's Goldeneye |
| Hooded Merganser |
| Common Merganser |
| Red-breasted Merganser |
| Ruddy Duck |
| Northern Bobwhite |

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| Ring-necked Pheasant |
| Ruffed Grouse |
| Wild Turkey |
| Red-throated Loon |
| Common Loon |
| Pied-billed Grebe |
| Horned Grebe |
| Red-necked Grebe |
| Eared Grebe |
| Western Grebe |
| Neotropic Cormorant |
| Double-crested Cormorant |
| American White Pelican |
| American Bittern |
| Least Bittern |
| Great Blue Heron |
| Great Egret |
| Snowy Egret |
| Cattle Egret |
| Green Heron |
| Black-crowned Night-Heron |
| White Ibis |
| Turkey Vulture |
| Osprey |
| Golden Eagle |
| Northern Harrier |
| Sharp-shinned Hawk |
| Cooper's Hawk |
| Northern Goshawk |
| Bald Eagle |
| Red-shouldered Hawk |
| Broad-winged Hawk |
| Red-tailed Hawk |
| Rough-legged Hawk |
| King Rail |
| Virginia Rail |
| Sora |
| Common Gallinule |
| American Coot |
| Sandhill Crane |
| American Avocet |

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| Black-bellied Plover |
| American Golden-Plover |
| Semipalmated Plover |
| Killdeer |
| Upland Sandpiper |
| Ruddy Turnstone |
| Stilt Sandpiper |
| Sanderling |
| Dunlin |
| Purple Sandpiper |
| Baird's Sandpiper |
| Least Sandpiper |
| White-rumped Sandpiper |
| Pectoral Sandpiper |
| Semipalmated Sandpiper |
| Short-billed Dowitcher |
| Long-billed Dowitcher |
| Wilson's Snipe |
| American Woodcock |
| Wilson's Phalarope |
| Red-necked Phalarope |
| Red Phalarope |
| Spotted Sandpiper |
| Solitary Sandpiper |
| Greater Yellowlegs |
| Willet |
| Lesser Yellowlegs |
| Pomarine Jaeger |
| Parasitic Jaeger |
| Black-legged Kittiwake |
| Sabine's Gull |
| Bonaparte's Gull |
| Little Gull |
| Franklin's Gull |
| Ring-billed Gull |
| California Gull |
| Herring Gull |
| Thayer's Gull |
| Iceland Gull |
| Lesser Black-backed Gull |
| Glaucous Gull |

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|---------------------------|
| Great Black-backed Gull |
| Caspian Tern |
| Black Tern |
| Common Tern |
| Arctic Tern |
| Forster's Tern |
| Rock Pigeon |
| Mourning Dove |
| Yellow-billed Cuckoo |
| Black-billed Cuckoo |
| Eastern Screech-Owl |
| Great Horned Owl |
| Snowy Owl |
| Barred Owl |
| Long-eared Owl |
| Short-eared Owl |
| Northern Saw-whet Owl |
| Common Nighthawk |
| Eastern Whip-poor-will |
| Chimney Swift |
| Ruby-throated Hummingbird |
| Belted Kingfisher |
| Red-headed Woodpecker |
| Red-bellied Woodpecker |
| Yellow-bellied Sapsucker |
| Downy Woodpecker |
| Hairy Woodpecker |
| Northern Flicker |
| Pileated Woodpecker |
| American Kestrel |
| Merlin |
| Gyrfalcon |
| Peregrine Falcon |
| Olive-sided Flycatcher |
| Eastern Wood-Pewee |
| Yellow-bellied Flycatcher |
| Acadian Flycatcher |
| Alder Flycatcher |
| Willow Flycatcher |
| Least Flycatcher |
| Eastern Phoebe |

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| Great Crested Flycatcher |
| Eastern Kingbird |
| Northern Shrike |
| White-eyed Vireo |
| Yellow-throated Vireo |
| Blue-headed Vireo |
| Philadelphia Vireo |
| Warbling Vireo |
| Red-eyed Vireo |
| Blue Jay |
| American Crow |
| Horned Lark |
| Northern Rough-winged Swallow |
| Purple Martin |
| Tree Swallow |
| Bank Swallow |
| Barn Swallow |
| Cliff Swallow |
| Black-capped Chickadee |
| Tufted Titmouse |
| Red-breasted Nuthatch |
| White-breasted Nuthatch |
| Brown Creeper |
| Rock Wren |
| House Wren |
| Winter Wren |
| Sedge Wren |
| Marsh Wren |
| Carolina Wren |
| Blue-gray Gnatcatcher |
| Golden-crowned Kinglet |
| Ruby-crowned Kinglet |
| Eastern Bluebird |
| Mountain Bluebird |
| Veery |
| Gray-cheeked Thrush |
| Swainson's Thrush |
| Hermit Thrush |
| Wood Thrush |
| American Robin |
| Gray Catbird |

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|------------------------------|
| Brown Thrasher |
| Northern Mockingbird |
| European Starling |
| American Pipit |
| Bohemian Waxwing |
| Cedar Waxwing |
| Lapland Longspur |
| Snow Bunting |
| Ovenbird |
| Worm-eating Warbler |
| Louisiana Waterthrush |
| Northern Waterthrush |
| Golden-winged Warbler |
| Blue-winged Warbler |
| Black-and-white Warbler |
| Prothonotary Warbler |
| Tennessee Warbler |
| Orange-crowned Warbler |
| Nashville Warbler |
| Connecticut Warbler |
| Mourning Warbler |
| Common Yellowthroat |
| Hooded Warbler |
| American Redstart |
| Cape May Warbler |
| Cerulean Warbler |
| Northern Parula |
| Magnolia Warbler |
| Bay-breasted Warbler |
| Blackburnian Warbler |
| Yellow Warbler |
| Chestnut-sided Warbler |
| Blackpoll Warbler |
| Black-throated Blue Warbler |
| Palm Warbler |
| Pine Warbler |
| Yellow-rumped Warbler |
| Yellow-throated Warbler |
| Prairie Warbler |
| Black-throated Green Warbler |
| Canada Warbler |

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|-------------------------|
| Wilson's Warbler |
| Yellow-breasted Chat |
| Grasshopper Sparrow |
| Henslow's Sparrow |
| American Tree Sparrow |
| Chipping Sparrow |
| Clay-colored Sparrow |
| Field Sparrow |
| Fox Sparrow |
| Dark-eyed Junco |
| White-crowned Sparrow |
| Harris's Sparrow |
| White-throated Sparrow |
| Vesper Sparrow |
| Savannah Sparrow |
| Song Sparrow |
| Lincoln's Sparrow |
| Swamp Sparrow |
| Eastern Towhee |
| Summer Tanager |
| Scarlet Tanager |
| Northern Cardinal |
| Rose-breasted Grosbeak |
| Indigo Bunting |
| Dickcissel |
| Bobolink |
| Red-winged Blackbird |
| Eastern Meadowlark |
| Yellow-headed Blackbird |
| Rusty Blackbird |
| Brewer's Blackbird |
| Common Grackle |
| Brown-headed Cowbird |
| Orchard Oriole |
| Baltimore Oriole |
| Pine Grosbeak |
| House Finch |
| Purple Finch |
| Red Crossbill |
| White-winged Crossbill |
| Common Redpoll |

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|--------------------|
| Hoary Redpoll |
| Pine Siskin |
| American Goldfinch |
| Evening Grosbeak |
| House Sparrow |