

SHIAWASSEE NATIONAL WILDLIFE REFUGE

Saginaw, Michigan

ANNUAL NARRATIVE

Fiscal Year 2003



2003 Refuge Manager's Choice. Photo by Reid Barkley.

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INTRODUCTION

Shiawassee National Wildlife Refuge (NWR) is located in the central portion of Michigan's Lower Peninsula, near the south end of Saginaw Bay. The north boundary of the refuge adjoins the south boundary of the City of Saginaw. The refuge is in the fourth and fifth U.S. Congressional Districts of Michigan. The Michigan Islands NWR is also administered by Shiawassee NWR.

The establishment of Shiawassee NWR was authorized in March, 1953, by the Migratory Bird Conservation Commission under the Migratory Bird Conservation Act (16 U.S.C. 715-715s) "...as an inviolate sanctuary, or for any other management purpose, for migratory birds." As a result of local and regional conservationists' initiatives, the State of Michigan established the Shiawassee River State Game Area adjacent to the refuge. Together, these two areas encompass approximately 20,000 acres of some of the most valuable wetland habitat in the State. The refuge is 9,427 acres in size, which includes 413 acres of refuge-managed land leased from the City of Saginaw and Bridgeport Township under long-term agreements.

Shiawassee NWR, a portion of an area known locally as the *Shiawassee Flats*, has a contributing drainage area of approximately 6,060 square miles (10.6 percent of the state of Michigan). Four rivers converge in the Shiawassee NWR and account for the majority of the contributing drainage area. These rivers, along with their drainage area at the nearest U.S. Geological Survey gauge, are as follows: the Tittabawassee, with a 2,400 square-mile drainage at gauge on river mile 23; the Flint, with a 1,200 square mile drainage at gauge on river mile 12; the Cass with an 850 square-mile drainage at gauge on river mile 17; and the Shiawassee, with a 640 square mile drainage at gauge on river mile 14. In addition to the four main tributaries, several smaller streams enter the Shiawassee River within or just upstream of the Refuge. The largest of these are the Bad River, draining 248 square miles; Misteguay Creek, draining 137 square miles; and Swan Creek, draining 176 square miles. At the northeastern edge of the Shiawassee NWR, at the confluence of the Tittabawassee and Shiawassee Rivers, the Saginaw River proper begins. The Saginaw River, 22 miles long, flows northerly from this point through the cities of Saginaw and Bay City to discharge into Saginaw Bay, which opens to Lake Huron. Topography on the Shiawassee NWR is flat and generally ranges from 580 to 590 feet Mean Sea Level (M.S.L.).

As recognized during its initial establishment, Shiawassee NWR provides a valuable stopover for waterfowl migrating through the Saginaw Valley. In the fall, peaks of 35,000 ducks utilize the refuge, including up to 4,000 black ducks. The significance of this last figure is such that the refuge is included within one of six focus areas designated by the lower Great Lakes/St. Lawrence Basin Joint Venture of the North American Waterfowl Management Plan. The area also remains an important migration site for the Southern James Bay Population of Canada geese, with spring/fall peaks of 25,000/23,000, respectively. Due to its habitat diversity, the entire refuge serves as endangered and threatened species habitat for a number of federal and state-listed wildlife species.

The Shiawassee NWR Private Lands Wetland Management District (PLWMD), established in 1988, covers 48 counties in central and southern Michigan. It includes 115 easements (159 landowners) totaling 4,780 acres, located in 34 different counties. The District also manages a 22-county area for private land wetland and native grassland restoration projects.

In September 1993, Shiawassee NWR entered into a partnership with the City of Saginaw to manage Green Point Nature Center, a city-owned, environmental education facility. Renamed by the Service as Green Point Environmental Learning Center (ELC), the Center is located on the Tittabawassee River, which flows through the refuge.

Currently, ten permanent employees staff the Shiawassee NWR. The positions include a refuge manager, a refuge operations specialist, a wildlife biologist, a fish and wildlife biologist, an administrative technician, a tractor operator, an engineering equipment operator, a biological sciences technician, and two park rangers.

HIGHLIGHTS

- A record number of bald eagles visit the refuge in January (Section 1A).
- Shiawassee NWR experiences driest year in the last 24 years (Climate Data).
- New refuge forest inventory initiated (Section 3E).
- Dioxin issues associated with the Tittabawassee River continue (Section 6C).
- Land acquisition efforts active regarding satellite refuges (Section 6G).
- Refuge Centennial celebrations a success (Section 7A).
- Several refuge staff changes occur during the year (Section 8B).
- Refuge maintenance projects benefit fish, wildlife, and the public (Section 8B).

CLIMATE DATA

Shiawassee National Wildlife Refuge experienced its driest conditions since the drought of 1979 with only 27.74 inches of rain during the year. Temperatures were all below the long term averages during the first 6 months of the year and at or above the averages for the last 6 months. This allowed cropland to be planted early in the season and harvest took place in a timely manner. What rain did occur was well timed throughout the growing season which resulted in average plant growth and yields in the croplands. Plant development and vigor was about average in other habitat areas of the refuge. Mast crops were below average as a result of the weather. Area rivers and lakes remained low, continuing the trend over the last few years. The result has been reduced abilities for mechanical manipulations of water levels in several areas. The forest tracts were generally dry for the fourth straight year, with little or no impact from river flooding and resultant silt deposition. Many of the moist soil units could not be flooded in the fall and had little waterfowl use.

1. MONITORING AND STUDIES

A. SURVEYS AND CENSUSES

There were a total of 176 migratory bird surveys conducted on Shiawassee NWR in FY 2003, an increase of 29 from the previous fiscal year. These surveys are primarily weekly surveys for waterfowl, shorebirds, other waterbirds, raptors and songbirds. Refuge volunteers assisted refuge staff by reporting bird observations as well. These volunteer birders greatly supplemented our bird data, especially on songbirds, waterbirds and raptors, having surveyed birds on the refuge more than once per week in 2003. A total of 39 bald eagles were counted on the refuge on January 3, while on January 10 a refuge record 63 bald eagles were counted. On February 24, 2003 refuge volunteer Bob Grefe celebrated 20 years of weekly volunteer bird surveys on the refuge by surveying birds. Bob and Carolyn Szaroletta also ran a mist-netting operation (MAPS) on the refuge to census and band birds in the summer, with help from other local Audubon Society members. We are very much indebted to them for their faithful efforts.

Notable refuge bird sightings during the year include a peregrine falcon and an osprey in October, a golden eagle and a cattle egret visit in November, a Ross' goose in December, two long-tailed ducks and a red-necked phalarope in April, 4-6 American white pelicans that visited the refuge repeatedly from June to August, and an American avocet for one day in July and October. Orchard orioles were also recorded in great numbers during the late spring songbird migration. Low water levels in the Shiawassee River as well as Pool 1B provided welcome foraging areas for shorebirds and wading birds. Shiawassee NWR remains an extremely important international migratory stopover as well as important breeding ground for many birds.

Vernal waters were scarce in 2003, for the fourth year in the last five. This situation created far less than optimum breeding conditions for frogs and toads. Subsequently, all species were calling in reduced numbers along the refuge's Michigan Frog and Toad Survey route. Depending on the pace of the spring warm-up, it can be difficult to time the first two of the three runs of the survey. Surveying at the time of peak wood frog calling can result in breeding northern leopard frogs being under-represented, as this species breeds slightly later. In order to compensate, the second run could be conducted soon after the first, relative to the leopard frog's peak, which means American toads are likely to be missed. This last species was most notably uncommon in 2003. Despite diligent efforts to monitor their calling, few trilling American toads were heard.

B. STUDIES AND INVESTIGATIONS

In June, biologist Barbara Hosler, (Ecological Services Field Office, E. Lansing) spent two days on the refuge working with the Youth Conservation Corps crew sampling

various small ponds for leopard frogs. All captured frogs were examined and measured, and those with any deformities were euthanized, the deformities described in detail, and bodies packaged for further study. The actual cause of the deformities is yet to be determined through x-ray and other examinations. A report is due sometime in February, 2004.



A graduate student, Jennifer Kirts, from Central Michigan University, continued her study of habitat use and population distribution of short-eared owls in Michigan. She has included Farm Unit 1 in Shiawassee NWR as one of her study sites, and was on the refuge looking for short-eared owls 25 times between November 2, 2002 and May 5, 2003. Volunteers Grefe and Kim LeBlanc also contributed short-eared owl observations to her study. Some preliminary findings: owls were

observed during 28 of 33 different observation periods; one owl sighting was at 11:30 a.m., while all the other sightings were in late afternoon and evening, from 169 minutes before sunset to 59 minutes after sunset; a maximum of 7 owls were observed in one day in November; owls vocalized while interacting with one another during fall and winter; and northern harriers were observed in several attempts at kleptoparasitism on short-eared owls. We anticipate her final report in 2004.

Above Photo: A short-eared owl rests among the Refuge's icy grasses. Photo by Kim LeBlanc.

Fisheries biologist, Anjanette Bowen, from the Alpena Fisheries Assistance Office led a hook and line fishing expedition in September on the refuge, looking for round gobies and other invasive fish species. The round goby *Neogobius melanostomus*, is an aquatic nuisance species, and has been found in upper stretches of the Shiawassee and Flint Rivers and in the Saginaw River. The refuge is located at an important convergence of these rivers and maintains habitat for a variety of different species of fish. Round goby threaten aquatic species diversity and are a nuisance as they compete with native fish for food and habitat. Goby are particularly susceptible to angling gear due to their aggressive nature. Most of the refuge anglers were members of the Friends of Shiawassee Refuge, and they concentrated their efforts on Spaulding Drain and the Flint River. The goal was to detect the presence of goby on the refuge and to document the native fish community. This was a repeat of a similar study conducted in 1999. No round gobies were caught, but native species such as freshwater drum, flathead, and channel catfish were caught.

2. HABITAT RESTORATION

A. WETLAND RESTORATION

ON-REFUGE

A dike break along the Cass River, north of Eagle Marsh was repaired after many years of disrepair which prevented water management in both Eagle and North Marshes. A spillway in the dike will allow fish passage during high water periods in the spring when spawning occurs. Controlled water levels will also allow for fry and fingerling development.



Clare, Huron, Lapeer-St. Clair, Mason-Lake, Ogemaw and Sanilac Conservation Districts. Above photo: Harrison High School students have a one-acre restored wetland to work in. Photo by Michelle Vander Haar.

OFF-REFUGE

The Shiawassee National Wildlife Refuge administers a 22 county Private Lands Wetland Management District (PLWMD) located in central Michigan. In FY2003, Shiawassee NWR restored 119.5 acres (41 basins) of wetlands in 14 counties in the Saginaw Bay Watershed. These restorations were accomplished under the Service's Partners for Fish and Wildlife Program in partnership with Ducks Unlimited Inc.-Great Lakes/Atlantic Region, and the Gladwin-

B. UPLAND RESTORATION

The Partners for Fish and Wildlife (PFW) program restored 51.5 acres of native prairie grassland habitat on 6 properties in 4 different counties adjacent to existing or restored PFW wetland projects. These restorations will provide nesting cover for waterfowl and other songbirds.

One of these restorations took place at Chatfield Schools in the City of Lapeer. The site will be used for environmental education for the science curriculum at the school. A second 30 acre site was



Photo to right: Big bluestem. Photo by Michelle Vander Haar.

part of a Debt for Nature habitat restoration project in Huron County which was established as a perpetual conservation easement through the Natural Resources Conservation Service and Farm Services Administration.

C. DEEPWATER/RIVERINE RESTORATION

The Shiawassee NWR, PFW program was able to complete several riparian and instream fish habitat restoration projects in the 22 counties of the Shiawassee PLWMD. In partnership with the Saginaw Bay Resource, Conservation and Development Council a total of 17 projects totaling 3,400 linear feet of stream habitat were completed along the Rifle River. The Rifle River is a sub-watershed of the larger 22-county Saginaw Bay Watershed that includes Shiawassee NWR.

These projects included bank stabilization through tree revetments and vegetation establishment. One site had a small existing native stand of big and little bluestem which was experimentally expanded, with some additional seed, in an attempt to re-vegetate the upper portions of the river bank.

There was also one lunger structure installed to restore fish habitat in the Rifle River system.

3. HABITAT MANAGEMENT

The ability to manage refuge wetlands is tied directly to the level of the Saginaw River System and Saginaw Bay, part of Lake Huron. Over the last 12 months Lake Huron has remained at depths well below average, which had implications for management of refuge wetlands. Greentree reservoirs and moist soil units remained dry most of the year, altering plant composition. Water levels have remained low enough to develop extensive mudflats over a large portion of the Shiawassee River. Slightly higher portions of the flats were extensively invaded by emergent wetland plants. These combined factors altered the types and abundance of species using many of the habitat areas.

The results of management on the various pools, marshes and moist soils are summarized in the following two sections.

A. WATER LEVEL MANAGEMENT

POOL 1A

This 315 acre open water unit operates chiefly as a loafing area for waterfowl. The unit also supports year round habitat for a variety of marsh birds and occasional seasonal habitat for shorebirds. With the conversion of 241 acres in the Trinklein Tract, this pool acts as one portion of a complex used by the birds. The refuge operated the unit as an emergent marsh/open water area during the spring flights. Low precipitation levels and warm temperature during summer and early fall gradually reduced the emergent marsh/open water habitat to large pooled areas with interspersed mudflats through the breeding season. The unit again provided large amounts of moist soil seed production used by wildlife.

GREFE POOL

This 190 acre unit operates in a similar fashion to Pool 1A. The objective for this pool is also the same. Encroachment of woody species along scattered islands and dikes has developed a unique habitat for some of the wading birds such as herons and bitterns. The trees have reached a height that offers nesting potential for night herons. This pool is another portion of the fore-mentioned complex used by a wide variety of birds. Grefe Pool started the year with standing water in only the lowest portions of the pool from precipitation which was captured during the winter. The pool was quickly drained to improve construction conditions in order to complete renovation of this unit. Waterfowl were able to use the pool for only a short time during the spring but wading birds and shorebirds took advantage of the mudflat conditions and used the area extensively over the summer. The dike construction project was completed during this time and water was quickly added to the unit for wildlife use during the remainder of the year. These lower water levels provided needed habitat for early migrants, drying conditions for the dike repair, and the ability to quickly draw down the entire unit when construction commenced. The unit went into "ice up" with about 50% of the area covered by standing water.

POOL 2

This 115 acre pool has just recently become a manageable wetland once again. For years structural failure of the north dike allowed the unit to revert to a homogeneous stand of cattails. Repairs carried out from 1994 through 1997 permitted the refuge to place water on the pool year round and encourage muskrats to help move the unit back toward a hemi-marsh condition. However, in 1998 and 1999 the pool took a step back with the drought and drawdowns leaving 95% of the pool dry for most of the year. This allowed the unit to slip back towards a homogeneous stand of cattails with few if any muskrats present. This year was the third straight year the pool carried standing water over its entire area from spring runoff through the end of the year. This has allowed muskrats to re-colonize the area with around 100 lodges, and continue the work of developing open water areas in the homogenous cattail stands. With the general drought conditions experienced throughout the area, the standing water in this pool provided needed breeding habitat for many species of birds.

POOLS 3 AND 5

These two units are 820 acres in size and are managed as a greentree reservoir. The continued low lake and river levels permitted the units to be used as greentrees only marginally during the spring migration. Water depths from early flooding reached approximately 1/4 of the wooded areas. Birds responded well to these areas. Low river levels prevented gravity flow into the pools for the fall flights. This, along with evaporation during the summer, left the units with only scattered standing pools during the fall and winter.

NORTH MARSH

North Marsh is a 113 acre wetland providing a stable emergent marsh habitat used by waterfowl, marsh and shorebirds plus a variety of other wildlife. Continuing low river and lake levels gradually moved this wetland unit from a mosaic of wet and dry areas to an area entirely dry except for the extreme north central portion of marsh. This resulted in a lush growth of moist soil plants. However, the continued dry conditions resulted in low bird use through the late summer. Water was pumped back onto the area in early fall with excellent response by migrating birds.

Over the last couple years renovations to this wetland complex has allowed the unit to operate in a more natural state. The typical spring season results in flooding of this entire complex. As the water recedes it leaves a mosaic pattern of shallow open water, emergent marsh, and wetland grasses. This draining is gradual, allowing successful fish spawning, egg development, and fingerling movement and growth. This also benefits spring migratory waterfowl, waterbirds and shorebirds. If rains raise river levels anytime during the year water can move into or out of the unit in a more natural state with free passage of adult and juvenile fish. If rains do not raise river levels, the unit goes through a natural drying process through the year to mudflat conditions over most of the open water areas. At this time fish move to the deeper channels and pool areas. Screw gates in MSU 3 and 4 allow the refuge to add water to the complex for the fall flights if needed.

TRINKLEIN 1N, 1C, AND 1S

These three wetlands total 241 acres and complete the complex mentioned in the first two sections. They comprise a mosaic pattern of semi-permanent marsh, moist soil units and grassy nesting cover. This area was used extensively by wildlife as a feeding, loafing and brooding area. At the beginning of the year the units were wet, offering excellent waterfowl use during the spring flight. In late spring, boards were removed from the water control structures to provide more of an interchange between the wet and dry areas for shorebirds. After the shorebird flight the unit was quickly drained to its lowest level to enhance ground conditions for the planned mechanical/chemical invasive plant control project. This project was designed to remove invasive plant species that cover about 25% of area in 1N and was completed during late summer. Drought conditions and low river levels left this unit dry during the fall with little opportunity for birds during the fall flights. Some use was noted in the ditches, borrow pits, and mowed areas. The heavy moist soil plant development that occurred will offer excellent habitat for birds moving through the area on their spring flights.

B. MOIST SOIL MANAGEMENT

The refuge currently has five units designated as moist soil in various states of operation. The following summarizes activities and results for the year.

MOIST SOIL UNIT 1

This 137 acre wetland is usually operated for optimum feeding potential for waterfowl during the spring and fall flights. The unit also provides mudflats for shorebirds after the waterfowl migration. In 2003, water was retained only for the very beginning of the spring flights in March and early April with a drawdown to bare ground by mid April.

Towards the end of the month, the unit was completely dried out to prepare it for farming. This was the second year of a two year program to remove invasive plants and improve water management capabilities. Low lake and river levels have limited water manipulations and intensified invasive plant problems. Over the last three years the unit could not be flooded in the fall because of changes in the flow of the Flint River and low river levels. With conditions well below optimum for moist soil plant management, water control structure repair needs, and the problems mentioned above, the refuge felt the best recourse was to move the unit to a farming operation for the 2002-2003 calendar years. This would hopefully allow time for lake and river levels to recover (increasing moist soil management capabilities), bring water control structures up to peak performance and move invasive plant problems back to more manageable levels. Problems will still be severe in 2004 due to lake and river levels being near record lows. However, with invasive plants eliminated and water control improvements completed, the chances for excellent moist soil plant development will be good even if water can't be added in the fall. The corn planted in this unit was harvested but stalks and other residue were left untouched to provide some structure to the unit during the spring flight period.

MOIST SOIL UNIT 2

This unit is operated and managed with the same intent as MSU 1, and it experienced the same water regime through the year. Migrating birds were able to make good use of the unit during the spring. This field has now been sub-divided into two separate water controlled moist soil units (MSU 2E and 2W). This allows us to time the drawdowns separately, thereby optimizing use by puddle ducks and shorebirds, and allows the refuge to stimulate desired moist soil plants. MSU 2E was targeted for renovation in 2002, but this was delayed when good numbers of *Galerucella sp.* beetles were observed in the unit and plans were developed to farm MSU 1. As in the past couple of years, the low river levels offered little opportunity for water manipulations to alter vegetative response. Under these conditions the units have moved from moist soil plant-dominated fields to tracts dominated by wetland grasses and some moist soil plants. The refuge was not able to add water to the units in the fall and little bird use occurred.

MOIST SOIL UNIT 3

This 92 acre unit is part of the larger North Marsh complex and is intended to operate in a natural fashion dictated by area weather patterns and water cycles as much as possible. The field is positioned on the southwest quarter of the North Marsh area and bears the highest elevations of any portion of the complex. The unit is dominated by an interesting historic wet prairie plant community. This is composed primarily of cordgrass with a moist soil plant understory. During low water cycles the unit is covered by standing water only in the spring and gradually dries out through late spring and early summer, offering habitat for waterfowl and shorebirds during the migration with little fall use. High water cycles provide excellent waterfowl and shorebird use during spring periods, while periodic standing water other times of the year offers ideal conditions for waterfowl and marsh birds. As a result, the management objective of providing feeding and loafing habitat for migratory birds varies with unpredictable weather and water patterns. The hydrology of the unit and complex also benefits fish as this natural cycle offers ideal spawning conditions for adult fish, and plenty of cover for juvenile fish along with easier movement patterns in and out of the marsh complex.

In 2003, the unit was inundated with standing water for only a brief time in the spring before receding water levels and evaporation dried the unit out for the remainder of the year. Water remained in the ditches throughout the year. The unit was again dominated by a wet prairie cordgrass community with understory moist soil plants. The water regime offered little waterfowl use opportunities.

MOIST SOIL UNIT 4

This 82 acre unit operates under the same cycles and is part of the same complex mentioned earlier. This unit, as with all of the moist soil units, suffered from low river and lake levels which left the field dry for most of the year. Some spring use was reported in the northern part of the unit where puddles and mudflats offered some habitat use. In addition, water was added to the complex during the fall flights and offered some habitat for birds in the northern 1/4 of the field. The unit has separated into three minor habitat types; with an emergent marsh in the northern section, woody shrubs and brush dominating the central

section, and the southern portion comprised of grasses and wetland vegetation. Future goals are to operate this land unit as the one true moist soil unit in this North Marsh Complex dedicated to production of moist soil foods. To do this a dike must be constructed on the north and east sides.

KAUFMAN TRACT

This 51 acre wetland is managed as a moist soil unit. Low water levels this past year offered ideal spring use by wetland bird species, with no summer or fall use of any kind. About the only use this unit experienced this year after the spring flights was by raptors and some grassland species. This tract has water management problems associated with adjacent land owners. Historically, the landowners near this wetland drained their fields through the Kaufman Tract, with the previous owner's consent. Now that the refuge is operating the area as a moist soil unit, the adjacent landowners have had to find alternate means for moving water from their fields and are very conscious of any flooding we do. They want to make sure any depth we hold does not create problems for them through flooding or leaching water. To accommodate the landowners, the unit was allowed to move through the same water regime experienced in 2002. The brief flooding encountered in the early spring was permitted to drain in late spring to a depth which left standing water only on the lower 1/3 of the tract. Evaporation resulted in the unit finishing the year totally dry with standing water available only in the lowest portion of the ditches.

C. GRAZE/MOW/HAY

The refuge has about 580 acres of grasslands in several scattered parcels. Most of the tracts are naturally maintaining themselves in meadow-like conditions while the remainder is slowly converting to brushlands. None of the grasslands are being managed for grazing or haying. The objectives for management of the refuge grassland units are to provide habitat for migrating grassland bird species, nesting opportunity for resident species, and a ready food source for raptor populations during the year. Management of some of this grassland acreage calls for prescribed burning, and with tracts such as the Trinklein Conversion and the cordgrass community, more burning activity has been planned. The 87acre Gosen Unit, a portion of the Trinklein Conversion, was burned to reduce fuels and under story matting and improve nesting cover for grassland birds. The success or lack of success of using this technique could be partially evaluated from the MAPS data being gathered on this tract. Generally bird numbers have responded well to recent conversions and improvement in habitat conditions, with very large flights of migrating grassland birds, increased nesting, and increased wintering populations of hawks and owls.

D. FARMING

The refuge managed 1,270 acres as cropland under a soybean/corn/small grain rotation, last year. The primary objective for the program is to provide food for waterfowl during the spring and fall flights, support a greater complexity of habitats within the refuge, and support the managed goose hunt. The 2003 growing season was good for the cooperators. The dry spring permitted cooperators early access to fields. However, the early

planting did not relate to increased yields primarily due to below average temperatures for the first six months of the year. Warmer than normal temperatures for the last half of the year, along with well timed rains, provided average vigor and yields with early maturing conditions. This allowed the farmers to harvest crops with no delays or problems. Waterfowl made good use of these units during migration periods, as well as during summer and winter seasons, for feeding and loafing. Significant changes in location and acreage of the cropland units were experienced in 2003 with conversion of 51 acres from cropland to grassland habitat off Houlihan Rd. and the addition of 180 cropland acres off M-13 through the land exchange with the State of Michigan. The acreage involved in the land exchange with the State will be retired by 2005.

E. FOREST MANAGEMENT

The 4,225 acres of forested habitat at Shiawassee NWR includes two tracts that operate as a greentree reservoir. The acreage is almost exclusively bottomland hardwoods made up of second growth even age stands. Regeneration of the selective and clear cuts carried out on the late 80's has shown steady improvement. Seedlings such as green ash and cottonwood have shown significant growth. Other tree species such as oak, hickory and maple appear to be improving, but a significant portion of the year's growth was browsed by deer. Seedlings planted along Evon Road and at Greenpoint ELC in 1997 have suffered very high mortality, now totaling near 90%, as a result of improper planting techniques, periods of severe drought or flooding, wildlife browsing, and illegal mowing. Tree planting in these lowland areas appear to be a marginal proposition. Glossy buckthorn is invading the edges of several wooded tracts. Efforts to set back this invasion will be a high priority in 2003. The forest management goal is to develop a two tier canopy forest, favoring mast and cavity producing trees without jeopardizing populations of forest interior birds.

A long-term project was begun in FY 2003 to inventory and analyze the forested habitats throughout the Shiawassee NWR and Michigan Islands NWR in Lake Huron. The purpose of this inventory is to use the information obtained to evaluate current forest habitat conditions, relative to our habitat management goals as outlined in the Refuge CCP. These are initial steps in developing a forest management plan for the refuges. Several different forest inventory systems were evaluated, including those used by the Michigan Department of Natural Resources, the National Park Service and the U.S. Forest Service. The refuge inventory will be based on the U.S. Forest Service FS Veg Common Stand Exam protocols.

In June, the refuge hired 2 Student Conservation Association (SCA) interns, to work with refuge staff on forest inventory and invasive plant control. The two interns received instruction in collecting data using common stand exam (CSE) methods, and plant identification. Over the summer they inventoried the forests in the Cass River unit in Bridgeport and 5 forested stands in the refuge core, with some participation from refuge volunteer Dan Patillo. These forested stands total over 900 acres. Data management from this initial project is ongoing. The remaining 2600 acres of forest in the Shiawassee NWR, as well as Big Charity, Little Charity, Scarecrow and Thunder Bay Islands in Lake Huron, will be inventoried during the growing seasons of 2004 and 2005, using the same CSE

protocols. The refuge will work with the Huron-Manistee National Forest silviculturalists to analyze and evaluate the data collected.

F. FIRE MANAGEMENT



Towering flames and smoke erupt from the Trinklein 1S burn on April 29, 2003. Photo by Bob Grefe.

In 2003, only one prescribed burn was accomplished. With new policies, procedures and staff, a limited number of approved plans, personnel scheduling problems and weather patterns which infrequently fit prescription parameters have all narrowed the window for prescribed fire operations. One wildfire was experienced this year. The fire occurred in the M-13 parking lot where a trash pile was dumped and ignited. The Spaulding Township Volunteer Fire Department quickly responded and put the blaze out. The fire had spread only a few feet from the trash pile before being extinguished, with only one tenth of an acre burned. Refuge personnel contributed to the national fire fighting effort, assisting with fires in Montana, Idaho and Wyoming.

G. PEST PLANT CONTROL

The willows and cottonwoods in Bremer Marsh had reached a density that required broad scale application of herbicides. This was done through a contract with UAP Great Lakes, using glyphosate. Follow-up application of same herbicide to areas missed and scattered trees was done with hand-held equipment. Additional control measures may be implemented in 2004 to fully complete this project.

Willows encroaching on the upper portions of dikes at southeast Pool 1B and northwest Pool 1A were cut back, and the stumps treated with glyphosate. Autumn olive in the ball field prairie was cut and the stumps treated with glyphosate. A limited number of stump growth trees and saplings along the Misteguay dike were cut and treated as well.

In an effort to control the invasive shrub/small tree glossy buckthorn, we compared three treatment methods. Pulling the young seedlings and saplings out of the ground by hand, roots and all, works well in very specific soil moisture conditions and up to about $\frac{3}{4}$ inch diameter. An estimated 80% kill of buckthorn was experienced using both foliar application of glyphosate and using a specially adapted brush saw that applies herbicide (glyphosate) to the stump as it is being cut. The refuge purchased 2 of these specially adapted saw kits for future invasive woody plant control.

Refuge biologist Dastyck led the SCA interns in removing garlic mustard growing in dense stands and scattered individual plants along the Flint River dike, west of Farm Unit 2. They were joined one day in June by a small group of students and their teacher from White Pine Middle School, some of whom removed a considerable number of garlic mustard plants. While conducting the first year of forest inventory in summer 2003, many populations of garlic mustard were found in the Cass River unit forest as well as in forest stands in the core of the refuge. Several new stands of giant reed (*Phragmites australis*) were also discovered throughout the refuge this year.

4. FISH AND WILDLIFE MANAGEMENT

A. BIRD BANDING

The Eagle Marsh nest produced a pair of eaglets which were banded on May 20. In addition, the refuge assisted Michigan DNR personnel with banding of resident Canada geese in the summer and mallards in the early fall. Approximately 100 of each were banded. During these operations the refuge also banded two black ducks, one green-winged and one blue-winged teal. The MAPS banding (Monitoring Avian Production and Survival) site was operated again this year. Volunteers were able to capture 36 birds comprised of sedge wrens, bobolinks, savannah sparrows, common yellowthroats, American goldfinch, red-winged blackbirds, song sparrows, yellow-shafted flickers, ruby-throated hummingbirds, and a robin.

B. DISEASE MONITORING AND TREATMENT

The Saginaw County Mosquito Abatement Commission staff removed two trailers of discarded tires from the refuge in November. The outbreak of West Nile Virus so active in the county in 2002 pretty much ran its course in 2003 with only 19 dead birds reported with the virus and none from the refuge.

C. REINTRODUCTIONS

Nothing to Report

D. NEST STRUCTURES

Shiawassee Refuge provides nest boxes for both wood ducks and bluebirds. The wood duck boxes are managed by Gary VanKirk, and the bluebird box program is managed by Lidia Godina, both refuge volunteers. Wood duck boxes have been placed at 35 locations on the refuge, a mix of double and single apartment boxes. A total of 53 nesting spaces were available for wood ducks during the 2003 nesting season. Of these, 38 apartments were used by wood ducks, 9 were used by both wood ducks and hooded mergansers, and another 5 were used only by hooded mergansers. Fourteen boxes were also used by owls after wood ducks used them. Of the 455 wood duck eggs laid, 41% hatched and none died in the nest. A total of 27% out of 90 merganser eggs hatched. Part of the reason for low hatch rates appears to be the tendency of the ducks to make "dump" nests, where a dozen or more eggs are laid in a nest box and then abandoned by the adults. There were 10 such dump nests found in nest boxes in the 2003 nesting season. This may be due to the nests being in close proximity to each other. For this reason the double apartment nest boxes are gradually being replaced with single boxes. Refuge staff hope to determine whether sufficient natural nesting cavities are being used at locations before installing new wood duck boxes.

During the 2003 nesting season there were 18 bluebird nest boxes available for use on the refuge. Of these, one was used by a bluebird pair. All 5 eggs were lost, as was the female. Tree swallows nested in 13 boxes. They laid 69 total eggs, of which 27 nestlings fledged successfully. The remaining 6 nest boxes were used by house wrens, which collectively laid 36 eggs and fledged 34 young.

E. PREDATOR AND EXOTIC CONTROL

Nothing to Report

5. COORDINATION ACTIVITIES

A. INTERAGENCY COORDINATION

Throughout the year, refuge staff participated in the Saginaw Bay Watershed Initiative Network (WIN). This group is made up of federal, state, and local governments and organizations that are located in or associated with the Saginaw Bay Watershed and interested in the environmental improvement of the watershed. Refuge staff participate in the Agricultural, Land Use, Wildlife Stewardship, and Water Resources Task Groups. The Dow Foundation and The Conservation Fund are the lead funding organizations involved in WIN.

Each year Shiawassee NWR coordinates both the goose and deer hunting programs with the Michigan DNR and the Shiawassee Flats Advisory Council. Regularly scheduled meetings hosted by the Advisory Council are held the second Monday evening of each month at the DNR field office in St. Charles, to discuss management issues on the state and federal areas. With goose and deer populations viewed as one management unit within and surrounding the state and federal areas, the Michigan DNR has designated this area as Deer Management Unit 173 and the Saginaw County Goose Management Unit.

This station participates in the Midwest Natural Resources Group (MNRG) for the Saginaw Valley Watershed and the Lake St. Clair/Detroit River focus areas. The MNRG consists of the 14 federal agencies that deal with natural resources within the Midwest. This group has identified these two focus areas as areas of concern. Refuge staff has provided habitat and wildlife management guidance within both focus areas.

Refuge staff also participated in Saginaw County's Vision 2020, which has a goal of providing future direction for the County by developing strategies and actions in the areas of education, economic development, quality of life, government, infrastructure, and leadership. The refuge participates in the River Corridor Task Force which has a goal of protecting the Saginaw River system while providing recreation and further riverfront development in an environmentally responsible way.

Refuge staff participated throughout the year in many meetings regarding the Detroit River International Wildlife Refuge. These meetings involved the Canadian government, U.S. federal agencies, the State of Michigan, several county governments, and many municipalities. Non-government organizations have included the Trust for Public Lands, The Nature Conservancy, the Friends of the Detroit River, and many other such groups. The meetings were held to identify refuge mission, goals, and objectives that federal, state, and local agencies, as well as private organizations could collaborate on through combined funding or in-kind services. These meetings included development of goals and objectives with Wayne County and others concerning the former DaimlerChrysler Tract.

B. TRIBAL COORDINATION

The Saginaw Chippewa Band expressed interest in visiting the archaeological survey site on the north part of the refuge in November but had to cancel the meeting. Refuge staff and archaeologist Jeff Sommer visited tribal headquarters in Mt. Pleasant on March 21 to explain the details of the research to members of the Michigan Anishinaabe Cultural Preservation and Repatriation Alliance (MACPRA). MACPRA is an organization which consists of all federally recognized Indian Tribes and the two state historic tribes from the state of Michigan. The members were especially interested in the status of human remains found during excavations in 2002; however they were assured the remains weren't disturbed or removed.

C. PRIVATE LANDS ACTIVITIES

The Shiawassee NWR-PLWMD is responsible for a 48 county area located in southern Michigan. Currently, the PLWMD administers 115 conservation easements in 34 counties, totaling 4,779.79 acres. In addition there are 2 conservation easements (totaling 214 acres) that were transferred in fee title to County Soil and Water Conservation Districts to be managed as outdoor education areas, which the Service monitors.

Shiawassee NWR has three staff members who are responsible for the management of 89 easements. In addition, the Michigan Private Lands Office (MIPLO) in E. Lansing inspects 22 easements and Ottawa NWR reviews 4 easements in Jackson County, Michigan.

Resale of easements and property (easements) division continues to occur. Of the 115 easements managed by this office, we identified 159 landowners with ownership in some portion of a conservation easement. This easement division will continue to occur and result in more staff time and effort each year, just to maintain the basic easement management requirements.

Approximately one quarter of the easements were visited this year in order to resolve violations, check boundary signs, and to speak with new landowners. Special use permits are issued every year to conservation easement landowners to assist with habitat management and improvement. In 2003, permits were issued for tree cutting, for grassland maintenance and to establish a food plot.

TECHNICAL ASSISTANCE PROGRAMS

Approximately 100 private land sites in the Shiawassee PLWMD received technical assistance from the refuge concerning potential wetland development, fishpond development, game species management, and other wildlife habitat program and management information.

SwampBuster actions are non-existent with the Natural Resource Conservation Service (NRCS). Three Debts for Nature or debt write down requests from farmers to protect non-farmland with 30 or 50 year easements occurred this past year.

The Shiawassee NWR-PLWMD assisted the NRCS, Saginaw Bay Wetland Reserve Program (WRP) teams in determining wetland eligibility and ranking requirements for eight sites signed up for the 2003 Wetland Reserve Program across southern Michigan. The WRP team consists of an NRCS soil scientist, engineer and district conservationist, a Department of Environmental Quality (DEQ) biologist and a Service or State biologist. Assistance was also given on several Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP) potential easements.

6. RESOURCE PROTECTION

A. LAW ENFORCEMENT

There were two commissioned refuge officers on the staff in FY-2003, including a full-time park ranger specifically assigned to law enforcement duties.

Refuge officers attended several coordination meetings with area law enforcement and emergency response personnel to discuss refuge access in emergency situations. These meetings were in response to several snowmobile accidents on the Shiawassee River and near the Cass River. In one case there was a fatality while another accident resulted in nearly complete paralysis for an individual. The coordination among agencies has resulted in quicker and more efficient responses to emergencies in "The Flats".

In May, RO Shinn was detailed to Vieques NWR in Puerto Rico to assist law enforcement/security efforts there following the transfer of the eastern portion of the island from the US Navy to the FWS. In June, RO Shinn was detailed to Kenai NWR in Soldotna, Alaska to assist with law enforcement efforts there.

In June, refuge officers Shinn and De Vries assisted Michigan DNR and FWS-LE special agents with Operation Slither. This was a one day take-down coordinated in at least 8 different states following a 2 year undercover investigation of illegal trade in reptiles. In Michigan, search warrants were served at eight locations against 13 people. A total of 170 protected snakes and turtles were seized as well as records, documents, maps, and computer data. In addition to the above, officers also seized illegal narcotics and reported evidence of unsanitary living conditions to the proper social, health, and humane agencies.

In April, both officers completed law enforcement refresher training in Des Moines, Iowa. In addition, RO Shinn served as a training officer for the Region 6 LE refresher in Marana, Arizona, and served in the same capacity at the Region 3 refresher in Des Moines.

B. PERMITS AND ECONOMIC USE MANAGEMENT

A total of 27 special use permits were issued this year for activities which included archaeological research, wildlife research, trapping, and wildlife photography within closed areas.

C. CONTAMINANT INVESTIGATION

Level I surveys were conducted in two locations within the identified boundaries of the Detroit River International Wildlife Refuge. These locations included the U.S. Army Corps of Engineers tract along the Lake Erie shoreline, and at the Brancheau Tract in Monroe County. Refuge staff also participated in a BASF Corporation-sponsored informational

meeting concerning contaminated lands and innovative cleanup and acquisitions of these sites.

As of February, a Service contaminants biologist (Contaminants Branch-ELFO) has been co-located with the EPA at the Grosse Isle office. This individual will explore contaminants issues on Grassy Island.

In October, 2001, the state of Michigan released reports detailing dioxin contamination in soil along the Tittabawassee River, including the Green Point ELC and surrounding environs. Soil in this area was found to have dioxin levels 80 times higher than the state's standards for safe human contact. The soil samples had initially been collected in 2000 by the Michigan Department of Environmental Quality (DEQ) as part of a wetland mitigation project. Due to public health concerns, additional samples were taken in 2001 and 2002 and a second report was generated. A series of public meetings ensued following the report's release to the media, including a meeting with local residents hosted by then Lieutenant Governor Granholm at the Green Point ELC. Residents of the affected areas have been advised to avoid unprotected contact with the soils in those areas, and the DEQ posted area boat landings with public health risk advisory signs.

In 2003, at the request of the DEQ and the E. Lansing Field Office, refuge staff collected wood duck and hooded merganser eggs from nest boxes in the vicinity of the Tittabawassee River. DEQ staff also collected sediments, fish, and chicken eggs from the river floodplain. By the end of the year the State of Michigan had issued a report commissioned through Galbraith Environmental Sciences which detailed the risks associated with sediments in the Tittabawassee River. The report, entitled "Tittabawassee River Aquatic Ecological Risk Assessment Report" stated that dioxin and furan contaminated sediments in the Tittabawassee River downstream of the City of Midland pose significant reproductive, embryo, and early life-stage mortality risk to fish-eating birds and mammals. In addition, the DEQ sampled residential properties along the Tittabawassee floodplain throughout the year, and found dioxin levels as high as 5,660 parts per trillion (ppt) of dioxin toxic equivalence. The DEQ has currently established that dioxin concentrations below 90 ppt in soil are acceptable for direct human contact on residential property.

In July, the DEQ initiated a Community Advisory Panel to pursue corrective actions regarding dioxin mitigation, to recommend actions necessary for minimizing exposure, and to determine other needs as far as advisories, public communication and education. This panel meets monthly and includes representation from the FWS. At year's end, plans were underway to take human blood samples from 25 residents of the floodplain area, and to do a tissue study of deer, turkey, and rabbits harvested from two sites along the Tittabawassee River.

D. CONTAMINANT CLEANUP

Spill containers, mats, and retention pads were ordered for the maintenance/shop facility for environmental compliance purposes.

E. WATER RIGHTS MANAGEMENT

Nothing to Report

F. CULTURAL RESOURCE MANAGEMENT

The lower Saginaw Valley has been a central place for human habitation in the Saginaw Bay area for the past 6,000 years. As such, significant cultural resources are present on the refuge and recent research continues to document the richness of this area from the standpoint of historic resources.

Due to low river levels and the potential for loss of archeological information as sites are exposed through erosion, an Archaeological Resources Protection Act permit (2002-MI/3-2) was issued by the Region 3 Regional Director to the Historical Society of Saginaw County to monitor and collect surface artifacts from exposed sites, and document additional sites.

Since 1998, Jeffrey D. Sommer of the Saginaw Archaeological Commission has documented 23 sites within the refuge boundaries, 11 of which hadn't been previously recorded. Artifacts salvaged from the refuge date from 1000 BC through the mid-late 19th century. Approximately 200,000 artifacts have been retrieved thus far, and are being identified, labeled, and catalogued. The survey continued through the end of FY-2003, and will continue in 2004. A total of 15 people spent 1032 hours on the refuge (collectively), assisting with site monitoring, surveying, and conducting test excavations. All cultural items collected, as well as information and field notes are stored and secured at the Saginaw Archeological Commission repository.

G. LAND ACQUISITION SUPPORT

In January, 2003 Refuge Manager Spencer met with representatives from the U.S. Army Corps of Engineers (COE), concerning the transfer of a Corps land tract to the USFWS. The land is located along the Lake Erie shoreline, south of Pt. Mouillee State Game Area in Monroe County. On March 14, the Corps gave the FWS a five-year management permit for the 168 acre area. Steps are currently underway for a permanent land transfer to the FWS.

In April, the COE contacted Shiawassee NWR regarding transfer of Gull Island to the Michigan Islands NWR. Gull Island is a 138 acre island located at the mouth of the St. Clair River in Lake St. Claire, St. Claire County. Initially the tract will be managed under a five-year cooperative agreement with the Corps, followed by eventual transfer of the land to the Service.

On September 29, 2003 the Trust for Public Land (TPL) purchased the 410 acre Humbug Marsh, located in north Gibraltar/south Trenton, Wayne County, at a cost of \$4.8 million. This tract represents the last undeveloped mile of coastal wetland along the U.S.

side of the Detroit River. The U.S. Congress appropriated \$3.5 million for this purchase, while \$1 million came from the Mott Foundation. The TPL will hold the land until it can be transferred to the Detroit River International Wildlife Refuge.

7. PUBLIC EDUCATION AND RECREATION

A. PROVIDE VISITOR SERVICES

The year of the National Wildlife Refuge System Centennial in 2003 was a busy year! The refuge recorded 52,783 visits in FY 2003. Special events held throughout the year featured the Centennial theme. One of the biggest one day events that the refuge has ever hosted was the "Centennial Celebration!" on Saturday, March 15, 2003, at the Green Point Environmental Learning Center. Two hundred and seventy-five people participated in the various activities held from 9:00 a.m. to 4:00 p.m. The U.S. Postal Service sold 350 Pelican Island NWR stamps (\$0.37 each) at the "Second Day of Issue" cancellation held on-site. Stamp collectors had their choice of cachets, including one that featured a special Shiawassee NWR design. There were programs on bird feeding (Cherri Allen), live birds of prey (Joe Rogers), refuge archaeological studies (Jeff Sommer), and butterflies (Denny Brooks). Hands-on activities included bird banding with refuge volunteers, hunting dog retrieval demonstrations by the Central Michigan Hunting Retriever Club and fly tying with Saginaw County Parks and Recreation Commission. The Friends of Shiawassee NWR, Ducks Unlimited, Inc. and Michigan Duck Hunters had displays. The Refuge Time Capsule was dedicated with the help of Puddles the Blue Goose, State Representative Jim Howell, and several area school children who contributed artwork for it.



The Friends group helped with several special events throughout the year, including the Refuge's "Centennial Celebration!" in March.
Photo by Becky Goche.

Refuge staff played a large role in coordinating and helping with the Centennial Celebration at the Detroit River International Wildlife Refuge held September 26 – 28, 2003. In addition staff from other refuges, Ecological Services, Law Enforcement, Fisheries and the Regional Office worked with the event. Numerous NGO's, industry representatives, Michigan Department of Natural Resources and Canadian and Congressional representatives participated. Congressman John Dingell, DOI Secretary Gale Norton, FWS Director Steve Williams, and Region 3 Director Robyn Thorson were just some of the VIP's in attendance.

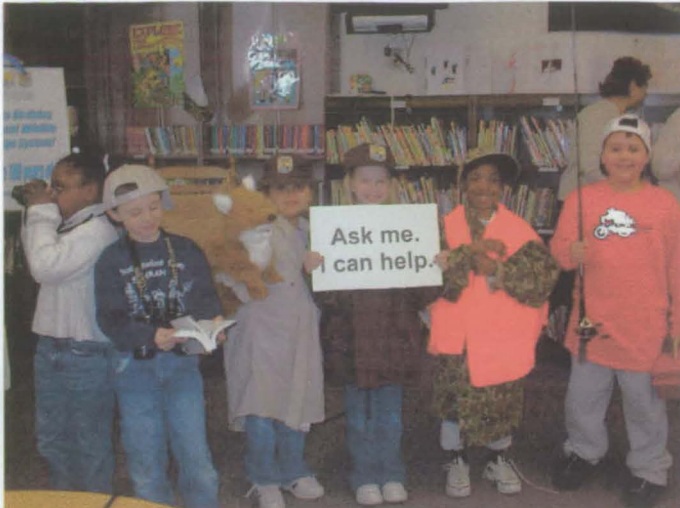
On Friday, over 2,200 students in grades four and up were reached at Lake Erie Metro Park, Elizabeth Park and Sterling State Park, all in the lower Detroit River area. Saturday's event was held at Lake Erie Metro Park and featured a special ceremony highlighting the refuge and the international partners involved. Many programs, displays, and concessions were also available to the public. An interdenominational sunrise service was held on Sunday.



DOI Secretary Norton and FWS staff at Detroit River IWR Centennial Event on September 27. FWS photo.

International Migratory Bird Day on May 10, 2003, featured a guided bird tour and a self-guided auto tour through a portion of the refuge. Several members of the Saginaw Valley Audubon Society guided 10 people on the bird tour from 8:00 a.m. to 10:00 a.m. They saw 83 species of birds, including 16 warbler species. The highlight for the group was seeing five prothonotary warblers. Due to soft road conditions, the auto tour route was shortened. Two hundred twenty-one people drove the route. The Friends group sold Centennial-related merchandise.

Four hundred and forty-two people drove the self-guided auto tour held on Saturday during the annual Refuge Open House Weekend held September 6 and 7, 2003. Twelve photographers submitted 39 photos in the Refuge Amateur Photo Contest. The photos were on display at the Refuge Headquarters where, 107 people voted for their favorite photos in three different categories. Several of the photos are used throughout the Narrative.



First grade students from Schluckbeier Elementary in Bridgeport model the "Big 6" uses during the Centennial assembly program.
Photo by Becky Goche.

Environmental education accounted for 4,184 visits both on-site (1,201 students) and off-site (2,839 students). Park Rangers Becky Goche and Michelle Vander Haar did a "Centennial Celebration!" school assembly program during the months of February and March, 2003. Grades kindergarten through eighth grade from nine schools participated. Altogether they reached 1,411 students and too many Teddy bears to count!

Two summer day camps were offered for children again this year. The Summer Discovery Camp was held June 25 and 26, 2003. Thirteen children aged four to six-years-old participated in the camp. Eighteen 3rd and 4th graders graduated from the Jr. Refuge Manager Academy held July 15 through 17, 2003. The Youth Conservation Corps enrollees and their crew leader helped with both programs. In addition, thirteen volunteers donated 61.5 hours helping with both camps.

The refuge offered goose hunting, deer hunting and trapping. Steve Kent with Mid-Michigan Computer Consultants in Bay City, MI, developed a software program to select deer hunters using a priority point system. He worked closely with staff to work out the bugs and make the system the best it could be. He was able to convert much of the data from the Microsoft Access program into the new program. Many hours of staff and volunteer time were spent entering this year's deer applications. Based upon the recommendations of hunters, the refuge moved up the application deadline to August 1, 2003. This brought about much confusion and complaints from those hunters who missed the deadline. Information sheets were available to the public on the refuge's website and at various locations in June. A summary of deer hunting is in Table 1 and a summary of goose hunting and trapping is in Table 2.

Table 1: Summary of Deer Hunting for FY 2003.

	Hunters	Visits	Hours
November	230	699	5392
December	272	457	3669
Total	502	1156	9061

Table 2: Summary of Goose Hunting and Trapping for FY 2003.

	Visits	Hours
Goose Hunting	727	3635
Trapping	82	332



A refuge goose hunter and his dog. Photo by Ed De Vries.

B. OUTREACH

Refuge staff assisted the Great Lakes Ecosystem with the FWS display at Outdoorama in Novi held over several days during February and March. Outdoorama is the largest outdoor event of its kind in the state of Michigan and is sponsored by the Michigan United Conservation Clubs (MUCC). The Friends of Shiawassee NWR had a booth next to the Ecosystem Team's. Members of the Friends group and refuge staff participated in a parade in Shields on June 19. The refuge "float" was a Ford Excursion pulling a boat decorated with two Centennial banners and a Friends banner.

The refuge and many other partners sponsored the Kids' Free Fishing Day on June 7 for 450 children between the ages of three and fifteen. Each child received a small prize from the refuge when he or she registered. Children had a chance to win a variety of prizes in three different age categories. Prizes included bicycles, rods and reels, tackle boxes and toys. Meijer Stores, Inc. and the Saginaw Field and Stream Club donated nearly 100 prizes. The Sons of Italy provided free sno-cones, popcorn, cookies and orange drink to the participants. Hotdogs, coffee and donuts were available for a small fee. Other sponsors of this event included the City of Saginaw, Dow Chemical Michigan Division Fishing Club, the Saginaw News, the Saginaw County Sheriff's Posse and Marine Patrol, 7-Eleven Stores, GKC Cinemas and Mobile Medical Response. Forty-two volunteers donated approximately 126 hours helping out on the day of the event.



Puddles, Friends group members, Refuge volunteers and staff along the parade route in Shields in June. Thousands of people lined the route and by this point, all of the candy was already gone that the Friends were handing out. Photo by Becky Goche.

8. PLANNING AND ADMINISTRATION

A. COMPREHENSIVE MANAGEMENT PLANNING

The final Comprehensive Conservation Plan (CCP) and Environmental Assessment for Shiawassee NWR were approved by the Regional Director on September 19, 2001, and the draft for the Michigan Islands NWR was completed. Refuge staff wrote draft sections of the Detroit River International Wildlife Refuge CCP, attended related meetings, and edited the document. The Detroit River CCP draft was being reviewed at year's end.

B. GENERAL ADMINISTRATION

From 1961 through 2003, management of the former Wyandotte NWR had been the responsibility of the Shiawassee NWR. With its new name and designation as the Detroit River International Wildlife Refuge, and with resultant plans for expansion and an increased emphasis on achieving the mission, goals, and objectives of this new refuge, more active management has been required down in the Detroit area. For the last two years the responsibility for attending planning meetings, Comprehensive Conservation Plan (CCP) coordination, Centennial events, and public meetings has rested on the Shiawassee NWR refuge manager. In May, 2003 it was decided that until a refuge manager is hired for the Detroit River IWR, this responsibility would be transferred to Doug Brewer, Refuge Operations Specialist at Ottawa NWR. Ottawa NWR, located in Oak Harbor, Ohio is actually closer to Detroit than Shiawassee NWR. Effective on May 18, 2003, former Acting Manager of the Detroit River IWR Doug Spencer returned to his position as Refuge Manager at Shiawassee NWR, and Ed De Vries who formerly served as Acting Refuge Manager of Shiawassee NWR, was returned to his position as Refuge Operations Specialist.

Two Student Conservation Aides, Phillip Brown and Andy Shulstad, were hired through a grant from the Student Conservation Association. These two individuals assisted the refuge with the forest inventory and removal of invasive plants such as glossy buckthorn. They began on May 26 and worked until August 22.

During the summer, RM Spencer, Biologist Jim Dastyck, and ROS De Vries were detailed to varied assignments on wildfires in Wyoming, Montana, and Idaho.

The following is a list of employees who were members of the Shiawassee NWR staff in Fiscal Year 2003:

1. Adams, Shirley L. - Administrative Technician, GS-07, EOD 08/17/97, PFT
2. Dastyck, James J. - Wildlife Biologist, GS-11, EOD 11/04/90, PFT
3. De Vries, Edward P. - Refuge Operations Specialist, GS-12, EOD 02/09/92, PFT
4. Goche, Rebecca S. - Park Ranger, GS-11, EOD 08/22/93, PFT
5. Hazelman, James T. - Refuge Operations Specialist, GS-11, EOD 10/02/94, PFT, Transferred to E. Lansing Field Office Effective 12/15/02.
6. McAvinchey, Richard J. - Biological Sciences Technician, GS-05, EOD 04/26/98, PPT
7. Nowosatko, Marion L. - Engineering Equipment Operator, WG-09, EOD 06/29/78, PFT
8. Peters, David J. - Tractor Operator, WG-07, EOD 02/01/98, PFT
9. Shinn, Kevin - Park Ranger (LE), GS-09, EOD 12/15/02, PFT
10. Spencer, Douglas G. - Refuge Manager, GS-13, EOD 09/01/91, PFT
11. Vander Haar, Michelle A. - Park Ranger (STEP), GS-05, EOD 01/22/01, Promoted to Fish and Wildlife Biologist, GS-07, Effective 06/29/03, PFT



Shirley Adams



Jim Dastyck



Ed De Vries



Becky Goche



Jim Hazelman



Rick McAvinchey



"Butch" Nowosatko



David Peters



Kevin Shinn



Doug Spencer



Michelle Vander Haar

YOUTH CONSERVATION CORP PROGRAM

Out of a slate of 13 candidates, Christina Sanders was selected for the second time to serve as the Social Services Aid (YCC Crew Leader) through the Student Temporary Employment Program (STEP). YCC enrollees included: Samantha Fiting, Christopher Mahoney, Hunter Novak, and Kevin Wasalaski. A diverse group of 7 girls and 13 boys from local high schools applied for the four positions. The YCC camp started June 23, 2003, and continued through August 15, 2003. The crew worked on many refuge projects including removing fence at the Cass River Unit, staining benches, parking lot posts and observation decks, mowing refuge lawns, helping with environmental education programs, posting boundary signs, caring for the butterfly gardens, and picking up litter/removing signs on the Charity Islands. The group went on career awareness trips to the Kirtland's Warbler management area and to Hartwick Pines State Park. In addition, they went on an evening boat tour of the Refuge hosted by Wil Hufton of Johnny Panther Quest Tours.

This year's camp did not run as smoothly as last year. Two applicants and one alternate who were selected, turned down their positions so we hired the remaining alternates. Samantha Fiting was terminated on July 23, due to repeated tardiness and not reporting to work. Kevin Wasalaski injured his knee on the job and resigned on July 30. Unfortunately, the remaining crew was not able to complete everything that was planned.



VOLUNTEER PROGRAM

In FY 2003, 141 volunteers donated 4597 hours. Volunteer Bob Grefe celebrated his 20th year of volunteering at Shiawassee NWR in February, 2003. He helps with bird surveys, bands birds and coordinates the MAPS (Monitoring Avian Production and Survivability) study on the refuge. Eagle Scout candidate Michael Horn resurfaced a portion of the Woodland Trail at Stroebel Road in August, 2003. He received grant money to purchase the stonecrete and

coordinated the workers who applied the stone to the trail. He and his crew donated 142 hours on this project and spent about \$550 on the stone.

Above photo: Bob Grefe, long-time Refuge volunteer, shows Eric Sanders what he does when he bands a bird. Photo by Becky Goche.

FACILITIES AND EQUIPMENT



Several refuge projects completed this year will provide benefits for wildlife as well as the public. Work on the Grefe Pool dike set-back began on October 28, 2002 and was completed in June. The new dike is 1,900 feet long, and is set back from the Spaulding Drain, along the east end of Grefe Pool. The dike was constructed 200 to 800 feet west of the former dike, and has a 68.0' rock spillway on the southeast end which connects to an existing dike. A 36" diameter water control structure is

installed in the north end of the dike to control water levels within the unit. The former 2,400' dike along the Spaulding Drain was removed to the original ground elevation.

Above photo: Grefe Pool Dike Construction. Photo by Ed De Vries.

The restoration of the Eagle Marsh dike along the Cass River was completed through force account work earlier this year. This dike formerly had a large break in it which didn't allow for water management in that unit. The inability to hold water wasn't good for fish, fur, or any other wildlife such as frogs and turtles which need stable water levels for a good part of the year. Now the entire unit, which includes North Marsh, Eagle Marsh, and Moist Soil Units 3 and 4, is holding water for the fall and winter seasons. A spillway on the Cass River will allow spawning fish to enter the marsh during spring high water events, and stable

water will enhance young fish development. Research has shown that large numbers of northern pike and crappie spawn in this marsh.

The pump at the Grefe Pool was made operational through successful maintenance staff efforts to rehab the culvert and ditch leading from the Spaulding Drain to the pump. The refuge can now pump water into Pool 1A and the Grefe Pool, adding much-needed water to these units, thereby making food and habitat available for use by waterfowl, amphibians, turtles, furbearers, aquatic insects and other invertebrates.

The maintenance staff also built another parking lot at the corner of Moore and Cresswell to serve refuge permit hunters who formerly parked along the roadside at this corner.

Four new vehicles were received in 2003. A 2003 Ford F-150 pickup was delivered to the refuge in February to replace a 1977 Dodge pickup. A 2003 Ford Explorer was received in July to replace the 1992 Blazer. A low-mileage 1992 Chevy ¾ ton pickup with a 125 gallon slip-on fire pump was delivered to the refuge from Seney NWR in July. This truck will serve as a quick response fire attack truck. In August, a 2003 Ford SporTrac pickup was received to replace the 1992 Dodge Dakota. A new 18 foot Boston Whaler outfitted as a law enforcement patrol craft was received in November.

The roof on the shop/maintenance building was replaced in July, and overhead doors at the check station were replaced in September.

Contracted work by Rohde Bros. began in late September to replace the old farm pump west of Bartel Road.

FUNDING - 2003

1121.....	\$ 147,567.00
1261.....	642,043.00
1262.....	388,300.00
6351.....	13,121.00
7201.....	3,709.00
9263.....	3,450.00
9265.....	<u>4,455.00</u>
Total	\$1,202,645.00

WILDERNESS AND SPECIAL AREAS

MICHIGAN ISLANDS NWR

The Michigan Islands National Wildlife Refuge was established by Executive Order in 1943 as a refuge and breeding ground for migratory birds and other wildlife. Shoe (2 acres) and Pismire (3 acres) Islands in Lake Michigan, and Scarecrow Island in Lake Huron, were the first acquired. Thunder Bay Island in Lake Huron was added in 1965, by a U.S. Coast Guard/FWS agreement under a revocable permit with five-year renewal periods, for secondary FWS jurisdiction on 121 of the island's 168 acres. The U.S. Coast Guard ceded Lake Michigan's Gull Island (230 acres) to the FWS in 1969. Gull Island is the westernmost island of the Michigan Islands NWR. In 1970, PL 91-504, Stat. 1104, designated Shoe, Pismire, and Scarecrow Islands as Wilderness Areas. A sixth island was added to the refuge in 1995, when the Nature Conservancy transferred Hat Island to the Service. Ten acres in size, it is located in Lake Michigan, to the north of Shoe Island. Big and Little Charity Islands (250 acres and 5.4 acres respectively) were added to Michigan Islands NWR in 1999.

Due to the geographic location of the eight islands, the management of Michigan Islands NWR is split between Seney NWR and Shiawassee NWR. Shiawassee NWR administers Thunder Bay and Scarecrow islands, located in northern Lake Huron, and "the Charities" in Saginaw Bay. Gull, Shoe, Pismire, and Hat islands in the Beaver Island group in northern Lake Michigan, are administered by Seney NWR.

Both Scarecrow and Thunder Bay Islands lie within the waters of the newly designated Thunder Bay National Marine Sanctuary and Underwater Preserve. The National Oceanic and Atmospheric Administration gave this designation to the area in 2000. The designation gives federal protection to over 100 well-preserved shipwrecks that litter the bottom of Thunder Bay, located near Alpena, MI. Once part of a major shipping channel, this 448 square-mile sanctuary is the first national marine sanctuary in fresh water, and is located in an area which was known as "Shipwreck Alley" in the 1800's.

Scarecrow Island is a nine-acre, limestone bedrock island covered with boulders and gravel, with a minimal soil layer supporting shrubs, scattered forbs, and a few snags. A July 1 nesting census by refuge staff revealed 1,935 double-crested cormorant nests with 4,642 eggs in various stages of incubation, 90 herring gull nests, 35 ring-billed gull nests, 9 Caspian tern nests, 2 great blue heron nests, and 2 red-winged blackbird nests.

The U.S. Fish and Wildlife Service manages Thunder Bay Island under a Cooperative Agreement with the Bureau of Land Management (BLM). Region 3 Realty is currently working with BLM to acquire the north 2/3 of the island in fee title. Thunder Bay Island is made up of limestone bedrock, with a substantial layer of soil. This soil supports a dense interior forest of American yew, white cedar, spruce, fir, and birch. The island shoreline includes cobble beach, a limestone pavement alvar, and freshwater, coastal wetlands. Alvars are naturally open landscapes formed of a thin layer of soil over limestone, and are found only in the Great Lakes region, the Baltic, and in Northern Ireland. Dwarf lake iris *Iris lacustris* (federal-threatened) is also found on the island as well as 180 other plant species. Typically, this island provides

nesting for 10,000-12,000 ring-billed gulls as well as over 100 herring gulls. However, since 1998, ground-nesting success has been reduced to zero by the presence of a coyote or other large carnivore. It appears the ring-billed gulls have abandoned Thunder Bay Island for other locations, including Scarecrow Island.

The Thunder Bay Island Preservation Society (TBIPS) is interested in the historic preservation of the Thunder Bay Island Lighthouse (1857), and has been in negotiations with the Service and Alpena Township to gain management of the buildings on the southern portion of the island, where the lighthouse is located. Their intent is to protect, document, and uncover historic artifacts, but also to restore the lighthouse for visitation within the next five years. A section line boundary has been agreed upon and following contaminants cleanup by the US Coast Guard, the next step will be for the BLM to transfer ownership of the south part of the island to Alpena Twp. and the north portion to the FWS. The Management Agreement states that Alpena Township will have ownership of all the buildings except for the boathouse, while the FWS will maintain management rights over the wildlife and habitat.

Through a legal settlement with General Motors Corporation under a Natural Resources Damage Assessment, Big and Little Charity Islands were transferred to the Service on December 16, 1999. These islands are both located near the mouth of Saginaw Bay, approximately seven miles from the mainland. Big Charity is 250 acres in size and is heavily wooded, with an 11-acre lake in the center. Bald eagles nest on the island, and Pitcher's thistle, *Cirsium pitcheri* (federal & state threatened) are found there. There is an old, dilapidated U.S. Coast Guard lighthouse from the 1880's located on the southwest portion of the island. A riprapped harbor of refuge was constructed by the former landowner in 1992, followed by the installation of boat slips and a picnic shelter. The channel entry to this harbor is protected by a breakwall; however the entry area behind the breakwall is becoming more restrictive due to siltation. Hiking paths crisscross the island, while picnic tables, barbecue grills, and benches are located in several locations.

Little Charity Island is an undeveloped 5.4-acre island approximately two miles from Big Charity. The island is wooded and colonial water birds such as cormorants, herons, and gulls nest throughout the island. A nesting survey of the island on June 24 found 1,192 double crested cormorant nests, 388 herring gull nests, 76 ring-billed gull nests, 56 great egret nests, 7 great blue heron nests, and 3 red-winged blackbird nests.

The Service goal for the Michigan Islands NWR is to restore and protect endangered and threatened wildlife and plant species, as well as species of concern which use these islands, protect island cultural resources, provide education to the public, and acquire additional Lake Huron islands for further habitat and resource protection.

CREDITS

Personnel responsible for narrative sections are as follows:

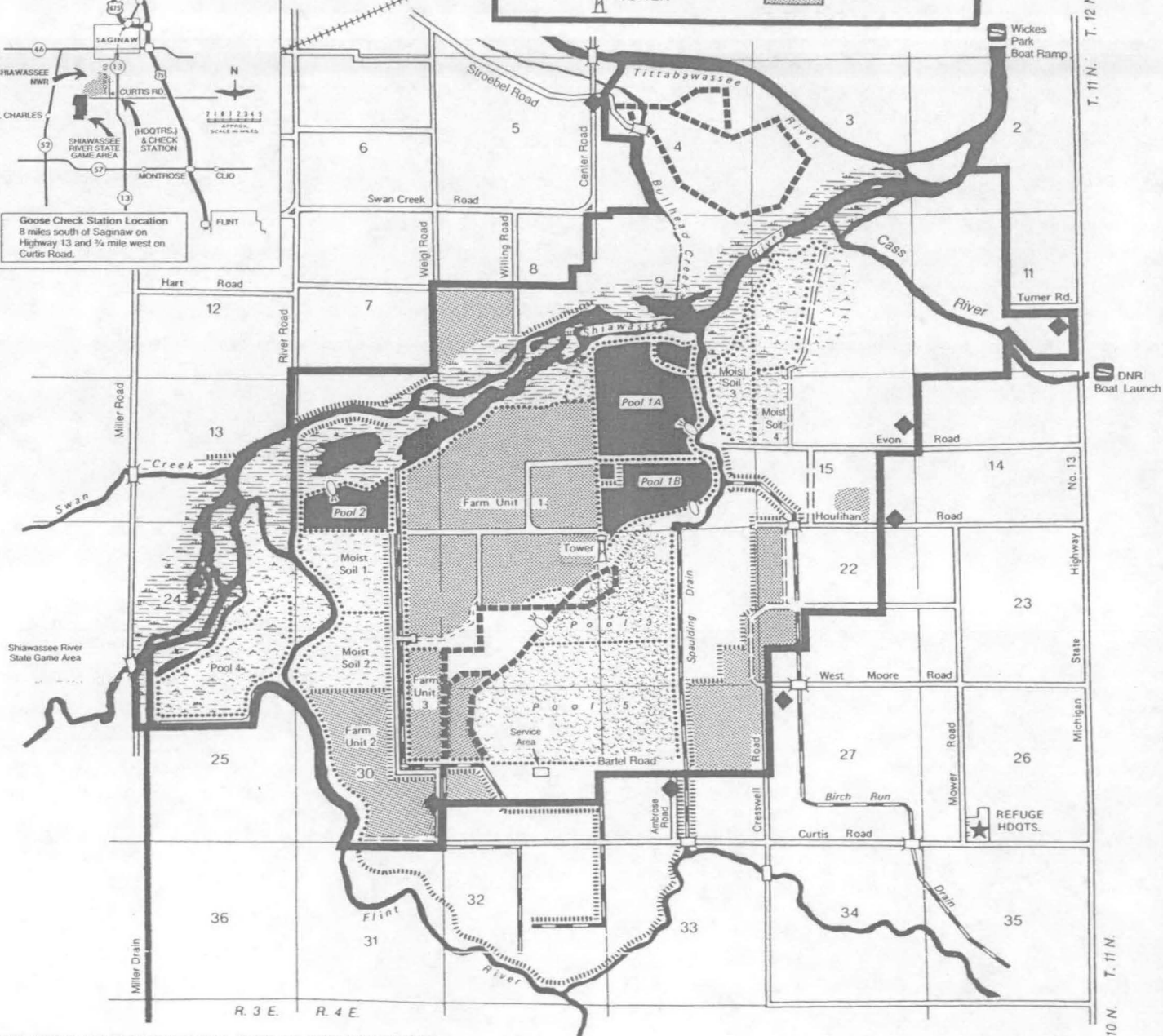
- James D. Dastyck: *Climate Data, Sections 3 and 4a*
- Edward P. De Vries: *Introduction, Highlights, Sections 4b, 5a, 5b, 6, 8, Wilderness and Special Areas, Credits, Appendix, Information Packet, editing, layout, narrative coordination, and compilation*
- Rebecca S. Goche: *Cover page, Table of Contents, Section 7, 8b, editing, final layout and production*
- Michelle VanderHaar: *Sections 2 and 5c*
- Rick McAvinchey: *Sections 1, 3e, 3g, and 4d*
- David J. Peters: *Section 1a*

Public Use is restricted to the nature trails.

SHIAWASSEE NATIONAL WILDLIFE REFUGE

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

Refuge Location



SHIAWASSEE NATIONAL WILDLIFE REFUGE
6975 MOWER ROAD, RR #1
SAGINAW, MICHIGAN 48601
PHONE: (517-777-5930)



Refuge Reporter

Happenings at Shiawassee National Wildlife Refuge

Volume 6, Issue 1

NWR System Centennial is March 14, 2003

By Michelle Vander Haar, Park Ranger

The Centennial for the National Wildlife Refuge System is fast approaching. On March 14, 2003, the Refuge System will be 100 years old and that means its time to celebrate. We are planning a special event to be held on Saturday, March 15 so that all people will be able to come and explore the local Refuge and appreciate the great accomplishment that President Theodore Roosevelt gave us back in 1903.

Each National Wildlife Refuge in the system will hold some type of event in which a time capsule will be buried or encased and will be opened 100 years from now. We are looking for ideas on what you think should be placed in the capsule for the Shiawassee National Wildlife Refuge for future generations to view. We are debating whether to bury the time capsule or enclose it in some type of display that can be viewed by visitors. The time capsule is a stainless steel canister with a blue, engraved lid.

On March 15, your local refuge, invites you out to come out and have some fun in the out-of-doors. As of now, we only have tentative activities planned for this day. At past programs we have had auto tours, bike-a-thons, children's activities, guided tours, and many different types of speakers. What types of new activities do you think would draw the public's attention to the Shiawassee National Wildlife Refuge? This event means a lot to all of us who work and volunteer for Shiawassee and we would like to see a big participation in any activities that might be planned for the day.

Let us know if you have ideas for activities of any type that you would like to see presented at our Centennial Celebration on March 15, 2003. You can email either Becky_Goche@fws.gov or Michelle_Vanderhaar@fws.gov with your comments and/or suggestions. You may also call our office at Green Point Environmental Learning Center, (989) 759-1669.

New Restrooms on Refuge Trails

The long awaited, long promised permanent restroom facilities were finally completed this fall. If you haven't seen them yet, there are two restrooms located at separate sites along the Ferguson Bayou Trail off of Curtis Road, and a double restroom is located at the parking lot off of Stroebel Road. The restrooms have sand-

stone colored exterior walls so they are fairly natural looking, and are a much needed improvement to the Refuge trail systems. We didn't have a formal dedication to mark their opening, but they have been getting steady business and are very appreciated!

Inside this issue:

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| Friends Items for Sale on the Insert | |

Special points of interest:

- Help us Countdown to the Centennial in March, 2003, by participating in one of our special events!
- Teachers - Be sure to check our website to see what kind of educational programs we offer. It's not too early to start planning your spring field trips!

December 15 Marks Staff Changes at the Refuge

By Ed DeVries, Acting Refuge Manager

Jim Hazelman, our Refuge Operations Specialist (Private Lands) for the past eight years has accepted a transfer and promotion to a Fish and Wildlife Biologist position with the East Lansing Private Lands Office. As a biologist, Jim will actually be doing the same type of work he performed on the Shiawassee Wetlands Management District, but with responsibility for southern Michigan. Jim's transfer is effective December 15, 2002, and we're sorry to see him go. He has been a great asset to the Refuge and provided great Refuge outreach through his work on wetland restorations throughout the 44 counties of the District. We'll miss him as a friend and co-worker, as well as being our resident computer guru. Best wishes in Spartan Country, Jim, Tammy, Ty and Brett. Try to get them into a bowl game next year!

The recently completed Shiawassee NWR Comprehensive Conservation Plan repeatedly addressed the need for increased law enforcement on the Refuge to enhance visitor safety and enforce wildlife laws and regulations. We have now realized that goal with the hiring of the first full-time refuge law enforcement officer in the history of Shiawassee NWR. Park Ranger Kevin J. Shinn will be taking on the lawman role effective December 15, 2002. Kevin is transferring here from a

Refuge Operations Specialist (Assistant Manager) position at Havasu NWR, Needles, CA. Kevin is a native Fenton, Michigan and has been a U.S. Fish & Wildlife Service employee since 1998. He and his wife, Debra, have a two-year-old daughter, Michayla, and are expecting another child. Kevin received a Bachelor's degree in fisheries and wildlife from Michigan State University, and his Master's degree from the University of Texas. He has been involved in many wildlife research activities, he's been a substitute teacher, and has worked for both the National Park Service and the U.S. Forest Service. Kevin is a defensive tactics instructor and certified scuba diver. Besides his experience with refuge law enforcement, most recently Kevin has been involved in a Special Response team with the U.S. Border Patrol in South Texas, dealing with illegal immigrants, narcotics, smuggling, etc. Kevin will greatly enhance and improve the law enforcement program at Shiawassee NWR, and he will probably be the source of some pretty good stories. Please welcome him when you see him. He's glad to be back home in Michigan.

"Best wishes to the Jim Hazelman family and welcome to the Kevin Shinn family."

Ducks Unlimited Dedication Ceremony Held at Refuge

By Becky Goche, Park Ranger

Ducks Unlimited held a dedication ceremony at Shiawassee National Wildlife Refuge on September 20. The dedication ceremony and the monument unveiled commemorated a long-term, outstanding partnership for conservation between Ducks Unlimited, Inc. and the U.S. Fish and Wildlife Service at Shiawassee.

Since 1998, Ducks Unlimited has helped fund five projects designed to protect, restore and enhance 912 acres of wetland habitat on the Refuge to benefit waterfowl, other wildlife and those who enjoy them.

The partnership also extends onto private lands within the Saginaw Bay Watershed. Since 1998, Ducks Unlimited has provided funding and in-kind services to support and expand the Partners for Fish and Wildlife Program conducted by Private Lands Biologist Jim Ha-

zelman. As of June, 2002, approximately 385 projects restoring 2,276 acres of wetland and associated uplands have been completed under this partnership.

Fifty-five individuals, foundations and corporations were recognized for their financial support of Ducks Unlimited at the ceremony and are listed on the monument. The stone monument lies at the north end of the parking lot at the end of Curtis Road.





Calendar of Events

2003 Refuge Photo Contest

September 1, 2002 to August 31, 2003

Visit the Refuge and take some photos and then enter our 2003 Photo Contest! Up to 3 entries total per person may be submitted.

The categories are:

- **Wildlife/Plantlife** – mammals, birds, fish, insects, reptiles, wildflowers, grasses, trees, etc.
- **Habitat** – a Refuge scene with or without wildlife
- **People** – engaged in an activity or included in a scene on the Refuge (volunteers, people hunting, fishing, bird watching, outdoor classroom, etc.)

The photos will be displayed at the Refuge Open House Weekend on September 6, 2003. Visitors will vote for their favorite photo in each category. Each category will have a first, second and third place photo. In addition, two special awards, "Refuge Manager's Choice" and "Friends' Choice," will be given. Ribbons and prizes (e.g. books, t-shirts, posters) will be awarded. Official contest rules are as follows:

1. Photographers must be non-professional; this is an amateur contest. All entries must be photos taken at Shiawassee NWR or Green Point ELC between September 1, 2002 and August 31, 2003.
2. All photographs should be 5" x 7" or 8" x 10". Black and white or color photos are acceptable. No matted photos will be accepted.
3. Mail or deliver all entries to Shiawassee NWR Photo Contest, 6975 Mower Road, Saginaw, MI 48601. On the back of the photo, include your name, address, phone number, category entered, the title of the photo, and the date and location of where it was taken.
4. All entries must be received by September 1, 2003.
5. Winning photographs will become the property of the Shiawassee NWR and may be used for non-profit publications, web pages and presentations. Entries not selected will also be retained by the Refuge for the above purposes, unless the photographer requests that they be returned.
6. While extreme care will be taken in handling all entries, the Refuge cannot be responsible for any damage to photographs.
7. Winners will be announced at our National Wildlife Refuge Week Celebration in October, 2003. Date still to be determined. For further information, please call (989) 759-1669.

Refuge Centennial Celebration

March 15, 2003

Lots of activities planned. Tentative plans: "Second Day Issue" Cancellation Ceremony for the special NWR System stamp, Time Capsule ceremony, several guest speakers, guided hikes and more! Stay tuned for more details.

2002 Trail Closures

Hiking trails will be closed to all public use on the following dates for deer hunting in the immediate vicinity.

Ferguson Bayou Trail at Curtis Road

- December 1 – 10
- December 13 – 18
- December 27 – 31

Woodland Trail at Stroebel Road

- December 13 – 18



FRIENDS OF SHIAWASSEE NWR MEMBERSHIP PAGE

Friends of Shiawassee NWR Membership

___ Individual: \$10/year or \$25/three years

___ Family: \$25/year or \$60/three years

___ Supporting: \$50/year*

*Includes your choice of t-shirt, sweatshirt or hat. Please indicate your choice.

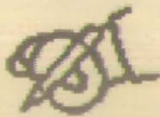
Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Phone: _____ E-mail: _____

Please make checks payable to "Friends of Shiawassee NWR",
PO Box 20129, Saginaw, MI, 48602



Your membership is important to us and to the Refuge!
Membership fees and cash donations go towards Refuge projects
like newsletter publication, maintaining trails, sponsoring
programs, buying bird see and much, much more. Fill out the
above application and mail today! You can also visit our website at
<http://friendsofshiawassee.org> for more information.

Board of Directors

Joe Davila – President

Dick VonBerg – Vice President

Kim LeBlanc – Vice President

Rich Hodge - Treasurer

Janine Spencer - Secretary

Refuge Manager: Doug Spencer

Volunteer Coordinator/Green Point Director: Becky Goche

Newsletter Editing and Layout: Becky Goche and Michelle Vander Haar

Website: <http://midwest.fws.gov/shiawassee>

Green Point Environmental Learning Center
3010 Maple Street
Saginaw MI 48602
(989)759-1669

Shiawassee National Wildlife Refuge
6975 Mower Road
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(989)777-5930

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T-shirts and Sweatshirts with photo
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A. T-shirts: \$10.00

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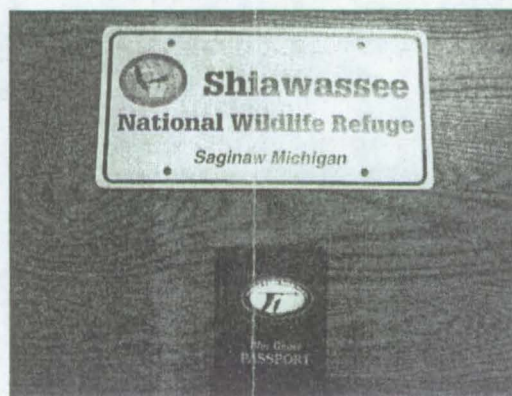
Deer



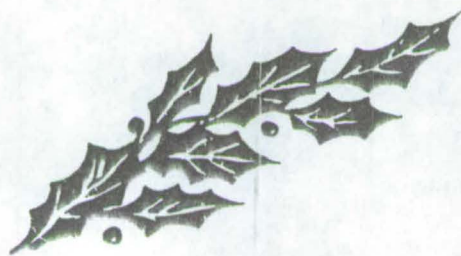
Eagle

C. License Plate: \$5.00

D. Refuge Passport Book: \$7.00



A celebration of International
Migratory Bird Day, 2001:
"Shade the Coffee - Shelter the Birds"
E. T-shirt: \$10.00



F. Logo T-shirt: \$10.00



The "Friends of Shiawassee NWR" is a non-profit organization. All proceeds and donations are applied to administrative costs and refuge projects including trail maintenance, environmental education, special events and more.

SHOW YOUR SUPPORT FOR THE
"GREAT LAKES DISCOVERY
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Shiawassee NWR' future visitor center
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A natural resource based center with
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education. The Center will provide a
unique chance for the public to gain a sense
of appreciation and stewardship in the
Great Lakes Basin through state-of-the-art
exhibits and other outdoor facilities.

H. T-shirt: \$10.00

(while supplies last)



Great Idea!!!

1. Framed Wildlife Prints \$12.00 & \$20.00
(on display at the refuge office)

ORDER FORM

(detach and mail)

Name: _____

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Item	Qty.	Size	Color or Print Choice	Price

A membership to the Friends of Shiawassee
NWR includes admission to quarterly
General Meetings, volunteer opportunities
on the Refuge, a quarterly newsletter –
"Refuge Reporter" and personal invitations
to special events.

- ___ Individual: \$10/year
___ Family: \$25/year
___ Supporting: \$50/year

(includes choice of t-shirt or sweatshirt)

Total included: \$ _____

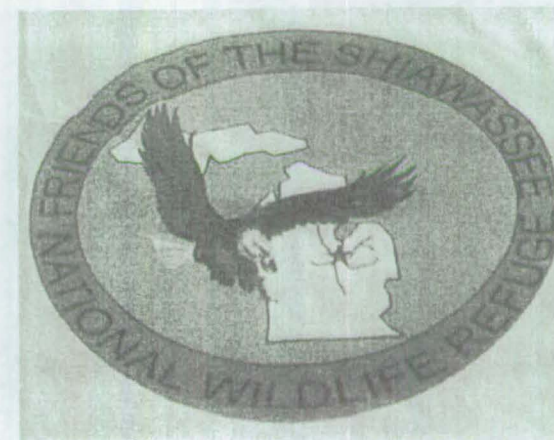
Please make checks or money orders
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PO Box 20129
Saginaw MI 48602
www.friendsofshiawassee.org

The Perfect Holiday Gift

Friends of

Shiawassee National Wildlife Refuge



Assisting the
National Wildlife
Refuge System
with conserving
our wildlife and
their habitats



Friends Group Announces Fall Raffle Winners

By Richard Hodge and Janine Spencer, Friends Board Directors

On October 19, 2002, the Friends of Shiawassee National Wildlife Refuge held their fall raffle drawing. Cash winners were: \$500 - Gerald Ziarno, Midland, MI; \$300 - Lois Lawson, Shoreview, MN; \$100 - Harold Dierner, Sanford, MI; \$50 - Herb Zeilinger, Frankenthum, MI; and \$50 - Jan Danilowicz, Saginaw, MI. We received a very nice donation from Mr. Ziarno. He returned half of his winnings to the Friends, which we thoroughly appreciate. The help and support from everyone is so important to the Friends, in that we are able to help with many Refuge projects and also towards our goal in having a Great Lakes Discovery Center in Bridgeport. Our top ticket seller was Kim LeBlanc, followed by Steve Gasser. A big thank you to everyone who helped with the Raffle.

It is a very busy time of year for those at the Shiawassee National Wildlife Refuge. The main event right now is the deer hunting season. If anyone is interested in volunteering some time to help Shirley Adams, the Refuge Administrative Technician please contact the office at 989-777-5930, extension 0.

Looking for a New Board Member

The Friends Board recently was notified that Elisa Nanos was resigning from the Board because of personal reasons and regretted leaving. We are all sorry to see her leaving the Board. Presently the Board is down one Board member, if anyone would be interested in joining the Board and getting involved with Refuge activities and events please contact us as soon as possible.

Upcoming Events

The last weekend in January will be the National Friends Conference in Washington, D.C.. If anyone is interested in attending this National event, please contact the Friends or Becky Goche at Green Point ELC at (989)759-1669. Last year was the first time this National event was held and it was a big success. Friends organizations from across the nation attended and provided a great opportunity to network with your counterparts from other national wildlife refuge.

From February 21 to March 2, one of the biggest indoor events for outdoor recreation, Outdoorama will be held in Novi. The Friends of Shiawassee and the Shiawassee NWR will present displays and showcase their Refuge activities. Anyone interested in helping

out please contact the Friends or the Refuge.

Board meetings will be held on the second Wednesday of each month. Our next Board meeting will be December 11, at 7:00 p.m. at Green Point ELC. Everyone is invited. Two general meetings, featuring special programs, for all Friends members, volunteers and the general public will be held on January 15, 2003 and May 21, 2003. Both of these will be held at Green Point ELC from 7:00 to 9:00 p.m. The programs will be announced at the December board meeting. We are expecting some exciting speakers discussing peregrine falcon management, historical events in the Saginaw area

(Voyageurs, archeological finds, timber/coal industry) and professional wildlife photography.

On Saturday, March 15, 2003, the Friends will assist the Refuge with a special event for the National Wildlife Refuge System Centennial.

Times, place and activities will be announced soon. The Friends will again be helping with International Migratory Bird Day event on Saturday, May 10, 2003. If you want to help out during any of these events or with the general meetings please contact the Friends at Friends of Shiawassee NWR, P.O. Box 20129, Saginaw, MI 48602 or call Green Point ELC at (989) 759-1669.

Sign Up as a Member Today!

Your membership is important to us and the Refuge! Membership fees and cash donations go towards Refuge projects like newsletter publication, maintaining trails, sponsoring programs, constructing wildlife photo blinds, constructing interpretive displays, and buying bird seed. Fill out the membership application on the insert, detach and mail with your check.

Be sure to check out the flyer with items that our Friends group is selling. Get your Christmas shopping done and bypass all the crowds at the mall! You can either stop by the Refuge Headquarters and pick out your items in person or send in your order form and check.

"Your membership is important to us and the Refuge! Membership fees and cash donations go towards Refuge projects..."

Shiawassee NWR
6975 Mower Rd.
Saginaw, MI 48601
Phone: 989-777-5930
Fax: 989-777-9200
Hours: M - F, 7:30 a.m. to 4:00 p.m.

Refuge Reporter is published quarterly
by the Friends of Shiawassee NWR.

We're on the web!
[http://midwest.fws.gov/
shiawassee](http://midwest.fws.gov/shiawassee)



*Celebrating a
Century
of Conservation!*

Special Centennial Program Available for Schools in February and March!

by Becky Goche, Park Ranger

The National Wildlife Refuge (NWR) System, America's only system of federal lands set aside specifically for wildlife, will be turning 100 years old on March 14, 2003. Shiawassee NWR is one of over 535 refuges found throughout the U.S.

This coming February and March, schools have an opportunity to host a special program presented by Refuge staff. Students of all ages will enjoy this program as they learn about the history of wildlife conservation in the U.S. They will watch a video on the history of the NWR System, learn about activities that people can do on Refuges, and earn prizes as they discover Refuges across the U.S. through a fun, trivia contest. Best of all, this program is FREE!

This program will only be available during the months of February and March, 2003. We anticipate that this program will be very popular so we may need to limit schools to one program each. We request that schools coordinate an assembly program for multiple grades that can be done in a large room. Schools will need to provide a VCR, TV and/or projection TV, possibly a PA system (depending on the size of the room and the number of students) and two tables.

To reserve your spot, call the Green Point Environmental Learning Center at (989) 759-1669. Hurry space is limited! For more information about this and other programs we have planned for the Centennial, visit our website at <http://midwest.fws.gov/shiawassee>.



Refuge Reporter

Happenings at Shiawassee National Wildlife Refuge

Volume 6, Issue 2

Centennial Celebration! Set for March 15, 2003

By Becky Goche, Park Ranger

The National Wildlife Refuge System is celebrating its Centennial on March 14, 2003. Shiawassee NWR is planning a big day of fun and celebration on Saturday, March 15. **Centennial Celebration!** will be held from 9:00 a.m. to 4:00 p.m. at the Green Point Environmental Learning Center, 3010 Maple Street in Saginaw.

Numerous family-oriented events are planned throughout the day. Best of all, the activities are free! Joe Rogers will be doing "Live Birds of Prey" shows at 11:00 a.m. and 1:00 p.m. The U.S. Postal Service will be offering special "Second Day of Issue" stamp cancellation of the Pelican Island NWR stamp from 10:00 a.m. to 12:00 noon. This is the only location for this in the State of Michigan! Jeff Sommer of the Saginaw County Historical Society will be doing a program on the pre-history of the Refuge. Denny Brooks will

present a program on butterflies. Cherri Allen of Cherri's Feed and Seed will present a program on bird feeding. Saginaw County Parks and Recreation Commission will be helping children tie flies all day long. Ducks Unlimited will be teaching children how to use duck calls. The Central Michigan Hunting Retriever Club will have hunting dog demonstrations. The Michigan Duck Hunters Association will be accepting Jr. Duck Stamp applications. The Refuge time capsule will be dedicated with items from the Refuge and local children. Bird banding demonstrations, guided hikes, puppets, and lots of other children's activities are planned. The Friends of Shiawassee NWR will be selling commemorative Centennial items and refreshments during the day. Be sure to look at the enclosed flyer for more information concerning this special day.

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Special Points:

- International Migratory Bird Day Celebration is May 10.
- Teachers - Be sure to check our website to see what kind of educational programs we offer. Now's the time to plan and schedule your field trips for this Spring!

Volunteers Needed to Help with Upcoming Events

Attention Refuge Volunteers! Are you looking for a short-term volunteer opportunity? We will need help with the **Centennial Celebration!** on March 15. We need people to help us with setup on Friday afternoon and Saturday morning. We will need people to help with tear down and clean up immediately after the event on Saturday. We need some friendly peo-

ple to help greet and direct visitors throughout the day. We need patient and kid-friendly people to help with children's activities. We will also need help with International Migratory Bird Day on May 10. We hope to have an auto tour plus other activities and will need lots of volunteers. If you can help out or need more information, please call Becky Goche at

Law Enforcement Corner: Building New Relationships with Other Agencies

By Kevin Shinn, Refuge Officer

The new year has been about program building and relationships. As the first full-time law enforcement officer for the Refuge complex, I have had the opportunity to expand and build on the law enforcement program. On the top of the list has been building relationships with other local law enforcement agencies and establishing radio communications. The Refuge land base extends into multiple jurisdictions throughout the State of Michigan including Federal, State, County, City, and Township. I have been making efforts to meet and establish lines of communication with all of the involved agencies. Saginaw County, Michigan DNR, and Michigan State Police have the most shared responsibility. All have been extremely helpful and have exemplified beyond my expectations the unity shared between law enforcement officers. Saginaw County has offered 24-hour radio dispatching with their 911 program, access to many of their top notch LE units and reporting systems, and the opportunity to meet their LE staff. I have met with two of the Special Agents for the U.S. Fish and Wildlife Service and look forward to working closely with them on many Federal natural resource investigations. Lt. Al Marble of the Michigan DNR has shared my desire to build a strong working relationship between the U.S. Fish & Wildlife Service and the DNR. I look forward to working with the local Conservation Officers on state violations in the area and having access to their state-wide radio dispatching system when working the Detroit River and the Michigan Islands. As we speak, work on an agreement between the State of Michigan and the U.S. Fish and Wildlife Service is taking place that when complete will provide even further assistance for our two agencies to assist each other around the state. Meetings are planned with the Michigan State Police, Spaulding Township, Bridgeport Township, Thomas Township, U.S. Coast Guard, U.S. Border Patrol, and eventually many of the Detroit area agencies.

The winter season is a much more quiet season on the Refuge. Winter activities include cross-country skiing and hiking on Refuge trails, bird watching, photography, and ice fishing and snowmobiling on the navigable waters. However, even with the number of recreational opportunities available, the cold keeps many away. Resource violations have been down also and hopefully will stay down with increased visibility of law enforcement. Violations for the season include excessive snowmobile speeds on the river, illegal trespass on the Refuge with ATV and snowmobile, walking dogs on the Refuge, illicit activity in the parking areas, and hiking on the trails after hours. Many of these violations can be avoided by simply paying attention to the Refuge regulations. Remember, Refuge hours are from sunrise to sunset, pets are prohibited, and obey the posted signs at all times. This is a wildlife refuge and these rules are established to protect the wildlife and

their habitat, as well as providing safety and courtesy to those of us that enjoy using it.

Snowmobiling has become a hot topic this season. Recently we had several unfortunate accidents in the vicinity of the Refuge with one resulting in a death and others with air-lift or ambulance emergency evacuations. Local agencies will be meeting to create an emergency response plan and to address the enforcement of the snowmobile use in the area. Currently, snowmobiling is not allowed on Refuge lands as it is not a compatible use according to Federal Regulations; however, it is allowed on the navigable waters of the Saginaw, Shiawassee, Flint, Tittabawassee, and Cass Rivers, and Swan Creek waterways. An increase in snowmobile enforcement will be implemented as Michigan CO's and I begin to cooperatively work the waterways.

"Snowmobiling has become a hot topic this season."

A land exchange between the State of Michigan and the Shiawassee NWR took place late last year including the boat launch site along the Cass River at M-13. A Refuge entrance sign and public access regulation signs have been ordered and will be put into place very soon. Now that the site is part of the Refuge, administration will be according to Refuge Regulations and Federal Code. The Refuge plans to improve the parking area, clean up the trash and debris, and build a hiking trail to compliment the fishing and boating activities at the site. All prohibited acts will be enforced including the non-compatible snowmobile use. Once signs are in place, I will be spending time at this site in order to make sure the message reaches all of the users.

Have fun, be safe, and most importantly, make sure it is legal! Hope to see you out there.



Some things that fly there be - Birds - Hours - the Bumblebee

Emily Dickinson

By David Peters, Tractor Operator

Spring is a time of great awakening at Shiawassee NWR, as inhabitants that have been stilled by the cold begin to stir. The refuge's insects have over-wintered in all stages of life - egg, larva, pupae, and adult. It is the latter of these that are most visible on those first warm vernal days - mourning cloaks, ladybird beetles, and of course, bumblebees.

Actually, queen bumblebees to be exact, for they are the only bumblebees whose lives span from autumn to the following spring. They emerge from their winter slumber underground and immediately begin foraging for the nectar and pollen that they need to begin raising the next generation. The refuge is well suited to bumblebees, because the dense stands of early spring flowering willows that occur here provide ample food at this particularly critical time in a queen bumblebee's life. As she obtains the food resources needed to begin reproduction, the queen then begins to search for a suitable nest site. This is when we often first notice bumblebees each spring, as they fly low over the ground, inspecting holes, crevices, and such. Nest site selection varies somewhat among the twelve species of the genus *Bombus* that occur in Michigan. Any number of situations might be chosen for use, as long as it is sunny, dry, and provides a secure surrounding. Once a site is selected, the tennis ball sized nest cavity is formed, upon the floor of which the queen constructs several wax cells, which she provisions with pollen, and then lays a single egg in each. These are fertilized eggs; the result of mating that took place the previous autumn, and they will hatch as females, the colony's workforce that will forage for the queen and assist her with nest duties, including defense.

Although their social way of life sets bumblebees apart from other native North American bees, which are solitary, they otherwise share many bee traits with them, including the ability to sting. Bumblebees have stingers, (that is to say the females do, but not the males), but they seldom use them. Being strictly flower feeders, they are far from aggressive, unlike their predatory relatives the hornets and wasps. Thus, close examination of a bumblebee visiting flowers will usually be tolerated, and if not, the bee will signal her discomfort by raising her middle legs.

As summer arrives, the bumblebees we observe are noticeably smaller in size. These are the female workers. The queen no longer leaves her nest, relying on her daughters to forage and supply the family with pollen for the larva, and nectar for the adults. Similar to the non-native honey bee, bumblebees carry the pollen they collect on their hind legs, which have a smooth concave surface surrounded by stiff hairs for this purpose. However,

unlike honey bees, the nest they return to has minimal storage capacity, often only enough sustenance for a few inclement days.

Sometime during the summer, the nest switches over from producing workers, to raising reproductive bumblebees. The larvae chosen to be queens are identical to those of worker females; they are just fed more and brooded longer. To produce males, the queen lays unfertilized eggs. Male bumblebees do not assist with nest duties; they leave a few days after emergence to seek mates, and do not return to the nest. These are the bumblebees one finds on the late summer evenings, asleep on the very flowers they are foraging upon. The young queens linger in nest to build up the large body that will allow them to store energy for over-wintering, then they leave to mate. Over a year old now, (a long, full life in bee terms) the original queen passes on, along with any remaining workers. Well fed with the resources needed for hibernation, the new queen selects a secure spot underground where she settles in to await the arrival of the next spring.

The conservation of pollinators, including bumblebees, is seldom if ever even considered by the general public. Yet the service they provide is an absolutely critical one, as the majority of flowering plants

require the visit by a pollinator in order to produce seed and fruit. This encompasses not only natural plant communities, but agricultural crops as well. Bumblebees themselves are the most effective pollinators of tomatoes, blueberries, raspberries, cranberries, field beans, and red clover. Shiawassee NWR contributes to pollinator conservation by maintaining natural habitats, by prohibiting the use of pesticides, by minimizing competition from non-native honey bees, and of course, by providing ample willow blossoms for the bumblebee queens that are soon to awaken.

"The conservation of pollinators, including bumblebees, is seldom if ever even considered by the general public."



The "Unwanted" Insect

By Doug Spencer, Refuge Manager

Many of us are thinking that winter will never end, but believe me, it will. The warmer days are coming and soon to follow will be bird watching, fishing, boating and hiking on the refuge trails. It will be exciting to see, hear and feel the wildlife returning. Yet, there is one that many of us are not excited to see, hear or feel – the woodland/marsh mosquito. Most people do not realize how important the mosquito is to many other species on the refuge. They are an important food source in the "food web" of the wildlife that use the refuge.

The Saginaw County Mosquito Abatement Commission (SCMAC) will soon begin their annual treatment programs, beginning with the widespread aerial application of the larvicide known as Bti, followed by numerous applications of adulticides in our neighborhoods throughout the summer. Bti is an organic pesticide that is lethal to the larval stage of mosquitoes in water conditions, but it can also have an effect on some other invertebrates found on the refuge. For the first time in years, the refuge will not allow the SCMAC to apply the pesticide for these nui-

sance mosquitoes. Our policy will be to control mosquitoes in the event of a human health emergency that can directly be linked to the mosquitoes that are coming from the refuge. If the County of Saginaw informs the refuge that there is a health emergency and the disease (such as West Nile Virus) is coming from mosquitoes on the refuge, the SCMAC will be allowed to control these species by whatever treatment is necessary to control the disease.

We recommend that while visiting the refuge during mosquito hatches, you use an insect repellent. This will help you to enjoy your visit to the wilds of the refuge. If you forget your repellent, the Friends of Shiawassee NWR will have some available for purchase at the refuge headquarters off of Curtis Road.

"Our policy will be to control mosquitoes in the event of a human health emergency..."

178 Deer Harvested on the Refuge in 2002 Hunting Season

By Jim Dastyck, Refuge Biologist

During the 2002 deer hunting season on the Refuge, a total of 784 hunters harvested 178 deer during the fifteen hunt periods. The hunters spent 2,162 days and 16,232 hours in the field to harvest the deer. Each participant was randomly picked from thousands of applicants through a priority point software program. Each individual hunter selected one of fifteen, two or five day, mini hunt seasons when he or she applied in early September. The seasons were designated as either archery, shotgun, or muzzleloader hunts and covered 37 days scattered throughout the months of November and December.

Of special note were two non-ambulatory hunts held during the first four days of the firearms deer season in mid-November. This hunt is only open to hunters who are confined to wheelchairs. Thirty-three participants harvested 10 deer. This special program is strongly supported by the local community and organizations. Several volunteers donate hundreds of hours assisting with this hunt. In 2001, the National Wild Turkey Federation agreed to sponsor this event with their affiliate Wheeling Sportsman. They highlighted the uniqueness of the program by designating the hunts as one of their national featured projects. Hunters participating in this program

face many unique problems to enjoy a sport most people take for granted.



Refuge Biologist Jim Dastyck (back center) with a successful hunter and a few of the volunteers who helped with the 2002 hunt. Volunteers are extremely important to the success of this program.

Calendar of Events



2003 Refuge Photo Contest September 1, 2002 to August 31, 2003

Visit the Refuge and take some photos and then enter our 2003 Photo Contest! Up to 3 entries total per person may be submitted. Visit our website for more information.



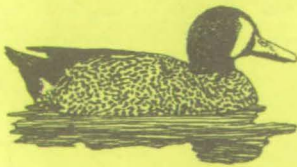
Centennial Celebration!

March 15, 2003, 9:00 a.m. to 4:00 p.m.

The Refuge event of the century or at least this year! Celebrate 100 years of the National Wildlife Refuge System with us at the Green Point Environmental Learning Center, 3010 Maple Street in Saginaw.



- 9:00 a.m. – Bird banding demonstration by Refuge Volunteers Bob Grefe and Carolyn Szaroletta. Learn how songbird information is attained using mist nets and bands.
- 10:00 a.m. – “Bird Feeding Tips” program by Cherri Allen of Cherri’s Feed and Seed in Auburn. You can also purchase your bird feeding supplies from her.
- 10:00 a.m. to 12:00 noon – “Second Day of Issue” stamp cancellation of the \$0.37 Pelican Island postage stamp by the U.S. Postal Service. Stamps will be available for purchase and commemorative Refuge cachets will be available for you to put your stamp on. This is the only location in the State of Michigan for this special event!
- 11:00 a.m. and 1:00 p.m. – “Live Birds of Prey” program by Joe Rogers. See hawks, owls and falcons up close!
- 12:00 noon – “Refuge Pre-history” program. Join Jeff Sommer of the Historical Society of Saginaw County. He is the archaeologist who has been digging, studying and cataloging the Refuge sites.
- 2:00 p.m. – “Butterflies” program by Denny Brooks. Learn about the natural history of butterflies.
- 3:00 p.m. – Refuge Time Capsule Dedication. See what Refuge staff and local children include in the time capsule scheduled to be re-opened 100 years from now in 2103.
- Jr. Duck Stamp Entries accepted by the Michigan Duck Hunters Association.
- Throughout the Day – Fly tying for kids sponsored by Saginaw County Parks and Recreation Commission. Hunting dog demonstrations by the Central Michigan Hunting Retriever Club. Duck calling lessons for kids by Ducks Unlimited. Wetland Puppets by Bay City State Recreation Area. Play “Family Refuge Challenge” and win a small prize.
- Friends of Shiawassee NWR will be selling Centennial items and refreshments.



International Migratory Bird Day Celebration

May 10, 2003, 10:00 a.m. to 4:00 p.m.

- Auto Tour from 10:00 a.m. to 4:00 p.m.

The tour starts at the Curtis Road parking lot off of M-13. View all sorts of wildlife from the comfort of your own vehicle along the self-guided tour. *Please note that the auto tour will be cancelled if Refuge road conditions are poor.

- Other Activities

The Friends of Shiawassee NWR will be selling Refuge items and refreshments during the auto tour at the Curtis Road parking lot. Several children’s activities will also be available.

Looking Ahead – Mark These Dates

June 7, 2003 – Kids’ Free Fishing Fun Day

June 25 & 26, 2003 – Summer Discovery Camp for 4- to 6-year-olds

July 15 to 17, 2003 – Jr. Refuge Manager Academy for 3rd and 4th graders

September 6 & 7, 2003 – Refuge Open House Weekend

September 26 to 28, 2003 – Detroit River International Wildlife Refuge Centennial Event

FRIENDS OF SHIAWASSEE NWR

MEMBERSHIP PAGE

Friends of Shiawassee NWR Membership

____ Individual: \$10/year or \$25/three years

____ Family: \$25/year or \$60/three years

____ Supporting: \$50/year*

*Includes your choice of t-shirt, sweatshirt or hat. Please indicate your choice.

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Phone: _____ E-mail: _____

****We now take Mastercard and Visa!****

Credit Card Number: _____ Exp. Date: _____

Signature on Card: _____

Or make checks payable to "Friends of Shiawassee NWR", PO Box 20129, Saginaw, MI, 48602.



Your membership is important to us and to the Refuge! Membership fees and cash donations go towards Refuge projects like newsletter publication, maintaining trails, sponsoring programs, buying bird see and much, much more. Fill out the above application and mail today!

You can also visit our website at <http://friendsofshiawassee.org> for more information.

Board of Directors

Joe Davila – President

Dick VonBerg – Vice President

Kim LeBlanc – Vice President

Rich Hodge - Treasurer

Janine Spencer - Secretary

Refuge Manager: Doug Spencer

Volunteer Coordinator/Green Point Director: Becky Goche

Newsletter Editing and Layout: Becky Goche and Michelle Vander Haar

Website: <http://midwest.fws.gov/shiawassee>

Green Point Environmental Learning Center
3010 Maple Street
Saginaw MI 48602
(989)759-1669

Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw MI 48601
(989)777-5930

How Clean Is Your Bird Feeder?

By Becky Goche, Park Ranger

Is your bird feeder a breeding ground for disease? Salmonella bacterium could be lurking there, if you're not careful. Salmonella is responsible for numerous die-offs of song birds nationwide each year. The National Wildlife Health Center in Madison, WI offers three important recommendations regarding salmonella bacterial infections in birds.

First, this bacterium can infect nearly all pets, livestock and persons; therefore, pets (especially cats) should not be allowed to eat or come in contact with sick and dead song birds because they could develop salmonella bacterial infections.

Second, persons can be infected by salmonella bacteria, so strict personal hygiene must be practiced by persons that handle the bird feeders, sick and dead birds, and any bird droppings around the bird feeders. Good personal hygiene means thoroughly washing the hands after handling birds and bird feeders, and washing any clothing that comes into contact with bird droppings.

And third, the National Wildlife Health Center and many other wildlife experts recommend that only those bird

feeders that are easily removed, washed and disinfected should be used to feed song birds. Washing and disinfecting bird feeders should be done at least weekly, and more often if bird droppings tend to accumulate on the feeder. After thoroughly washing the bird feeder with soap and water (to remove droppings and moldy feed), the feeder can be disinfected in a bleach solution (half cup bleach in one gallon of water). In addition, bird feeders should be moved around in the yard regularly to prevent build up of potentially contagious bird droppings under the feeders. You should also dispose of seed hulls beneath the feeders to prevent build up.

"Washing and disinfecting bird feeders should be done at least weekly..."

If any persons or pets develop "symptoms" of salmonella bacterial infection (cramps, intense diarrhea, weakness, fever) after handling sick/dead birds or the bird feeder, it's a good idea to seek medical or veterinary care.

Kids' Free Fishing Fun Day Set for Saturday, June 7

By Becky Goche, Park Ranger

Get your fishing poles dusted off! The 23rd annual "Great Saginaw River Free Fishing Fun Day" will be held on Saturday, June 7, 2003, at Ojibway Island in Saginaw, from 9:00 a.m. to 12:00 noon. Registration begins at 8:00 a.m. This contest is open to children aged 3- to 15-years-old. Children will have a chance to win prizes with the fish they catch. The more they catch, the better their chances of winning! Prizes in past years have included bicycles, fishing poles, camping equipment, games, and sporting equipment.

Children will need to furnish their own fishing poles and bait. There will be a limited supply of free bait available. Free refreshments like cookies, snocones and orange drink will also be available. There will be a small charge for hot dogs.

Numerous partners, including the Refuge, will be involved in putting on this event - The Saginaw News, City of Saginaw, Meijer Stores, Saginaw Field and Stream Club, Sons of Italy, the Dow Chemical Michigan Division

Walleye Club and others. Partners organize the event and provide prizes, food, tents, bait and volunteer labor the day of the event.

The Free Fishing Fun Day coincides with Michigan's "Free Fishing Weekend," June 7 and 8, 2003. During this weekend, you don't need a fishing license to fish.



Prescribed Burning - It's Not What It Used to Be

By Rick McAvinchey, Refuge Wildlife Technician

Like most wildlife refuges, as well as national forests and national parks, Shiawassee NWR maintains a variety of habitat types. Not counting the Cass River Unit in Bridgeport, there are at least 1327 acres of wetlands and moist soil units, and at least 444.55 acres of grassy upland areas that we maintain, or hope to maintain in herbaceous vegetation. If these areas are left to natural succession, woody plants such as willows and cottonwoods would eventually take over, converting these open grassy areas to forest. Besides mowing and disking, one of the tools we use to keep down the woody vegetation is prescribed fire.

In the past the criteria for doing prescribed burns were pretty simple. It was not uncommon for Refuge staff to decide on a warm spring day that it would be a good day to burn, and just go light a field or the side-slopes of dikes. Even in those days there had to be an approved prescribed fire plan, which described in general terms the weather and fuel conditions and the firing methods and crew needed to carry out a safe burn. I have worked on prescribed burns in jack pine forests in Michigan for Kirtland's Warbler habitat, and on black spruce burns in Alaska for moose habitat, both types being potentially dangerous burning. Burning on our Refuge, with water, roads and dikes all around, seemed relatively easy and safe.

All this relatively carefree burning ended in spring 2000, when the federal agencies developed new stringent guidelines for prescribed burns. Within months, the National Park Service prescribed burn fiasco near Las Alamos, NM put greater emphasis on this more careful, thoughtful approach to burn planning and implementation. Prescribed burn plans written under these more stringent

standards take several times as long to write and go through the approval process. In the 1998-2000 period we burned at least 580 acres, plus several miles of dike sides. In 2001 we burned about 28 acres, and burned no acres in 2002, due more to the uncooperative weather and inability to assemble fire-qualified staff members than to the new standards for burn plans. Our largest single burn unit is Pool 2, over 430 acres, and the smallest is 0.55 acre at Green Point ELC.

"To catch the reader's attention, place an interesting sentence or quote from the story here."

Last summer I worked on the Rodeo-Chediski wildfire in Arizona, which burned over 480,000 acres and over 460 homes. This and other very large fires such as the Hayman fire in Colorado are largely the result of a great buildup of fuel in many forested areas of the country over the past century of fire suppression. The town of Show-Low, AZ, where I was stationed, came very close to being burned over. Traumatized area residents have a new appreciation for prescribed fire, which along with forest thinning is used to reduce fuel buildups and avert such huge runaway fires. Thinning and burning small areas creates fire breaks, and saves critical wildlife habitats from sudden loss in large devastating fires.

Prescribed fire will continue to be an important tool in maintaining early successional stages on the Refuge and many private and public lands in Michigan, and in reducing fuel buildups in other parts of North America. We will do our part with drip torches and flappers in hand.

Animal Facts - The Ruby-throated Hummingbird

By Michelle Vander Haar, Park Ranger

Did you know the Ruby-throated Hummingbird...
...is the only bird to fly backwards and hover in one spot,
...is the only hummingbird to nest east of the Mississippi River,
...is only 3 ½" long,
...females are green on top and white on bottom,
...will not stay through the winter if you leave your feeders out; they will instinctively migrate unless they are unhealthy,
...nests are made of plant down, held together by spider

silk and covered with lichens,
...has the largest heart in relation to its body size compared to any other animal,
...scientific name is *Archilochus colubris*,
...migrates to southern Mexico and as far south as Costa Rica,
...males usually arrive at wintering grounds 8-10 days ahead of the females.



Friends Group Increases Number of Board of Directors to Fifteen

By Janine Spencer, Friends' Board of Directors

The Friends of Shiawassee NWR recently participated at the "Huntin' Expo" at the Birch Run Convention Center. Many Friends and Centennial items were sold and membership forms were handed out to hundreds of interested visitors. This was a great opportunity for the Friends and Refuge staff to inform the public of the upcoming National Wildlife Refuge Centennial events to be held at Shiawassee NWR and the new Detroit River International Wildlife Refuge in the Detroit/Windsor area. Many thanks to Ed Becker, Rich Hodge, Dan Patillo, Steve MacAlpine, Dale Adams, and Joe Davila for setting up the booth and staffing it for the entire weekend. Thousands of visitors viewed the display.

The Board members want to thank all of the members of the Friends Group for the numerous favorable responses to increase the Board of Directors from 12 members to 15. The increase in Board of Directors will help manage all of the tasks to put on successful Centennial events that are expected this year. It will also help bring into the group additional experienced individuals which will help lead the Friends into the new century of conservation and public programs on the Shiawassee NWR.

Chuck Hoover, former Director of the Castle Museum in the City of Saginaw, Steve MacAlpine, longtime volunteer for the Shiawassee NW Refuge and outdoors enthusiast, and Larry Abraham, avid bird watcher with the Saginaw Valley Audubon Society and local high school teacher have all volunteered to be new Board of Directors. Bob Greffe is a Board of Director and long time volunteer for the refuge, Richard Hodge is the Board's Treasurer, and Kim LeBlanc is the Board's Vice President, all of which are up for re-election. Voting for these individuals will take place soon.

Dan Patillo, Board of Director, recently submitted a \$10,000 grant proposal to the Saginaw Community Foundation for trail development and a marketing plan for the Cass River Unit of the Refuge in Bridgeport for the proposed Great Lakes Discovery Center development. Dan is a student at Central Michigan University and has spent a lot of time putting the grant together and getting the University involved in this important effort.

Refuge Manager Doug Spencer and Refuge Biologist Jim Dastyck recently attended the annual National Friends Conference in Washington, D.C. Friends from the Detroit River also attended as well as hundreds of other individuals representing Friend groups throughout the U.S.

There were some excellent breakout sessions concerning increasing the membership of the organization, fund raising, media contacts, and development of visitor centers for your refuge. There are plans to have a Midwest Friends'

Conference this Spring at the Neil Smith NWR in Des Moines, IA. Anyone interested in representing our Friends at this conference should contact the Board. Plans are already underway for next year's Annual National Friends' Conference to be held in Washington, D.C. Please plan on being there next year. It's a lot of fun and a great learning experience for all Friend members.

Upcoming Events

From February 21 to March 2, one of the biggest indoor events for outdoor recreation, Outdoorama will be held in Novi. The Friends and the U.S. Fish and Wildlife Service will present displays and showcase their Refuge activities. Anyone interested in helping out please contact the Board.

Board meetings are held on the second Wednesday of each month. Our next Board meeting will be March 12, at 7:00 p.m. at Green Point ELC. Everyone is invited to attend.

On March 15, the Refuge and the Friends are celebrating the National Wildlife Refuge System's Centennial at Green Point ELC. The celebration will be from 9:00 a.m. to 4:00 p.m. Friend members are encouraged to attend and help with the event.

On May 10, the Refuge and the Friends are celebrating the International Migratory Bird Day at the Refuge. This is a fun day both for children and adults. Please plan on attending. The Friends will need help assisting the Refuge staff in various activities.

On June 18, don't miss coming to the first Friends Cookout at the Refuge's Cass River Unit in Bridgeport. The Friends plan to provide an old fashion country cookout. The picnic will be on the proposed site for the Great Lakes Discovery Center behind the Cracker Barrel Restaurant and the Baymont Motel off of Dixie Highway. The picnic will be from 4:00 p.m. until dark. Games, displays and hiking trails will be available for your fun and recreation. All the funds raised from this event will go for the development of the new visitor center and facilities on the Cass River Unit. Contact the Friends for more information.

If you want to help out during any of these events, please contact the Friends of Shiawassee NWR, P.O. Box 20129, Saginaw, MI 48602 or call Joe Davila, President at (989) 642-5117 or email: josedavila@chartermi.net

"Your membership is important to us and the Refuge! Membership fees and cash donations go towards Refuge projects..."

Shiawassee NWR
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Phone: 989-777-5930
Fax: 989-777-9200
Hours: M - F, 7:30 a.m. to 4:00 p.m.

Refuge Reporter is published quarterly
by the Friends of Shiawassee NWR.

We're on the web!
[Http://midwest.fws.gov/
shiawassee](http://midwest.fws.gov/shiawassee)



*Celebrating a
Century
of Conservation!*

Teachers: There's Still Time to Schedule the *Centennial Celebration!* in Your School

by Becky Goche, Park Ranger

The National Wildlife Refuge (NWR) System, America's only system of federal lands set aside specifically for wildlife, is turning 100 years old on March 14, 2003. Shiawassee NWR is one of over 535 refuges found throughout the U.S. and it's right in your backyard.

There is still time for your school to host the ***Centennial Celebration! School Assembly Program***. Refuge staff come into your school and present an educational and entertaining program. Students of all ages will enjoy this program as they learn about the history of wildlife conservation in the U.S. They will watch a video on the history of the NWR System, learn about activities that people can do on Refuges, and earn prizes for their schools and themselves as they discover Refuges across the U.S. through a fun, trivia contest. Best of all, this program is **FREE!**

This program is only available through the end of March, 2003. This program has been very popular, but we do have a few slots still open in March. We request that schools coordinate an assembly program for multiple grades that can be done in a large room. Schools will need to provide a VCR, TV and/or projection TV, possibly a PA system (depending on the size of the room and the number of students) and two tables.

To reserve your spot, call the Green Point Environmental Learning Center at (989) 759-1669. For more information about this and other programs we have planned for the Centennial, see inside or visit our website at <http://midwest.fws.gov/shiawassee>.



Refuge Reporter

Happenings at Shiawassee National Wildlife Refuge

Volume 6, Issue 3

Grab Your Fishing Poles for Kids' Free Fishing Day on June 7

By Becky Goche, Park Ranger

The 23rd annual "Great Saginaw River Free Fishing Fun Day" will be held on Saturday, June 7, 2003, at Ojibway Island in Saginaw, from 9:00 a.m. to 12:00 noon. Registration begins at 8:00 a.m. This contest is open to children aged 3- to 15-years-old. Children will have a chance to win prizes with the fish they catch. The more they catch, the better their chances of winning! Prizes include bicycles, fishing poles, camping equipment, games, and sporting equipment.

Children need to furnish their own fishing poles and bait. There will be a limited supply of free bait available. Many free refreshments like cookies, snocones and orange drink, will be served. Hot dogs will also be available for a small charge.

Numerous partners, including the Refuge, are involved in putting on this event – The Saginaw News, City of Saginaw, Meijer Stores, Saginaw Field and Stream Club, Sons of Italy, the Dow Chemical Michigan Division Walleye Club and others. Partners organize the event and provide prizes, food, tents, bait and volunteer labor the day of the event.

The Free Fishing Fun Day coincides with Michigan's "Free Fishing Weekend," June 7 and 8, 2003. During this weekend, you don't need a fishing license to fish.

We need several friendly volunteers to help out during the morning. We need a few early risers to help us with set up beginning at 6:30 a.m. If you can help, please call Becky Goche at (989) 759-1669.

Deer Applications Due August 1, 2003

People interested in hunting deer on the Refuge now need to get their applications in by August 1, 2003 (postmark). Information sheets are available June 2 at the Refuge, Green Point, and several local businesses that sell hunting licenses. You can also check our website at <http://midwest.fws.gov/shiawassee>, click on hunting.

With the earlier deadline, hunters will now know if they have been selected in time for the Refuge Open House Weekend, when the entire Refuge is open to deer scouting.

When applying, please read and follow the directions carefully so that your application is not voided. Good luck!

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<i>Friends Group to Host Cookout</i>	3
<i>Two Summer Camps for Children to be Held</i>	3

Special Points:

- The Refuge Open House Weekend is September 6 and 7. The entire Refuge will be open to deer scouting, hiking and bicycling, during daylight hours only. Self guided auto tour and vote for your favorite photos in the Second Annual Refuge Amateur Photo Contest on Saturday from 10 a.m. to 4 p.m.

Living in a Hackberry Tree Down by the River

By David Peters, Tractor Operator

Few things define a natural location quite as well as its plants. Shiawassee NWR, though inhabited by a fair share of plant species with widespread distribution, as well as some introduced "weeds," is still a refuge for plants native to the floodplains of slow moving rivers in the eastern Midwest. Among these is the tree, *Celtis occidentalis*, commonly known as hackberry. Of the five species of this genus in North America, hackberry, along with its southern counterpart sugarberry, are distributed throughout much of the eastern U.S. But within this broad general area, hackberry primarily occurs only in the moist rich soils that are typical along rivers. It doesn't occur naturally north of the central hardwood forest region; therefore, the trees at Shiawassee NWR are near its northerly limit in the state of Michigan.

Though hackberry trees may be found growing here and there throughout the Refuge, it is not by any means a dominant tree species. It occurs in greatest densities near or along river banks and wooded dikes. Hackberry bark is composed of a smooth base with highly contrasting rough ridges, so there is no mistaking its identity in any season. Its "berries" are dark purple, more or less a third of an inch in diameter, and contain a relatively large nutlet. The amount of fruit produced by hackberry trees growing on the Refuge is inconsistent from year to year. In years when generous fruiting does occur, the multitude of berries will linger on the trees until early winter, when they are harvested by flocks of waxwings and robins. Those that fall to the ground are undoubtedly gathered up by squirrels, mice, and such.

Representing a native plant species, and a source of nourishment for migratory birds and small mammals, are not the only ways in which the hackberry makes its unique contribution to the Refuge biological community. Like a number of other plants, (a common example of which are milkweeds), the hackberries are the exclusive hosts to several other living things.

As many people know, the monarch depends upon the milkweeds as its larval food plant. The hackberries have not one, but three species of butterfly depending solely upon them. Caterpillars of the hackberry emperor, tawny emperor, and American snout butterflies eat only hackberry leaves. As their name suggests, the two emperors are closely related, but avoid competition for food by feeding on different age leaves. The adults rarely visit flowers for nectar; rather, they feed on tree sap, rotting fruit, and carrion. The American snout is the only species of butterfly in North America in which the structure that houses its proboscis is elongated, hence its common name. They migrate north to and from the Refuge each year in varying numbers. The casual visitor to the Refuge might not no-

tice these three butterflies as readily as monarchs and some others, for they are less common, and as forest dwellers, they are well camouflaged and not brightly colored.

It is not unusual to find hackberry leaves with small button-like growths known as "galls" on their lower surface. Hackberry galls are the result of the tree's reaction to at least a couple different organisms - psyllids, (commonly known as jumping plant lice), and midges. When immature, these parasites release growth regulating chemicals as they feed on leaf tissue. These chemicals cause the adjacent leaf tissue to form a gall, enclosing the parasite and providing it a relatively safe place to develop into an adult. Hackberries are the sole host of a number of different gall-making species, such as the hackberry button gall, hackberry star gall, and hackberry melon gall. The gall that each induces is structurally unique to that species.

"The hackberries have not one, but three species of butterfly depending solely upon them."

An even smaller organism, though visually more obvious when it is present, is a powdery mildew fungus that is specific to hackberry. In apparent association with a mite, this fungus affects the end shoots of the tree, causing it to sprout several small branches. The result is commonly known as a "witch's broom". These atypical formations, often quite numerous on a single tree, are readily visible not only as "brooms" in the winter, but as abnormally dense clumps of leaves during the summer. Like butterfly caterpillars and galls, witch's brooms do not affect the health of their host.

In addition to the hackberry specialists just discussed, there are potentially any number of other insects and other organisms not specific to hackberries living on, and in, the leaves, twigs, bark and roots of each tree. Together, they are but one example of the richness of life in the natural world that occurs within the protective boundaries of Shiawassee NWR. It is a wealth easily shared with visitors, as hackberry trees can be found growing here and there along all of the Refuge's hiking trails. You are encouraged to pause at *Celtis occidentalis* when you come across it, and take a closer look at this unique river bank tree of interesting bark and a whole lot more.

Calendar of Events



2003 Refuge Photo Contest

September 1, 2002 to August 31, 2003

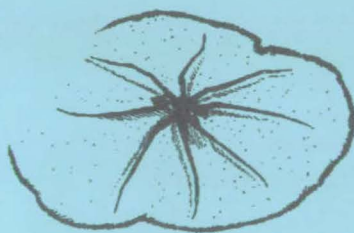
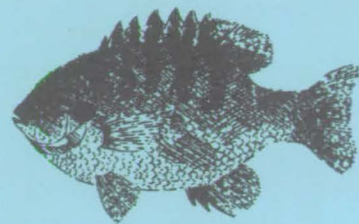
Visit the Refuge and take some photos and then enter our 2003 Photo Contest! Up to 3 entries total per person may be submitted. Visit our website for more information.

Kids' Free Fishing Fun Day

June 7, 2003, 9:00 a.m. to 12:00 noon

Registration begins at 8:00 a.m.

Held at Ojibway Island in Saginaw. Contest is open to children between the ages of 3- and 15-years-old. Lots of prizes to win. Many free refreshments. Bring your own fishing poles and bait.



Summer Discovery Camp

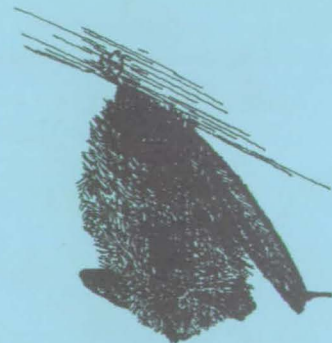
June 25 & 26, 2003, 9:00 a.m. to 12:00 noon

For children between the ages of 4- and 6-years-old. Children learn about the wildlife and habitats at Green Point through lots of crafts, games, stories, and other activities. A light snack is provided. Cost for the camp is \$5 per child. Pre-registration is required by calling (989) 759-1669. Space is limited.

Jr. Refuge Manager Academy

July 15, 16 & 17, 2003, 9:00 a.m. to 12:00 noon

For children entering third and fourth grades this fall. Learn how to manage a National Wildlife Refuge through fun, hands-on activities. On the final day, children will take a guided tour of the Refuge with their families, followed by a special graduation ceremony. Light snacks are provided each day. Cost for the camp is \$15 per child. Pre-registration is required by calling (989) 759-1669. Space is limited.



CELEBRATING A
CENTURY
OF CONSERVATION

Looking Ahead – Mark These Dates

September 6 & 7, 2003 – Refuge Open House Weekend

September 26 to 28, 2003 – Detroit River International Wildlife Refuge Centennial Event

FRIENDS OF SHIAWASSEE NWR MEMBERSHIP PAGE

Friends of Shiawassee NWR Membership

___ Individual: \$10/year or \$25/three years

___ Family: \$25/year or \$60/three years

___ Supporting: \$50/year*

*Includes your choice of t-shirt, sweatshirt or hat. Please indicate your choice.

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Phone: _____ E-mail: _____

****We now take Mastercard and Visa!****

Credit Card Number: _____ Exp. Date: _____

Signature on Card: _____

Or make checks payable to "Friends of Shiawassee NWR", PO Box 20129, Saginaw, MI, 48602.



Your membership is important to us and to the Refuge! Membership fees and cash donations go towards Refuge projects like newsletter publication, maintaining trails, sponsoring programs, buying bird see and much, much more. Fill out the above application and mail today!

You can also visit our website at <http://friendsofshiawassee.org> for more information.

Board of Directors

Joe Davila – President

Dick VonBerg – Vice President

Kim LeBlanc – Vice President

Rich Hodge - Treasurer

Janine Spencer - Secretary

Refuge Manager: Doug Spencer

Volunteer Coordinator/Green Point Director: Becky Goche

Newsletter Editing and Layout: Becky Goche and Michelle Vander Haar

Website: <http://midwest.fws.gov/shiawassee>

Green Point Environmental Learning Center
3010 Maple Street
Saginaw MI 48602
(989)759-1669

Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw MI 48601
(989)777-5930

Friends Group to Host Cookout on June 18

The Friends of Shiawassee NWR will have their first Friends Cookout at the Refuge's Cass River Unit in Bridgeport on June 18, 2003. The picnic will run from 4:00 p.m. to 8:00 p.m. and will feature chicken and pork barbecue. Cost for the picnic is \$10 for adults and \$5 for children aged 12 and under. Numerous door prizes will be given away. The Cass River Unit is the proposed site for the Great Lakes Discovery Center and is located behind the Cracker Barrel Restaurant and the Baymont Motel off of Dixie Highway. Games, displays and hiking trails will be available for your fun and recreation. All the funds raised from this event will go for the development of the new visitor center and facilities on the Cass River Unit.

\$5000 Grant for Trail Development

The Saginaw Community Foundation has awarded the Friends group a \$5,000 grant to be used for trail development at the Cass River Unit. Dan Patillo, Board of Director, submitted the grant proposal earlier this spring. Dan is a student at Central Michigan University and spends a lot of his time writing grants and helping out with other projects on the Refuge.

\$250,000 Grant Awarded

The Great Lakes Fishery Trust awarded the Friends

group a grant for \$250,000. This grant will be used for a marketing and business plan and the preliminary design of the proposed Great Lakes Discovery Center in Bridgeport. The Center will highlight fisheries, wildlife and the habitats of the Great Lakes Basin Ecosystem. Once the plans are complete, the Friends will begin the major campaign to raise private funds for the Center.

Board Meetings

Board meetings are held on the second Wednesday of each month at 7:00 p.m. at Green Point ELC. Everyone is invited to attend.

For more information, contact the Friends of Shiawassee NWR, P.O. Box 20129, Saginaw, MI 48602 or call Joe Davila, President at (989) 642-5117 or email: joedavila@chartermi.net

"Your membership is important to us and the Refuge! Membership fees and cash donations go towards Refuge projects..."

Two Summer Camps for Children to be Held at Green Point

By Becky Goche, Park Ranger

Just because it's summer, doesn't mean that your kids have to stop learning! The Refuge and the Friends of Shiawassee NWR are sponsoring two different camps this summer for children. If you are a parent looking for a good learning environment and lots of fun for your child, check these out!

Summer Discovery Camp

The Summer Discovery Camp for children between the ages of 4- and 6-years-old is June 25 and 26. The camp runs from 9:00 a.m. to 12:00 noon both days. Children will explore the habitats and wildlife at Green Point Environmental Learning Center. Lots of hands-on activities, crafts, games, stories and fun are planned! Parents are welcome to either drop off their child or spend the morning with them. We ask that other siblings not attend with their brother or sister. A light snack will be offered each day. Cost for this camp is \$5 per child. This non-refundable fee must be received by June 13 to hold the child's spot. Pre-registration is required by calling (989) 759-1669. Space is limited to 30 children.

Jr. Refuge Manager Academy

The Jr. Refuge Manager Academy is for children entering the third and fourth grades in the fall. The Academy is held July 15, 16 and 17, and runs from 9:00 a.m. to 12:00 noon all days. Children will learn what it takes to operate a National Wildlife Refuge through fun, hands-on activities. On the final day, a special guided tour of the Refuge is planned for the Academy participants and their families, followed by a graduation ceremony. Snacks will be offered each day. Cost for this camp is \$15. Pre-registration is required by calling (989) 759-1669. Space is limited to 20 children.

Green Heron



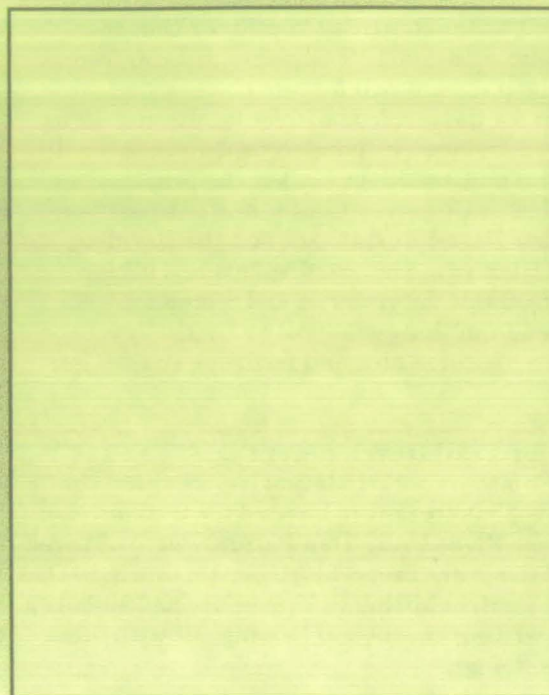
Shiawassee NWR
6975 Mower Rd.
Saginaw, MI 48601
Phone: 989-777-5930
Fax: 989-777-9200
Hours: M - F, 7:30 a.m. to 4:00 p.m.

Refuge Reporter is published quarterly
by the Friends of Shiawassee NWR.

We're on the web!
[Http://midwest.fws.gov/
shiawassee](http://midwest.fws.gov/shiawassee)



*Celebrating a
Century
of Conservation!*



Refuge Volunteer Appreciation Potluck Dinner Planned for June 12

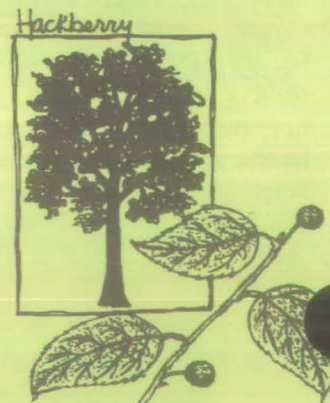
by Becky Goche, Park Ranger / Volunteer Coordinator

The Shiawassee NWR will host its annual Refuge Volunteer Appreciation Potluck Dinner on Thursday, June 12, 2003, at 6:00 p.m. The potluck will be held at the Green Point Environmental Learning Center, 3010 Maple Street in Saginaw. All Refuge volunteers and their families are cordially invited to attend!

Refuge staff will recognize all of those volunteers who donated their time between October 1, 2001 and September 30, 2002. The 2002 Refuge Volunteer of the Year will also be awarded. If you have not turned in your hours for this time period, please do so as soon as possible, so that we can recognize you! Call Becky Goche at (989) 759-1669, if you have hours to turn in.

We ask that all who attend bring a dish to share. The

Refuge will furnish the main meat dishes, beverages and table service. Dress in comfortable, cool clothes because Green Point can get quite warm in June! If you plan on attending, please call Becky Goche at (989) 759-1669 or e-mail Becky_Goche@fws.gov by Monday, June 9, with how many will be attending. We need to let the caterer know how much to bring. Hope to see you all there!



*Look inside to learn more
about the Hackberry tree!*

Fall 2003



Refuge Reporter

Happenings at Shiawassee National Wildlife Refuge

Volume 6, Issue 4

Refuge Open House Weekend is September 6 and 7

By Becky Goche, Park Ranger

The annual Refuge Open House Weekend is set for September 6 and 7, 2003. During this weekend only, the ENTIRE refuge is open to hiking, bicycling, and deer scouting. Visitors can be on the refuge during daylight hours only.

Please remember that dogs and other pets, horses, ATV's and other motorized vehicles are not allowed.

On Saturday, September 6, a self-guided auto tour will be available for visitors to view wildlife from the comforts of their own vehicle. The route is about 7 miles long and goes through areas that are closed to the public the rest of the year. The tour will begin at the parking lot at

the west end of Curtis Road, off of M-13. The tour will be open from 10:00 a.m. to 4:00 p.m.

You can be a part of choosing the winners in the Second Annual Refuge Amateur Photo Contest! From 10:00 a.m. to 4:00 p.m., the photos will be displayed at the Refuge Headquarters, located on the corner of Curtis and Mower Roads. You will be able to vote for your favorite photo in each category.

We need several friendly volunteers to help out on Saturday with the tour and photo contest. If you can help, please call Becky Goche at (989) 759-1669.

Volunteers Needed to Help with Goose Hunts

The Canada goose hunting season will soon be upon us and we're looking for some volunteers who love starting work at 5:00 a.m.! During the month of October, the Refuge offers goose hunting everyday. We anticipate that we will start on October 11 and continue through the end of the month. Hunters start registering at 5:00 a.m. and the lottery drawing is held at

5:30 a.m. Refuge staff need help with the drawing each morning, checking in the hunters and taking some biological data for the geese. We will train you! Hunters must check back in by 1:00 p.m. each day, so that's usually when you're done, too. If you can help one or more mornings, please contact Becky Goche at (989) 759-1669 so she can get you on the schedule.

Inside this issue:

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<i>Friends Group Participates in Shields Parade</i>	3
<i>Refuge Trail Closures During Hunting Season</i>	3
<i>"New" Employee</i>	4

Special Point:

- Detroit River IWR Centennial Celebration is September 26 and 27. Friday is Education Day for Wayne and Monroe County school children. Saturday is Family Day and is open to everyone. Many fun-filled events are planned beginning at 9:00 a.m. All will take place at the Lake Erie Metro Park in Brownstown Township.

Spiel of the Six-Legged

By David Peters, Tractor Operator

When it comes to insects, most people are at best indifferent to, often times even repelled by them, unaware that these small creatures are, along with the flowering plants, the environmental foundation on which life, including that of humans, depends. One of the most significant, yet seldom appreciated roles of the Refuge is the conservation of insects.

Conserving insects, as it is practiced at the Refuge level, is typically a rather inactive form of management. At such times, it is simply a matter of allowing natural biological communities to function undisturbed. One example of this would be leaving standing and fallen dead timber in the forest, where it can support a multitude of beetles, ants, and other insect species.



Another illustration of this sort of a "hands off" approach is the Leach Marsh, which is located to the west of Grege Pool. This is former farmland that has been allowed to return to a natural wet meadow habitat. Here live thousands of grasshoppers, damselflies, true bugs, leaf-

hoppers, and more. Common milkweed has colonized extensive areas of this unit, and it provides a tremendous source for insect species that have the milkweeds as their host plant; the most common being the monarch, milkweed tussock moth, red milkweed long-horned beetle. Of course the wonderfully fragrant milkweed flowers provide nectar for an abundance of butterflies, moths, bumblebees, and other nectar sippers.

Below the stands of milkweed in the Leach Marsh grows a dense understory of wild mint and water horehound, bearing small flowers that are just the right size for a multitude of tiny native bees. They, together with their larger bee brethren, as well as a diversity of flies, beetles, moths, etc., perform the all important task of pollination. Unfortunately, as with nearly all indigenous wildlife, native pollinator numbers have declined. Destruction of natural habitats; broad application of insecticides; and competition for nectar and pollen from the non-native honey bee are some of the factors contributing to this decline.

From an economic perspective, such declines reduce the pollination and subsequent production of many vegetable and fruit crops. From a conservation standpoint, loss a native pollinators reduces seed production by indigenous wild plants. At worst, in the case of plant species that can only be pollinated by a single insect species, the lack of that insect also jeopardizes the existence of the plant as well. Not so drastic, but of equal concern in the long term, is the possibility that reduced seed production

by insect pollinated wild plants will give those that are wind pollinated, such as grasses, a reproductive advantage, allowing them to slowly crowd out the former, leaving fields and forests colorless in more ways than one.

Shiawassee NWR has been able to make some specific initiatives aimed at the conservation of native pollinators. During the finalization of its fifteen year Comprehensive Conservation Plan, keeping of honey bees hives on the Refuge was determined to be a use that is incompatible with the purposes of Shiawassee, and managed hives are no longer placed there. (This should also reduce seed production by that nemesis purple loosestrife as well.) This past spring, as a boost to native bee populations, eighty acres of former cropland that the Refuge recently acquired at M-13 and Evon Road was planted with sunflower. The blossoms are beginning to open as this newsletter goes to print, providing energy for a few of the greatly diverse assemblage of six-legged creatures that thrive at Shiawassee NWR.

"One of the most significant, yet seldom appreciated roles of the Refuge is the conservation of insects."

"New" Employee

(Continued from page 4)

bers to have these opportunities and I will do as much as I can to assist with planning, funding and implementation of these projects.

In years to come, when I have outgrown my position as a private lands biologist, I would like to continue on into management type opportunities. Hopefully, this will all work its way out in the future but for now I would like to thank all of those great people who have taught me so much (and you know who you are!) and who have helped me obtain the first of many goals for my professional career.



Arrowhead

FRIENDS OF SHIAWASSEE NWR MEMBERSHIP PAGE

Friends of Shiawassee NWR Membership

____ Individual: \$10/year or \$25/three years

____ Family: \$25/year or \$60/three years

____ Supporting: \$50/year*

*Includes your choice of t-shirt, sweatshirt or hat. Please indicate your choice.

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

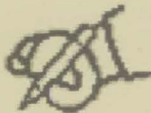
Phone: _____ E-mail: _____

****We now take Mastercard and Visa!****

Credit Card Number: _____ Exp. Date: _____

Signature on Card: _____

Or make checks payable to "Friends of Shiawassee NWR", PO Box 20129, Saginaw, MI, 48602.



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Rich Hodge - Treasurer

Dick VonBerg – Vice President

Janine Spencer - Secretary

Kim LeBlanc – Vice President

Board meetings held on the second Wednesday of each month at 7:00 p.m. at the Green Point Environmental Learning Center, 3010 Maple Street in Saginaw.

Refuge Manager: Doug Spencer

Volunteer Coordinator/Green Point Director: Becky Goche

Newsletter Editing and Layout: Becky Goche

Website: <http://midwest.fws.gov/shiawassee>

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Saginaw, MI 48602
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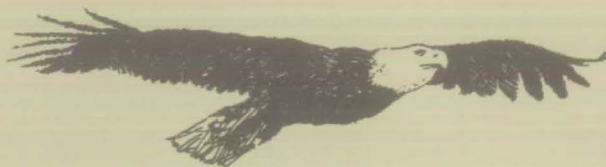
Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw, MI 48601
(989)777-5930

Calendar of Events

2004 Refuge Photo Contest

September 1, 2003 to August 31, 2004

It's not too early to start planning for the 2004 Photo Contest! Visit the Refuge and take some photos and then enter our 2004 Photo Contest. Up to 3 entries total per person may be submitted.



Refuge Auto Tour

September 6, 2003, 10:00 a.m. to 4:00 p.m.

Starts at the parking lot at west end of Curtis Road

View areas of the Refuge that are normally closed and reserved just for the wildlife. See wildlife from the comforts of your own vehicle. Volunteers will be stationed at several spots to answer your questions and assist you. The Friends of Shiawassee NWR will have refreshments and other items available.

Vote for Your Favorite Refuge Photos

September 6, 2003, 10:00 a.m. to 4:00 p.m.

Refuge Headquarters, corner of Curtis and Mower Roads

Cast your vote in the Second Annual Refuge Amateur Photo Contest. Photos will be on display at the Headquarters.

Refuge Open House Weekend

September 6 & 7, 2003, Daylight Hours Only

The ENTIRE refuge is open to hiking, bicycling, and deer scouting, this weekend only.



CELEBRATING A
CENTURY
OF CONSERVATION

Detroit River IWR Centennial Event

September 27, 2003, Starts at 9:00 a.m.

Lake Erie Metropark in Brownstown Township

Visit the first International Wildlife Refuge and celebrate over 100 years of conservation of the National Wildlife Refuge System. Lots of exhibits, family activities and fun are planned.

Looking Ahead – Mark These Dates

October 12 – 18, 2003 – National Wildlife Refuge Week Observed

October, 2003 – Refuge Goose Hunting

November – December, 2003 – Refuge Deer Hunting

Friends Group Participates in Shields Parade

By Janine Spencer, Friends Board Secretary

The Friends of Shiawassee recently participated in the Shields Lions' Club Festival Parade on July 19, 2003. The parade started at Stroebel Road and ended at the Festival grounds off of Miller Road in Thomas Township. Volunteers passed out candy and brochures from the Friends of Shiawassee, Green Point ELC, and Shiawassee NWR. Around 300 brochures were passed out. Everyone enjoyed themselves very much. Our thanks to Jim and Melana Dastyck, Becky Goche, Shirley and Dale Adams, Debra and Mikaya Shinn, Joe Davila, Dan Patillo, Jacqueline Spencer and Chris Sanders and daughter Angela. We hope to participate every year in the Shields parade.

The "Moonlit Stroll through the Refuge" was held on August 15, 2003 at the Curtis Road. It provided an opportunity to hear the sounds and see the sights of the night creatures which people would not normally experience because the trails are usually open only from dawn to dusk. Thank you to Steve Gasser for helping the Refuge coordinate this.

Volunteers Needed to Help with Visitors

If anyone has a few hours to spare, Shirley Adams, the Administrative Tech. at the Refuge could use some help answering phones, greeting the visiting public or operating the Friend's gift shop. The Fall is a very busy time at the Refuge, especially with the goose and deer hunts. Call (989) 777-5930 Ext.10 if you can help.

Upcoming Events

The "Refuge Open House" will be on September 6 and 7, 2003.

On Saturday, there will be an auto tour with volunteers directing people along the tour and at the observation tower explaining about and pointing out wildlife. The Friends of Shiawassee will have merchandise to sell such as paintings, t-shirts, key chains, pins and refreshments.

On September 27 there will be a Centennial Celebration held in the Detroit area at the Lake Erie Metro Park in Monroe County on the shores of Lake Erie. There will be special events for the entire family starting at 9:00 a.m. This event is to celebrate the Detroit River International Wildlife Refuge and the 100 Anniversary of the National Wildlife Refuge System. The event is free to all.

On December 3, 2003 the Refuge and the Friends will be hosting a Christmas party. Call the Refuge office or contact the Friends for further details.

If you would like to volunteer to help out with any of the above events please contact the Friends of Shiawassee NWR, P.O. 20129, Saginaw, Mi. 48602 or call Joe Davila, President at (989) 642-5117 or e-mail: joedavila@chartermi.net. You can also contact Janine Spencer, Secretary, at (989) 781-4687 or e-mail: dspencer@quixnet.net.

"Your membership is important to us and the Refuge! See the insert for an application."

Refuge Trails Closures During 2003 Hunting Season

By Becky Goche, Park Ranger

Goose and deer hunting will soon be starting for the 2003 season. An official date has not been set for the start of goose hunting, but typically it starts the second weekend in October and continues through the end of the month. Deer hunting will begin November 1. As a result of hunting, some of the Refuge trails will be closed throughout the hunting season to give hunters a quality experience and to protect Refuge visitors. The trails at Green Point will be open throughout the hunting season for hiking and cross-country skiing. Please remember that bicycles and pets are not allowed on the trails at Green Point. Following is a list of the dates the trails are closed to all public use, except to hunters possessing a valid Refuge hunting permit. All dates are inclusive.

Ferguson Bayou Trail (off of Curtis Road)

October – Trails are closed until 1:00 p.m. every day that there is goose hunting. Dates are still pending.

November 1 – 10, November 15 – 18, November 22 – 23, December 1 – 10, December 12 – 17 and December 27 – 31.

Woodland Trail (off of Stroebel Road)

November 1 – 10, November 22 – 23, and December 12 – 17.

Cass River Unit Trail (in Bridgeport Township)

November 1 – 10, December 1 – 10, and December 27 – 31.

If you have any questions regarding trail closures, please contact the Refuge at (989) 777-5930 or Green Point at (989) 759-1669.

Shiawassee NWR
6975 Mower Rd.
Saginaw, MI 48601
Phone: 989-777-5930
Fax: 989-777-9200
Hours: M - F, 7:30 a.m. to 4:00 p.m.

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shiawassee](http://midwest.fws.gov/shiawassee)



*Celebrating a
Century
of Conservation!*

"New" Employee Takes Over Private Lands Position

by Michelle Vander Haar, Private Lands Coordinator



As most of you may know, I am a very persistent person. Through all of my temporary positions in the past, I have continued my connection with the Refuge since 1998 when I started as a contract employee to staff the goose check station. In 2001, I was hired as a Park Ranger and I have assisted Becky Goche with all of the public use activities of the refuge. I attended Michigan State to receive a professional certification in Watershed Man-

agement while working as a Park Ranger. I also worked with Jim Hazelman doing habitat restoration work on private lands.

Jim left us this year to go on to bigger and better things, and

although we miss him, this has allowed for a goal of mine to come true. In June, I was hired as a permanent employee - a Fish and Wildlife Biologist! I have never had a title that I have been so proud of (no offense Becky!). I like to think that I am qualified for the position but sometimes I wonder if the great people at the Refuge were just a little tired of hearing my sob story! Just kidding.

Anyway, I hope to make a difference in the Saginaw Bay Watershed by continuing to protect and restore wildlife habitat on private lands. There are many great organizations that have assisted the Refuge in the past and I hope that these partnerships will continue and grow. I hope to be able to increase the amount of grant funding that is given out to some of these organizations and assist with additional protection of our environment. I would also like to say that I am willing to do the best I can for local communities who are interested in environmental education. We have used budget dollars to restore wetlands at Carrollton schools, Harrison schools and a few others. I think it is very important for students and community mem-

(Continued on page 2)



Shiawassee National Wildlife Refuge 2003 Deer Hunt Information (Federal Hunts Only)

Pre-Registered Drawings

Applicants apply by submitting cards to the Shiawassee National Wildlife Refuge. There is no fee to apply. **Cards must be postmarked by August 1, 2003.**

Instructions for Pre-Registered Hunt Applications

1. Applicants may apply **once** and may choose only **ONE** (1) hunt. Hunt choice code #'s are listed on back.
2. Hunters must mail a card (at least 3" x 5", but not larger than 4" x 6", not a piece of paper) to **Shiawassee NWR Deer Hunt, 6975 Mower Rd., Saginaw, MI 48601** with the following complete information printed or typed on one side of the card:
 - Name
 - Address, including City, State and Zip
 - Phone Number
 - Driver Licence # or Sportcard #
 - Hunt Choice Code #

*Please indicate if any of the above information has changed from past years.
CARDS POSTMARKED AFTER THE DEADLINE OR FILLED OUT INCORRECTLY WILL NOT BE ENTERED INTO THE DRAWING. No priority points will be awarded.
3. Hunters may apply with one (1) partner in which case each will receive a permit or neither will receive a permit. Partners must apply for the same hunt choice code #. Each hunter must fill out a card and then mail both cards in one envelope. Youth applying for hunts must have one (1) supervising adult listed as their partner. **HELPER PERMITS ARE PROHIBITED.**
4. Hunters who are successful for antlerless permits will be notified with instructions on how to purchase a Deer Management Unit 173 Public Lands Antlerless Deer license using the Retail Licensing system.
5. Only successful applicants will be notified. They will be notified by September 5, 2003, or you can check our website at: <http://midwest.fws.gov/shiawassee> (click on "Hunting") to see if you were drawn.
6. Permits cost \$10. All permits must be claimed by October 31, 2003, or negative points will be assigned.

Priority Deer Drawing System Guidelines

- The 2001 year was the first year for the priority drawing system from which all priority points were developed.
 - All applicants who apply for an either sex hunt, but are not selected, will receive one (1) priority point towards a higher preference each year he/she is unsuccessful in the drawing.
 - All applicants who apply for an antlerless only hunt will receive two (2) priority points towards a higher preference for an either sex permit and one (1) priority point towards a higher preference for an antlerless only hunt.
 - When an applicant is drawn for a permit, the points that he/she has accumulated to that point will return to zero for that type of permit. Any points for the other type of permit will remain.
 - If an applicant is selected and fails to pick up his/her permit, all points accumulated up to that point for both types of permits will be lost. In addition, the applicant will receive a negative total of two (2) points for both types of permits.
 - There is no penalty for the hunter who cannot make it into the field.
 - Only two (2) people can apply together as partners.
 - Law enforcement data banks will be tied to the program to automatically delete those applicants who are still serving probation periods.
 - Probation periods assigned to refuge violations will be served consecutively.
- Please note that your points may not transfer if we are not made aware of changes in your identification number.

You can also apply for a State hunt. Contact the DNR Field Office in St. Charles, MI at 989/865-6211.

Shiawassee National Wildlife Refuge Pre-Registered Hunts

Hunt Choice Code #	Dates	Type	Hunt Area	Number Hunters	2002 Applicants	Harvest Permits
201	Nov. 01 - Nov. 05	Archery	1 & 5	100	130	Antlerless Only
202	Nov. 06 - Nov. 10	Archery	1 & 5	100	749	Either sex
203	Dec. 01 - Dec. 05	Archery	4 & 5	100	239	Either sex
204	Dec. 06 - Dec. 10	Archery	4 & 5	100	332	Either sex
205	Dec. 27 - Dec. 31	Archery	4 & 5	100	214	Either sex
206	Nov. 15 - Nov. 16	Shotgun (N-A*)	3	18	29	(N-A Shotgun hunts are 60% antlerless & 40% either sex permits)
207	Nov. 17 - Nov. 18	Shotgun (N-A*)	3	18	20	
209	Nov. 22 - Nov. 23	Shotgun (General)	2	30	94	Antlerless Only
210	Dec. 12 - Dec. 13	Muzzleloader	3	90	215	Antlerless Only
211	Dec. 12 - Dec. 13	Muzzleloader	2	30	61	Antlerless Only
212	Dec. 14 - Dec. 15	Muzzleloader	3	90	263	Antlerless Only
213	Dec. 14 - Dec. 15	Muzzleloader	2	30	64	Antlerless Only
214	Dec. 16 - Dec. 17	Muzzleloader	3	90	830	Either Sex
215	Dec. 16 - Dec. 17	Muzzleloader	2	30	223	Either sex

* N-A shotgun hunts are Non-Ambulatory hunts (You must be confined to a wheelchair).

All hunters harvesting a deer must use a valid license to tag the deer.

Hunt Areas: (For a map, visit our website)

- **Area 1** - The entire Refuge
- **Area 2** - Area bordered by the northern boundary of the Refuge, south to the Shiawassee and Cass Rivers, plus Green Point Island
- **Area 3** - Entire Refuge except for the area north of the Shiawassee and Cass Rivers, and Green Point Island
- **Area 4** - Green Point Island and the entire Refuge except trails by Stroebe Road bounded by Bullhead Creek, Shiawassee and Tittabawassee Rivers
- **Area 5** - Cass River Unit in Bridgeport Township

Youth Shotgun: Contact www.MYHEC.org for more information on how to register by August 11, 2003.

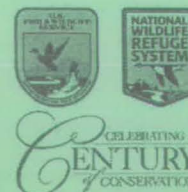
Scouting Dates: September 6 and 7, 2003, daylight hours only, during our Open House Weekend.

Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw, MI 48601
Phone: 989/777-5930
V/TTY Users: 800/649-3777 (Michigan State Relay System)

Website: <http://midwest.fws.gov/shiawassee>

Available in alternative formats upon request.

Equal opportunity to participate in, and benefit from programs and activities of the U.S. Fish and Wildlife Service is available to all individuals regardless of physical or mental disability. For information please contact the U.S. Department of Interior, Office for Equal Opportunity, 1849 C Street N.W., Washington, D.C. 20240

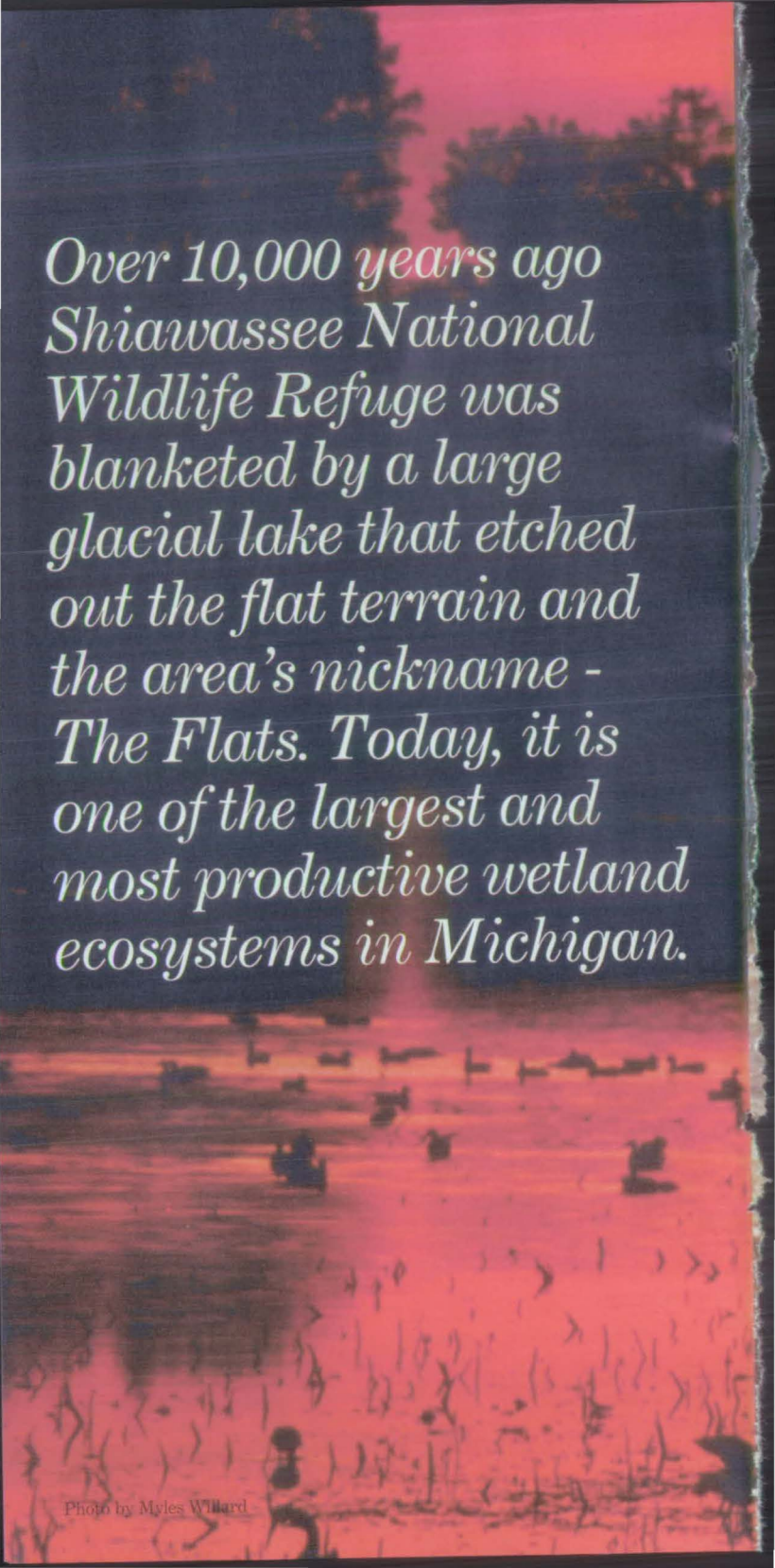


U.S. Fish & Wildlife Service

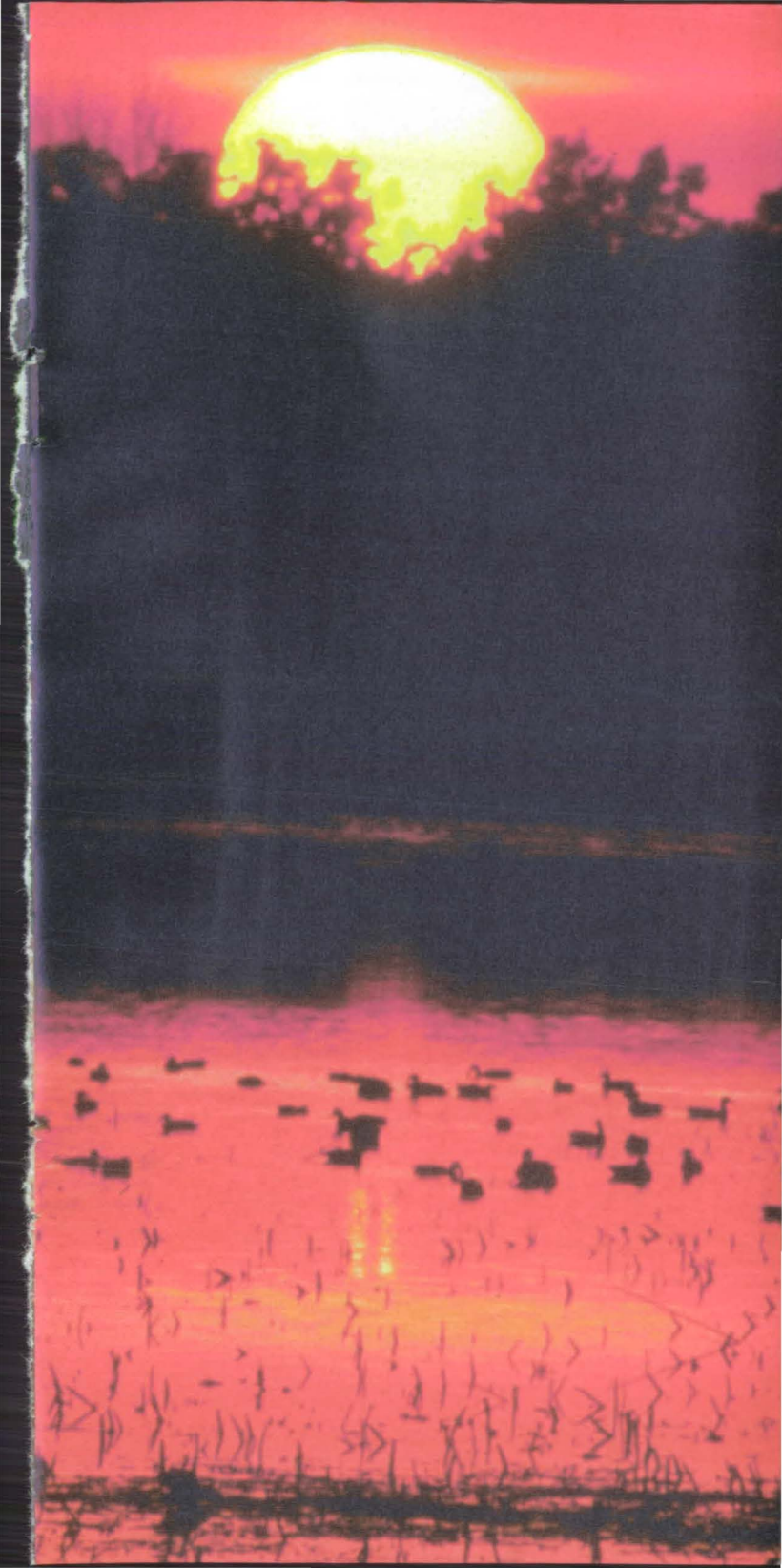
Shiawassee

*National Wildlife
Refuge*





*Over 10,000 years ago
Shiawassee National
Wildlife Refuge was
blanketed by a large
glacial lake that etched
out the flat terrain and
the area's nickname -
The Flats. Today, it is
one of the largest and
most productive wetland
ecosystems in Michigan.*





*This "Blue Goose,"
designed by J.N.
"Ding" Darling,
has become a
symbol of the
National Wildlife
Refuge System.*

Shiawassee National Wildlife Refuge is one of over 520 refuges in the National Wildlife Refuge system, a network of U.S. lands and waters protected and managed for wildlife, habitat and people by the Department of Interior's U.S. Fish and Wildlife Service.

A Look Back at the Flats

Over 10,000 years ago, much of east-central Michigan, including the present-day Shiawassee National Wildlife Refuge, was covered by a large, glacial lake. You can still see the evidence of this ancient lakebed as you look across the landscape. The terrain is very flat, hence the reason why many people call this area "The Flats."

The first people came here approximately 5,000 years ago. This area was an attractive hunting and gathering area for many early cultures and later Native American tribes, like the Odawa and Ojibwa. Ducks and geese flocked to this vast area of wetlands and rivers. Other animals including otter, fisher, marten, elk, moose, and bear were also found here.

The Flats was thought of as a swampy wilderness area and received little human impact until the late 1800s when the lumber industry expanded into this area. Coal mining began in the early 1900s and lasted until the late 1930s. In 1903 farmers began converting the land for crops and by 1950, a system of pumps, drainage tile, ditches and dikes were in place, making this an extensive agricultural area.

Where Waters Meet

Shiawassee NWR was established in 1953 to restore and enhance this historically significant wetland area for migratory waterfowl. The refuge contains over 9,200 acres of bottomland-hardwood forests, marshes, pools, fields, and croplands. An additional 7,500-acres could be added in the future. Four rivers meet on the refuge - the Tittabawassee, Flint, Cass, and Shiawassee.



Chickadee, Myles Willard

Important Bird Area

The refuge's diverse habitats and land management practices result in a great variety of wildlife species occurring here. Over 200 species of migratory birds, including raptors, shore and wading birds, and more than 100 songbird species visit the refuge annually. Shiawassee NWR is designated as a United States Important Bird Area (IBA) for its global significance to migratory waterfowl. During peak populations in late October, up to 25,000 Canada geese and 40,000 ducks are present. See the refuge's bird brochure for more information.



Warbler,
Myles Willard

Wildlife enthusiasts may see or hear muskrat, beaver, coyote, snapping and painted turtles, white-tailed deer, garter and fox snakes, leopard frogs, and a variety of insects and spiders. Patience and knowing where to look are key to seeing many of these creatures.

Wetland and Wildlife Management

The large central portion of the refuge is composed of managed wetlands. Controlling the level of water in these areas is the refuge's most important wildlife management objective. Using dikes, pumps and gravity flow structures, the staff floods or drains these wetlands in order to achieve desirable conditions. A variety of wetland types are maintained including marshes, bottomland forests, wet meadows, and seasonally flooded impoundments. Each of these has its own distinct community of birds, plants and other life that depend upon it throughout the year.

Farming is another wildlife management tool you see used on parts of the refuge. Farmers harvest a portion of the crop, leaving the rest in the field for wildlife to use as a food source.



Partners for Wildlife

Shiawassee NWR administers the "*Partners for Fish and Wildlife Program*" in central lower Michigan. This program helps private landowners protect and restore wetlands, native grasslands, instream fishery and riparian corridor habitat for migratory birds and other fish and wildlife species. For further information contact the refuge or see the web site at <http://partners.fws.gov>.

Satellite Refuges



Lighthouse,
Doug Spencer, USFWS

Shiawassee NWR also manages two other wildlife refuges in Michigan. Information about the following refuges can be obtained by contacting the Shiawassee NWR.

- Michigan Islands NWR in Lake Huron, including the Charity Islands in Saginaw Bay.
- Wyandotte NWR in the Detroit River.



Dunlin,
Myles Willard



Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw, MI 48601
989/777 5930

Website address:

<http://midwest.fws.gov/shiawassee>

U.S. Fish & Wildlife Service

1 800/344 WILD

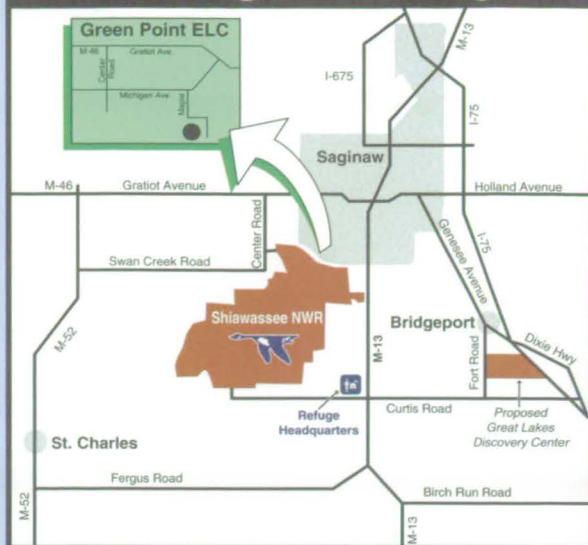
<http://www.fws.gov>

**Deaf/hard of hearing individuals may
reach Shiawassee NWR through the Michigan
State Relay System at 1 800/649 3777 (V/TTY).**

Available in alternative formats upon request.



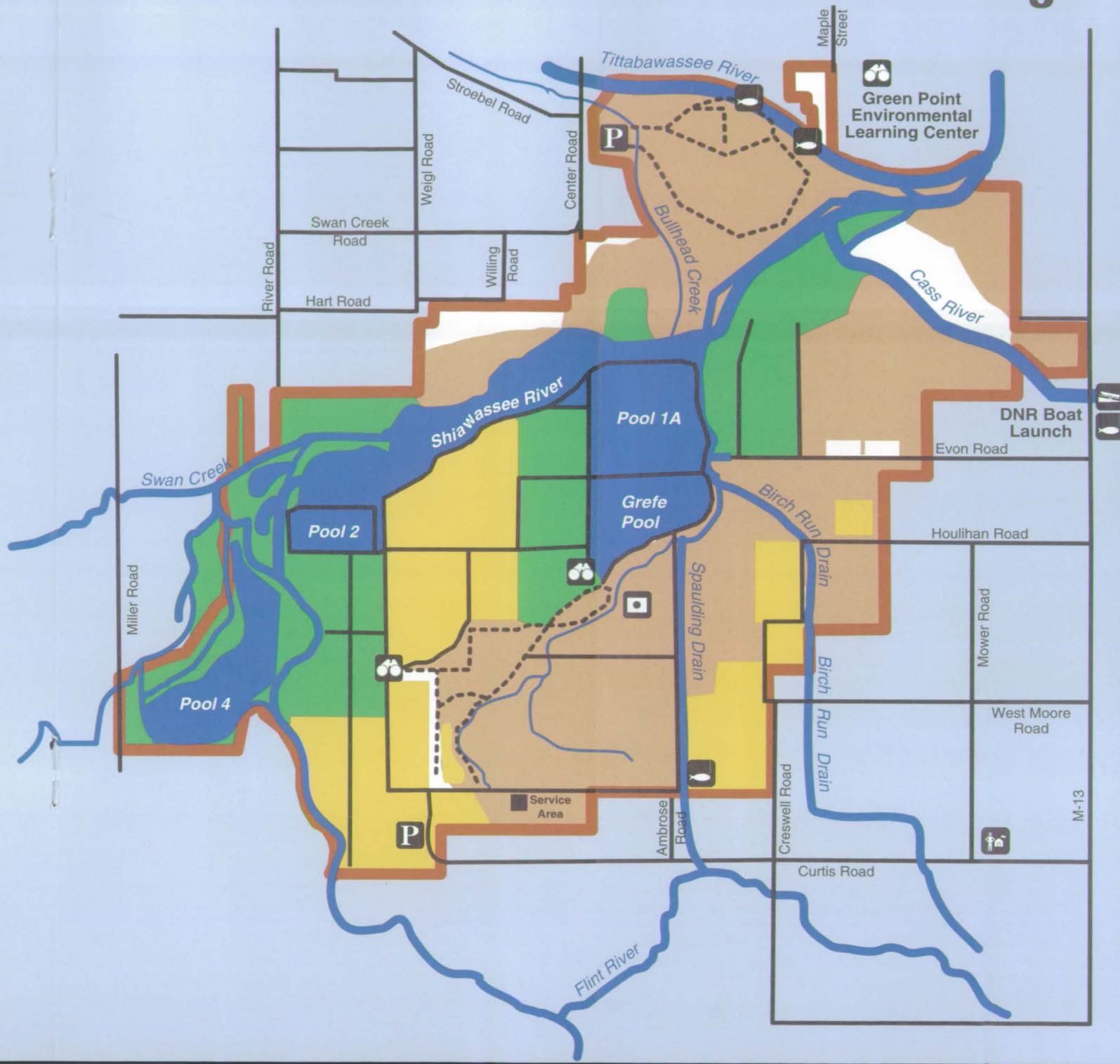
Finding the Refuge



Legend

-  **Refuge Boundary**
-  **Trail**
-  **Road**
-  **Wildlife Observation Site**
-  **Photo Blind**
-  **Refuge Headquarters**
-  **Parking**
-  **Fishing**
-  **Farmland**
-  **Forest**
-  **Wetland**

Shiawassee National Wildlife Refuge





White-tail Deer
J. Mattsson, USFWS



Red Fox
J & K Hollingsworth



Cottontail
E. Smith



Muskrat
J. Mattsson, USFWS

The Public Is Welcome!

There are a number of activities the public can participate in throughout the year at Shiawassee NWR.

Hiking



The refuge maintains three public trails that highlight the unique features of the area. These trails are open year round, seven days a week, during daylight hours. Please note that hours and access to the trails may be limited during hunt periods. The Woodland Trail, at the east end of Stroebel Road, offers 4.5 miles of trails through bottomland hardwoods. You can see a large pile of shale left over from the coal mining period of the early 1900's.

Ferguson Bayou Trail

The Ferguson Bayou Trail, at the west end of Curtis Road, has over 4.5 miles of trails. This trail follows dikes and provides views of croplands, sloughs, forests, fields, wetlands and pools. There are three observation decks along the trail, two equipped with spotting scopes, to offer you a closer look at ducks, geese, deer, and other wildlife.

Green Point Environmental Learning Center

The Green Point Environmental Learning Center in Saginaw offers 2.5 miles of trails for hiking and cross-country skiing only. Trail use may be limited due to seasonal flooding and wet conditions.

Bicycling

Both the Woodland and Ferguson Bayou trails are open to bicycles. Use of the Woodland Trail may be limited due to seasonal wet and flooded conditions.

Cross-Country Skiing

We do not groom our trails, but most can accommodate skiers.

Fishing



Fishing is available by boat on navigable waterways flowing through the Refuge. Boat access into the marsh and pool units of the refuge is not allowed. Bank fishing is allowed at designated spots along the Tittabawassee River at Green Point Environmental Learning Center and off of the Woodland Trail.

Hunting

Photos (from top)
Bicyclist, T&J Reuther,

"Look what I caught!"
Doug Spencer, USFWS

Environmental Education



"What kind is it?"
Becky Goche, USFWS

Volunteer

You and your students can explore the refuge on your own or participate in a guided activity. Our Green Point Environmental Learning Center, located at 3010 Maple Street in Saginaw, provides a variety of environmental education programs for children and adults. Hiking trails, interpretive displays inside an accessible building, vegetation demonstration plots, and a wildlife viewing area provide numerous study sites. Visitors are welcome to stop by, but groups need to schedule their visits in advance by contacting the Green Point ELC at (989) 759-1669.

Share your special talents and skills. You could collect biological data, perform light maintenance, or help out with special events. If you are interested, contact the Refuge Volunteer Coordinator.

Rules and Regulations

Enjoy your visit, but remember, protecting wildlife, plants, and their habitats is our priority. Regulations exist for the welfare of wildlife, as well as for your safety. Please read and comply with the following list of regulations. The list is not inclusive.

- Obey posted "Closed Area" and "Refuge Boundary" signs
- Stay on established roads and trails
The following are prohibited!
- Firearms and other weapons, unless you have a refuge hunting permit and appropriate State- issued license
- Pets
- Collecting, removing, or damaging artifacts, plants or animals, including insects
- Snowmobiles, ATV's, watercraft, and other motorized vehicles within the Refuge boundaries
- Camping
- Open fires
- Spotlighting wildlife
- Littering

Hours

The refuge headquarters, located on the corners of Curtis and Mower Roads, is open 7:30 a.m. to 4:00 p.m., Monday through Friday throughout the year. Closed on all federal holidays. Refuge visitors are welcome to stop by if they have questions or need assistance.

Please
remember!

Rivers of Time

To the French it was Les Fourchettes, "The Forks" – so named for the rare merging of the Tittabawassee, the Shiawassee, and the Cass Rivers. To earlier inhabitants it was Shows-kokon and O-zhaw-wash-quah, "Green Point." The rivers provided abundant game for hunting, as well as a transportation route for traders. Many years later, these same rivers attracted lumbermen, miners, and farmers to the area.

Green Point's History

In 1977, the Goetz Grove Nature Center began providing environmental education for the Saginaw area. A year later, the city of Saginaw built the interpretive building and renamed it the *Green Point Nature Center*. For ten years, thousands of people learned about nature before the center closed in 1988. In 1993, the U.S. Fish and Wildlife Service and the City formed a partnership to reopen Green Point. Today, staff from the Shiawassee National Wildlife Refuge operate the center.

Water, Wildlife and You!

Our mission is to provide environmental education opportunities for the children and adults of the Saginaw Valley. Green Point's programs revolve around our theme "Water, Wildlife, and You!" In addition, we are dedicated to the protection and management of our various habitats and committed to extending access to the largest possible user population for educational and recreational purposes.

Diversity is the Key

Habitat diversity is essential to a successful environmental education facility. Located just north of the Shiawassee NWR, Green Point has 76 acres of diverse habitats that range from bottomland hardwoods to wetlands, to ponds and fields, even rivers and grassy lawns. Each of these habitats supports hundreds of life forms. It is a great place to learn about nature!



Park Ranger
with kids,
Becky Goche, USFWS



Black-capped
chickadee,
Myles Willard

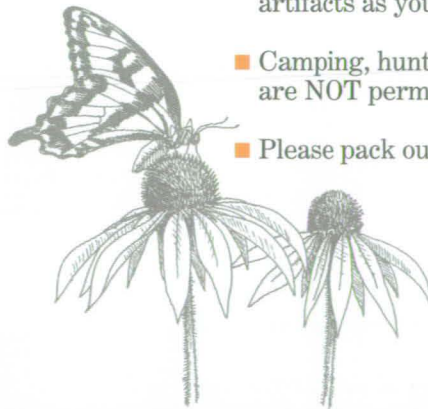


Green frog,
Myles Willard

Rules and Regulations

Protect Green Point's fragile plants and wildlife, and make your visit safe and enjoyable by following these rules and regulations.

- Stay on marked trails.
- Bicycles are not allowed on the trails.
- Dogs and other pets are not allowed.
- Leave all plants, animals, and artifacts as you found them.
- Camping, hunting and building fires are NOT permitted.
- Please pack out your litter.



Programs

Hiking

Things to Do at Green Point

We provide a variety of environmental programs throughout the year for school groups, scout groups, educators, families, and others. Contact the Center for an *Educator's Guide* which lists our educational programs.

Trails are open daily during daylight hours only. Trail maps are available in the building. Explore diverse habitats on over 2.5 miles of nature trails.

Visit the Interpretive Building

See displays and aquariums with native fish species. Visit our Wildlife Discovery Room. Both the building and restrooms are accessible. Hours are Monday through Friday, 7:30 am to 4:00 pm. Closed on federal holidays.

Volunteer

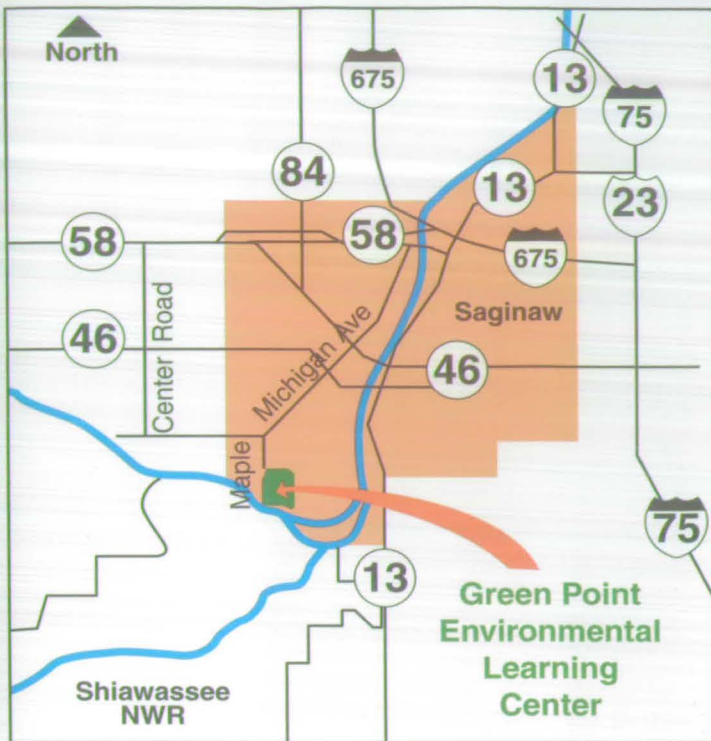
Do trail work, help out with school groups and more.

Cross-Country Skiing

We do not groom trails, but most can accommodate skiers.

Fishing

Allowed only on the bank of the Tittabawassee River. No fishing in the ponds.



Address

Green Point ELC, 3010 Maple Street
Saginaw, Michigan 48602

Directions to Green Point

Take the I-675 exit. Follow I-675 and take the Michigan/Davenport exit. Head south on Michigan Avenue for about 3-1/2 miles. Turn south (left) onto Maple Street and go 1/2 mile. The Center is located on the right side of the road.

From M-46/ Gratiot

Take M-46/Gratiot to Center Road. Head south on Center for 1 mile. Turn east (left) onto Michigan Avenue and go 1-1/2 miles. Turn south (right) onto Maple Street and go 1/2 mile. The Center is located on the right side of the road.

For more information or to schedule a program contact the Green Point Environmental Learning Center at (989) 759-1669. TTY users may reach us through the Michigan State Relay Center at 1-800-649-3777.

Shiawassee National Wildlife Refuge
Green Point Environmental Learning Center
3010 Maple Street
Saginaw, Michigan 48602

<http://midwest.fws.gov/shiawassee>

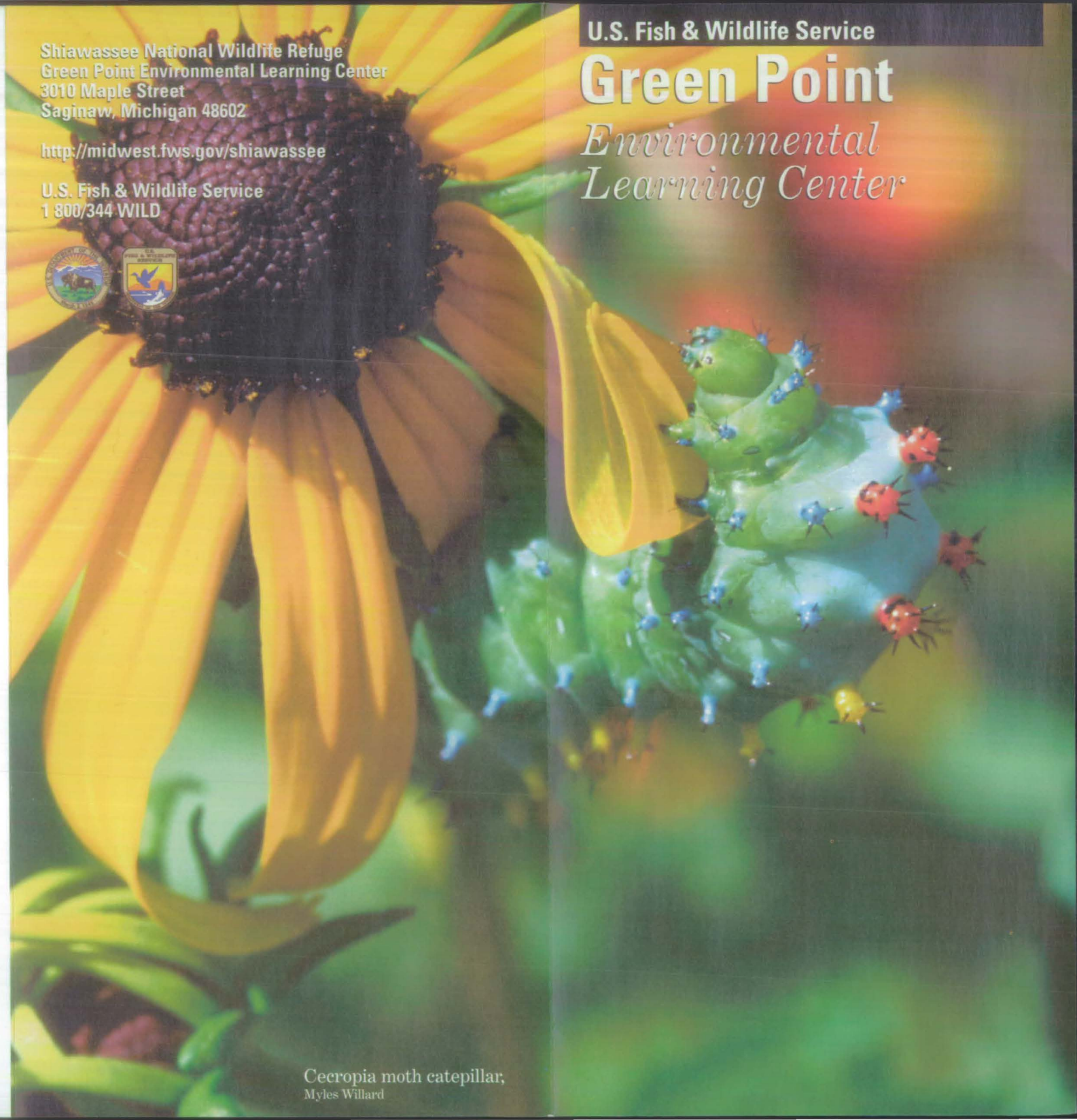
U.S. Fish & Wildlife Service
1 800/344 WILD



U.S. Fish & Wildlife Service

Green Point

Environmental Learning Center



Cecropia moth caterpillar,
Myles Willard

Who are Friends of Shiawassee NWR?

We are Friends of Shiawassee National Wildlife Refuge, a nonprofit membership organization comprised of citizens and families. We enjoy nature and wildlife and are dedicated to the continuing protection of special places to renew the spirit and soul. This organization acts as the collective citizen voice for the Refuge in a variety of arenas to raise awareness of the Refuge through outreach and environmental efforts.

Founded in 1999



Swans on the refuge




Goals

- Support the multi-use concept
- Inform the public through interpretive tours and workshops
- Provide opportunities for volunteers
- Locate funding for projects and activities to enhance the refuge and its facilities
- Inform elected officials about refuge issues
- Provide educational and entertaining programming and opportunities for fellowship among refuge visitors

Who should join?

In a word, "YOU!" Really, anyone and everyone interested in having a direct impact on the protection of the natural resources in the Saginaw Bay Watershed are ideal candidates for Friends of Shiawassee National Wildlife Refuge. Membership funds collected from individual, family, and corporate contributors goes directly into funding the diverse activities offered during the year. Some activities are run solely by the Friends group and others are programs put on by Shiawassee NWR and supported, in part, by Friends of Shiawassee National Wildlife Refuge.

How do I benefit as a paying member?

-  Subscription to *Refuge Reporter*, quarterly publication from Shiawassee National Wildlife Refuge including information about Refuge and Friends events and news
-  Knowledge that your dollars are helping to fund educational and entertaining programming, community and political awareness efforts, and protection efforts
-  Opportunities to volunteer as a Friend of Shiawassee NWR. Feel like you are making a difference by writing articles about refuge events, directing traffic, welcoming visitors to events, selling merchandise, obtaining donations of funds or services, or lending your computer skills

Volunteer Interest Survey

check all that apply

- ◇ Making phone calls
- ◇ Writing newsletter articles
- ◇ Writing letters
- ◇ Stuffing envelopes
- ◇ Public Relations
- ◇ Public Speaking
- ◇ Grant Writing
- ◇ Fundraising
- ◇ Photography
- ◇ Birding
- ◇ Computer skills (ie scanner, digital camera, web design)
- ◇ Committee member (ie membership, fundraising, event planning)
- ◇ Attend special events (ie Outdoorama)
- ◇ Children's activities
- ◇ Selling merchandise at events
- ◇ Running concession stand
- ◇ Work Projects
- ◇ Project Leader
- ◇ Other (please list)

Sign me up as a Friend!

Name(s) _____

Address _____

City _____ State _____

Zip _____

Phone _____

E-Mail _____

_____ Regular Membership

\$10 or \$25/3 years

_____ Family Membership

\$25 or \$60/3 years

Supporting Memberships

_____ "Goose" \$50/year

_____ "Blue Heron" \$75/year

_____ "Owl" \$100/year

_____ "Bald Eagle" \$125+

Return this form (front and back complete) along with your check payable to "Friends of Shiawassee" to:

Friends of Shiawassee NWR
PO Box 20129
Saginaw, MI 48602

Shiawassee National Wildlife Refuge

Locations to enjoy:

Green Point Environmental Learning Center

From I-75:

Take the I-675 exit. Take the Michigan/Davenport exit. Go south on Michigan Avenue for about 3.5 miles. Turn left (south) onto Maple Street and go 0.5 mile to the Center.

From M-46/Gratiot:

Take M-46/Gratiot to Center Road. Turn south onto Center and go 1 mile. Turn left (east) onto Michigan Avenue and go 1.5 miles. Turn right (south) onto Maple Street and go 0.5 mile to the Center.

Refuge Headquarters

located about 4 miles south of Saginaw off of M-13 on Curtis Road.

From I-75:

Take the Bridgeport exit and go west on Dixie Highway into Bridgeport. Left (south) onto Fort Road. Right (west) onto Curtis Road. Cross Highway M-13. Headquarters building is located about one mile west of M-13. *Ferguson Bayou Trails are located at the end of Curtis Road.*

Trails The Refuge offers three trail systems that highlight the unique features of the area. Trails are open year round, seven days a week, during daylight hours only. Please note that trails may be closed for visitors' safety during hunting periods. No pets or horses are allowed on any of the trails.

The Woodland Trail, located off of Center and Stroebel Roads on the north side of the Refuge, offers over 4.5 miles of trails. These rather primitive trails wind through bottomland hardwood forest and take you past historic landmarks left from the coal mining industry in the early 1900's. Popular with mountain bikers, hikers and cross-country skiers. Trail use may be limited due to seasonal flooding and wet conditions.

The Ferguson Bayou Trail, located at the west end of Curtis Road on the south side of the Refuge, offers over 4.5 miles of trails. This trail follows graveled roads on the tops of dikes and offers views of croplands, sloughs, forests, fields, wetlands, and pools. Two observation towers, equipped with spotting scopes, are located along this trail so you can take a closer look at ducks, geese, deer, and other wildlife. Popular with hikers, skiers, and casual bicyclers.

Green Point Environmental Learning Center, located in Saginaw, offers over 2.5 miles of trails. These trails wind through a bottomland hardwood forest and offer views of forest, fields, wetlands, and the Tittabawassee River. Trail surfaces range from mowed grass to woodchips to gravel. Various groups use the trail system for educational purposes. Bicycles are not allowed on Green Point's trails. Popular trail with hikers and skiers. Trail use may be limited due to seasonal flooding and wet conditions.

Friends of
Shiawassee National
Wildlife Refuge

*If you love
Wildlife...*

Join us.



Hiking

Nature Photography

Wildlife

Wildflowers

Nature

Family Events

Bird Watching

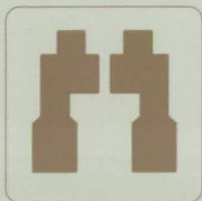
Fishing/Canoeing

Friends of Shiawassee NWR
PO Box 20129
Saginaw, MI 48602

[http://midwest.fws.gov/
Shiawassee/friends.htm](http://midwest.fws.gov/Shiawassee/friends.htm)

Shiawassee

National Wildlife Refuge Bird Checklist





The "Blue Goose" symbolizes the National Wildlife Refuge System, a network of over 500 refuges protected and managed for wildlife, habitat and people.

Shiawassee National Wildlife Refuge Bird Checklist

Welcome to Shiawassee National Wildlife Refuge. Over 9,100 acres of marsh, bottomland hardwood, grassland and agricultural lands are protected here. Four rivers cross the Refuge to form Michigan's largest tributary, the Saginaw River. Frequent flooding and diverse habitat make this an excellent spot for viewing waterfowl, shorebirds, wading birds, songbirds and raptors. Bird activity on the refuge is highlighted by the large waterfowl concentrations during the spring and fall.

You will find 267 species of birds listed in this brochure, 34 of which are considered incidental to this area and are listed separately. The bird list follows the 1998 American Ornithologists' Union Checklist.

Symbols used are as follows:

- * indicates nesting on the Refuge
has recently occurred
- ! State endangered species
- # State threatened species

Sp .. March-May
S June-August
F September-November
W ... December-February

- a abundant: a common species which is very numerous
- c common: certain to be seen or heard in suitable habitat, not in large numbers
- u uncommon: present but not always seen
- o occasional: seen only a few times during the season
- r rare: seen every 2 to 5 years

Birdwatching is encouraged! For more information, or to report any unusual sightings, please contact refuge personnel.

Sp S F W

Loons and Grebes

___ Pied-billed Grebe*

___ Horned Grebe

u u u -
r - r -

Pelicans

___ American White Pelican

r r r -

Cormorants

___ Double-crested Cormorant

c r c -

Bitterns and Herons

___ American Bittern*

___ Least Bittern*#

___ Great Blue Heron*

___ Great Egret

___ Cattle Egret

___ Green Heron*

___ Black-crowned Night-Heron

o u o -
o u o -
a a a u
u a c -
r r r -
u u u -
u u u -

Vultures

___ Turkey Vulture

c c c -

Swans, Geese and Ducks

___ Tundra Swan

___ Greater White-fronted Goose

___ Snow Goose

___ Ross' Goose

___ Canada Goose*

___ Wood Duck*

___ Green-winged Teal

___ American Black Duck

___ Mallard*

___ Northern Pintail

___ Blue-winged Teal*

___ Northern Shoveler*

___ Gadwall

___ American Wigeon

___ Canvasback

___ Redhead*

___ Ring-necked Duck

___ Greater Scaup

___ Lesser Scaup

___ Common Goldeneye

___ Bufflehead

___ Hooded Merganser*

___ Common Merganser

___ Red-breasted Merganser

___ Ruddy Duck

u - u -
r - r -
u - u o
r - r -
a c a a
c c c -
c o c r
c u c c
a c a c
u - u r
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u r u r
o - o -
u - u -
o r o -
o r o -
u - u -
r - r -
u - u -
o - o o
u - u -
u o u -
c r a c
r - r -
u - u -

Hawks & Eagles

___ Osprey#

___ Bald Eagle*#

r r r -
u u u u



Blue-winged Teal

R. Wirth,
USFWS

	Sp	S	F	W
___ Northern Harrier	u	o	u	u
___ Sharp-shinned Hawk	o	r	o	r
___ Cooper's Hawk	o	r	o	u
___ Northern Goshawk	-	-	r	r
___ Red-shouldered Hawk#	r	r	r	r
___ Broad-winged Hawk	r	r	r	-
___ Red-tailed Hawk*	c	c	c	c
___ Rough-legged Hawk	o	-	o	u
___ Golden Eagle	r	-	r	r

Falcons

___ American Kestrel	o	o	o	o
___ Merlin#	r	-	r	-
___ Peregrine Falcon!	o	-	o	-

Gallinaceous Birds

___ Ring-necked Pheasant*	u	u	u	u
___ Ruffed Grouse	r	r	r	r
___ Wild Turkey	u	u	u	u

Rails and Coots

___ Virginia Rail*	u	u	u	-
___ Sora*	u	u	u	-
___ Common Moorhen*	u	u	u	-
___ American Coot*	u	u	u	-

Cranes

___ Sandhill Crane	o	r	o	-
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Shorebirds

___ Black-bellied Plover	o	-	o	-
___ American Golden-Plover	r	-	r	-
___ Semipalmated Plover	u	-	u	-
___ Killdeer*	c	c	c	-
___ American Avocet	r	-	r	-
___ Greater Yellowlegs	c	-	c	-
___ Lesser Yellowlegs	c	-	c	-
___ Solitary Sandpiper	u	-	u	-
___ Spotted Sandpiper*	c	c	c	-
___ Upland Sandpiper	r	-	r	-
___ Hudsonian Godwit	r	-	r	-
___ Marbled Godwit	r	-	-	-
___ Red Knot	r	-	r	-
___ Sanderling	-	-	r	-
___ Semipalmated Sandpiper	u	-	u	-
___ Least Sandpiper	u	-	u	-
___ White-rumped Sandpiper	o	-	o	-
___ Baird's Sandpiper	o	-	o	-
___ Pectoral Sandpiper	u	-	u	-
___ Dunlin	c	-	u	-
___ Stilt Sandpiper	o	-	u	-
___ Buff-breasted Sandpiper	-	-	r	-

	Sp	S	F	W
___ Short-billed Dowitcher	u	-	u	-
___ Long-billed Dowitcher	r	-	u	-
___ Common Snipe	u	-	u	-
___ American Woodcock	o	r	r	-
___ Wilson's Phalarope	r	-	o	-
___ Red-necked Phalarope	r	-	r	-

Gulls and Terns

___ Franklin's Gull	-	-	r	-
___ Bonaparte's Gull	u	-	u	-
___ Ring-billed Gull	c	c	a	o
___ Herring Gull	u	u	c	u
___ Glaucous Gull	-	-	-	r
___ Lesser Black-backed Gull	-	-	-	r
___ Great Black-backed Gull	-	-	-	r
___ Caspian Tern#	u	-	u	-
___ Common Tern#	u	-	u	-
___ Forster's Tern	o	-	o	-
___ Black Tern*	o	r	o	-

Doves

___ Rock Dove	o	o	o	o
___ Mourning Dove*	c	c	c	c

Cuckoos and Roadrunners

___ Black-billed Cuckoo*	o	o	o	-
___ Yellow-billed Cuckoo*	o	o	o	-

Owls

___ Eastern Screech-Owl*	u	u	u	u
___ Great Horned Owl*	u	u	u	u
___ Snowy Owl	-	-	-	r
___ Barred Owl*	u	u	u	u
___ Short-eared Owl!	-	-	-	o

Nighthawks and Nightjars

___ Common Nighthawk	o	-	o	-
___ Whip-poor-will	r	-	-	-

Swifts

___ Chimney Swift	o	o	o	-
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Hummingbirds

___ Ruby-throated Hummingbird	u	o	o	-
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Kingfishers

___ Belted Kingfisher*	u	u	u	r
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Woodpeckers

___ Red-headed Woodpecker	o	r	o	-
___ Red-bellied Woodpecker*	c	c	c	c
___ Yellow-bellied Sapsucker	r	-	r	-

Red-bellied Woodpecker

Dave Menke,
USFWS



	Sp	S	F	W
___ Downy Woodpecker*	c	c	c	c
___ Hairy Woodpecker*	u	u	u	u
___ Northern Flicker*	c	c	c	r
___ Pileated Woodpecker*	o	o	o	o

Flycatchers

___ Olive-sided Flycatcher	r	-	r	-
___ Eastern Wood-Pewee*	c	c	u	-
___ Yellow-bellied Flycatcher	r	-	r	-
___ Alder Flycatcher	r	-	-	-
___ Willow Flycatcher*	u	u	o	-
___ Least Flycatcher*	u	u	o	-
___ Eastern Phoebe*	u	u	u	-
___ Great Crested Flycatcher*	c	c	u	-
___ Eastern Kingbird*	u	u	u	-

Shrikes

___ Northern Shrike	-	-	-	o
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Vireos

___ Blue-headed Vireo	o	-	r	-
___ Yellow-throated Vireo*	o	o	r	-
___ Warbling Vireo*	u	u	u	-
___ Philadelphia Vireo	r	-	r	-
___ Red-eyed Vireo*	u	u	u	-

Jays and Crows

___ Blue Jay*	c	c	c	c
___ American Crow*	c	c	c	c

Larks

___ Horned Lark*	c	c	c	c
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Swallows

___ Purple Martin	r	-	-	-
___ Tree Swallow*	a	c	a	-
___ Northern Rough-winged Swallow*	c	u	c	-
___ Bank Swallow	c	u	c	-
___ Cliff Swallow	r	-	r	-
___ Barn Swallow*	c	c	c	-

Chickadees and Titmice

___ Black-capped Chickadee*	a	a	a	a
___ Tufted Titmouse*	c	c	c	c

Nuthatches

___ Red-breasted Nuthatch	-	-	-	r
___ White-breasted Nuthatch*	c	c	c	c

Creepers

___ Brown Creeper*	c	c	c	c
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	Sp	S	F	W
Wrens				
___ House Wren*	c	c	c	-
___ Winter Wren	o	-	o	-
___ Sedge Wren*	u	u	u	-
___ Marsh Wren*	u	u	u	-

Kinglets, Bluebirds and Thrushes

___ Golden-crowned Kinglet	u	-	u	-
___ Ruby-crowned Kinglet	u	-	u	-
___ Blue-gray Gnatcatcher*	u	u	o	-
___ Eastern Bluebird*	u	o	u	-
___ Veery	r	-	r	-
___ Gray-cheeked Thrush	o	-	o	-
___ Swainson's Thrush	u	-	u	-
___ Hermit Thrush	u	-	u	-
___ Wood Thrush*	u	u	u	-
___ American Robin*	a	a	a	r

Mimics

___ Gray Catbird*	c	c	c	-
___ Northern Mockingbird	r	r	r	-
___ Brown Thrasher*	o	o	o	-

Starlings

___ European Starling*	c	c	c	c
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Pipits

___ American Pipit	u	-	u	-
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Waxwings

___ Bohemian Waxwing	-	-	-	r
___ Cedar Waxwing*	u	u	u	u

Warblers

___ Blue-winged Warbler	o	-	r	-
___ Golden-winged Warbler	o	-	r	-
___ Tennessee Warbler	u	-	u	-
___ Orange-crowned Warbler	r	-	r	-
___ Nashville Warbler	u	-	u	-
___ Northern Parula	o	-	r	-
___ Yellow Warbler*	c	c	c	-
___ Chestnut-sided Warbler	u	-	u	-
___ Magnolia Warbler	u	-	u	-
___ Cape May Warbler	u	-	u	-
___ Black-throated Blue Warbler	u	-	u	-
___ Yellow-rumped Warbler	c	-	c	-
___ Black-throated Green Warbler	u	-	u	-
___ Blackburnian Warbler	u	-	u	-
___ Pine Warbler	o	-	r	-
___ Palm Warbler	u	-	u	-
___ Bay-breasted Warbler	u	-	u	-
___ Blackpoll Warbler	u	-	u	-

	Sp	S	F	W
— Cerulean Warbler	o	r	r	-
— Black-and-white Warbler	u	-	u	-
— American Redstart*	u	u	u	-
— Prothonotary Warbler*	u	u	o	-
— Ovenbird*	u	u	u	-
— Northern Waterthrush	u	-	u	-
— Connecticut Warbler	r	-	r	-
— Mourning Warbler	u	-	u	-
— Common Yellowthroat*	c	c	c	-
— Wilson's Warbler	u	-	u	-
— Canada Warbler	u	-	u	-

Tanagers

— Scarlet Tanager*	u	u	o	-
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Sparrows, Buntings and Grosbeaks

— Eastern Towhee	o	r	o	-
— American Tree Sparrow	o	-	-	c
— Chipping Sparrow*	u	u	u	-
— Field Sparrow*	r	r	r	-
— Vesper Sparrow*	u	u	u	-
— Savannah Sparrow*	c	c	c	-
— Fox Sparrow	o	-	o	-
— Song Sparrow*	a	a	a	o
— Lincoln's Sparrow	o	-	o	-
— Swamp Sparrow*	o	o	o	-
— White-throated Sparrow	c	-	c	-
— White-crowned Sparrow	u	-	u	-
— Dark-eyed Junco	c	-	c	u
— Lapland Longspur	o	-	-	r
— Snow Bunting	o	-	-	u
— Northern Cardinal*	c	c	c	c
— Rose-breasted Grosbeak*	u	u	o	-
— Indigo Bunting*	u	u	u	-

Blackbirds and Orioles

— Bobolink*	o	o	u	-
— Red-winged Blackbird*	a	a	a	r
— Yellow-headed Blackbird*	r	r	-	-
— Eastern Meadowlark*	o	o	o	r
— Rusty Blackbird	u	-	u	-
— Brewer's Blackbird	r	-	r	-
— Common Grackle*	c	c	c	-
— Brown-headed Cowbird*	c	c	c	r
— Baltimore Oriole*	u	u	o	-

Finches

— Purple Finch	-	-	r	r
— House Finch	u	u	u	u
— Common Redpoll	-	-	-	r
— Pine Siskin	r	-	-	r

Northern Cardinal

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- ___ American Goldfinch*
- ___ Evening Grosbeak

Old World Sparrows

- ___ House Sparrow

Sp	S	F	W
c	c	c	
-	-	-	r
o	o	o	o

Incidentals

- | | |
|----------------------------|----------------------|
| Common Loon# | Willet |
| Eared Grebe | Whimbrel |
| Yellow-crowned Night Heron | Ruff |
| Snowy Egret | Laughing Gull |
| White Ibis | Iceland Gull |
| Glossy Ibis | Long-eared Owl# |
| Trumpeter Swan | Acadian Flycatcher |
| Mute Swan | Carolina Wren |
| Barnacle Goose | Kirtland's Warbler! |
| Oldsquaw | Prairie Warbler |
| Black Scoter | Yellow-breasted Chat |
| Surf Scoter | Harris' Sparrow |
| White-winged Scoter | Dickcissel* |
| Gyr Falcon | Western Meadowlark |
| Northern Bobwhite | Orchard Oriole |
| King Rail! | Pine Grosbeak |
| Black-necked Stilt | Hoary Redpoll |

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Shiawassee's e-mail address:
fw3shiawassee@fws.gov

U.S. Fish & Wildlife Service
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