

SHIAWASSEE NATIONAL WILDLIFE REFUGE

Saginaw, Michigan

ANNUAL NARRATIVE

Fiscal Year 2007



"The Green Gem" by Roxanne Kreiner, age 14, 2007 Refuge Photo Contest Manager's Choice

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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 9,501 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 6,260 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, eight permanent employees staff the Shiawassee NWR. The positions include a refuge manager, a wildlife refuge specialist, a wildlife biologist, a fish and wildlife biologist, an administrative support assistant, a tractor operator, an engineering equipment operator, and a park ranger.



Photo by Chelsea Meinen, 2007 Refuge Photo Contest, Second Place Young Nature Photographers

HIGHLIGHTS

- First-ever bird sightings for two unusual species on the refuge (Section 1a).
- Inaugural participation of refuge in NABA Butterfly Count (Section 1a).
- 95 songbirds representing 16 different species banded in MAPS program (Sections 1b and 4a).
- Stable water levels increase muskrat use, more open water in Pool 2 (Section 3a).
- A total of 180 acres of trees planted on refuge in partnership with DTE and The Conservation Fund (Section 3e).
- Two prescription burns conducted (Section 3f).
- 45% nest box hatching success for wood ducks and 31% success for hooded mergansers (Section 4d).
- A total of 124.5 acres of wetlands in 8 counties restored (Section 5c).
- Consumers Energy completes pipeline repair on their ROW (Section 6b).
- Many on-going research projects surround dioxin investigation (Section 6c).
- Refuge land acquisition efforts continue (Section 6g).
- 30 special events were held for visitors this year (Section 7).
- The *Nurturing Nature Wednesday Series* continues for third year (Section 7a).
- Michigan Junior Duck Stamp Program conducted for second year (Section 7a).
- Change in refuge staff results in loss of Park Ranger (LE) position (Section 8a).
- Headquarters parking lot is improved with a new surface (Section 8b).
- Reduction in cormorant nests on Scarecrow Island points to human disturbance as primary cause (Wilderness and Special Areas).

CLIMATE DATA

The climatic factors encountered on the “Shiawassee Flats” in 2007 could best be expressed as above normal, with precipitation more than 10 inches above the long term average while temperatures were also above average 10 out of 12 months. This weather pattern permitted the refuge to operate Pools 3 and 5 as greentree reservoirs during the spring migration, but impacted the development and vigor of many plants over the growing season and delayed the harvest of agricultural crops. Spring migrant birds responded by pushing through the area quickly. In various refuge habitats, plant response was altered favoring emergent vegetation and other groups that do well in very moist conditions. Mast production was average, and crop yields were down. Over the upper three Great Lakes, water levels were well below their long term averages. This makes a significant difference in frequency and duration of flooding on refuge lands, and affects the ability for mechanical manipulation of water levels. However, because moisture levels were well above the long term average, lake level impacts were mitigated permitting the refuge to mechanically manipulate water and flood or drain units as needed. End of the year warm weather kept many units open and delayed migrations of a number of bird species, particularly waterfowl.

1. MONITORING AND STUDIES

A. SURVEYS AND CENSUSES

The Shiawassee National Wildlife Refuge was established as a migratory bird sanctuary, and so it may be considered appropriate that once again, birds received the greatest amount of survey attention. The core of this effort was the bi-weekly waterfowl census and the weekly International Shorebird Surveys, both conducted by refuge staff. The refuge's other two established standard bird surveys; a forest interior point count and a taped-call playback marsh bird count; were not undertaken in 2007, due to the ongoing vacancy in the refuge's bio-tech position and a lack of competent volunteers willing to commit to these efforts. These four regular bird surveys are supplemented by any number of informal counts, which are conducted by both staff and volunteers. These provide the majority of information on refuge passerine populations.



*Long-eared owls along
Ferguson Bayou Nature Trail.
Photo by Yasuto Sato,
11/12/06.*

The most uncommon birds recorded during 2007 surveys were long-eared owl and LeConte's sparrow, both of which represented the first fully verified record for the species at Shiawassee NWR. The only other out of the ordinary bird species recorded was a flock of five Ross' goose, (an annual visitor to Shiawassee NWR, but still considered rare in Michigan). A number of species had new peak counts established; these were sandhill crane, red-bellied woodpecker, downy woodpecker, great crested flycatcher, northern rough-winged swallow, white-breasted nuthatch, blue-gray gnatcatcher, wood thrush, yellow warbler, common yellowthroat, indigo bunting, swamp sparrow, and bobolink.

Hopes were that the composition of the refuge's breeding waterfowl in 2007 would include the pair of trumpeter swans that had been present from late May 2006 thru the remainder of the that year, but this did not come to pass. The pair was seen briefly in late March, but then disappeared until returning, again, in late May.



Participants in the first refuge NABA butterfly census. Photo by SFK, 07/06/07.

2007 marked the inaugural participation of Shiawassee NWR in the North American Butterfly Association (NABA) July 4th Butterfly Count. Two staff members and three volunteers participated in the survey on Saturday, July 6, tallying 1311 individual butterflies of 31 different species. Red admiral (249), cabbage white (223), common wood-nymph (199), and monarch (189) were the most common species. One species found on the count, Appalachian brown, had not been previously recorded for the refuge.



It is common to hear northern true katydids on summer nights at the refuge, but rare to glimpse this inhabitant of the tree canopy. Photo by DJP, 07/27/07.

No other formal invertebrate or flora surveys were conducted in 2007, but work to catalog these important but little known components of refuge biodiversity was again carried out by staff and volunteers on an informal basis. Additions for the year included one

additional species of Odonata, the ebony jewelwing; two additional species of Orthoptera, the oblong-winged katydid and the striped camel cricket; and two additional species of Bivalvia, the deertoe and threeridge mussels.



The distribution of the ebony jewelwing at the refuge is limited to a short stretch of sandy floodplain woods at the Cass River Unit. Photo by DJP, 07/16/07.

The most comprehensive informal work undertaken in 2007 was an effort to begin cataloging Shiawassee NWR's mushroom diversity. Sightings were collected throughout the year, resulting in a list of twenty seven individual species from the classes Ascoymycetes, Basidiomycetes, Gastromycetes, and Myxomycetes. Each was documented with at least one photograph in situ.



A clump of mica cap, nicely illustrating this mushroom's appearance from just emerging, to the advanced "inky" stage. Photo by DJP, 08/01/07.

For the twelfth consecutive year the refuge's frog and toad populations were surveyed

as part of the Michigan Frog and Toad Survey. The same series of 10 listening stops that comprise this state coordinated route also form Shiawassee NWR's contribution to the U.S. Geological Survey North American Amphibian Monitoring Program (NAAMP). Participation in the federal program is more recent, with 2007 being the third year.

The refuge white-tailed deer herd is surveyed via a winter aerial count flow by the Michigan Department of Natural Resources, and summer vehicle counts are conducted by staff and volunteers.

B. STUDIES AND INVESTIGATIONS

Refuge volunteers Bob Grefe and Carolyn Szaroletta, with field assistance from Saginaw Valley Audubon Society members, as well as data entry assistance from refuge staff, operated a Monitoring Avian Production and Survival (MAPS) station again in 2007. Ninety-five previously un-banded birds of sixteen different species were processed during six mornings of five and one-half hours effort each, spread across a period of June 3 thru July 22. This figure is over twice the total number banded as last year, when effort was negatively impacted by mosquitoes. Eleven birds banded at the station in previous years were recaptured in 2007. Set-up in Gosen Marsh, this is one of the few MAPS stations in the nation to be located in open meadow habitat. Common yellowthroat was the most frequently captured species this year, with twenty-six individuals, followed by red-winged blackbird with twenty-three. Bobolink (15), song sparrow (10), American goldfinch (9), yellow warbler (5), savannah sparrow (5), and Traill's (willow) flycatcher (5) rounded out the list of species with more than one individual captured.

LAKE STURGEON ASSESSMENT

In April, biologists James Boase and Jim McFee from the Alpena Fisheries Research Office (FRO) and volunteers Larry Hess, Barry Pulaski and Larry Dinsmore began the third and final year of sampling for the evidence of lake sturgeon spawning in the Saginaw River watershed. Alpena FRO has used a number of volunteers from the refuge during all three years, and their assistance has been invaluable. Initial evidence suggests that lake sturgeon use the Saginaw River watershed during the spring spawning season, but very little is known about the importance of this watershed to the lake sturgeon population of Lake Huron. The primary goal of this project is to document lake sturgeon use of the Saginaw River watershed for spawning; one of the criteria for delisting the Saginaw River as an Area of Concern as stated in the Remedial Action Plan. A number of other partners have been involved with this project, including the Michigan DNR, U.S. Geological Services (USGS) Great Lakes Science Center, Dow Chemical and the City of Frankenmuth. The project is funded through the Saginaw Bay Watershed Initiative Network and the National Fish and Wildlife Foundation. In 2005 and 2006, sampling efforts focused on capturing adult lake sturgeon as they were expected to migrate into the watershed in the spring to spawn and, if spawning took place, capturing and collecting their eggs. Crews used setlines in an effort to collect adults, fishing mainly in the deepest sections of the Saginaw River where the Cass, Shiawassee and Tittabawassee rivers converge. Although one adult lake sturgeon was sighted below the Dow Dam on the Tittabawassee River in 2005, high water prevented the capture of the fish, and the crew did not document spawning. In addition to setlines, crews also used egg-mats

below the Dow Dam on Tittabawassee River, the Frankenmuth Dam on the Cass River and below the Chesaning Dam on the Shiawassee River. In 2005 and 2006, eggs collected from the egg-mats were taken back to the USGS laboratory at the Great Lakes Science Center in Ann Arbor and incubated until hatching. Hatched fish larvae were then raised until their yolk sacs were absorbed and the fish could be positively identified. Most eggs collected in the system were either walleye or various sucker species. No lake sturgeon eggs have been collected so far. After three years with no documented lake sturgeon spawning in the watershed, the final assessment focuses on determining whether the system can support lake sturgeon during spawning, whether habitat is available for egg survival, and whether sufficient nursery habitat is available for eliminate the underscore here larvae and juveniles during the first few months after hatching.



Lake Sturgeon. FWS archive photo

2. HABITAT RESTORATION

A. WETLAND RESTORATION

Nothing to Report

B. UPLAND RESTORATION

Nothing to Report

C. DEEPWATER/RIVERINE RESTORATION

Nothing to Report



Photo by Doug Thornhill, 2007 Refuge Photo Contest, First Place Habitat

3. HABITAT MANAGEMENT

A. WATER LEVEL MANAGEMENT

The enduring low water cycle experienced by Saginaw Bay and Lake Huron again had a direct impact on management of refuge wetlands. Greentree reservoirs and moist soil units carried standing water only during the spring period and were dry the remainder of the year. Low river levels have encouraged continued development of emergent and moist soil plants along portions of the waterways. Precipitation during the summer was minimal and fall rains were very late in coming. These combined factors altered the types and abundance of species using many of the habitat units.

Results of management on the various pools, marshes and moist soil units are summarized in the following two sections:

POOL 1A

This 315 acre open water unit offers year round habitat to a variety of waterfowl, marsh and water birds, and occasional seasonal environment for shorebirds. With the 241 adjacent acres in the Trinklein Tract comprised of a mosaic of shallow seasonal pools, moist soils, emergent marsh and grasslands, this pool acts as part of a larger complex used by the birds. The refuge operated this pool as an emergent marsh/open water area (near spillway full) during the spring flights and was used chiefly by waterfowl as a loafing area during this time. As summer took hold, the pool was set to operate through an early succession management cycle trying to maintain a level of 582.5 or better through the warmest portion of the year. An extended summer and fall drought resulted in the unit falling below the minimum target level of 582.5. Field investigations showed some changes or response to this water cycle. The open water portion of the pool normally inhabited by submergent vegetation had largely been covered by a community of emergent water lily the last couple years. In 2006 a drawdown was carried out to reduce or eliminate the lily community and start a new management cycle for the pool. Inspections this year showed the goal was only partially achieved with a 50% reduction of this species. These impacted areas in most cases remained open water. In a few instances a mix of different plant types were observed, with a few thin submergent communities vying with emergent communities for the deeper sites and moist soil plants colonizing the shallower areas. Invasive plant communities were also a mixed bag. Management activities successfully removed *Phragmites* sp. from the unit except for one new community of a half dozen plants. However, the purple loosestrife community has rebounded to some extent with *Gallerucella* sp. beetle numbers declining. The habitat conditions mentioned above persisted through the fall flights and with the lack of water reduced waterfowl use during this timeframe.

GREFE POOL

This is a 190 acre sister unit to Pool 1A and part of the pools/Trinklein complex described in the previous segment. Management objectives for this pool are also the same as

Pool 1A. This pool also is an open water/emergent marsh habitat. It has a unique feature of woody plants dominating scattered islands and dikes offering some distinctive sites for wading birds and some potential for nesting to night herons. Grege Pool water management was designed to operate at its maximum water depths, providing an opposite water regime to the early succession pool cycle of its sister unit. Evaporation and drought through the summer period dropped water depths to 583.3 by August. At this point the refuge decided to alter the planned water regime. With difficulties in adding water to this pool with low lake and river levels and no end of the drought in site, the refuge opted to draw the area down to enhance the area for shorebirds use. From the first part of September to the end of the year water levels remained at or around 582.5. This allowed some mudflats to develop along the south side of the pool and provided some shorebird use. The typical vegetative community in this pool dominated the area again showing few if any changes except for the woody plants. A number of the woody sites in this pool were partially or entirely defoliated. Whether this was caused by persistent high water, colonization by an insect or disease impact is unknown. Invasive plant management operations have been very effective in limiting pests in this area, with only a single small community yet needing treatment. The amount of use this unit received by fall migratory bird flights was about average.

POOL 2

Management action and design parameters called for this pool to be managed spillway full as much of the year as possible. Along with a management action restricting trapping of furbearers on this site, the refuge was anticipating moving the unit towards a better interspersed of emergent vegetation and open water from 2006 through 2008. The refuge was very successful in being able to maintain the planned water regime throughout the year, even through extended warm weather and drought experienced from summer to the end of the year. Though water levels were ideal for spring migrants, ice covered the area in early April reducing spring use. Field observations have validated the management action and design parameters undertaken on this pool. As planned, muskrat populations have been nurtured, and increased numbers have provided major impacts to the dense emergent vegetation. This was further corroborated by a sharp increase in nesting pairs of black terns and increased fall waterfowl use. The recent invasive plant incursion of purple loosestrife along dike edges in this unit has been checked by the proliferation of *Galerucella* sp. beetles on the refuge. Other invasive management actions were centered on peripheral control of *Phragmites* sp. to minimize potential encroachments into the pool.



Muskrat use of Pool 2 increased in 2007. Photo by EPD, 03/07/08.

POOLS 3 AND 5

Management of these two adjacent “greentree reservoir” pools, totaling 820 acres, is intended to provide secure loafing and feeding areas for waterfowl during migration periods. As in the past few years, these units could be used as greentrees only during the spring migration. Even though the winter thaw and spring rains pushed water depths to 585.6 (covering about half of the wooded area), icy conditions during parts of the spring flight limited the pools’ use. Just prior to leaf out in late April the pools were lowered to protect the forest tracts. Warm weather and lack of precipitation continued to dry the sites out, reaching a depth of 582.0 by late September. This left very shallow water covering most of the slough and only the highest elevation points in the slough dry. With fall rains never materializing and low lake/river levels preventing any addition of water to the pools, the units were barely able to maintain their water depth to years end. This reduced fall waterfowl use and only shorebirds found conditions to their liking.

NORTH MARSH

This 113 acre wetland is providing an emergent marsh habitat used by waterfowl, marsh and shorebirds plus a variety of other wildlife. Over the last few years renovations have molded North Marsh into a wetland complex. The complex incorporates Eagle Marsh, Butch’s Marsh, North Marsh, and moist soil units 3 and 4. Spillways have been set at heights allowing a more natural state of water movement. A typical spring season results in flooding this entire set of management units. As water recedes it leaves a mosaic pattern of shallow open water, emergent marsh, and wetland grasses. The drainage is gradual, encouraging successful fish spawning, egg development, and fingerling movement and growth.

This marsh unit followed the same seasonal pattern mentioned above in the other pools. Wintry ice-covered conditions held sway on this unit into early March before a spring thaw and rains inundated this tract. When not ice covered, this unit offered ideal conditions

for waterfowl during the spring flight. Water levels remained high until the middle of April when depths quickly receded through natural drainage.



Wild turkey nest in Butch's Marsh. Photo by EPD, 05/03/07.

The hot summer conditions and lack of rain continued to decrease water levels through the growing season. By early fall, North Marsh sustained water in only the deepest central pool locations.

As early fall approached, Consumers Power notified the refuge of impending pipeline repairs along their entire gas line easement through the marsh. The project called for 20 digs to expose sections of their pipeline needing replacement. In cooperation with Consumers, the refuge facilitated as much as possible the timely completion of this project while minimizing as much as possible wildlife disturbance during the fall period and ensuring the least amount of negative influence to plant communities, soil and water conditions. Additional gravity drainage and pumping operations ensued to drain the remaining standing water from the site. Once Consumers had completed their work at the end of September, the refuge pumped water back into the area. This brought water levels back to conditions prior to the project (standing water covering the deeper and wetter sites).

The vegetative response to this water regime was the same as the last couple of years with cattails and other emergent plants dominating the area with some moist soil plants. *Phragmites* sp. plots were observed this year and some received chemical treatment. Additional invasive efforts were expanded to set back buckthorn plots observed in this area.

TRINKLEIN 1N, 1C, AND 1S

These three wetlands totaling 241 acres complete the wetland complex mentioned in the first two sections. They comprise a mosaic pattern of semi-permanent marsh, moist soil areas, and brood habitat. Ice persisted into early March before spring birds started using the open water areas on these sites. Boards were pulled from the water control structure in

Trinklein 1C by late March to enhance conditions for a prescribed fire planned on this portion of the complex. The other units were allowed to function naturally with evaporation gradually drying the areas out until the middle of April. By then, Trinklein 1S had naturally dried, except for the cattail and the refuge commenced a gradual drawdown for the northern tract of this complex. At the end of April, Trinklein 1C's fuel and weather parameters had reached ideal conditions to carry out the burn. The fire was hot and burn goals were achieved. After the spring period, the units continued to dry out over time with a warm and dry weather pattern dominating the summer and fall. Fall rains were very late in developing and so light that they maintained only existing water levels which had dropped to less than 579.0. This left all of the fields dry, no standing water in moist soil areas, and mudflats in portions of the borrow pits. Little fall bird use was reported except for some shorebirds and late waterfowl. Invasive plants have been only a minor problem for Trinklein 1S but became more of a pest in the two north units. Chemical treatments were carried out on five scattered tracts of *Phragmites* sp., along edges of large reed canary plots and some woody incursions. Purple loosestrife was an issue on the northern unit with *Gallerucella* sp. beetle numbers too low to contend with the invasion. The refuge is expecting a rebound in the beetle population this coming year and is anticipating they will be able to control the plant community.

B. MOIST SOIL MANAGEMENT

The refuge currently has five units designed as moist soil units 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 waterfowl feeding potential during the spring and fall flights. The unit sometimes provides mudflats for shorebirds after waterfowl migration. Last year was the fourth year of a new cycle of moist soil management for the unit. In 2002-03, agricultural practices were used to eliminate invasive plant communities and move the unit back to preliminary stages of management. This was achieved and the following two years the tract experienced excellent moist soil plant development with virtually no undesired plant communities. In 2006, a year long wet weather pattern optimized conditions for both invasive and less preferred plant development and created extensive tracts with habitat management issues on this unit. The management plan for 2007 called for the execution of a typical moist soil cycle. The refuge decided that since the extensive tracts of invasive and less preferred plant communities were in early stages of development, treatments could be delayed a year and still achieve good moist soil plant growth. So last year the unit remained ice covered and frozen through the first part of March, before warmer weather patterns finally started thawing the field out. The unit finally developed open water conditions in late March and waterfowl started using the area extensively. The water level was recorded at 583.48 which resulted in standing water covering all portions of the unit. A gradual drawdown was started immediately and steadily reduced water levels to 582.16 by the first of May and down to 581.28 by the end of the month. This produced ideal water levels for all the migrating birds that could use this site, from early and late season waterfowl to marsh, water and shorebirds.

Heavy production of smartweed was recorded over most of the site. Other moist soil plants reported during field surveys were some late season millet in the northern portion of the unit along with the production of *bidens* sp. in the same area. As the growing season progressed, this unit continued to dry out with water levels reaching 580.3 in August and remaining around this depth through the end of the year, providing very little opportunity for birds to use the site.

MOIST SOIL UNIT 2

This 75 acre unit is operated and managed with the same intent as MSU 1, and is subdivided into two separate water-controlled moist soil units (MSU 2E and 2W). The renovation of MSU 2E, starting a new cycle of moist soil management, was carried out in 2005. MSU 2E started its second cycle year ice covered and remained this way until late March when the unit experienced a short thaw and even shorter period of excellent waterfowl use. Weather conditions quickly reverted and the unit became ice covered again until early to mid April when the unit finally stayed open and the refuge commenced a gradual drawdown, and had receded to a depth of 581.5 by the end of the month. This offered a very limited time for bird use during the spring flight. The unit continued to dry out over the next month reaching a level of 580.89. In June, July, and August water levels continued to recede reaching a low mark of 579.5. This tract showed good moist soil plant development on portions of the field that were renovated in 2005. Field assessments showed the early drawdown prevented emergent vegetation such as cattail and bulrush from obtaining a foothold on renovated areas. The renovated areas also experienced some invasive encroachment from purple loosestrife, reed canary grass, and cottonwood due to a light annual litter layer and exposed soils. In 2007 the summer and fall seasons encountered drought conditions offering very limited opportunities to place water onto this unit for the fall flights.

Moist Soil Unit 2W started the year with standing water covering the entire field (583.5) and remained frozen to the end of March. This moist soil unit was designated for a late spring drawdown. However, as the water was lowered through the feeder ditch to drain other management units, the refuge noted levels dropping in this tract. It was speculated that during construction of this unit a tile main was missed and remained unbroken, or there was an unknown leak through some portion of the dike. With the unexpected water loss, the unit mimicked more of a mid-spring drawdown providing almost ideal conditions for all of the spring migrants as they moved through the area. This unit continued to slowly drain and water levels reached a depth of 581.2 by the first part of June. This left the unit devoid of any surface water except a little in the ditches. Field surveys during the growing season showed excellent moist soil plant development dominated by smartweed. Some widely scattered bulrush was noted along with scattered purple loosestrife. The loosestrife plants noted in June were heavily impacted by *Galerucella* sp. beetles and virtually eliminated. However, surveys in July showed some late season development which was not influenced by the beetle population, resulting in fully matured loosestrife flowering heads. No invasive plant management was carried out on this unit with the refuge relying on the beetles to control this invasion.

During the summer a permanent staff gauge was placed on the northeast corner of the

field to assist measuring water manipulations. The unit continued to dry through the remainder of the summer and into the fall. Plans are in place to construct an alternate water supply for this moist soil complex from the Bremer pumping station, upstream of this tract on the old Flint River channel. Some of the beginning work for this project was completed during the year. Sites were cleared of any large bush and trees so construction equipment could reach and work in the area. Portions of some of the ditches were cleaned out and one of the water control structures was purchased.

MOIST SOIL UNIT 3

This 92 acre field 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. MSU 3 is positioned on the southwest quarter of the North Marsh Complex and bears the highest elevations of any portion of the area. The unit is dominated by an interesting historic wetland prairie community; primarily cordgrass with a moist soil plant understory. MSU 3 offers ideal spring waterfowl use, and the occasional wet fall period provides good use by waterfowl and marsh birds. The hydrology of the unit and complex also benefits fish as this natural cycle frequently provides ideal spawning conditions for adult fish, and plenty of cover for juvenile fish, along with easier movement patterns in and out of the unit.



*Sandhill crane colt from successful nest in MSU 3.
Photo by EPD, 05/07/07.*

In 2007, the unit started the year frozen at a water depth of 583.2. The unit started to thaw by the middle of March and by the end of the month the field was flooded to a depth of 584.68, pushing the tract to full volume with water almost reaching the road. Waterfowl use was excellent but short lived with water levels dropping back to 583.32 after just a week. This left standing water only in the northern 1/4 of the site with the rest of the tract dry. Rains kept the unit at this level through the middle of April before it dropped to 583.1 and dried out the rest of the field. Overall bird use was only minor over the spring period. From the middle of April on through the summer and into the fall the unit continued to dry out,

dropping the site to 582.28 by late September. Normally by this timeframe the refuge would be adding water to the tract to enhance habitat conditions for waterfowl. However, with Consumers Power having a major pipeline repair project cutting through the complex that was not completed until late September, all water manipulations were delayed. Fall rains were very late and light providing no surface water on this site through the fall flights.

Field surveys recorded no *Phragmites* sp., purple loosestrife, or buckthorn in this area and no control efforts were expended by the refuge staff. Surveys assessing habitat conditions over the growing season seem to be pointing to a potential problem. These surveys indicate that though the overstory cordgrass community stills dominates the field, it has failed to produce viable seed heads the last three years and the stand is less vigorous. This appears to be leading to more competition from invasive species, particularly reed canary grass, *Phragmites* sp., and woody species. The woody incursions were partially treated by contracted herbicide treatment crews from JFNew until funds ran out. The problem may well be that the spillway height is leaving the soil of this unit so saturated that we are encouraging the above responses. With water control structures replaced on the south side of MSU 3, the refuge has the ability to drain the unit while operating the rest of the complex as planned. This ability will be incorporated into the 2008 water manipulations. The refuge will lower the unit's ditches a foot below the surface, at the start of the growing season, to see if it is just a matter of soil moisture.

MOIST SOIL UNIT 4

This unit is the last portion of the North Marsh Complex mentioned above and the 82 acre moist soil unit operates under the same cycles. This tract went through the same water regime reported for MSU 3 with extensive flooding in late March leading to the beginning of excellent spring bird use. As in other units, the water quickly receded to a depth of 582.9 which still left standing water covering the northern 1/3 of the field. From this point on the water gradually receded to 581.42 by the end of the year. Plant response to this water regime was identical to past years, with an emergent /moist soil plant community covering the northern 1/3 of the tract, woody vegetation dominated by willow over the middle 1/3, and a cordgrass/reed canary grass site covering the southern 1/3 of the field. A prescribed fire planned for the year was again delayed due to wet conditions. A small-encroachment of *Phragmites* sp. located between the emergent and woody communities was chemically treated by the refuge staff. Because of the inability to burn this unit the refuge decided to contract some invasive plant work. The contract went to JFNew to carry out chemical applications on portions of the willow community. Only about 25% of the plots were treated before the contract expired.

KAUFMANN TRACT

This unit was a 71 acre farm tract that was recently converted to wetland. In most years, the unit operates naturally as a moist soil unit. However, with private property issues along the west boundary of the tract, little if any active management can take place. Currently the refuge has repaired breaches to the dike by placing a spillway in this location set at the height of 590.00, and added an Agri-Drain water control structure along the east side. This has relieve the pressure on weakened dikes along the south and east sides and may

permit some future water management. Flooding concerns and the lack of dikes along the north and west sides of the tract have limited water manipulations to a narrow time period. Currently the refuge manages spring water levels with four boards set in the drain. Any river water levels deeper than this will carry water through the tube or over the spillways until the river recedes. Afterward, water will gradually drain through the agri-drain until the four-board level is reached. At this point the tract will have standing water covering from 1/2 to 2/3 of the unit, with the northwest portion dry. This appears to be a good compromise with neighboring land owners. As the spring wanes, the refuge places additional boards in the water control structure to prevent any flooding into the area unless the river overtops the spillways. The unit is allowed to gradually evaporate during the summer and fall, until crops have been harvested, then boards are again removed leaving just four at the start of the year. This pattern has resulted in a plant community with grasses (reed canary grass) dominating most of the area, with some woody and other invasive plants developing along the transition line between the grass areas, and the lower sites dominated by moist soil plants.

In 2007 the Kaufman Tract followed the same patterns as other management units in the area, with early spring flooding covering the lower portions of the field with standing water. The water quickly drained off leaving the site dry from late spring through the summer and on into the fall. Over that timeframe the unit totally dried out, including the ditches. Wildlife use was not surveyed during the year.

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.

Generally bird numbers have responded well to recent conversions from agricultural use and improvement in habitat conditions. The results have included very large flights of migrating grassland birds, increased nesting, and increased wintering populations of hawks and owls. Other management activities on refuge grassland sites centered on mowing to enhance competitive conditions for native warm season grasses or invasive plant control using mechanical or chemical means. Only one tract experienced mowing as a management action in 2007, with 120 acres of the Sawatski Tract cut in late June. Invasive treatments were more numerous, with chemical applications carried out on a variety of pest species. Tracts receiving this treatment included all three Conversion units, Sawatski Tract, and the Evon Rd. site just off M-13.

A unique new endeavor in grassland management was initiated through efforts by the private lands staff. The refuge developed a cooperative agreement with the Saginaw County Correctional Facility to cultivate native grass, forbs and sedges for restoration work on the refuge lands. In this first year of cooperative effort, the correctional facility was able to raise four plant species as seed stock for future years. In addition, JFNew was contracted to gather

native seed from a variety of grasses, forbs and sedges to broaden the diversity species available to this project. They were able to glean seed from 58 species, which will be reared in the coming season. Some of the plants grown next year will be used for additional seed stock while other plants will be used as plugs in a planned grassland restoration.

D. FARMING

The refuge managed 1,127 acres as cropland under a soybean/corn/small grain rotation in 2007. The primary objective for the program is to provide food for waterfowl during spring and fall flights, support a greater complexity of habitats within the refuge, and support the managed goose hunt. The 2007 growing season produced average production for the cooperators, with good corn yields and just slightly below average soybean harvests. What was unique this year was a number of the cooperators moving most or all of their acreage to corn production. This was the result of the energy crunch and new price supports for corn and ethanol production. Spring weather patterns were ideal for planting, supporting perfect timing and moisture conditions. Things looked perfect for cooperators to garner large yields. As weather shifted to summer and fall conditions, it became a mixed bag with temperatures providing good growing and drying conditions, but lack of timely rains, thereby reducing yields. This hot dry weather continued well into the fall permitting farmers to harvest the crops very quickly as they matured and dried.

In the recent past, farming at Shiawassee NWR was in doubt and tenuous with a number of efforts to retire most or all of the acreage in this program. However, during the development of the CCP and with support of other historical documents, the rights and privileges of the original landowners and cooperators to farm was confirmed and strengthened. These documents provide the framework and define policy for the agricultural program at the refuge and the procedures under which the program will eventually be phased out. The basic premise is that refuge lands are more ideally suited in natural habitats and agricultural lands should be converted. However, the Service had made a commitment to the original landowners and cooperators and sanctioned their right to farm on these lands until they actively ceased farming and retired. These privileges do not extend to others, including future purchases of agricultural lands, family of current cooperators or anyone interested in the potential for acquiring the rights to current cooperative agreements. This will allow the refuge to slowly convert the lands as the current cooperators eventually quit operations. Conversions under this policy have already occurred with over 230 acres retired and restored to natural habitat in the recent past. There were no opportunities to retire lands in 2007, but the program and policies are in place and additional lands will be retired in the future.

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 hardwood made up of second growth, even-age stands. The exception is the upland tract of the Cass River Unit totaling 18 acres. Especially notable in this stand are the very mature beech trees and the abundance of understory forbs such as trilliums. The refuge's forest management goal is to develop a two tier canopy forest, favoring mast and cavity producing trees without

jeopardizing populations of forest interior birds. Regeneration of the selective and clear cuts carried out in the late 1980's has shown steady improvement. Seedlings such as green ash and cottonwood have shown significant growth. Other trees species such as oak, hickory and maple appear to be improving, but a significant portion of the year's growth is browsed by deer. In the past, seedlings planted by the refuge in lowland areas appeared to be a marginal proposition. These plantings suffered exceedingly high mortality (often 90 % or more) as a result of periods of severe drought or flooding, wildlife browsing, poor planting techniques and mowing. However, with changes in some of these factors and a Comprehensive Conservation Plan management goal of increasing forest tract size, the refuge again attempted to plant seedlings as part of its forest management program.

In November 2007, the U.S. Fish and Wildlife Service, Detroit Edison (DTE) and The Conservation Fund (TCF) entered into a Memorandum of Agreement to reduce greenhouse gases, improve wildlife habitat, and acquire land at the refuge. To address the many concerns over climate change, the U.S. Department of Energy established the Global Climate Challenge Program. One important aspect of the program calls for a reduction in the amount of greenhouse gases (GHG) in the atmosphere. A portion of the GHG reduction program calls for the sequestration of carbon in biomass. One of the methods of GHG reduction utilizes trees, which are natural carbon sinks, because they take carbon dioxide out of the air and sequester it in living plant tissue. Thus, reforestation is a scientifically recognized way to sequester carbon from our atmosphere.



Contracted crew planted 53,000 native trees on 180 refuge acres. Photo by SFK, 05/01/07.

DTE provided \$80,000 to plant trees on 180 acres in six different sites in areas designated in the refuge's Comprehensive Conservation Plan to be restored to forest. This effort was launched on the ground on Arbor Day 2007 when crews began planting over 53,000 tree seedlings. Tree species included American sycamore, bur oak, white oak, northern red oak, red maple, silver maple, black walnut, and common hackberry. Gaps between existing refuge woodlands will fill in to create larger forest blocks to benefit

numerous wildlife species, including wood duck, barred owl, eastern wood-pewee, wood thrush, American redstart, and scarlet tanager. Additionally, this partnership will yield a \$100,000 fund to acquire land for reforestation and addition to Shiawassee Refuge.

F. FIRE MANAGEMENT

One wildfire was recorded on the refuge in FY 2007. On December 9th, the Michigan Pyrotechnic Arts Guild was igniting fireworks on private property adjacent to refuge lands. One of the shells failed to gain height and instead traveled along the ground until exploding. The line of travel carried it over a grassland unit owned by the refuge where it detonated. This caused the grass to catch fire and start to burn. Fortunately this fireworks program was carried out under a James Township permit and fire support was quickly available, thus limiting the burn to 1.5 acres before it was contained.



Pre-burn meeting at Houlihan Grassland tract. Photo by EPD, 05/30/07.

Two prescribed fire were completed with burns on the 51 acre Houlihan Grassland and the 79 acre Conversion 1C (Leach) Unit. The conversion unit fire was very successful and met all the planned objectives, while the fire on the Houlihan tract was marginally successful with the litter layer not uniform enough to carry consistent fire effects throughout the unit. Burns are intended to reduce fuels and understory matting, reduce woody encroachment, and improve nesting cover for grassland birds. The success or lack of success of using this technique could be partially evaluated from the Monitoring Avian Production and Survival (MAPS) data being gathered on the Gosen unit of the Trinklein Conversion tract. The long term average for captures on this site totaled 60 birds per season. One year after the 2003 prescribed burn the trap total increased to 123 birds. This would seem to indicate that prescribed fire may be a valuable tool for grassland maintenance.

These fires were completed under the new policies, procedures, and burn plans. The refuge has received a great deal of help from our area Fire Management Officer and fire staff

at Seney NWR in meeting these new requirements, particularly in writing the new master fire management plan, individual fire prescriptions and understanding the new individual fire fighter standards and requirements. Personnel scheduling problems and weather patterns which infrequently fit prescription parameters continue to negatively influence prescribed fire operations, minimizing the number of burns carried out each year. Usually the refuge participates in the national fire fighting effort but scheduling and timing prevented refuge personnel from contributing in 2007.



Prescription burn on Leach Unit. Photo by EPD, 04/30/07.

G. PEST PLANT CONTROL

Field observations over the last couple years have shown invasive plant management to be an increasing problem with pest plants showing up across all habitat types. The refuge has issues with woody, emergent and grass pests plaguing grasslands, invasives such as buckthorn encroaching in forest tracts, and a variety of aggressive invaders moving into wetland units. The refuge has been working to control these invaders through a variety of different techniques, including heavy equipment mechanical alterations, manual removal, chemical applications, and biological control. Biological control of purple loosestrife has been very effect with *Gallerucella* sp. beetles severely limiting encroachments of this pest species. This management technique will never completely eliminate purple loosestrife from the refuge but has limited its impacts and moved the invader to a cyclic appearance. With beetle numbers high the plant all but disappears, but when the control agent numbers drop, allowing the pest to recover in limited areas, the pattern is repeated. No other control techniques are undertaken to further reduce this pest due to the success of the control agent and the need to concentrate efforts on other high priority species.

Major efforts were expended by the refuge staff to control invasive glossy buckthorn and colonies of giant reed (*Phragmites* sp.) on a number of refuge tracts. Chemical applications of glyphosate were used in most cases, though an experimental cutting was tried

on one *Phragmites* sp. plot. The cutting was carried out just as the plant was ready to develop seed heads. The instrument used left the remaining stem shredded in hopes that the plant would be unable to seal itself off, store energy for next year and survive. An assessment will be made in the coming season. In a few locations willows were controlled using either a foliar chemical application or a combination of cutting and chemically swabbing the stumps. The Leach tract of the Trinklein Conversion received back to back control techniques to help manage reed canary grass. Fire was run through this unit in the spring just as the grass was coming up for the year, burning off the first 6 to 9 inches of plant growth. This really reduced the vigor of this pest species. The refuge followed up with a chemical treatment along the edges of the stand invasions, pushing back the area dominated by this pest. Outbreaks of invasive garlic mustard reported for the first time in 2003 have fluctuated over the last several years depending on weather conditions and the amount of bare or exposed soils. There have been no control efforts expended on this pest species the last couple years, with labors placed in other higher priority areas. The basic design for management of pest plants is to keep them out of the core of the refuge, pushing the invasion towards our boundaries and eventually eliminating their presence on refuge lands.



Refuge Biologist Jim Dastyck applies Glyphosate to a stand of common reed (*Phragmites* sp.). Photo by SFK, 08/08/07.



Results of herbicide application to common reed (Phragmites sp.). Photo by SFK, 08/08/07.

Glossy buckthorn has invaded the edges of several wooded tracts. Efforts to set back this invasion were carried out along tracts off Evon and North Marsh roadways. Plants were either mowed or treated with chemical applications. Initial observations indicate treatments were very successful but regeneration is an issue and sites frequently required follow up treatments to completely eradicate some communities.

4. FISH AND WILDLIFE MANAGEMENT

A. BIRD BANDING



Juvenile bobolink at MAPS site. Photo by SFK, 07/05/07.

Eagle banding this year resulted in two juvenile eagles banded in the Eagle Marsh nest, with failures at the other nest locations. The refuge started the season with four nesting eagle pairs, but lost one site to disturbance, one nest was lost to winds, and the remaining nest simply failed to produce eggs.

With the Michigan DNR easily achieving their quota early this year there was no request for refuge personnel to assist with resident Canada goose banding. The refuge did endeavor to band ducks during the late summer and early fall period, and with limited available staff time we were able to band 61 mallards, one green-winged teal, and one black duck.



MAPS survey crew: Bob Grefe, Carolyn Szaroletta, and David Peters. Photo by SFK, 07/05/07.

The MAPS (Monitoring Avian Production and Survival) banding site has completed its ninth year of a ten year banding commitment. Volunteers were able to capture and band 95 birds comprised of sedge wrens, bobolinks, American goldfinch, red-winged blackbirds, common yellowthroat, yellow warbler, bank swallow, barn swallow, tree swallow, savannah sparrow, swamp sparrow, song sparrow, Baltimore oriole, starling, yellow-billed sapsucker, and Traill's flycatcher.

B. DISEASE MONITORING AND TREATMENT

The Saginaw County Mosquito Abatement Commission again carried out their disease monitoring and treatment program in 2007. The outbreak of West Nile Virus that was so active in 2002 has pretty much run its course. However, with monitoring efforts for the virus showing positive cases in both mosquitoes and birds for 2006 and with treatment thresholds met in the spring 2007 a larval application of Bti (*Bacillus thuringensis*) was carried out. This season's monitoring efforts for the presence of West Nile Virus showed very little disease activity. No human cases were reported for the county in 2007 and monitoring efforts on refuge lands failed to detect any positive cases of the virus. The nearest positive sample was located 7.5 miles to the southwest of the refuge boundary. The refuge's disease plan delineates a 5 mile mosquito flight range or published flight distance for positive cases to initiate a potential treatment.

C. REINTRODUCTIONS

Nothing to report

D. NEST STRUCTURES

Shiawassee NWR has both wood duck and bluebird nest structures. Volunteers Gary VanKirk and Lidia Godina manage these nest boxes, respectively. A total of 37 wood duck nest structures were available in 2007, a mix of 54 double and single compartment boxes. Of these, 36 were used by wood ducks, 4 were used by both wood ducks and hooded mergansers, and another 11 were used just by hooded mergansers. Three nest boxes were not used during the year. Five of the nests showed owl use after wood ducks used them. Of the total 345 wood duck eggs laid, 156 hatched (45%). A total of 31% out of 124 mergansers eggs hatched. Two dump nests were found in the boxes, where a dozen or more eggs were laid and then abandoned. This may be due to nests being in close proximity to each other. For this reason double nest boxes are gradually being replaced with single structures.

During the 2007 season there were 25 bluebird nest boxes available for use. Of these none were used by bluebirds and no nestlings were fledged. Tree swallows nested in 8 of the boxes with 42 nestlings fledged. The remaining boxes were used by house wrens with 75 eggs laid and all hatched and fledged.

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.

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.

B. TRIBAL COORDINATION

Nothing to Report

C. PRIVATE LANDS ACTIVITIES

CONSERVATION EASEMENTS

The Shiawassee NWR-Private Lands Wetland Management District (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.

Resale of easements and property (easements) division occurs annually. Of the 115 easements managed by this office, we identified more than 160 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.

No annual easement visits were recorded this year due to a vacancy in the Refuge Officer position which is a recent requirement for annual visits. One landowner in Sanilac County continues to call on an annual basis to try to get the easement removed from their property.

Requests from landowners included reposting and Special Use Permits for mowing and trail maintenance. One complaint was recorded for farming and ATV trespass. The owners of the Van Buren County easement which recorded a violation in 2006 are continuing the process of mitigating 80 acres of wetland violations. These maintenance actions are expected to extend into 2013.

PARTNERS FOR FISH AND WILDLIFE

The Shiawassee National Wildlife Refuge administers a 24 county Private Lands Wetland Management District (PLWMD) located in central Michigan. Eight of these counties, on the west side of the state, are currently being covered by a Term Biologist position from the Michigan Private Lands Office. The restoration acreage for these counties is not included in this report.



In 2007, the 20th Anniversary of the Partners for Fish and Wildlife Program was celebrated at a meeting in Oklahoma City. Most of the staff involved in the Partners program, from the field biologists to the Washington Office Coordinators, attended this meeting. The Anniversary celebration included accomplishments of the past and a vision for the future. Biologists were given a chance to "talk biology" and share knowledge and experiences with colleagues. Several landowners and partnering organizations were also on hand to congratulate the program and staff for 20 years of success.

WETLAND RESTORATION

In FY 2007, Shiawassee NWR restored 124.5 acres of wetlands in 8 counties in the Saginaw Bay Watershed. These restorations were accomplished under the Service's Partners for Fish and Wildlife (PFW) Program in partnership with Ducks Unlimited Inc.-Great Lakes/Atlantic Region, Saginaw Bay Watershed Initiative Network (WIN), North American Wetlands Conservation Act (NAWCA), and the local USDA Conservation Districts.

Several outdoor classroom projects were completed this year including the Floyd Elementary School project in Bullock Creek. A 30 acre parcel of land, rarely used by the school, now has trail access and a restored wooded wetland that will be used by the staff and students of the school. The restoration project included building a low level berm and finishing an existing trail for the students to access the site. In a partnership with Ducks Unlimited, Inc. and Saginaw Bay WIN, a supply trunk, with \$700 worth of supplies and materials to study the wetland, was also given to the school.



Since the wetland construction, Floyd Elementary has partnered with other organizations to have the picnic tables in this picture, built for the students to use when studying on site. Photo by MAV, 07/27/2008.

The wood duck boxes and log benches were also completed with the help of interested community members and organizations. This trail is also open for public use, when school is not in session. The project has been successful in educating the students of the Bullock Creek School District but the staff also hopes to promote community stewardship of the restored wetland and access trail. Photo by MAV, 07/29/2008.



GRASSLAND RESTORATION

In FY 2007, Shiawassee NWR restored 123 acres of grasslands in 4 counties in the Saginaw Bay Watershed. These restorations were accomplished under the Service's Partners for Fish and Wildlife (PFW) Program in partnership with Ducks Unlimited Inc.-Great Lakes/Atlantic Region, Pheasants Forever, Saginaw Bay WIN, NAWCA, and the local Conservation Districts.



The photos to the left show a site that was planted in early 2007 at the City of Saginaw, Waste Water Treatment Plant. This facility had been maintaining approximately 8 acres of lawn surrounding the plant. An idea from the resource conscious supervisor led them to the PFW program and now, lawn has been turned into a field of warm season grasses and wildflowers. Photo by MAV, 05/22/2008.



The top photo from May, 2008 shows the site in the early stages of the 2nd year of growth. The bottom photo shows the same site just 1 ½ months later. This site was planted at a rate of 3 lbs of wildflowers per acre to ensure the success of the flowers and to test if the flowers would dominate in colonies similar to a natural system. Photo by MAV, 07/08/2008.

Additional grassland sites were planted ranging from 10 – 40 acres in size. All were planted with a minimum of 1 lb of wildflowers per acre and 5-6 lbs of grasses per acre.

STREAM RESTORATION

Shiawassee PLWMD has assisted with raising funds for streambank stabilization for several years. A partnership was created with the Saginaw Bay Resource, Conservation & Development Council (RC&D) and the Rifle River Watershed Restoration Committee. Challenge Cost Share money has been directed to this partnership in order to restore the water quality of the Rifle River. Controlling erosion and sedimentation into the Rifle River

is extremely important to the Saginaw Bay and the Shiawassee NWR, as this is the only cold water system in the watershed. It is also the only river system in the watershed with no dam structures inhibiting fish passage. The Rifle River has historically provided spawning habitat for rainbow trout, lake sturgeon, walleye and several salmon species. In 2007, 12.5 miles of river were improved by placing whole, spruce tree revetments on 9 sites in Arenac and Ogemaw Counties.

TECHNICAL ASSISTANCE PROGRAMS

Approximately 37 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.

One Debt for Nature coordination request was received in 2007 from the Tuscola County NRCS office. The Shiawassee NWR Private Lands Biologist assisted with recommendations for a Conservation Plan on 12 acres for this request.

The Shiawassee NWR-PLWMD assisted the NRCS, Saginaw Bay Wetland Reserve Program (WRP) teams in determining wetland eligibility and ranking requirements for 156 acres signed up for the 2007 Wetland Reserve Program across southeast 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.

A partnership was also developed with the Midland County Conservation District to assist them with wetland restoration projects in the Sturgeon Creek Watershed. Several contacts were made by the district and the PLWMD biologist resulting in four interested landowners.

6. RESOURCE PROTECTION

A. LAW ENFORCEMENT

Through the first quarter of fiscal year 2007 until his transfer in January, Jonathan Priday was the only commissioned refuge officer (RO) at Shiawassee NWR. However, Zone Law Enforcement Officer (ZLEO) Kevin Shinn continued to be housed at the refuge and provided a much-needed law enforcement presence in the absence of a refuge officer the remainder of the year. One case of note involved the illegal shooting of a sandhill crane during the refuge's October goose hunt. The violation was reported by other hunters in the field, and the next day a search was made of the cornfield and surrounding area where the hunt had taken place. Although a sandhill crane carcass was not found, a clump of what appeared to be breast feathers and fresh blood was found near the hunt location where the violation occurred. The feather samples were submitted to the Wildlife Forensics lab in Ashland, OR, and were soon confirmed to be that of a sandhill crane. RO Priday was able to obtain an admission from the violator, and fines were assessed.

B. PERMITS AND ECONOMIC USE MANAGEMENT

A total of 18 Special Use Permits were issued this year for activities which included archaeological research, contaminant assessments, wildlife research, and fur trapping.

In August, Consumers Energy (CE) approached the refuge to secure a permit to access their natural gas pipeline, which is a 99-foot wide right-of-way through the refuge. An earlier inspection of the pipeline by CE revealed the need for repair on 16 points of anomaly of the line extending through the refuge. The 70 mile long underground pipeline begins near Flint, MI, and extends in a northwest direction to the refuge, entering the Eagle Marsh/North Marsh portion of the refuge, continues under the Shiawassee River, and then crosses the north portion of the refuge, extends under Bullhead Creek and continues off-refuge through James and Saginaw Townships. CE began their work on September 10 and finished September 28. Although CE used a lot of heavy equipment, brought out many vehicles, and usually had around 20 people on site, their work was accomplished with little damage to the refuge infrastructure. The only refuge impact was the dewatering that had to be done in the wetlands during a critical period of the year. However, after CE pulled out, the refuge began pumping operations to restore the water levels in the marshes.



Consumers Energy pipeline repair in North Marsh. Photo by EPD, 09/18/07.



Consumers Energy pipeline repair on North side of Shiawassee River. Photo by EPD, 09/18/07.

C. CONTAMINANT INVESTIGATION

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 regarding this carcinogen, 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, the State of Michigan 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 2003, 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. Subsequent to this, the DEQ sent out a warning to school districts to advise them against using township and county parks along the Tittabawassee River for field trips and events, in order to avoid exposure to high levels of dioxin. This warning has had a direct effect on the numbers of visitors the refuge receives on nature trails along the Tittabawassee River. Green Point ELC has seen a marked decline in visitation due to this warning. Approximately 11,000 residential homes along the river may also face DEQ designation as hazardous waste facilities.

Based on a wild game study performed in 2003, the Michigan Department of Community Health (DCH) issued a health advisory for consuming wild game from the Tittabawassee River Floodplain. The advisory stated that eating deer, turkey, or squirrel from this area could result in adverse health effects. Subsequently, Shiawassee NWR posted this advisory at refuge parking areas near the Tittabawassee River, and letters regarding this advisory are sent annually to refuge deer hunters who have been issued permits to hunt in that area.

Currently, there is a fish consumption advisory for consuming fish from the Tittabawassee River, Saginaw River, and Saginaw Bay. In the late 1970's, the U. S. Environmental Protection Agency (EPA) identified Dow Chemical as the primary contributor to dioxin contamination in the Tittabawassee and Saginaw Rivers, as well as Saginaw Bay. Studies in 1983 determined that dioxin contamination in fish from these waters posed a risk to fish consumers. In July, 2004 the EPA again produced a statement which determined that dioxins in Tittabawassee River fish present unacceptable risks to public health. Based on recent studies by Dow and the Michigan DEQ, the EPA called for another complete and comprehensive look at the dioxin issue, using a multimedia approach and risk analysis of the dioxin problem. A public health consultation released in July, 2005 by the U. S. Department of Public Health and Human Services' Public Health Service, assessed the health risk of eating walleye, bass, catfish, and carp from the Tittabawassee River. The consultation recommended that people should continue to follow fish consumption advisories previously issued.

In 2004, the Department of Community Health drew blood from 25 residents of the Tittabawassee floodplain to determine levels of dioxin. The blood sampling was conducted

at Green Point ELC as part of a \$40,000 study. Dust samples were also taken from the residents' yards. Dow Chemical also sponsored a \$15 million study through the University of Michigan to take blood samples from 695 people along and near the Tittabawassee River, as well as from 251 residents of Jackson and Calhoun counties for comparison purposes. Dust and soil samples were taken from their residences, and a questionnaire for 1,300 people was completed. Results from this study (made available in 2006) revealed that older age is by far the most important factor related to higher levels of dioxins in people's blood. It also found that eating fish from the Tittabawassee River, Saginaw River, and Saginaw Bay leads to higher levels of dioxins in blood, while living in areas with contaminated soil contributes only a small amount to the levels of dioxins in people's blood.

In another study, Limno-Tech, a consulting firm hired by Dow, has placed clad pads in various areas along the Tittabawassee River, including the refuge, in order to measure solids accumulation. Chemical characterization will be performed on the accumulated solids.

In a third study, launched in May, 2005, the Michigan State University (MSU) Aquatic Toxicology Lab initiated a 4-year project to evaluate the effects of contaminants on passerine birds (American robin, house wren, Eastern bluebird, and tree swallow), great blue heron, kingfisher, great horned owl, bald eagle, and mink along the Tittabawassee River. This \$5 million study (funded by a grant from The Dow Chemical Co.) includes dietary analysis, tissue analysis, bolus sampling, nesting productivity assessment, and egg sampling. As far as the bird species, the actual work involves climbing trees to retrieve eggs and young birds, and trapping adult birds. Eggs are taken for tissue-based exposure assessments. Adult and nestling birds are banded, blood samples are taken, and a few of the nestlings received radio transmitters for telemetry work. Researchers also measure bill and pad length, check for parasites, and take the eighth primary feather from each bird handled. Four adult great blue herons were also trapped and fitted with radio transmitters and leg bands. Mink scat was analyzed and trapped mink had their stomach contents analyzed. Mink were found to consume 52 % fish, 19 % muskrat, and 8 % crayfish.

Research results thus far haven't found any adverse reproductive effects on the wildlife sampled, however the researchers have found elevated levels of furans in the wildlife studied, and high levels of dioxin in the food base (insects, crayfish, earthworms, etc.) of the animals and their young.

In a fourth study, initiated this year, Entrix Environmental Consultants, of Okemos, Michigan collected wild game on the refuge as part of the Tittabawassee River Human Health Risk Assessment. This study was funded by Dow Chemical to collect samples of wild game that best represent animals harvested by hunters during fall hunting seasons, and augments the wild game study done in 2003. The collection began on July 16 and ended on August 31. A total of 66 animals were collected from the refuge plus 83 specimens were taken from two other areas (private land and Crow Island State Game Area) using firearms and live traps. The researchers took the following numbers of each game species, both male and female from the refuge; 11 white-tailed deer, 8 wild turkeys, 12 fox squirrels, 10 cottontail rabbits, 12 Canada geese, and 13 wood ducks. Tissue samples were sent to two

different laboratories in Germany and Pennsylvania for analysis for dioxin and furan congeners, PCB Aroclors, chlorinated pesticides, chlorinated benzene, chlorinated phenols, chlorinated styrenes, metals, and other extractable organic constituents. Results from the study were not complete by the end of the fiscal year.



Entrix Researcher with harvested hen turkey. Photo by SFK, 08/27/07.

Using a process called Geomorph; Ann Arbor Technical Services completed the initial characterization of the upper six and a half miles of the Tittabawassee River. The ultimate goal of this process is to manage soil erosion and movement, as well as interrupt the exposure pathways and assess technology alternatives for achieving that goal.

Geomorph is a layer-based soil deposition analysis which attempts to unfold or peel back soil layers going back approximately 100 years in order to identify deposition areas. The plan is to analyze sediment deposition in the Tittabawassee River as well as the Upper Saginaw River, and thus identify the nature and extent of contamination of dioxins and furans in the two rivers. In 2007, Ann Arbor Technical Services took 7,100 samples from more than 1,500 sampling locations and analyzed more than 6,300 of these samples for furans and dioxins. Elevated concentrations were found in the range of 2 to 6 feet below the surface. The majority of the contamination has been identified in a relatively narrow area of the bank adjacent to the river, with increasingly low concentrations and low sediment thicknesses moving away from the river and up and out of the floodplain.

Coupled with the Geomorph process is the removal of sediments from the river reaches where the characterization is being done. Approximately 1,900 linear feet of sheet pile was placed in the river, those protected areas were dewatered, and approximately 22,000 cubic yards of river sediment was removed and transported to the Dow Salzburg Landfill.

In 2005, the East Lansing Ecological Field Office began the initial steps in pursuing a Natural Resource Damage Assessment (NRDA) evaluation for dioxin and furan (PCDD/F) releases to the Tittabawassee River. The trustees for natural resources for the Tittabawassee

River NRDA are the State of Michigan, acting through the Director of the Michigan Department of Environmental Quality, the Director of the Michigan Department of Natural Resources and the Attorney General of the State of Michigan; the United States Department of the Interior, acting through its representatives, the U.S. Fish and Wildlife Service and the Bureau of Indian Affairs; and the Saginaw Chippewa Indian Tribe of Michigan. In 2006, a memorandum of understanding was signed by the Trustees.

At this point, NRDA trustees are working with MDEQ, the U. S. Environmental Protection Agency, and Dow Chemical Co., to organize a common database. They are providing input into study designs (e.g. remedial investigation work plan, ecological risk assessment), they are participating in facilitated discussions, and the Trustees are organizing existing data to officially document intent to perform a NRDA. Besides resource restoration issues, the NRDA will evaluate the loss of human services (impacts of consumption and soil contact advisories) and ecological injuries based on data received from research provided by the MSU Toxicology Lab as well as literature searches. The NRDA questions to be addressed include; whether there has been a release of hazardous substances, how these hazardous substances enter the environment, the potential for injury to resources, the potential for damages to those resources, and the evidence to indicate that one or more parties may be responsible for the damages as a legal matter.

As far as what will result from the NRDA, the Trustees are in the process of collecting and developing ideas for projects that match the injuries and the types of problems that are seen as a part of the Assessment. A Comprehensive Assessment Plan will soon be available to the public for their review.

D. CONTAMINANT CLEANUP

Nothing to Report

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.



Archeologist Ken Kosidlo excavating a site. Photo by Jeffrey D. Sommer , 07/13/07.

Since 1998, Jeffrey D. Sommer of the Saginaw Archaeological Commission has documented 28 sites within the refuge boundaries, 16 of which hadn't been previously recorded. Of the 38 archaeological sites monitored over the past nine years, 30 of them are being exposed by fluvial erosion along the Cass, Tittabawassee, and Shiawassee rivers.

Twenty-seven square meters were excavated at site 20SA722 (the Clunie Site) during the 2007 field season. These excavations yielded 19,745 catalogued objects. In addition, 90 samples, containing a total of 609.75 liters of sediment, were saved for flotation. Excavated material from site 20SA722 dates primarily to the Late Prehistoric period (ca. A.D.1400-1600). A portion of the excavated area was stratified with early Late Woodland material below the Late Prehistoric component. A single 50 cm x 50 cm column sample was excavated at Site 20SA1276. Ten flotation samples, totaling 141.5 liters were saved for analysis. So far, 1,307 objects from this column sample have been catalogued. Surface collections, totaling 17 objects, were made from five of the thirteen sites that were monitored during the 2007 field season. Other sites yielded material from Middle and early Late Woodland occupations (ca. A.D. 1 - 1000). A few Late Archaic through Early Woodland period (ca. 1000-100 B.C.) artifacts were also present. Historical artifacts date primarily from the mid-19th century through the 20th century.

From excavations of the Clunie Site, an interesting list of historic fish and wildlife (ca. AD 1400-1650) has been derived based on faunal remains. Historic wildlife on the list include; lake sturgeon, gar, wood turtle, black bear, porcupine, and elk.

This project continues to demonstrate that significant archaeological resources are present within the boundaries of the Shiawassee NWR. All cultural items collected, as well as information and field notes are stored and secured at the Saginaw Archeological Commission repository. A total of 160 person days (960 hours) were contributed to this project by 8 volunteers and the project director. The survey will continue in 2008.

G. LAND ACQUISITION SUPPORT

The refuge acquired Tract 211 from Dave and Eileen Kaufmann on September 18, 2007. This 72.43-acre parcel in James Township is directly contiguous with current refuge property. It lies immediately northwest of the intersection of Hart and Willing Roads. This tract is the first added to the refuge since 2000, not including tracts acquired via land exchange. Emergency inholding dollars from the Land and Water Conservation Fund paid for the property. The Kaufmann Tract lies within the area of the refuge's acquisition boundary that is most threatened by advancing urban sprawl. In fact, many nearby tracts have given way to development over the past ten years.

Approximately 40 acres of the site were planted to upland prairie vegetation while it was enrolled in the Conservation Reserve Program. Consequently, the new property provides excellent nesting habitat for waterfowl such as mallards and blue-winged teal. Further, it provides habitat for many grassland bird species, including nesting sedge wrens and eastern meadowlarks, migrant northern harriers, and wintering short-eared owls. Approximately 30 acres of the Kaufmann tract remain in corn, but will be restored to prairie vegetation within three years.



Dave and Eileen Kaufmann with Steve Kahl on recently acquired refuge tract. Photo by EPD, 10/29/07.

7. PUBLIC EDUCATION AND RECREATION

A. PROVIDE VISITOR SERVICES

The Refuge recorded 59,935 visits in FY 2007. During the year 30 special events were held.

Special Events

The *Nurturing Nature Wednesday Series*, sponsored by the refuge and Friends of Shiawassee NWR, continued for the third year. Twelve programs covering historical topics, wildlife, bee keeping and poetry attracted 237 people. The *Nurturing Nature Wednesday Series* is geared to expose people to the refuge, educate them, recruit new Friends members, and raise money for the group. Admission for each program was \$2 per person, \$5 for a family, and free for members of the Friends group. Janet Martineau, Activities Coordinator for the Friends, and Park Ranger Becky Goche organized the series. The Friends provided a \$50 stipend for each presenter.



Refuge volunteer Kim LeBlanc (far right) taught a nature photography class as part of the Nurturing Nature Wednesday Series. Photo by RSG, 08/01/07.

Refuge staff, volunteers, and Saginaw Valley Audubon Society members led 24 guided tours throughout the year including bird walks, short eared owl auto tours, night hikes, a tree identification hike, bicycle tours, a cross country ski tour, and a guided horseback ride.

This was the second year that the refuge coordinated the Junior Duck Stamp Program this program. Students in grades K-12 submitted 488 entries. This was up 110 entries from the previous year! On March 30, 2007, five judges picked 100 winners (36 first through third place and 64 honorable mention) from the four age categories. Samuel Dantuma's acrylic painting of a wood duck pair was awarded Best of Show. This was his second year in

winning the state Best of Show. Unfortunately, his piece did not place in the national competition held in Washington, D.C. Judges were Russ Terry of Ducks Unlimited, Faye McNew of Michigan DNR Wildlife Division, wildlife artist and author Rod Lawrence, Dean Adkins of the Ella Sharp Museum, and Lucetia Manwaring of Congressman Dale Kildee's Office. All first through third place winners and Michigan's Best of Show were honored at an awards ceremony on May 5, 2007. Sixty-eight people attended the event. The Friends of Shiawassee NWR provided a decorated sheet cake and beverages for the attendees.



Samuel Dantuma, 2007 Best of Show Winner and Park Ranger Becky Goche at the Junior Duck Stamp Awards Ceremony. Photo by Steven Gasser, 05/05/07.

The Refuge Open House Weekend was held September 8-9, 2007. Refuge staff and volunteers led bicycle tours, bird walks, and butterfly walks over the two days which drew 94 people. Private Lands Biologist Michelle Vander Haar developed a virtual geocache course for visitors who wanted to use their GPS units to find cool things around the refuge. Hundreds of other visitors, especially deer hunters, also used the refuge during the weekend since the whole area was open to hiking, bicycling and deer scouting. A free tree give-away and judging of the refuge photo contest took place at the refuge headquarters on Saturday. Eighteen photos were entered into the contest by 11 people. Winners in the Wildlife and Plantlife Category were: First place – Jessica Nixon, Chesaning; Second place – Doug Thornhill, Saginaw; and Third Place – Michele A. Stadler, Muskegon. Winners in the Habitat Category were: First place – Doug Thornhill, Saginaw; Second place – Roselle McCormic, Chesaning; and Third place – Mike Sonnenberg, Saginaw. Winners in the People Category were: First place – Catherine Faunce, Saginaw and Second Place – Doug Thornhill, Saginaw. Winners in the Young Nature Photographer Category were: First place – Roxanne Kreiner, Otisville; Second place – Chelsea Meinzen, Muskegon; and Third place – Jessica LaBean, Metamora. Roxanne Kreiner, age 14, won the "Refuge Manager's Choice" with her entry featuring a bright green beetle in a sea of brown leaves. Winners were recognized at the *Nurturing Nature Wednesday Series* program in October.

Environmental Education

Environmental education accounted for 849 visits both on-site (508 students) and off-site (302 students). Refuge volunteer Tom Horb helped with several school groups during May, 2007, by leading the outside hikes at Green Point.



Park Ranger Becky Goche works with second graders in their classroom at North Elementary School in Birch Run. Photo by Bonnie Preston.

Hunting and Trapping

The refuge offered recreational hunters goose hunting and deer hunting. Goose hunting took place during October, 2006, only on Tuesday, Thursdays, Saturdays and Sundays, for a total of 14 days. The opening weekend was a reserved hunt. Hunters invested 1,888 hours over 383 visits and harvested 254 geese for a success rate of about 66 percent.

More hunters were allowed permits in FY2007 than the previous year as a part of the deer management program. Hunt information and the on-line application system was available June 1. Hunters either applied through the mail or on-line by August 1. Stephen Kent with Mid-Michigan Computer Consultants in Bay City, MI, continued to modify and fine tune the software program and on-line application system he developed for the refuge which selects deer hunters using a priority point system. Altogether, 273 deer were harvested on the refuge. A summary of deer hunting, goose hunting and trapping can be found in the following tables.

Table 1: Summary of Deer Hunting for FY2007, FY2006, FY2005, and FY2004

	FY07 Hunters	FY06 Hunters	FY05 Hunters	FY04 Hunters	FY06 Visits	FY06 Visits	FY05 Visits	FY04 Visits
October	85	71	147	NA	205	172	455	NA
November	252	179	297	249	619	414	792	739
December	437	474	639	568	944	1189	1670	1494
Total	774	724	1083	817	1768	1775	2917	2233

Table 2: Summary of Goose Hunting and Trapping for FY2007, FY2006, FY2005, and FY 2004

	FY07 Visits	FY06 Visits	FY05 Visits	FY04 Visits
Goose Hunting	383	509	644	572
Trapping	60	57	92	80



Dan Broderick, a participant in the refuge's 16th annual Non-Ambulatory Hunt, shows the buck he harvested on opening day. There were two hunts, two days each November 15 - 18, 2006. Twenty to thirty volunteers assist with these hunts each year. Most volunteers take time off from work, give up their weekend, and forego their opening day gun hunts to help. Photo by MAV, 11/15/2006.

Volunteers

In FY2007, 120 volunteers donated 5,038 hours. A Volunteer and Friends Recognition Dinner was held June 27, 2007, at the Old Country Buffet in Saginaw. Twenty-four volunteers and Friends attended. Each volunteer received a briefcase-like bag. Steve Gasser was awarded the *2006 Volunteer of the Year Award*. Gasser began volunteering at the refuge in 2003. He leads refuge hikes, bird tours, helps with island bird surveys, serves as the Junior Duck Stamp photographer, and provides many of the photos that the refuge uses in its programs, brochures and website.

Two young men completed their Eagle Scout projects on the refuge. Christopher Bale of Troop 345 in Shields, MI, developed, directed and produced an orientation video to Green Point Environmental Learning Center. This video will be used to help prepare school groups for their visit. He completed this project in April, 2007. Jeff Wojewoda of Troop 312 in Saginaw, MI, rehabbed the refuge's Woodland Trail parking lot by reworking and planting native plants in the small island gardens and staining all parking lot posts, rails, kiosk, and entrance sign structures. He completed this project on June 19, 2007.

On September 29, 2007, Green Point got spruced up as a part of National Public Lands Day. Twelve volunteers donated 36 hours clearing brush and trees from 2.5 miles of trails, picking up litter, and landscaping a butterfly garden and decorative pond.



Refuge volunteer Tom Horb and a student from Valley Lutheran High School's Environmental Club work on trimming grapevines from bridge at Green Point during the National Public Lands Day. Photo by RSG, 09/29/07.

B. OUTREACH

The refuge and many partners sponsored the Kids' Free Fishing Day on June 9, 2007, for 237 children between the ages of three and fifteen, at Ojibway Island in Saginaw. The contest ran from 8:00 a.m. to 10:00 a.m., with registration beginning at 7:30 a.m. Sponsors included the City of Saginaw, Dow Chemical Michigan Division Fishing Club, Meijer Stores, The Saginaw News, Son's of Italy, 7-Eleven stores, McDonalds, and the Saginaw County Sheriff's Posse. Thirty-one volunteers donated 121 hours helping out on the day of the event.



Refuge volunteer Nancy Kleekamp and a volunteer from the Pioneer Club work one of the three registration tables for Kids' Free Fishing Day. Photo by RSG, 06/09/07.

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.

B. GENERAL ADMINISTRATION

The following is a list of employees who were members of the Shiawassee NWR staff in Fiscal Year 2007:

1. Dastyck, James J. - Wildlife Biologist, GS-11, EOD 11/04/90, PFT
2. De Vries, Edward P. - Wildlife Refuge Specialist, GS-12, EOD 02/09/92, PFT
3. Gillette, Mary Ann - Administrative Officer, GS-09, EOD 11/30/03, PFT
4. Goche, Rebecca S. - Park Ranger, GS-11, EOD 08/22/93, PFT
5. Kahl, Steven F. - Refuge Manager, GS-13, EOD 02/06/06, PFT
6. Nowosatko, Marion L. - Engineering Equipment Operator, WG-09, EOD 06/29/78, PFT
7. Peters, David J. - Tractor Operator, WG-07, EOD 02/01/98, PFT
8. Priday, Jonathan A. - Park Ranger (LE), GS-09, EOD 01/23/05, PFT, transferred to Blackwater NWR, Cambridge, MD, Effective 01/21/07
9. Vander Haar, Michelle A. - Fish and Wildlife Biologist, GS-11, EOD 06/29/03, PFT



2 3 1 9 6 4 7 5

FUNDING - FY 2007

While the refuge saw decreases in funding from FY-06 for Private Lands (1121), Staff Salaries (1261), and Law Enforcement (1264) funding, there were increases in Facilities Maintenance (1262) and Visitor Services (1263) funding. Most of the increase in funding for this year came from the allocation of \$ 922,000.00 in 1262 funding for paving of the Headquarters parking lot and rehabilitation of the Spaulding Drain bank slopes. The Spaulding Drain rehab design was initiated in FY-07, but the contract was not let until the early part of FY-08, hence actual construction wasn't started for this project in FY-07. That project will begin in spring, 2008.

1121.....	\$ 157,171.00
1261.....	303,556.00
1262.....	1,195,429.00
1263.....	163,351.00
1264.....	44,527.00
7201.....	36,522.00
9263.....	2,500.00
Total	\$ 1,903,056.00

FACILITIES AND EQUIPMENT

The refuge headquarters parking lot and driveway received asphalt surfacing this year at a contracted cost of \$85, 244.49. The work was contracted by Erth-Con Excavating, Inc., and the project began on September 11. The work included excavation of the aggregate subgrade to a 9-inch depth, a geotextile underlayment, topped with a 6-inch layer of asphalt with a 2% slope to the center of the lot. To the north of the lot a rain garden was excavated into which precipitation runoff will drain for filtration of surface contaminants and sediment settling. The asphalt work was completed on September 25, while the edge seeding and rain garden plantings were finished at the beginning of FY-08.



Headquarters parking lot prior to paving. Photo by EPD, 08/01/07.



Parking lot after paving. Photo by EPD, 04/21/08.



*Culvert replacement on the
Ferguson Bayou Nature Trail.
Photo by EPD, 08/23/07.*

Since early 2000, when Executive Order 13148, Greening the Government through Leadership in Management was signed, the Federal government has instituted an ambitious monitoring program to ensure compliance with all applicable environmental laws and regulations. This program examines a wide range of operational and administrative practices to ensure that all Federal and state regulations are being properly implemented. In addition to regulatory findings, audit teams evaluate practices to ensure that procedures and record-keeping practices are within "policy" guidelines set by other guidance such as executive orders, Departmental or Fish and Wildlife Service policies, or best management practices.

On August 29 and 30, a regional safety and environmental team consisting of Patrick McDermott, John Hoffman and Craig Nibbe visited the refuge for a scheduled Environmental Compliance inspection of the facilities. The audit considered eleven major environmental categories, including Federal, state, and local regulations, required practices, and management practices. The inspection team noted a handful of minor findings, which will be addressed at the facility and regional levels over the next several months to ensure the refuge meets all required standards.

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 islands 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 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. 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. 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.



Blue-winged teal nest on Scarecrow Island. Photo by EPD, 06/12/07.

Dwarf lake iris *Iris lacustris* (federal-threatened) as well as 180 other plant species are found on Thunder Bay Island. 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 islands in the Bay, including Scarecrow Island.

Numbers of cormorants at all breeding colonies on islands in Thunder Bay of Lake Huron, grew from an estimated 452 to 3,364 nesting pairs between 1989 and 2006. Including fledged young-of-year birds, the total number of cormorants in the Thunder Bay area during summer 2005 was estimated at approximately 11,982 birds (MIDNR, unpublished). Thunder Bay is recognized as one of the leading spawning and nursery areas of Lake Whitefish (*Coregonus clupeaformis* in Lake Huron. Cormorants have been implicated in declines in recruitment to the whitefish population since the early 1990s, and according to the Michigan DNR this is evidenced by sharply declining catches of young whitefish in bottom trawl catches. During the 1980s and early 1990s, Thunder Bay was once one of Lake Huron's most important put-grow-take brown trout (*Salmo trutta*) fisheries. Brown trout numbers and harvest declined sharply during the 1990s and the fishery collapsed after 1995. Concerns for Thunder Bay's recreational and commercial fisheries have spurred interest from the U.S. Department of Agriculture's (USDA) Wildlife Services in cormorant control and evaluations of the effects of cormorant management on the bay's fish populations. Two of the most common control techniques used is shooting adults and egg oiling. Of all the egg-addling techniques, spraying eggs with non-toxic mineral or vegetable oil has become the most widely used in recent years. Oiling eggs asphyxiates embryos by preventing gas exchange through the shell. The presumed advantage of oiling over other techniques is that birds incubating oiled eggs will continue to incubate past the normal estimated hatching date, which precludes renesting. Also, direct costs associated with egg-oiling programs are lower than those associated with shooting adults.

A specific area of concern for wildlife management agencies is the possibility of disturbance from cormorant management to co-nesting species. Considerable literature exists on effects of recreational activities and research activities on colonial waterbirds. However, little published research is available on possible effects of specific management techniques such as egg-oiling or lethal control of breeding cormorants on co-nesting species. In 2007 USDA Wildlife Services proposed to do a two year study to evaluate the effects of disturbance due to egg-oiling of cormorants on co-nesting bird species.

Egg oiling of cormorant nests on Scarecrow Island was to be initiated in spring 2007, coinciding with initiation of nesting by adult cormorants. Due to the sequential nature of cormorant egg-laying, this would entail egg-oiling of all cormorant nests containing eggs every other week from onset of egg-laying for 4-5 applications total (8-10 week period). During egg-oiling of cormorant nests the participants, start and end time, number of nests, eggs, eggs/per nest, and eggs predated or broken were to be recorded.



Solar-powered video monitoring equipment on Scarecrow Island. Photo by EPD, 06/12/07.

The USDA also planned to make observations of other colonial nesters such as gulls and terns, and a randomly selected sample of nests in each bird group were marked with stakes for visual reference. Each group was referenced geographically with a hand-held GPS unit. To minimize disturbance, observations were to be made with digital video recording equipment from concealed blinds. The recordings would begin once the study started and would coincide with periods of disturbance associated with cormorant egg oiling by the researchers. Videos were to be taken over a similar time period one day prior to and one day following egg oiling to determine "natural" pre- and post-disturbance levels in each nesting group. Disturbance to be documented included flushing from nests, aggressive interactions with co-nesting and other bird species, predation events on nests, and nest abandonment.

The USDA National Wildlife Research Center staff set up their equipment on Scarecrow Island in early May and placed marked stakes at a number of active nest sites. On

a May 14 visit, the researchers discovered approximately 100 of the herring gull nests had been marked with paint, and very few cormorants were using the colony. Evidently a FWS biologist from the E. Lansing Field Office had visited the island in the interim and marked the nests as part of a contaminant study.



Refuge staff count colonial nesting birds on Scarecrow Island. Photo by EPD, 06/12/08.

Each year the refuge conducts a colonial bird nesting count on the islands with a goal of tracking nesting trends for double-crested cormorants. A June 13 nesting census by refuge staff revealed 425 double-crested cormorant nests, 356 herring gull nests, 124 Caspian tern nests, 4 common tern nests, 2 ring-billed gull nests, and 2 black-crowned night heron nest. The cormorant nest numbers (425) are a huge drop from the 1,370 nests counted on June 14, 2006. Ring-billed gull numbers were also down from the 234 nests counted in 2006. Of special interest were the four common tern nests found along with a greater number of Caspian tern nests compared to 2006 when 80 nests were found.

Refuge staff also found a large number of spent shotgun shells deposited in several locations along the Scarecrow Island shoreline. USDA had removed off-shore cormorants with shotguns in 2006, but the shells found in 2007 appeared to have been left at shooting sites or blinds as opposed to washing up along the shoreline. It is unknown how many unauthorized visits were made to the island during the critical pre-nesting and egg-laying period, but based on the refuge nest census and our observations, USDA researchers consequently abandoned the study for 2007. This was due to what appeared to be repeated disturbances to the colony, to the point that nesting had been severely reduced and few cormorants were using the island.

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. 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 Township 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, most of Big Charity and all of Little Charity Island 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. Where an old, dilapidated U.S. Coast Guard lighthouse from the 1880's once stood on the southwest portion of the island, there is now a privately owned house. The house stands adjacent to the Big Charity light lower. The owner, Robert Wiltse, who once owned the entire island, ferries visitors out to the island for visits and lodging. A riprapped harbor of refuge was constructed by Wiltse 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. Ten small, narrow tracts on the island are in private ownership. Six belong to The Nature Conservancy (including the light tower) while four belong to private individuals. It is hoped that eventually the Nature Conservancy (TNC) tracts will be transferred to the FWS in the near future. If the FWS were to receive this land, it would include the point of land west of the light tower, but wouldn't include the light tower.



Big Charity Island and Light.
Archive Photo

Little Charity Island is an undeveloped 5.4-acre island approximately two miles from Big Charity. The island is wooded along a slight ridge through the middle of the island, while the remainder of the island is shrubby growth such as willows and forbs such as nettles. The shoreline is cobblestone, sand, and pavement. Colonial water birds such as cormorants, herons, and gulls nest throughout the island. A nesting survey of the island on June 18 found 1,345 double crested cormorant nests, 345 herring gull nests, 16 great egret nests, 27 great blue heron nests, and 2 black-crowned night heron nests. No ring-billed gull nests have been found since 2004, but that probably has more to do with timing, as the 2004 count was done May 11 of that year. Also of note is that no Caspian tern nests have been found on Little Charity since 1997, when 54 nests were found as part of the regional Great Lakes 10-year colonial bird nesting count.



Little Charity Island. Photo by SFK, 06/15/07.



Colonial birds nesting on Little Charity Island. Photo by SFK, 06/15/07.

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; to protect island cultural resources, provide education to the public, and acquire additional Lake Huron islands for further habitat and resource protection.



Photo by Jessica Nixon, 2007 Refuge Photo Contest, First Place Wildlife/Plantlife

CREDITS

Personnel responsible for narrative sections are as follows:

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- Edward P. De Vries (EPD): *Introduction, Highlights, Sections 5a, 5b, 6a-6f, 8, Wilderness and Special Areas, Credits, Appendix, Information Packet, editing, layout, narrative coordination, and compilation*
- Rebecca S. Goche (RSG): *Cover page, Table of Contents, Section 7, editing, final layout and production*
- Steven F. Kahl (SFK): *Section 6g*
- David J. Peters (DJP): *Section 1*
- Michelle A. Vander Haar (MAV): *Sections 2 and 5c*



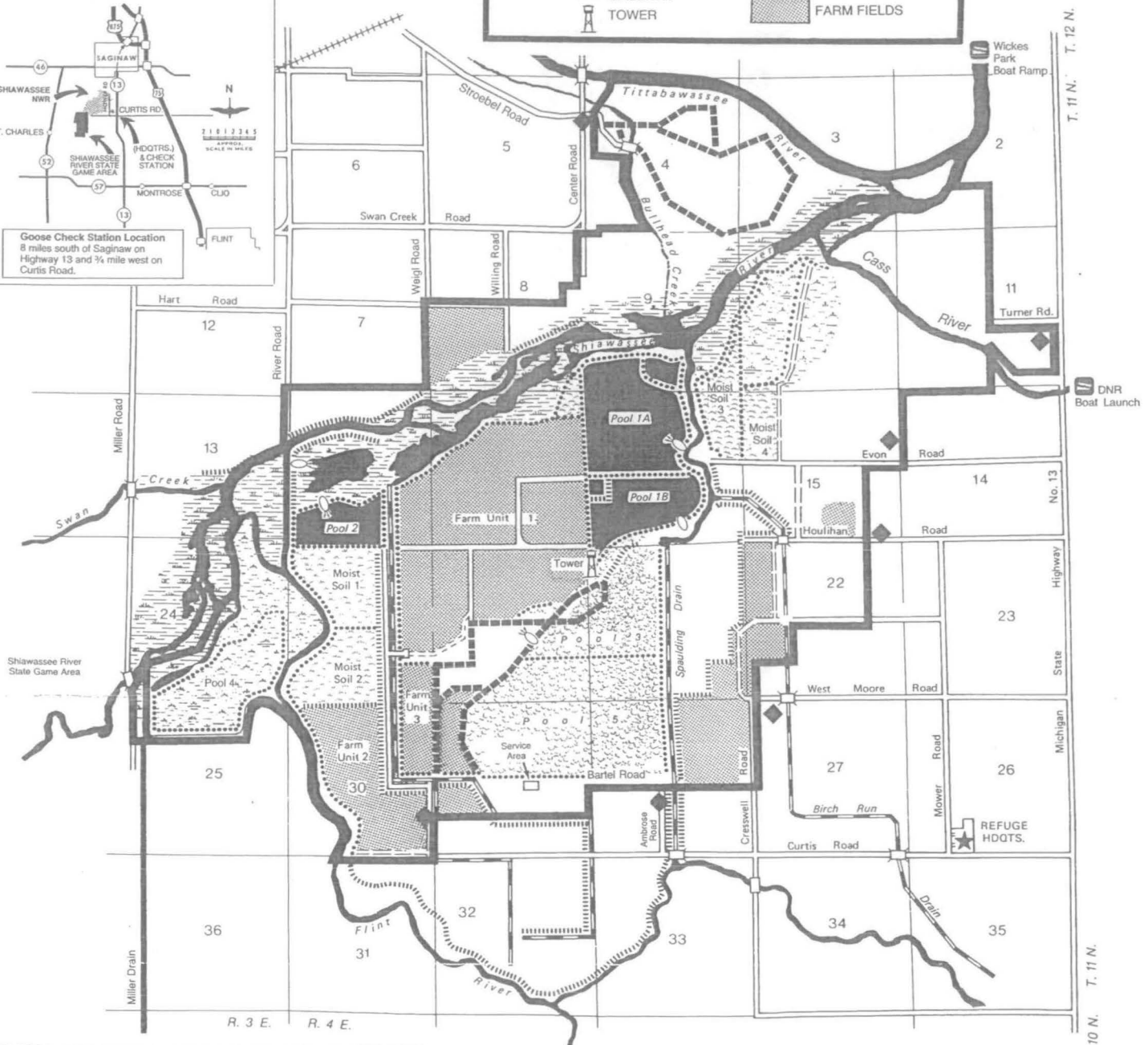
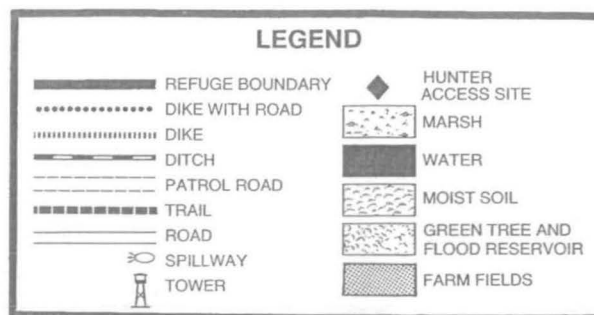
Grebe Pool in the twilight. Photo by EPD, 11/14/07.

Public Use is restricted to the nature trails.

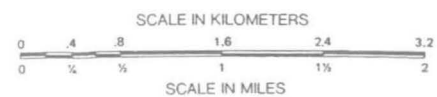
SHIAWASSEE NATIONAL WILDLIFE REFUGE

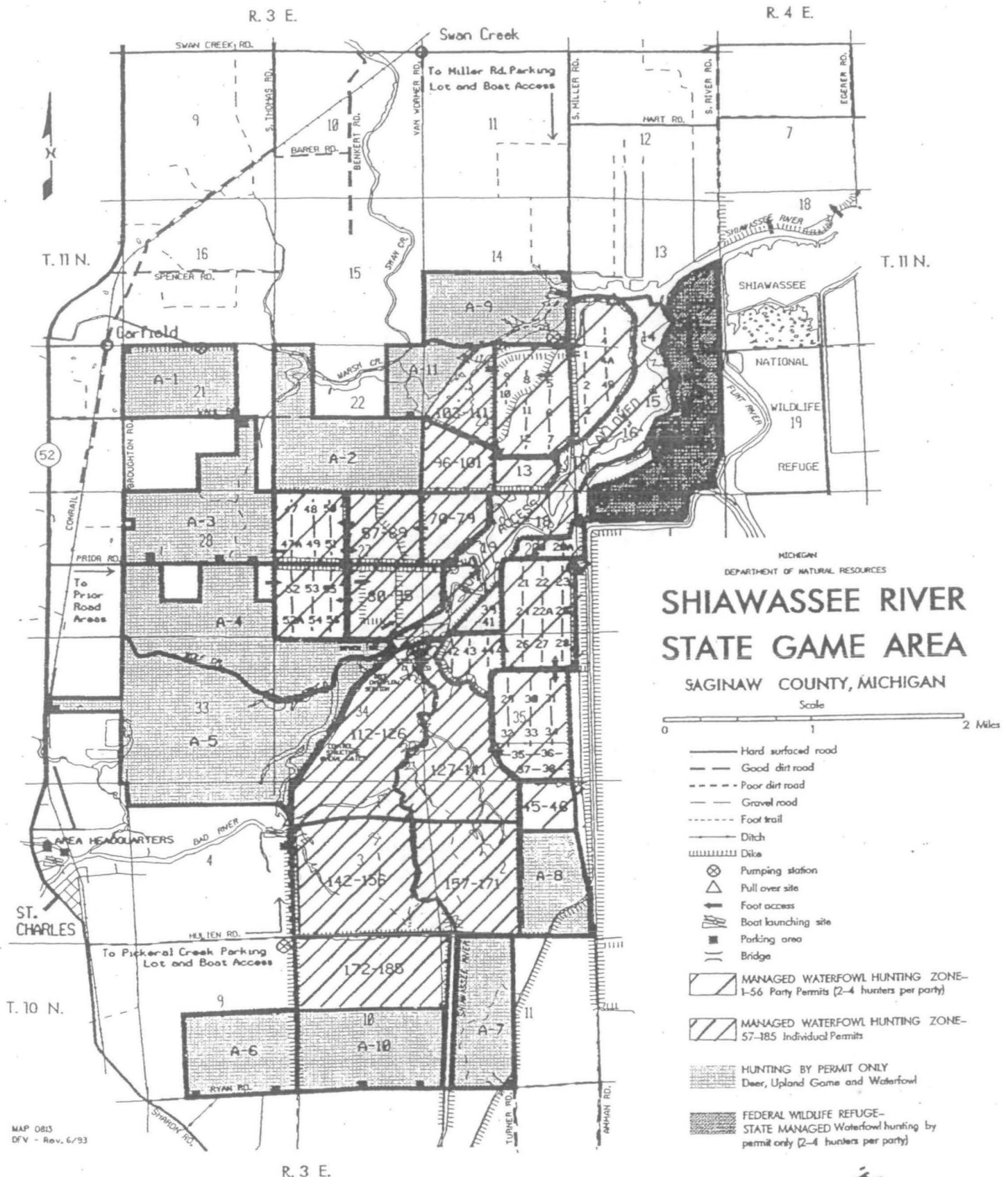
DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

Refuge Location



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





Hunter Monies Made This Area Possible **DNR**

SHIAWASSEE RIVER STATE GAME AREA SPECIAL USE AND HUNTING RULES

WATERFOWL HUNTING

1. Reservations by mail are required to hunt during the first weekend of goose season and the first weekend of the regular waterfowl season. Contact your local DNR office between August 15 and September 5 for information.
2. On all other dates the check station is open from 4:30 a.m. to 4:00 p.m. to check game and issue hunting permits. Drawings will be held each day at 5:00 a.m. and 11:00 a.m.
3. Parties of 2 to 4 hunters may choose all areas and individuals may choose areas 57-185. Parties of 2 may register one or two absentee members with those hunters' licenses.
4. Only hunters not participating in the drawing may join an individual or party after the drawing. Registered hunters that passed or forfeited their draw will be considered as having participated in the drawing.
5. Morning permits will be issued until 10:00 a.m. and afternoon permits will be issued until 4:00 p.m.
6. On any day that you have participated in a morning drawing and are issued a hunting permit, you may not participate in the afternoon drawing, but may be issued an unused permit.
7. Parties must hunt at their chosen post or strip, and leave only to retrieve downed game. Permit holders must return their permits to the designated location within two hours after their hunt. All game taken must be reported and/or presented for examination.
8. During the regular waterfowl season, each hunter is limited to 25 shells. During goose-only season, each hunter is limited to 15 shells. It is unlawful to possess or use shot shells loaded with any material other than steel shot; BBB is the largest shot size permitted.
9. Canada goose hunting is permitted during morning and afternoon hunts on weekends, but during weekdays is restricted to morning hours only.
10. A \$3 daily or \$10 seasonal managed waterfowl area permit is required to hunt waterfowl on the area.

DEER HUNTING

1. Deer hunting is by permit only. From October 1 to the end of waterfowl season, deer hunting is permitted only in areas A1-A11. The entire game area is open from the end of waterfowl season to January 1. For permit information, contact your local DNR office between August 15 and September 5.
2. A \$3 daily or \$10 seasonal permit is required to hunt deer on the area.
3. Permits must be returned during check station hours and within 24 hours of harvesting deer.

SMALL GAME HUNTING

Small game hunting is permitted in areas A1-A11 only during the waterfowl season. All hunting is by permit only. (Special permits will be issued for raccoon hunting during evening hours.) No small game hunting until the opening of waterfowl season. The area is closed to small game hunting November 15-30 and during the muzzleloader season.

TRAPPING

Trapping of furbearers is by permit only. Information may be obtained by contacting St. Charles Field Office, 225 East Spruce, St. Charles, Michigan 48655, (517-865-6211).

SPECIAL USE RULES

These activities are prohibited:

1. Hunting or shooting from any dike, road, or trail, safety zone, buffer zone or retriever zone.
2. Constructing a shooting pit or permanent blind. Portable blinds permitted, but must be removed at end of each hunt.
3. Using an amphibious or all-terrain vehicle or other motor-driven vehicle while in the game area. Outboard motors are permitted, but they must be operated at a safe, no-wake speed.
4. Parking outside of designated parking areas. (See map for parking lot locations.)
5. Trapping, except under written permit.
6. Camping during April 1 - December 31.
7. Taking cans or glass bottles into game area.

BE A SAFE HUNTER — A safe hunter obeys laws governing hunting and boating and is alert to any conditions hazardous to personal safety of the hunters and others.

7/26/94

EQUAL RIGHTS FOR NATURAL RESOURCE USERS

The Department of Natural Resources provides equal opportunities for employment and for access to Michigan's natural resources. Both State and federal laws prohibit discrimination on the basis of race, color, national origin, religion, disability, age, marital status or sex under the Civil Rights Acts of 1964 as amended, MI PA 453 and MI PA 220, Title V of the Rehabilitation Act of 1973 as Amended, and Americans with Disabilities Act. If you believe that you have been discriminated against in any program, activity, or facility, or if you desire additional information, please write the Office of Human Resources, U.S. Fish and Wildlife Service, Washington, D.C. 20240, or the Michigan Department of Civil Rights, State of Michigan, Plaza Building, 1200 6th Avenue, Detroit, MI 48226.

For information or assistance on this publication, contact Michigan Department of Natural Resources, Wildlife Division, P.O. Box 30028, Lansing, MI 48909.



Refuge Reporter

Volume 10, Issue 1

Winter 2006-2007

DRAW on Your Skills for the Junior Duck Stamp Program

By Becky Goche, Michigan Junior Duck Stamp Coordinator



This marks the fifteenth year of the Federal Junior Duck Stamp Program. Thousands of students nationwide participate in this program and art contest each

year. Last year 378 students in grades K through 12 participated in Michigan alone! Public schools, private schools and students from home schools were represented. Every year students, teachers and parents from across the country learn about wetland habitat and

waterfowl conservation through this program. As an added benefit, each year there is a national art contest where students, teachers and schools compete for scholarships and other prizes. All of the national winners first must win their individual state's competition.

The Junior Duck Stamp Program is based on the Federal Migratory Bird Hunting and Conservation Stamp, commonly known as the "Duck Stamp." Federal Duck Stamps are pictorial revenue stamps and although called "stamp," they are not valid for postage. Created in 1934 as the Federal migratory waterfowl hunting license and as a way to purchase and conserve our Nation's wet-

(Continued on page 2)

Inside this issue:

Junior Duck Stamp Program Continued	2
Nurturing Nature Series Continued	3
How Clean Is Your Bird Feeder?	3
The Refuge Year in Review	4
Friends of Shiawassee Annual Meeting	5

Special Points:

- Do you feed birds? Make sure that you clean your feeders with a mild bleach solution (rinse well!) and remove old seed hulls from below your feeders. This will help cut down on spreading disease among our feathered friends.
- Cross-country skiing is a wonderful way to view wildlife along refuge trails, provided there is enough snow. A special guided ski tour is being offered on January 27 at Green Point. See the calendar insert for more information.

Nurturing Nature Wednesday Series Returns for 2007

By Janet Martineau, Friends Board

The Friends of the Shiawassee National Refuge bring a familiar face back to kick off its **2007 Nurturing Nature Wednesday Series** at Green Point Environmental Learning Center, 3010 Maple Street in Saginaw. Kyle Bagnall, the manager of historical programs at Mid-

land's Chippewa Nature Center, will present "A Lake Superior Journey with Bela Hubbard" at 7:00 p.m. on Wednesday, January 10, 2007.

Bagnall's first in-character **Nurturing Nature** presentation covered the explorer's 1837 journey from Detroit to

(Continued on page 3)

Michigan's Federal Junior Duck Stamp Program Continued

lands, Federal Duck Stamps also serve as an entrance pass to national wildlife refuges that have an entrance fee. Since it started, the sales of Federal Duck Stamps have generated more than \$670 million, which has been used to help purchase or lease more than 5.2 million acres of waterfowl habitat in the U.S. These lands are managed by the refuges just like Shiawassee NWR. Proceeds from the Junior Duck Stamp support conservation education and provide awards and scholarships for the students, teachers and schools that participate in the program. You can purchase Federal Duck Stamps (\$15) and soon Junior Duck Stamps (\$5) at the refuge.

The Junior Duck Stamp Program uses art and science to teach students the value of wetlands. A curriculum guide is available online or from me for teachers to use. A new curriculum guide is now being developed which will include Federal Science benchmarks for each activity. This new guide should be available for the 2007-2008 school year. Using scientific and wildlife observation skills, the program helps students communicate visually what they have learned by creating an entry to the Junior Duck Stamp art contest. A prime location to help students visualize and artistically represent waterfowl in its habitat is the Shiawassee NWR! Jaye Boswell, a teacher in Sanibel, FL, stated, "As the Art Teacher, I loved being able to introduce the various aspects of the natural environment emphasizing the importance of saving wetlands, preserving natural vegetation, and maintaining safe habitats for our magnificent ducks, swans, and geese."

The Junior Duck Stamp art contest begins each spring when students submit their artwork to the refuge by March 15. Students at the state level are judged in four groups according to grade level: Group I: K-3, Group II: 4-6, Group III: 7-9, and Group IV: 10-12. Three first, second, and third place winners are selected for each group. In addition, 16 honorable mention winners are picked in each group. Judges select the "Best of Show" from the 12 first place winners, which is then submitted to the national Junior Duck Stamp Contest. The first place design from the national contest is used to create the Junior Duck Stamp for the following year.

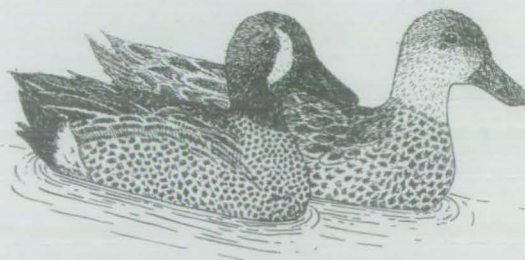
All entries will receive certificates of participation and winners will receive special ribbons and prizes. New this year, Bass Pro, a national sponsor will award \$100 to each State Best of Show winner! All artwork will be returned to the students or schools. The Best of Show entry is included in a national traveling display. In addition, the top winning artwork in Michigan will travel around the state for up to one year following the contest.

To learn more about the Jr. Duck Stamp Program, download curriculum or get the entry form and rules, visit the website: www.fws.gov/duckstamps and click on the Junior Duck Stamp link. I also can mail the 2007 informational brochure to you – either call me at (989) 759-1669 or email me at Becky_Goche@fws.gov.

Quick Requirements for Design and Submission*

*This list is not complete, please see official rules for more information.

- Artwork must be 9" x 12", in horizontal format.
- Images must be a live portrayal of a Native North American duck, swan or goose (42 species are eligible).
- Entries should not be matted nor have a border.
- Entry may be multi-color, black-and-white, or a single color; rendered in ink, paint, pastel, crayon, or pencil.
- No lettering, words, signatures or initials may appear on the front of the design.
- Design entries must be contestant's original, hand-drawn creation and may not be traced or copied from published photographs or other artists' works.
- Deadline for submission is March 15, 2007.



Nurturing Nature Series Continued

Saginaw and Midland. In 1840, Hubbard was among a party of scientists who surveyed Michigan's rugged and remote shoreline of Lake Superior. The report on their trip to the region set off the mineral rush to Copper Country.

At 7:00 p.m. on Wednesday, February 7, 2007, Michelle Vander Haar, Private Lands Biologist for the refuge will discuss wetland conservation and how landowners can restore wetlands and grasslands on their property.

We are still hammering out the rest of the *Nurturing Nature Wednesday Series* for 2007, but expect to meet some live bats; go on a short hike looking for amphibians and reptiles; learn about planting perennials, shrubs and trees that are native to Michigan, and brush up on wilderness survival skills.

Don't miss our December offering of poetry and cocoa!

How Clean Is Your Bird Feeder?

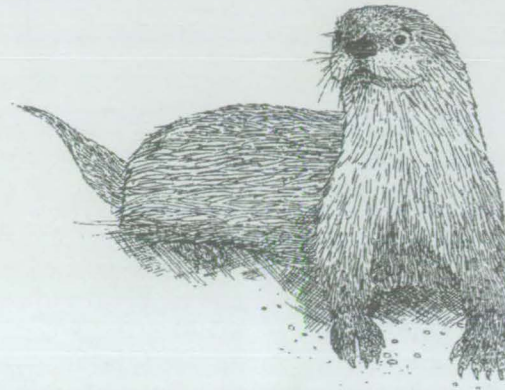
Is your bird feeder a breeding ground for disease? Salmonella bacterium could be lurking there, if you're not careful. Salmonella is responsible for numerous die-offs of song birds nationwide each year. The National Wildlife Health Center in Madison, WI offers three important recommendations regarding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

Members of the River Junction Poets and a nature photographer will present "Poems and Pictures from the Natural World" in 2006's final *Nurturing Nature* offering at 7:00 p.m. on Wednesday, December 6, at Green Point Environmental Learning Center. Free cocoa and cookies are a part of the evening's relaxing festivities.



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. 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 might be desirable to seek medical or veterinary care.

The Refuge Year in Review

By Steve Kahl, Refuge Manager

As 2006 draws to a close, the time for reflecting upon the prior year is upon us. All of us who value this wonderful refuge should celebrate the successes of the year. Importantly, we also need to remember the setbacks we suffered. By keeping both the positive and negative in proper perspective, we can enter 2007 in better position to maintain and improve the refuge for the benefit of wildlife and people.

The mission of the National Wildlife Refuge System is "Wildlife First." Thus, I am glad to report that this has been an especially good year for managing water levels in the refuge's 18 wetland impoundments. Staff diligence and cooperation from Mother Nature enabled us to keep water levels at targeted elevations for virtually the whole year. Consequently, these impoundments yielded optimum wetland habitat conditions for waterfowl, shorebirds, wading birds, and other wildlife. In fact, in spring migration we counted a new record high of 2,152 of our most common shorebird – the dunlin. In October we counted over 11,000 mallards in one impoundment alone – Pool 1A. Also, good habitat management helped our sandhill crane numbers to continue to increase and we reached a new high of 108 this fall. Other wildlife high points include a new record high count of 18 short-eared owls and several new species added to the refuge's lists of vascular plants, insects, amphibians, and mammals.

The refuge's public use program continued to grow in 2006. The refuge expanded its offerings of birding auto tours, nature walks and night hikes. The public response to the Eagles and Owls tours coordinated with the Saginaw Valley Audubon Society was particularly great. Overall, 28 special events, programs, tours, or hikes took place on the refuge this past year. The refuge documented over 9,000 visitors to our Cass River Boat Launch which was newly renovated in 2005. Further, we continue to receive accolades and appreciation from visitors, neighbors and community leaders for demonstrating quality stewardship of the site and providing a healthful recreational opportunity for the public. Total refuge visitation increased from 54,000 to 58,000.

The refuge began a partnership with the Saginaw Correctional Facility to develop a perpetual seed source of native plant species of local genotype and ecotype. The correctional facility currently has a gardening program that produces hundreds of flats of annual flowers that are planted at local municipal facilities. This partnership will expand the gardening program to provide seeds of native plants that will be used for prairie and wetland restorations at the refuge. Species currently being propagated include prairie cordgrass, New York ironweed, tall sunflower, and Indian hemp. This partnership is being facilitated by grants from Saginaw Bay

WIN and the U.S. Fish and Wildlife Service.

The refuge had several other important wins in 2006. With the help from a North American Wetlands Conservation Act grant, we seeded 138 acres to native prairie grasses and forbs on the Sawatski tract which is visible from M-13. With the help of volunteers and the Michigan DNR we were able to resume duck banding efforts this year after a one year hiatus. This banding was coupled with efforts to monitor refuge ducks for avian influenza, which thankfully was not found. The refuge continued its efforts to be a visible part of the community and appeared in 35 articles printed in Michigan newspapers and magazines in 2006. Our new Refuge Officer completed a full year of law enforcement duties with over 720 law enforcement incidents recorded in FY2006. Several illegal activities were stopped including poaching of garter snakes, deer baiting, commercial harvest of earthworms, low helicopter overflights, and marijuana cultivation.

Unfortunately, 2006 also had its share of losses. Over 1,300 feet of our Pool 5 dike was eroded to the road edge and even undercut in places by high water in the Spaulding Drain during April floods. This dike enables the refuge to manage water levels in 820 acres of forested wetland and provides important management access for refuge staff. Further, this dike is an important stretch of the auto tour route that is open to the public during our annual Open House event. Over 820 visitors used this route during the 2005 Open House. Unfortunately, the auto tour had to be cancelled in 2006 to preserve public safety. Moreover, future flood events may soon breach the dike entirely.

A more chronic problem for the refuge and the entire Refuge System is the continued erosion of our base budget. Refuge System budget increases have not kept pace with increasing costs since our 2003 Centennial. The primary means to bridge this budget gap is to leave positions vacant as employees retire or leave refuges for other jobs. This affect is being felt at the refuge as the biotech position remains unfilled. Although refuge staff and volunteers try to do more with less, it is virtually impossible to lose 40 hours of work per week without negative affects to the quality of refuge habitats, programs and facilities. Unfortunately, I do not think we have seen the worst yet. As overseas conflicts continue, the strain on the federal budget will also continue. Thus, I predict any future vacancies that may come up at the refuge may not be filled for a long time.

I look forward to a productive 2007. With the help of volunteers and our conservation partners we can continue to make the refuge a better place for wildlife and people.

Nurturing Nature Wednesday Series

- All programs begin at 7:00 p.m. and last 60 – 90 minutes.
- Held at the Green Point Environmental Learning Center, 3010 Maple Street, Saginaw, unless otherwise noted.
- Admission: \$2 for individuals or \$5 for a family. FREE for members of the Friends of the Shiawassee NWR.

Poems and Pictures from the Natural World December 6, 2006

Members of the River Junction Poets and a nature photographer will explore the natural world in words and imagery. Free cocoa and cookies.

A Lake Superior Journey with Bela Hubbard January 10, 2007

Kyle Bagnall, the manager of historical programs at Midland's Chippewa Nature Center, returns with the continuing saga of Bela Hubbard. In 1840, Hubbard was among a party of scientists who surveyed Michigan's rugged and remote shoreline of Lake Superior. Their report set off the mineral rush to Copper Country.

Add Some Wildlife Habitat to Your Home February 7, 2007

Michelle Vander Haar, Private Lands Biologist from the refuge, will discuss wetland conservation and how landowners can restore wetlands and grasslands on their property.

The Avifauna of Shiawassee NWR March 7, 2007

The refuge provides habitat for a great diversity and abundance of birds – 277 species have been documented here! Refuge Manager Steve Kahl will describe the refuge's birdlife and the habitat management programs that make it so attractive to our feathered friends.

Short-eared Owl Hike

**February 3, 2007, 5:00 p.m.
Ferguson Bayou Trail at Curtis Road**

See and hear the owl that sounds like a small barking dog! Refuge volunteer Steve Gasser will lead you on a sunset hike to see the endangered, short-eared owls that winter at the refuge. Dress for the weather, bring a flashlight, and be prepared to walk about 5 miles on snow/ice covered trails.

Calendar of Events

Winter Tree ID

January 13, 2007, 1:00 p.m.

Woodland Trail at Stroebel Road

Refuge Manager Steve Kahl will help you identify trees when all the leaves are gone. Dress for the weather and wear boots appropriate for walking in snow.

Wildlife Watching from Cross Country Skis

January 27, 2007, 10:00 a.m.

Green Point ELC

Strap on your skis and explore the wildlife found along Green Point's flat, winding trails with Park Ranger Becky Goche. You must provide your own equipment. Reservations are required because space is limited. Call (989) 759-1669 by January 25. If snow conditions are poor, this will become a walking tour.

Night Hike

March 2, 2007, 6:30 p.m.

Ferguson Bayou Trail

Refuge volunteer Steve Gasser will lead cold weather lovers on a 5-mile hike on refuge trails. This hike is not recommended for children or the faint of heart. Dress for the weather, bring a flashlight, and be prepared to walk on snow/ice covered trails.

Junior Duck Stamp Design Contest

**Deadline is March
15, 2007**

Contest is for students in grades K-12. See article inside for more information.

For more
information, contact
Green Point ELC at
(989) 759-1669.

FRIENDS OF SHIAWASSEE NWR

MEMBERSHIP PAGE

Friends of Shiawassee NWR Membership

☐ Renewal ☐ New membership

☐ General Membership

\$10 – Individual (1) vote.

\$25 – Family (2) votes. (Member, spouse and children under age 18)

- Each membership receives quarterly newsletter - "Refuge Reporter."
- Each membership includes voting rights and opportunity to hold office.

☐ Supporting Levels (includes 1 year individual membership): "Goose" \$50, "Blue Heron" \$75, "Owl" \$100, "Bald Eagle" \$125 & over

☐ No membership at this time, but please accept my contribution.

*Membership is for calendar year. Dues paid after October 1 include remainder of current year plus the following year.

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Phone: _____ E-mail: _____

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

Contributions to the Friends of Shiawassee NWR, a 501 (c) (3) non-profit organization, are tax deductible according to IRS guidelines.

Friends' Volunteer Opportunities

Do you have any of these skills?

- _____ Staffing Trailhead Store
- _____ Leading walking tours
- _____ Helping with workshops
- _____ Assisting with refuge auto tours
- _____ Doing outreach events, i.e. fairs
- _____ Assisting with First Wednesday
- _____ Writing newsletter articles
- _____ Writing/developing grants
- _____ Serving as Committee member
- _____ Leading children's activities
- _____ Developing trails

- _____ Computer skills
- _____ Photography
- _____ Carpentry skills
- _____ Business organizational skills
- _____ Research
- _____ Artistic skills
- _____ Fund raising
- _____ Grant writing
- _____ Researching/Ordering merchandise
- _____ Other – please list:

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. General meetings with special programs are held at various times throughout the year. Friends Board of Directors Officers are:

President – Charles Hoover

Vice President 1 – Dick Von Berg

Vice President 2 – Susan Scott

Treasurer – Wil Hufton II

Secretary – Vacant

Friends of Shiawassee Annual Meeting set for January 17

At 7:00 p.m. on Wednesday, January 17, 2007, the Friends of the Shiawassee NWR Board of Directors will conduct its annual meeting at Green Point Environmental Learning Center, 3010 Maple Street in Saginaw.

On the agenda are approval of new bylaws reducing the size of the board, the election or re-election of new or returning board members, and the election of the executive board of officers for 2007. All current Friends members are invited to attend

Hunting Expo Volunteers Needed

The Friends of Shiawassee NWR are sponsoring a booth at the "Hunting Expo" again this year. The Expo will be held at the Birch Run Expo Center on February 2—4, 2007. We will be promoting visitation to the refuge. We need help staffing the booth on Saturday and Sunday. Workers need to be able to cover at least a 5 hour shift. Both Friends members and refuge volunteers are welcome to help. If you would like to help, please contact Richard Hodge at 989-652-9019.

2006 Refuge Amateur Photo Contest Winners

Ten photos were entered into the contest by 6 people, which ran from September 1, 2005 to August 31, 2006. During the Refuge Open House Weekend on September 9, visitors voted for their favorite photos in each category.

Winners in the Wildlife and Plantlife Category were: First place – Kim LeBlanc, St. Charles; Second place – Mike Sonnenberg, Saginaw; and Third Place – Steve Gasser, Saginaw. Winners in the Habitat Category were: First place – Steve Gasser, Saginaw; Second place – David M. Blanford, Alma; and Third place – Kim LeBlanc, St. Charles. There were no entries in the People or Young Nature Photographer categories. David M. Blanford won the "Refuge Manager's Choice" with his entry entitled "A Hiding Place" featuring a well-camouflaged frog. Winning photos are posted on the refuge's website.

Be sure to renew your Friends membership. Use the form enclosed in this newsletter.

2006 Trail Closures for Deer Hunting

Ferguson Bayou Trail at Curtis Road

December 2—3, December 8—11, December 20—24, and December 27—31.

Woodland Trail at Stroebel Road

December 2—3 and December 8—11.

Cass River Unit in Bridgeport Township

December 20—24 and December 27—31.

Trails at Green Point remain open for your use! Keep in mind, no bicycles or pets are allowed on these trails.

REFUGE REPORTER

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Volume 10, Issue 1

Editor: Becky Goche

Shiawassee National Wildlife Refuge

Established in October, 1953 and administered by the U.S. Fish and Wildlife Service, Shiawassee NWR provides resting, nesting and feeding habitat for waterfowl and other birds. Its mission is to preserve or manage an undeveloped expanse of floodplain forest, marshes, rivers, and associated habitat within an agricultural and urban landscape through habitat management, encouraging public stewardship, educational programs, and private lands activities.

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Assistant Refuge Manager—Ed DeVries

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Biological Science Technician—Vacant

Park Ranger/Volunteer Coordinator—Becky Goche

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Maintenance Staff—Marion "Butch" Nowosatko and David Peters

Law Enforcement Officer—Jonathan Priday

Friends of Shiawassee National Wildlife Refuge

A nonprofit 501 (c)(3) organization established in 1999 to promote the preservation of the natural and historical resources of the Refuge, foster its use and enjoyment by the public consistent with the protection and preservation of its environment, and engage in such educational, scientific and civic activities as will assist the management of the Refuge in carrying out its mandates.

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

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.

We're on the web!

[Http://www.fws.gov/midwest/shiawassee](http://www.fws.gov/midwest/shiawassee)



Nurturing Nature Wednesday Series Kicks Off for 2007 with a Familiar Face

New Classroom Trunk Featuring Invasive Species Available in January

By Becky Goche, Park Ranger

You've asked for it, and soon you will have it! When I met with Saginaw School District Science Coordinators earlier this fall, they expressed interest in a program about invasive species. A new classroom trunk for students in grades 4 to 8 has been developed to help meet this need.

The *Experience the Great Lakes* trunk, donated by Michigan Sea Grant in Ann Arbor forms the backbone of this trunk. Included is Sea Grant's *Project FLOW—Fisheries Learning on the Web*. This curriculum covers Great Lakes food webs, aquatic invasive species, water, and fish. Specific benchmarks and standards that are explicitly covered by each lesson are documented for two age levels: elementary (4-6 grade) and middle (6-8 grade) and the state and national stan-

dards/benchmarks. Posters, DVD's, specimens, and additional information about non-aquatic invasive species are also included.

The *Experience the Great Lakes* trunk is free for teachers to use and may be borrowed for up to two weeks at a time. Your only cost is picking up and returning the trunk to Green Point. Call (989) 759-1669 to reserve the trunk.

This trunk joins a collection of others covering a variety of natural resources-related topics. Each trunk contains a variety of items to enhance your curriculum including books, videos, posters, puppets, skulls, and more. Visit our website or request a copy of our Educator's Guide for more information.

Refuge Reporter

Volume 10, Issue 2

Spring 2007

Shiawassee Refuge Faces Reduced Staff

By Steve Kahl, Refuge Manager

The U.S. Fish and Wildlife Service's Midwest Regional Office announced in January a plan to reduce staffing at the Region's national wildlife refuges by 71 positions, approximately 20 percent of its workforce over the next three years. The personnel reductions are the result of nationwide budget shortfalls in the National Wildlife Refuge System.

The National Wildlife Refuge System is the only network of federal lands in the world dedicated specifically to wildlife conservation. The Midwest Region National Wildlife Refuge System covers eight states and includes 54 national wildlife refuges, 12 wetland management districts and more than one mil-

lion acres of public land and water.

Since fiscal year 2004, the Midwest Regional Refuge System budget has remained relatively static. At the same time, personnel costs have increased annually. Operational costs, such as fuel, equipment and other expenses have also increased. To offset these rising costs, the Region has already left 35 positions vacant and will reduce staff by an additional 36 positions -- to reach the total of 71 positions -- over the next three years.

The losses will occur in each of the eight states in the Midwest Region. Minnesota will take the largest loss with a reduction of 27 full-time positions. Wisconsin will lose 10 positions, Illinois will lose

(Continued on page 2)

International Migratory Bird Day Activities Planned

By Becky Goche, Park Ranger

The refuge is hosting two events over two weekends in celebration of International Migratory Bird Day. To kick the celebration off, a guided bird tour will be held at the Ferguson Bayou Nature Trail on Saturday, May 12, beginning at 8:00 a.m. Refuge volunteer Steve Gas-

ser and Park Ranger Becky Goche will lead participants on a caravan-type tour, with planned stops along the way, to highlight some of the refuge's bird life. In the event of severe weather, this tour will be canceled.

On Saturday, May 19, Assistant Refuge

(Continued on page 2)

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Special Points:

- The snow and cold weather has been great for cross-country skiing. It's a wonderful way to view wildlife. Seven people attended the guided ski tour on January 27 at Green Point. The highlight was seeing two Carolina wrens.
- Junior Duck Stamp Contest judging will take place on March 30 at 9:00 a.m. at Green Point. Five judges will review hundreds of pieces of artwork submitted by students in grades K through 12 to pick 100 winners.

Shiawassee Refuge Faces Reduced Staff Continued

nine, Iowa will lose eight, Indiana and Missouri will each lose six, Michigan will lose four and Ohio will lose one position. Once these reductions are completed two refuges in Minnesota, Hamden Slough and Crane Meadows, will no longer have staff on-site.

"The Region has developed a plan to focus our current budget toward areas that produce the maximum habitat and visitor use benefits," said U.S. Fish and Wildlife Service Midwest Regional Director Robyn Thorson. "But make no mistake, some hard decisions will have to be made and some important work will not get done."

"The National Wildlife Refuge System has always operated with fewer staff and less funding than any other federal land management agency," said Regional Refuge System Chief Nita M. Fuller. "Now, faced with reducing our Refuge System field workforce by 20 percent, the National Wildlife Refuge System is forced to reduce wildlife and habitat management efforts, as well as services offered to the visiting public."

Fuller stressed that while staff will be reduced by 71 positions, there is no plan to involuntarily remove any Refuge employees in the Midwest Region. "Our employees, along with our Friends groups and volunteers, are, and have always been, our most valuable assets. We've been doing more with less for some time. Now, however, we've reached a breaking point where we can no longer do more with less."

Shiawassee Refuge will directly feel the affects of the workforce plan. The refuge's biological technician position has been vacant since April 2005. Consequently, the refuge has reduced, postponed, or eliminated many of its biological and public use programs. For example, the refuge reduced its goose hunt from 7 days per week during the hunting season to four. We implemented invasive species control on 50 percent fewer acres. Our forest inventory program that was initiated in 2004 ceased with over 80% of our lands left to be surveyed. And, the refuge will no longer be able to participate in the Youth Conservation Corps program.

Further, it is likely that at least one more position will be left vacant. Refuge Officer Jonathan Friday departed for Blackwater NWR in January. Jonathan

documented over 900 law enforcement incidents in 2006 including marijuana cultivation, a suicide attempt, a missing person, and a shooting. Certainly, it will be difficult to protect the wildlife resource and refuge visitors if this position is not filled. Moreover, the refuge could face still bleaker times. Three refuge staff are eligible for retirement and more are destined to move onward and upward in the Fish and Wildlife Service. This workforce plan is based on previous budgets and the current continuing resolution. If budgets are worse than predicted or costs rise greater than anticipated, it is likely more vacancies would go unfilled.

International Migratory Bird Day Cont.

Manager Ed DeVries will be leading guided horseback tours of the refuge from the Evon Road parking lot, beginning at 9:00 a.m.. Riders must furnish their own horses. Space is limited to 10 riders per group. Reservations MUST be made by calling Ed at (989) 777-5930, ext. 13. In the event of severe weather or poor road conditions, this tour will be canceled.

International Migratory Bird Day celebrates the incredible journeys of migratory birds between their breeding grounds in North America and their wintering grounds in Mexico, Central, and South America. The event, which officially takes place on the second Saturday in May each year, encourages bird conservation and increases awareness of birds through hikes, bird watching, information about birds and migration, public events, and a variety of other education programs.



Nurturing Nature Wednesday Series

- All programs begin at 7:00 p.m. and last 60 – 90 minutes.
- Held at the Green Point Environmental Learning Center, 3010 Maple Street, Saginaw, unless otherwise noted.
- Admission: \$2 for individuals. FREE for members of the Friends of the Shiawassee NWR.

The Avifauna of Shiawassee NWR

March 7, 2007

The refuge provides habitat for a great diversity and abundance of birds – 277 species have been documented here! Refuge Manager Steve Kahl will describe the refuge's birdlife and the habitat management programs that make it so attractive to our feathered friends.

Practical Wilderness Survival

April 4, 2007

Could you survive if you had to spend an unexpected night in the wilderness? Join Chippewa Nature Center's Dennis Pilaske as he provides an overview of basic wilderness survival skills necessary to enjoy the outdoors comfortably and safely. This indoor program covers shelter making, staying hydrated, basic navigation, tools for a survival kit, and the development and implementation of a survival plan.

Landscaping with Native Michigan Plants

May 9, 2007

Birds, butterflies, and other wildlife thrived with the plants of this region for thousands of years, so why change the menu on them? Chippewa Nature Center Senior Naturalist Janea Little discusses native plant options, the pros and cons of various species, where you can find them, and what to expect once you plant them.

Night Hike

March 2, 2007, 6:30 p.m.

Ferguson Bayou Trail at Curtis Road

Refuge volunteer Steve Gasser will lead cold weather lovers on a 5-mile hike on refuge trails. This hike is not recommended for children or the faint of heart. Dress for the weather, bring a flashlight, and be prepared to walk on snow/ice covered trails.

Calendar of Events

Guided Bird Tour

May 12, 2007, 8:00 a.m.

Ferguson Bayou Trail at Curtis Road

Celebrate International Migratory Bird Day with us! Refuge volunteer and Park Ranger Becky Goche will lead participants on a caravan tour with planned stops to highlight some of the refuge's bird life. In the event of severe weather or soft road conditions, this tour will be canceled.

Guided Horseback Tour of the Refuge

May 19, 2007, 9:00 a.m. and 10:00 a.m.

Evon Road Parking Lot

Celebrate International Migratory Bird Day from atop a horse. Assistant Manager Ed DeVries is once again taking riders on a guided tour through an area of the refuge that is normally closed to the public. Participants must furnish their own horses. Reservations are required by calling (989) 777-5930, ext. 13. Each tour is limited to 10 riders. In the event of severe weather or soft road conditions, this tour will be canceled.

Junior Duck Stamp Awards Ceremony

May 5, 2007, 2:00 p.m.

Green Point ELC

First through third place winners in the Michigan Federal Junior Duck Stamp Contest are honored at this invitation-only event.

For more information, contact Green Point ELC at (989) 759-1669.

FRIENDS OF SHIAWASSEE NWR MEMBERSHIP PAGE

Friends of Shiawassee NWR Membership

☐ Renewal ☐ New membership

☐ General Membership

\$10 – Individual (1) vote.

\$25 – Family (2) votes. (Member, spouse and children under age 18)

- Each membership receives quarterly newsletter - "Refuge Reporter."
- Each membership includes voting rights and opportunity to hold office.

☐ Supporting Levels (includes 1 year individual membership): "Goose" \$50, "Blue Heron" \$75, "Owl" \$100, "Bald Eagle" \$125 & over

☐ No membership at this time, but please accept my contribution.

*Membership is for calendar year. Dues paid after October 1 include remainder of current year plus the following year.

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Phone: _____ E-mail: _____

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

Contributions to the Friends of Shiawassee NWR, a 501 (c) (3) non-profit organization, are tax deductible according to IRS guidelines.

Friends' Volunteer Opportunities

Do you have any of these skills?

- _____ Staffing Trailhead Store
- _____ Leading walking tours
- _____ Helping with workshops
- _____ Assisting with refuge auto tours
- _____ Doing outreach events, i.e. fairs
- _____ Assisting with First Wednesday
- _____ Writing newsletter articles
- _____ Writing/developing grants
- _____ Serving as Committee member
- _____ Leading children's activities
- _____ Developing trails

- _____ Computer skills
- _____ Photography
- _____ Carpentry skills
- _____ Business organizational skills
- _____ Research
- _____ Artistic skills
- _____ Fund raising
- _____ Grant writing
- _____ Researching/Ordering merchandise
- _____ Other – please list:

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. General meetings with special programs are held at various times throughout the year. Friends Board of Directors Officers are:

President – Charles Hoover Vice President – Susan Scott
Secretary – Janet Martineau Treasurer – Wil Hufton II

The Arctic Refuge

By Wil Hufton, III, Johnny Panther Quest Tours

If you have ever been out on the refuge or state game area this time of year, you know what I am talking about. Walking, cross country skiing, or boating, the Shiawassee Flats can be brutal during winter. We have broken ice for what seemed like miles with twenty below wind chills, winds gusting to thirty. The only wind breaks are dikes and forests. Some places the ice can be over a foot thick, others only inches or open water. There are many different tributaries and depths that can make winter going very deceptive. For those unlucky enough to be caught on thin ice, or while trespassing to avoid it, the consequences can be costly.

With proper planning and equipment, the "flats" can be an incredible experience. The feeling of solitude, the natural encounters and stark beauty are very rewarding. Venturing out this time of year is awesome! There aren't many people who want to put on a snowmobile suit to go out in a boat, but those who do never forget the experience. Now the rivers are impassable by boat, but skiing or hiking are viable alternatives. Practice your skills, get some exercise, maybe shoot some priceless photos, or as my grandpa used to say; "blink a lot to preserve the panorama in your mind". We call it "Johnny Panthering", no matter what you call it, get out there and enjoy it!

Friends Hold Annual Meeting

The Friends of Shiawassee held their annual meeting on January 17. The group approved a modification of its bylaws, mainly downsizing the board to six members. New officers are President—Chuck Hoover, Vice President—Susan Scott, Secretary—Janet Martineau, and Treasurer—Wil Hufton, II. Dick Von Berg and Ed Becker are the two at-large members.

In other regular business, the Friends will continue to sponsor the Nurturing Nature Wednesday Series, continue to print the refuge quarterly newsletter, sponsor Junior Duck stamp judging lunch and awards ceremony refreshments, and complete their traveling bookstore project. Be sure to renew your membership to keep these projects going! Use the enclosed form.

Attention Refuge Volunteers

Be sure to keep track of your hours and submit your volunteer time logs to Volunteer Coordinator Becky Goche. If you do not have a time log, contact Becky at (989) 759-1669. Tracking volunteer hours is important to the refuge because it can mean more dollars in our budget.

Plans are being made for this year's annual volunteer dinner which is tentatively scheduled for May 17. We are hoping to find a new venue to host this event in an effort to cut down on food waste. Watch your mail for your official invitation!

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We're on the web!

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International Migratory Bird Day Events Planned for May 12 and 19



Federal Junior Duck Stamp Art Contest Deadline is March 15, 2007

By Becky Goche, Junior Duck Stamp Coordinator

The Junior Duck Stamp art contest deadline is fast approaching, but there is still time to enter. All artwork must be postmarked by March 15. Students at the state level are judged in four groups according to grade level: Group I: K-3, Group II: 4-6, Group III: 7-9, and Group IV: 10-12. Three first, second, and third place winners are selected for each group. In addition, 16 honorable mention winners are picked in each group. Judges select the "Best of Show" from the 12 first place winners, which is then submitted to the national Junior Duck Stamp Contest. The first place design from the national contest is used to create the Junior Duck Stamp for the following year.

this year, Bass Pro, a national sponsor will award \$100 to each State Best of Show winner! All artwork will be returned to the students or schools. The Best of Show entry is included in a national traveling display. In addition, the top winning artwork in Michigan will travel around the state for up to one year following the contest.

To learn more about the Jr. Duck Stamp Program, download curriculum or get the entry form and rules, visit the website: www.fws.gov/duckstamps and click on the Junior Duck Stamp link. I also can mail the 2007 informational brochure to you – either call me at (989) 759-1669 or email me at Becky_Goche@fws.gov.

All entries will receive certificates of participation and winners will receive special ribbons and prizes. New

Refuge Reporter

Volume 10, Issue 3

Summer 2007

2007 Junior Duck Stamp Contest Winners

By Becky Goche, State JDS Coordinator



Samuel Dantuma has done it again! For the second year in a row, Dantuma was awarded Michigan's Best of Show in the Junior Duck Stamp contest held on March 30, 2007, at the Green Point Environmental Learning Center in Saginaw. His piece seen above, "Wood Duck in the Early Morning," was done in acrylic. Dantuma is the son of Daniel and

Jennifer Dantuma of Standish. He is a senior at Standish-Sterling Central High School. Dantuma has been drawing since about age 7 and won his first national art competition sponsored by the Winter Olympic Committee when he was in the seventh grade. Dantuma's artwork goes against the rest of the country's Best of Shows in the national competition in Washington, D.C. on April 20. Last year, Dantuma's piece placed in the top ten in the national contest. The first place national winner's artwork will be made into the Federal Junior Duck Stamp for 2007-2008.

Four hundred and eighty-eight students in grades K-12 entered this year's contest. Entries came from all parts of the state and included students from public schools, private schools, and home schools. Russ Terry, regional biologist for Ducks Unlimited, and one of the five judges who selected winning artwork said, "Ducks Unlimited is proud to

(Continued on page 2)

Kids' Free Fishing Day on June 9 in Need of Volunteers

By Becky Goche, Park Ranger

Kids' Free Fishing Day is Saturday, January 9 at Ojibway Island in Saginaw. The contest for children ages 3 to 15 years runs from 8:00 a.m. to 10:00 a.m. Registration begins at 7:30 a.m.

who can help beginning with set-up at 6:30 a.m. through the end of the awards ceremony which usually ends around 11:30 a.m. Different jobs include registering children, releasing fish, and helping distribute prizes. If you're interested please email me at Becky_Goche@fws.gov or call (989) 759-1669.

We need several kid-friendly volunteers

Inside this issue:

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Special Points:

- Now is a perfect time to see all the new, young life on the refuge. Be sure you are prepared for mosquitoes.
- 2007 refuge deer hunt information will be available on our website by mid-June. Application deadline is August 1. Applications can be either mailed in or done online.

2007 Junior Duck Stamp Winners Continued

be a partner in this year's Junior Duck Stamp Contest. It is so important to foster an appreciation for habitat conservation in our youth, and the Junior Duck Stamp Program is a great way to do it. Plus, the proceeds from the sale of the stamp support conservation education."

Other judges were Dean Adkins of Ella Sharp Museum in Jackson, Faye McNew of Michigan DNR in Lansing, Lucetia Manwaring of Congressman Dale Kildee's Office in Saginaw, and Rod Lawrence of Kalkaska.

Twenty-five winners were selected in each of the four age groups; first, second, third and honorable mention (HM).
Group I (Grades K-3) winners: Cassie Young, Birch Run – 1st, Levi Madar, Flint – 1st, Claire Miller, Saginaw – 1st, Kate-lyn Kruse, Birch Run – 2nd, Reaann Cabello, Birch Run – 2nd, Miranda Becker, Birch Run – 2nd, Rachel Huff, Sturgis – 3rd, Delaney Storm, Frankenmuth – 3rd, Gracie Freeman, Frankenmuth – 3rd, Anthony Rice, Sturgis – HM, Cole Krueger, Vassar – HM, Breana Jerry, Birch Run – HM, Damien Hochstetler, Constantine – HM, Jared Mose, Frankenmuth – HM, Paige LaBrenz, Frankenmuth – HM, Aaron Hauben-stricker, Frankenmuth – HM, Brandon Lilac, Bridgeport – HM, Keyon Allen, Detroit – HM, Jacob Rummel, Frankenmuth – HM, Jaren Snellenberger, Vassar – HM, Abigail Stewart, Birch Run – HM, Ariel Weigandt, Burt – HM, Jakob Fox, Birch Run – HM, Shane Stockmeyer, Saginaw – HM, and Holly Bill, Birch Run – HM.

Group II (Grades 4-6) winners: Theodore Li, Ann Arbor – 1st, Christopher Naum, Ada – 1st, Rachael Laage, Ada – 1st, Rachel Wallace, Ada – 2nd, Allison Schieber, Grand Rapids – 2nd, Clara Cullen, Ada – 2nd, Shannon Bardwell, Caro – 3rd, Artemis Eyster, Chelsea – 3rd, Brooke Madar, Flint – 3rd, Brandon Yoder, Centreville – HM, Matthew Meyerhuber, Saginaw – HM, Remington Turchetti, Grand Rapids – HM, Brian Ferro, Ada – HM, Connor Sullivan, Grand Rapids – HM, Rebecca Prouty, Ada – HM, Julia Sabin, Grand Rapids – HM, Jacob Purman, Frankenmuth – HM, Erik Johnson, Manistee – HM, Geena Martin, Grand Rapids – HM, Ian Olive, Ada – HM, Johnny Stasiak, Ada – HM, Jessica Challa, Grand Rapids – HM, Natasha Van Gessel, Grand Rapids – HM, Jessica Van Dyke, Grand Rapids – HM, and Abby Van Slooten, Grand Rapids – HM.

Group III (Grades 7-9) winners: Harold Eyster, Chelsea – 1st, Kendra Classen, Bronson – 1st, Anthony Frison, Gibraltar – 1st, Sarah Rudd, Birch Run – 2nd, Amber Goulet, Rockwood – 2nd, Heidi Schwartz, Sturgis – 2nd, Lorraine Maxwell, Howe – 3rd, Heidi Cornett, Colon – 3rd, Linda Kool, Sturgis – 3rd, Raquan Henix, Saginaw – HM, Joshua Crandall, Saginaw – HM, Adam Miller, Sturgis – HM, Carleigh Brush, Bridgeport – HM, Mark Bullard, Bridgeport – HM, Kayla Brayman, Saginaw – HM, Clifford Jamerson, Bridgeport – HM, Caitlyn

Moore, Saginaw – HM, Steven Wilson, Saginaw – HM, Alejandro Carranza, Bridgeport – HM, Matthew Carstens, Bridgeport – HM, Sherese Miller, Sturgis – HM, Esther King, Sturgis – HM, and Chelsea Billmeier, Saginaw – HM.

Group IV (Grades 10-12) winners: Samuel Dantuma, Stan-dish – 1st, Caitlin Machcinski, Woodhaven – 1st, Steven Drenth, Decatur – 1st, Heather Kilgore, Brownstown – 2nd, Joanna Brettschnieder, Rockwood – 2nd, Jacob Fuchs, Ida – 2nd, Yi Li, Ann Arbor – 3rd, Amanda Mikolowski, Imlay City – 3rd, Katherine Lou, Plymouth – 3rd, Erin Hammill, Manitou Beach – HM, Daniel Howarth, Rockwood – HM, Ellen Vines, Rockwood – HM, Rebecca Emanuelsen, Rockwood – HM, Chelsea Bilk, Gibraltar – HM, Stephanie Spinner, Branch – HM, Brandon McVicker, Fountain – HM, Brittney Hutton, Dryden – HM, Robby Hunter, Livonia – HM, Jaime Myers, Newport – HM, Thomas Gartner, Midland – HM, Sabrina Wheeler, Midland – HM, Olga Bogert, Lapeer – HM, Alex Castillo, Lapeer – HM, Julia Purosky, Haslett – HM, and David Barrett, Custer – HM.

An awards ceremony was held on May 5 at Green Point to honor all first through third place winners and the State's Best of Show winner. In addition five teachers were honored for their efforts in getting students to participate in the contest. These teachers were Steve Buchinger of St. Lorenz Lutheran School in Frankenmuth, Cathy Lesinski of Bridgeport Middle School in Bridgeport, Lisa Rodammer of North Elementary in Birch Run, Anne Keller of Goodwillie Environmental School in Ada, and Jeffrey Frank of Carlson High School in Gibraltar.

The Federal Junior Duck Stamp Program is sponsored by the U.S. Fish and Wildlife Service. In Michigan, the program is coordinated by the refuge. This year's program partners were the Friends of Shiawassee National Wildlife Refuge, Ducks Unlimited, Congressman Dale Kildee's Saginaw Office, Michigan Department of Natural Resources Wildlife Division, Point Mouillee Waterfowl Festival, U.S. Postal Service, U.S. Fish and Wildlife Service Migratory Bird Office, and U.S. Fish and Wildlife Service Challenge Cost Share. Volunteers and staff that helped with this year's contest and all that goes with it were: Joy Clark, Donna Bull, Janet Martineau, Susan Scott, Steve Gasser, Tom Horb, Michelle Vander Haar, Steve Kahl, and Jim Dastyck.

All first through third place winning artwork will be displayed at Green Point through June. In the fall, all original, winning artwork will be displayed at the Ella Sharp Museum in Jackson. A smaller traveling display featuring copies of first through third place winners will be available for various programs and agencies to display. You can also see this artwork on the refuge's website.

Nurturing Nature Wednesday Series

- All programs begin at 7:00 p.m. and last 60 – 90 minutes.
- Held at the Green Point Environmental Learning Center, 3010 Maple Street, Saginaw, unless otherwise noted.
- Admission: \$2 for individuals. FREE for members of the Friends of the Shiawassee NWR.

Reptiles and Amphibians of Shiawassee NWR

June 6, 2007

The refuge isn't just about birds; nine species of reptiles and 10 species of amphibians find habitat here, too. Refuge Manager Steve Kahl will show live specimens, talk about them, and then lead a short walk to identify calling frogs.

Environmentally Sound Gardening

July 11, 2007

Sally Shepardson, an advanced master gardener and a biology instructor at Saginaw Valley State University, offers tips on how to effectively meet the challenges of gardening (from lawn mowers to insects to squirrels) without harming the ecosystem..

Nature Photography on Shiawassee NWR

August 1, 2007

Award-winning nature photographer Kim LeBlanc of St. Charles has a portfolio full of images taken on the refuge. Learn a few tips from him about subjects and equipment, followed by images he has taken.

Summer Refuge Hike 1

July 8, 2007, 9:00 a.m.

Woodland Trail at Center and Stroebe Roads

Refuge volunteer Steve Gasser will lead you on a hike through the refuge's most popular trail system. The rustic trails, surrounded by trees provide many opportunities to see and hear a variety of songbirds that make their home here.

Calendar of Events

Kids' Free Fishing Day

June 9, 2007, 8:00 a.m. to 10:00 a.m.

Ojibway Island in Saginaw

Children ages 3 to 15 years can compete in this free fishing contest for a chance to win bicycles and other prizes. Registration begins at 7:30 a.m. Bring your own equipment and bait. Refreshments will be available. See flyer inside for more details.

Summer Discovery Camp for Preschoolers

June 13—Forest Friends, 10:00 a.m. to 12:00 p.m.

July 11—Water Wonders, 10:00 a.m. to 12:00 p.m.

August 8—Amazing Insects, 10:00 a.m. to 12:00 p.m.

Green Point ELC

Join us for a free camp for children ages 3 to 5 years and their parents. Please pre-register by calling Green Point at (989) 759-1669. See newsletter for more information.

Summer Refuge Hike 2

August 11, 2007, 7:00 p.m.

Ferguson Bayou Trail at Curtis Road

Join refuge volunteer Steve Gasser for a 5 mile hike along these gravel-surfaced trails. In the evening, you will have a better chance of seeing wildlife.

For more
information, contact
Green Point ELC at
(989) 759-1669.

Random Refuge Ramblings

by Ed De Vries, Assistant Refuge Manager

We had a good public turnout at the annual deer management meeting in March. There is always a lot of interest in the refuge deer herd, but that doesn't always translate to well-attended meetings. This year we had a few more people than usual in attendance, and it was good to see they made the effort to show up. As far as refuge deer hunting, there will be some minor changes this year. Even though 60% of the deer taken in 2006 and in the past few years have been does, the male to female ratio is still unbalanced in the refuge deer population. In other words, we're still seeing too many female deer, despite the number of does which are removed each year. Instead of the 1:1.2 buck to doe ratio we had 5 years ago, we're seeing more like a 1:2 ratio. There are a number of reasons why this is happening, including the fact that perhaps not enough does are being taken off neighboring private land. We can't control that. Consequently, we will do a few different things in 2007 based on what we can control and based on the hunter comments we received in 2006. For instance, hunters complained about encountering too many other hunters during their hunts. So we will be allocating 80 hunter permits for the early November archery either sex hunt as opposed to the 110 permits allowed in 2006. The other archery hunts will have 100 permits as in the past. To reduce the number of bucks taken, the either sex shotgun hunt has been eliminated for 2007. To help reduce hunter conflicts, there will be no more "deer driving" allowed on agricultural land or anywhere, period. Hunt partners will have to remain within sight of each other. We won't allow partners to wander all over the refuge. The last two changes were mostly based on hunter feedback and complaints of disturbance by "deer drivers" and wandering, weaponless "partners". Our goal continues to be to maintain refuge deer numbers at a level that the habitat can sustain while providing safe, quality hunts. Above all, the primary refuge mission is that of providing food, sanctuary, and nesting habitat for migratory birds. Maintaining a balanced deer herd is one of the primary means to achieve that mission. Application information for the deer hunts should be available in June.

Some days you come to work and you have no idea where the day will take you. On April 9 a refuge visitor reported an injured eagle, or at any rate what he described as "a large bird" flopping around near the Ferguson Bayou Nature Trail. After getting an exact sighting location from the visitor, I called Butch and

David down at our shop/maintenance facility and they promptly went out and captured the bird after a bit of a chase. Turns out it really was an eagle. In fact, it was a young golden eagle with a severely damaged right wing. Golden eagles are considered rare on the Shawassee NWR, but usually we see one or two a year, mostly during the winter.

While Butch and David were retrieving the eagle, I was making phone calls to the US FWS Law Enforcement offices in Ann Arbor and in Bay City to report the incident; and also to line up a rehabilitation facility. Special Agent Dan Sheill recommended that I take the bird to Howell Conference & Nature Center, which is a raptor rehabilitation center and also an environmental education facility. Within minutes of receiving the eagle from Butch and David, I was on the road to Howell. An hour and 15 minutes later I was at the Center and the bird was examined. The folks at the Center told me the eagle had been injured for at least a week, and had lost weight. Unfortunately, the eagle's wing was too badly damaged to be repaired, and an amputation would have taken the wing off too high on the body. It's FWS policy to euthanize eagles when injuries are above the "wrist" of the wing due to the unbalanced condition a total wing removal creates for the bird, so unfortunately, the golden eagle was euthanized, and its feathers will be shipped to the National Eagle Repository in Pocatello, Idaho. The Repository is a federal clearing house where eagle feathers are stored for distribution to Native Americans for ceremonial purposes. Prior to shipment, the eagle was also going to be x-rayed for the presence of gun shot, but it's very likely this bird had collided with a power line. Golden eagles are hunters as opposed to the bald eagle which primarily scavenges or takes fish. Possibly this bird was diving after prey when it collided with a power line. We'll never know for sure what happened, but there is some solace in knowing that the life of the eagle will be celebrated in some fashion.

The fire folks on the staff completed their pack tests and fire refresher on April 16. This is something we do annually to fulfill the fitness requirement for prescription burning and wildfire fighting. The pack test involves walking three miles at the Saginaw Valley State University track with a 45 pound pack on your back. In order to pass you must walk the three miles in 45 minutes or less. You can't run it, so it's a fast shuffle 12 times around the track. Anyway, we all passed and on April 29 we completed prescription burning on two

Shiawassee Refuge Contributes to Assessment of Dioxin Impacts and Distribution

by Steve Kahl, Refuge Manager

Dioxin contamination of the Tittabawassee and Saginaw Rivers is an issue that illustrates the interrelationship between people, wildlife, and the environment. Chlorine extraction processes at Dow Chemical Company's Midland, Michigan, plant yielded release of polychlorinated dibenzo-p-dioxin and dibenzofuran into the Tittabawassee during the 1910s. Approximately 20 miles downstream from this plant, the Tittabawassee traverses the northeast corner of Shiawassee Refuge. Although the river's floodplain comprises a small percentage of the refuge's acreage, two of its most important public use sites are located here, including the Green Point Environmental Learning Center and its 2.5 miles of trail and the 4.5-mile Woodland Trail. Consequently, the refuge has posted signs generated by the Michigan Department of Community Health (MDCH) advising visitors of the risks of consuming fish and wild game and exposure to soil and sediments. Ironically, these toxins were not discovered in the local environment until 2001 when unrelated soil testing was completed adjacent to the refuge.

Shiawassee Refuge is taking an active part in this evaluation process. Twelve separate studies are being completed on the refuge involving eight separate organizations. Further, these studies require access to the refuge by at least 50 individual researchers and technicians. The refuge is providing a wealth of guidance and technical expertise to help researchers sample at the best locations and times. Moreover, all of these studies require extensive coordination to ensure that activities are compatible with the refuge's myriad habitat management, biological, public use, law enforcement, and maintenance programs and facilities. These efforts are worthwhile because it will shed light on the impacts of dioxin and furans to refuge lands, water, and wildlife and contribute to a better understanding of the interrelationship of these elements throughout the floodplain.

Summer Refuge Hikes

By Becky Goche, Park Ranger

Refuge Volunteer Steve Gasser will be leading two guided hikes this summer on the refuge. It's a great opportunity to get some fresh air and exercise while enjoying the sights and sounds of the refuge. Make sure that you bring your binoculars and water, wear comfortable hiking shoes, and are prepared for mosquitoes. No registration is needed, just show up and be ready to hike about 5 miles.

Sunday, July 8—Woodland Trail Hike at 9:00 a.m.

Meet at the Woodland Trail parking lot which is located on the east side of Center Road at the Stroebel Road intersection. The trails here are more rustic than on the rest of the refuge, but a variety of songbirds can be found in the abundant trees.

Saturday, August 11—Ferguson Bayou Trail Hike at 7:00 p.m.

Meet at the Ferguson Bayou Trail parking lot which is located at the west end of Curtis Road, south of Saginaw off of Highway M-13. In the evenings, you will have a better chance of seeing deer and other wildlife. Trails surfaces are wide and covered with gravel.

Michigan Department of Environmental Quality (MDEQ) and Dow Chemical have developed a Framework for an Agreement to resolve this issue. Part of this process is to assess the impacts and reach of these contaminants upon natural resources and the public via several studies, many of which are using Shiawassee Refuge as a sampling location. Michigan State University's Aquatic Toxicology Laboratory has been evaluating exposure levels and effects of dioxins and furans upon several wildlife species including wood duck, hooded merganser, great blue heron, great horned owl, tree swallow, eastern bluebird, house wren, and mink. Dow contractors, working under the purview of MDEQ, are sampling soil, sediments, and water and are measuring contamination levels across the entire river bed and floodplain. Also, the refuge plans to participate in a study coordinated by the Human Health and Risk Assessment Team (composed of Dow, MDEQ, MDCH, and the Michigan Department of Natural Resources) to assess the risk to humans from consuming wild game from the floodplain. In this study, white-tailed deer, eastern fox squirrels, eastern cottontails, wild turkeys, Canada geese, wood ducks, snapping turtles, and green frogs will be collected and contaminant levels will be assessed.

Random Refuge Ramblings Cont.

separate units of the refuge. Beyond prescription burning, we're also qualified and available to help fight wildfires this year.



Zone Refuge Officer Kevin Shinn ignites a fire line along the Leach Wetland Unit on April 30. Photo by Ed DeVries.

OK, I know this is a migratory bird resting and feeding area and we're not supposed to favor "exotics", but this past winter we've really enjoyed watching the activities of several ring-necked pheasants hanging around the Headquarters area. There has been a single strutting rooster and four hens picking seeds and other things from beneath the bird feeders, and as winter progressed into spring the pheasants have become rather "tame" as they've gotten used to our comings and goings. It's been fun to watch their antics, and the male is in beautiful breeding plumage. On sunny days we've seen the pheasants lie belly-down on the green lawn and spread their wings and feathers out to take full advantage of the sun. I didn't realize they could get so flat against the ground, and it gives me a better understanding of how such a large bird can conceal itself so well in the fields. Presently the hens are most likely nesting as we only see them occasionally, usually by themselves. So if you come to the refuge headquarters, don't be surprised to see these birds walking around like peacocks at the zoo. At least until the cats chase them off.

Attention Refuge Volunteers

Be sure to keep track of your hours and submit your volunteer time logs to Volunteer Coordinator Becky Goche. If you do not have a time log, contact Becky at (989) 759-1669. Tracking volunteer hours is important to the refuge because it can mean more dollars in our budget.

Since I was out on medical leave for all of April and part of May, I was not able to get the volunteer dinner planned in time for May 17. We will try again for June at a new venue. Watch your mail for your official invitation!

REFUGE REPORTER

Published quarterly by the Friends of Shiawassee National Wildlife Refuge for the refuge.

Volume 10, Issue 3

Editor: Becky Goche

Shiawassee National Wildlife Refuge

Established in October, 1953 and administered by the U.S. Fish and Wildlife Service, Shiawassee NWR provides resting, nesting and feeding habitat for waterfowl and other birds. Its mission is to preserve or manage an undeveloped expanse of floodplain forest, marshes, rivers, and associated habitat within an agricultural and urban landscape through habitat management, encouraging public stewardship, educational programs, and private lands activities.

Refuge Manager—Steve Kahl

Assistant Refuge Manager—Ed DeVries

Biologist—Jim Dastyck

Private Lands Biologist—Michelle Vander Haar

Park Ranger/Volunteer Coordinator—Becky Goche

Administrative Officer—Mary Ann Gillette

Maintenance Staff—Marion "Butch" Nowosatko and David Peters

Friends of Shiawassee National Wildlife Refuge

A nonprofit 501 (c)(3) organization established in 1999 to promote the preservation of the natural and historical resources of the Refuge, foster its use and enjoyment by the public consistent with the protection and preservation of its environment, and engage in such educational, scientific and civic activities as will assist the management of the Refuge in carrying out its mandates.

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

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.

We're on the web!

[Http://www.fws.gov/midwest/shiawassee](http://www.fws.gov/midwest/shiawassee)



Kids' Free Fishing Day is June 9 at Ojibway Island



Summer Discovery Camps for Preschoolers

By Becky Goche, Park Ranger

We're trying a new format with our Summer Discovery for Preschoolers this year. Rather than a single one-day camp, we've broken the camp up over three days throughout the summer. If this format proves popular, we may continue it through the rest of the year. These camps are designed for children between the ages of 3 and 5 years. Youngsters and his/her parent can join us for one or more days for FREE!

Camp dates fall on the second Wednesday of each month. Each camp will highlight a different topic. Activities include stories, hikes, and crafts. The dates and themes are as follow:

June 13—Forest Friends

Youngsters will explore Green Point's forest and learn

about some of the plants and animals that are found there.

July 11—Water Wonders

Children will explore the different water types found at Green Point—pond, river and marsh.

August 8—Amazing Insects

Children will learn what makes an insect an insect by exploring Green Point's grasslands.

We ask that parents pre-register their children for these camps at least two days before so we can have enough materials available. Please call me Green Point at (989) 759-1669. We strongly encourage that children wear clothes and shoes that can get dirty and will also protect them from mosquitoes and poison ivy.

Refuge Reporter

Volume 10, Issue 4

Fall 2007

Refuge Open House Weekend Is September 8–9

by Becky Goche, Visitor Services Manager

Yes, it's time again for our annual Refuge Open House Weekend! This is the only time during the year that visitors are free to hike, bicycle and deer scout ANYWHERE on the refuge, during daylight hours. This is normally the time when we have our self-guided auto tour available, too. Unfortunately, there will be NO AUTO TOUR again this year because a portion of the route that was damaged during a flood in Spring 2006 still needs to be repaired. The refuge did get funding to repair it and we hope to begin construction still this year, as long as the weather holds. If all goes well, it will be available next year.

We have lots of fun activities planned

throughout the weekend to fill in the gap of no auto tour. Guided bird hikes, guided bicycle tours, a butterfly walk, free tree give-away, photo contest judging and a first-ever Virtual Geo-caching activity on the refuge. Majority of these activities will take place on Saturday only. Read on for more information...

Guided Bird Hikes—Saturday and Sunday

Refuge volunteers Steve Gasser and Larry Abraham will lead a guided bird hike on **Saturday at 8:00 a.m.** at the Ferguson Bayou Trail parking lot.

Steve will also lead a bird hike on **Sunday at 8:00 a.m.** at the Woodland Trail parking lot. Bring your binoculars, wear

(Continued on page 2)

Steve Gasser Named 2006 Refuge Volunteer of Year

by Becky Goche, Visitor Services Manager

In 2006, 115 people donated 4,335 hours helping out on the refuge. These volunteers and Friends Board of Directors were honored at a dinner on June 27 at the Old Country Buffet in Saginaw. Twenty-one people attended.

Steve Gasser was honored as the 2006 Refuge Volunteer of the Year. Steve began volunteering at the refuge in 2003. He leads refuge hikes, bird tours, helps with island bird surveys, serves as the Junior Duck Stamp photographer, and provides many photos that the refuge uses in its programs, brochures and website.

Inside this issue:

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Special Points:

- Goose and deer hunting will cause some trail closures, see our website for the times.
- Over 4,000 hunters applied for the 2007 refuge deer hunts. Packet pick-up dates are October 19, 7:30 a.m. to 4:00 p.m.; October 20, 7:30 a.m. to 1:00 p.m.; and October 26, 7:30 a.m. to 4:00 p.m. Hunters can get their packets by mail at any time. All packets must be picked up by October 26

Refuge Open House Weekend Is September 8–9 Continued

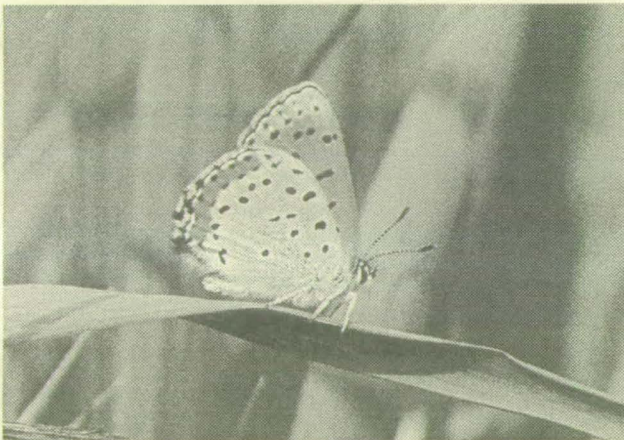
comfortable shoes, and water to both.

Guided Bicycle Tours—Saturday and Sunday

Refuge Manager Steve Kahl will lead bicyclists along a 7-mile, gravel route to see wildlife two times each day. If you're an early bird, try the **6:30 a.m. ride on Saturday and Sunday**. If you want to sleep in late, try the **6:00 p.m. ride on Saturday and Sunday**. On either ride you should have several opportunities to see wildlife since they are more active at these times. All bicyclists should meet at the Ferguson Bayou Trail parking lot at the west end of Curtis Road.

Butterfly Walk—Saturday

Stan Lilley of the Chippewa Watershed Conservancy will point out butterflies, give life history information and identification tips. He will also bring his net to capture and demonstrate how monarchs are tagged to track their migration. The walk begins **10:00 a.m. on Saturday** at the Ferguson Bayou Trail parking lot.



The bronze copper is one of the butterflies you may encounter during the Butterfly Walk on Saturday. They can be found in the refuge's marshes. Photo by Kim LeBlanc

Free Tree Give Away—Saturday

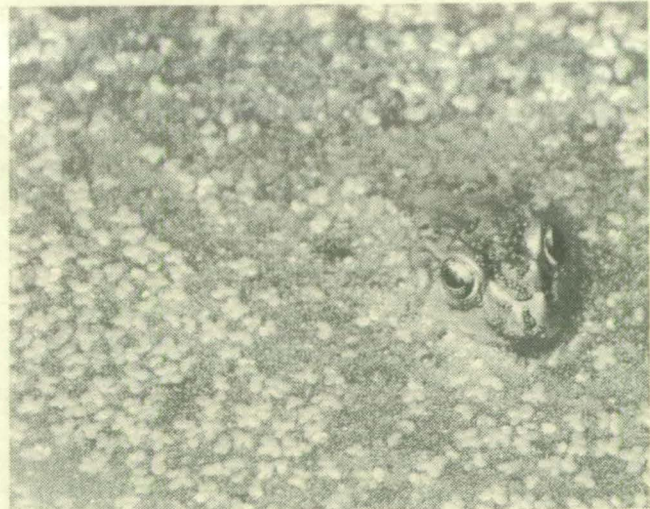
The Saginaw Correctional Facility in Freeland grew white and black oak trees from acorns for the State. Well, they were very successful and now have too many trees. From **9:00 a.m. to 4:00 p.m.** (or until they're gone) on **Saturday**, you can stop by the refuge headquarters on the corner of Curtis and Mower Roads and pick one up.

Photo Contest Judging—Saturday

You can pick the winners of this year's Refuge Photo Contest. Amateur photographers enter their photos into one of the four categories. Stop by the refuge headquarters on **Saturday** between **9:00 a.m. and 4:00 p.m.** to pick your favorite one in each category. Winners will be announced at the Nurturing Nature Series program on October 3 at the Green Point Environmental Learning Center.

Virtual Geocaching—Saturday

Virtual Geocaching is a high-tech scavenger hunt. Virtual Geocaching involves locating a specific landmark or feature on the refuge. It does not involve finding or leaving an item in a cache. This is a family-friendly activity, using a Global Positioning System (GPS) unit to find a specific place on the refuge. You can pick up your clue sheet at the refuge headquarters, 6975 Mower Road, from **10:00 a.m. to 3:00 p.m. on Saturday**. You will need a clue sheet, your own transportation, a GPS unit, and a pencil or pen to write your answers. If you find all the answers and report back to the headquarters by 3:00 p.m., you will receive a prize. Private Lands Biologist Michelle Vander Haar will be available to provide general guidance in using a GPS unit if needed.



A Hiding Place by David M. Blanford, winner of the Refuge Manager's Choice award in the 2006 Refuge Photo Contest.

Refuge Partners with Detroit Edison and The Conservation Fund to Reduce Greenhouse Gases

by Steve Kahl, Refuge Manager

To address the many concerns over climate change, the U.S. Department of Energy established the Global Climate Challenge Program. One important aspect of the program calls for a reduction in the amount of greenhouse gases (GHG) in the atmosphere. A portion of the GHG reduction program calls for the sequestration of carbon in biomass. One of the methods of GHG reduction utilizes trees, which are natural carbon sinks because they take carbon dioxide out of the air and sequester it in living plant tissue. Thus, reforestation is a scientifically recognized way to sequester carbon from our atmosphere.

The U.S. Fish and Wildlife Service has entered into a partnership with Detroit Edison and The Conservation Fund to restore native forest habitat at Shiawassee Refuge that in turn will result in carbon sequestration. This effort was launched on the ground on Arbor Day 2007 when crews began planting 180 acres of refuge lands with over 53,000 tree seedlings. Tree species included American sycamore, bur oak, white oak, northern red oak, red maple, silver maple, black walnut, and common hackberry. Gaps between existing

refuge woodlands will fill in to create larger forest blocks to benefit numerous wildlife species, including wood duck, barred owl, eastern wood-pewee, wood thrush, American redstart, and scarlet tanager.

Additionally, this partnership will yield a fund to acquire land for reforestation and addition to Shiawassee Refuge. This fund is critical because land acquisition is one of the refuge's greatest challenges. The refuge is authorized to acquire an additional 7,000 acres. Further, in the last two years the refuge has been approached by the sellers of 14 tracts totaling over 1,100 acres. However, our land acquisition funding has been almost nonexistent and almost all of these tracts have since been sold. This fund gives us a better chance to protect lands in the future.

Many thanks to Detroit Edison and The Conservation Fund in their efforts to reduce GHGs, improve refuge habitats, and acquire new refuge lands.

National Public Lands Day Clean-Up at Green Point Scheduled for September 29

The refuge will be cleaning-up as area residents join the largest annual coast-to-coast, single-day volunteer restoration effort for America's public lands.

We are in need of volunteers who are willing to roll up their sleeves and devote three hours to cleaning and landscaping at Green Point Environmental Learning Center as part of the 14th annual National Public Lands Day (NPLD) on **Saturday, September 29 from 9:00 a.m. to 12:00 p.m.** The national cleanups give Americans an annual chance to make public lands in local communities safer, prettier, and more desirable.

Last year 100,000 volunteers participated nationwide. At Green Point, we had two Girl Scout Troops and several refuge volunteers who helped out. It's a great pro-

ject for Scouts, high school students and others!

For the fourth year in a row, volunteers who work at a site managed by any of the five federal agencies will be rewarded with a pass good for free entry any day during the next year at public land sites managed by those agencies: National Park Service, USDA Forest Service, U.S. Fish and Wildlife Service, Bureau of Land Management, and U.S. Army Corps of Engineers.

For more information, contact Becky Goche at (989) 759-1669 or see a list of NPLD sites, activities, contacts, and downloadable photos from past events in the Media Center section of www.publiclandsday.org.

Shiawassee Refuge Conducts First NABA Butterfly Count

by Steve Kahl, Refuge Manager

The first Shiawassee National Wildlife Refuge NABA Butterfly Count was conducted on July 6. The refuge count is one of hundreds coordinated by the North American Butterfly Association (NABA) in the United States, Canada, and Mexico.

Counts are conducted for one day within a 15-mile diameter circle. Shiawassee Refuge is at the center of its circle and occupies a large part of the geographic area.

NABA counts are usually held in the few weeks before or after July 4th. NABA publishes an annual report of all count results. These reports provide important information about the geographic distributions and population sizes of the species counted. Comparisons of the results over the years monitor changes in butterfly populations and reveal effects of weather and habitat change on the different species.

Five participants found 30 species of butterfly and counted 1,311 individuals. The most common species were red admiral (249), cabbage white (223), common wood nymph (199), monarch (189), and clouded sulphur (131).

The rarest species found was one American snout. Other uncommon species included banded hairstreak, American lady, and tawny emperor. Four new species for the refuge's butterfly list were found, including eyed brown, Appalachian brown, northern broken-dash, and dun skipper.

The complete list includes black swallowtail (21), eastern tiger swallowtail (2), cabbage white (223), clouded sulphur (131), orange sulphur (86), bronze copper (11), banded hairstreak (4), eastern tailed-blue (4), American snout (1), great spangled fritillary (10), pearl crescent (4), question mark (4), eastern comma (6), mourning cloak (2), American lady (5), red admiral (249), viceroy (40), tawny emperor (1), northern pearly-eye (16), eyed brown (5), Appalachian brown (1), little wood-satyr (3), common wood-nymph (199), monarch (189), silver-spotted skipper (2), European skipper (5), north-

ern broken-dash (5), little glasswing (10), Delaware skipper (36), dun skipper (36).



The American lady was one of the more uncommon butterflies seen on the count. Photo by Kim LeBlanc

The Big Sit! Coming to Shiawassee

by Becky Goche, Visitor Services Manager

The Big Sit!™ is coming to Shiawassee National Wildlife Refuge. This program started in 1992, when the New Haven, Connecticut, Bird Club began holding an annual event called The Big Sit!™. By 2006, the idea had spread to 164 circles registered in 36 states and nine countries besides the United States. Now the idea is coming to Shiawassee Refuge for National Wildlife Refuge Week. This free event is a fun way to collect data and bring together our community as we form circles – literally – to count birds and get to know a part of the refuge.

Refuge staff and volunteers will start the 24-hour watch of The Big Sit! at midnight on Sunday, October 14 and continue all day until midnight. They will monitor birds within a 17-foot circle around the Greffe Tower at the end of Ferguson Bayou Trail, off of Curtis Road. Visitors are invited to come out anytime during daylight hours on Sunday, April 14, to view their progress and help out. Please be aware that you will need to walk or bicycle to the tower. You may want to bring a chair, refreshments, binoculars and a birding guide. The results will be sent to the official Big Sit! Website at: www.birdwatchersdigest.com/site/funbirds/bigsit/bigsit.aspx.

Nurturing Nature Wednesday Series

- All programs begin at 7:00 p.m. and last 60 – 90 minutes.
- Held at the Green Point Environmental Learning Center, 3010 Maple Street, Saginaw, unless otherwise noted.
- Admission: \$2 for individuals. FREE for members of the Friends of the Shiawassee NWR.

A Taste of Honey... and Bee Keeping

September 12

Bee keeper Dan Keane tells the story of how honey is made and harvested, and then offers a chance to taste a variety of types of honey.

Bats, Bats, Bats - LIVE!

October 3

The Organization for Bat Conservation will bring their exciting multi-media presentation describing the unique lives of bats. See live U.S. bat, South American bats, and African fruit bats with 4-foot wingspans.

Michigan's Junior Duck Stamp Program

November 7

Michigan's Federal Junior Duck Stamp Program and Design Contest turned 15 this year. Each year in Michigan, it attracts hundreds of artists in grades K-12. Park Ranger Becky Goche, the State Junior Duck Stamp Coordinator, will offer an overview of the program and images of this year's winners.

No program in December.

Full Moon Hike

October 26, 2007, 7:00 p.m.

Green Point Environmental Learning Center

Explore the night world at Green Point by moonlight! This guided hike is geared for families with children. You will hike almost one mile along the winding, flat trails. Wear dark clothes and comfortable shoes, and bring a flashlight.

Calendar of Events

Refuge Open House

September 8 – 9, 2007, during daylight hours

The entire refuge

For this weekend only, the entire refuge is open to hiking, bicycling and deer scouting during daylight hours. There is no self-guided auto tour since repairs on part of the route are not completed. A number of programs are planned each day including guided bird hikes, guided bicycle tours, vote for your favorite photo in the refuge photo contest, tree give away, and a virtual geo-caching activity. See the newsletter for more details.

Public Lands Day Clean-Up

September 29, 2007, 9:00 a.m. to 12:00 p.m.

Green Point Environmental Learning Center

Bring your gloves, rakes and pruning shears and help clean-up Green Point. This is a great community service project for scouts!

The Big Sit!

October 14, 2007, Daylight Hours

Grefe Tower on Ferguson Bayou Trail

See how the refuge staff and volunteers are doing with their 24-hour, round-the-clock bird count. Hike or bicycle to the Grefe Tower and check their progress.

For more
information, contact
Green Point ELC at
(989) 759-1669.

FRIENDS OF SHIAWASSEE NWR MEMBERSHIP PAGE

Friends of Shiawassee NWR Membership

☐ Renewal ☐ New membership

☐ General Membership

\$10 – Individual (1) vote.

\$25 – Family (2) votes. (Member, spouse and children under age 18)

- Each membership receives quarterly newsletter - "Refuge Reporter."
- Each membership includes voting rights and opportunity to hold office.

☐ Supporting Levels (includes 1 year individual membership): "Goose" \$50, "Blue Heron" \$75, "Owl" \$100, "Bald Eagle" \$125 & over

☐ No membership at this time, but please accept my contribution.

*Membership is for calendar year. Dues paid after October 1 include remainder of current year plus the following year.

Name: _____

Address: _____

City: _____ State: _____ Zip code: _____

Phone: _____ E-mail: _____

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

Contributions to the Friends of Shiawassee NWR, a 501 (c) (3) non-profit organization, are tax deductible according to IRS guidelines.

Friends' Volunteer Opportunities

Do you have any of these skills?

- _____ Staffing Trailhead Store
- _____ Leading walking tours
- _____ Helping with workshops
- _____ Assisting with refuge auto tours
- _____ Doing outreach events, i.e. fairs
- _____ Assisting with First Wednesday
- _____ Writing newsletter articles
- _____ Writing/developing grants
- _____ Serving as Committee member
- _____ Leading children's activities
- _____ Developing trails

- _____ Computer skills
- _____ Photography
- _____ Carpentry skills
- _____ Business organizational skills
- _____ Research
- _____ Artistic skills
- _____ Fund raising
- _____ Grant writing
- _____ Researching/Ordering merchandise
- _____ Other – please list:

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. General meetings with special programs are held at various times throughout the year. Friends Board of Directors Officers are:

President – Charles Hoover

Vice President – Susan Scott

Secretary – Janet Martineau

Treasurer – Wil Hufton II

27th ANNUAL
Great Saginaw River Free

Kids Fishing Fun Day!

Saturday
June 9, 2007
8-10 a.m.
Ojibway Island
Registration is 7:30-9:30 p.m.



REGISTRATION FORM
NO PURCHASE NECESSARY

Participant Name _____

Address _____

City _____ State _____ Zip _____

Check appropriate age category: ☐ 3-6 ☐ 7-10 ☐ 11-15

I have read and agree with the General Release and contest rules below.

Parent/Guardian Signature _____

Date _____

- Kids Fishing Fun Day promotes the catch and release concept.
- Each child will receive a treat coupon from 7-Eleven.

TO REGISTER:

To participate in the contest, each child ages 3-15 must have their parent or legal guardian fill out the registration form at right. This signed form and an adult (18 years of age or older) must accompany each child when registering for the contest on Ojibway Island on June 9.

AGE GROUPS:

3-6 years old; 7-10 years old; 11-15 years old

EQUIPMENT:

Bring your own fishing pole and bait. A limited amount of **FREE** bait will be available.

PRIZES:

Many great prizes will be given away. Half of the tickets drawn will be from the registration tickets. So join in the fun, you can win a prize just by attending!

CONTEST RULES AND REGULATIONS

NO PURCHASE NECESSARY.

To participate in the 27th annual Great Saginaw River Free Fishing Fun Day all participants must agree to abide by and follow all Michigan State Fishing Regulations. Those registering a fish must be willing to have their parent or legal guardian make a sworn statement that their fish was caught within the rules of the contest. All fish must be caught from Ojibway Island on Saturday, June 9, 2007 from 8 a.m. - 10 a.m. Entrants must personally catch any fish to be entered in this contest. Enter as many fish as you like, this will increase your chance at winning a prize. Odds of winning a prize depends on the number of registrations received and the number of fish caught. Multiple prizes may be awarded. A ticket will be issued when each child registers. (One registration per entrant; mechanically reproduced registration forms or tickets are not permitted.) Another ticket is given for each fish caught and turned into the fish return tent located on the west side of the Island. A random prize drawing will be conducted on June 9, 2007 at approximately 10:45 a.m. from all tickets. 12 prizes (valued at \$3 - \$5) and one grand prize valued at (\$50) will be awarded in each age category. Age groups - 3 - 6 years, 7-10 years, 11-15 years old. You must be present to win. If you do not redeem your ticket within one minute of being declared a potential winner you forfeit all rights to the prize and an alternate winner may be selected.

All fish may be registered only once and may be marked at the fish return station. It is our goal to preserve the fish resource and return all fish to the water alive, so transport your fish to the fish return area in water as often as necessary. Participation is open to legal residents of Michigan who are at least 3 to but no older than 15 years of age as of the date of entry. Participation is open to amateur status fishing enthusiasts only. Sponsors are not responsible for registration forms or tickets that are lost, late, damaged, illegible, incomplete, incorrect, or misdirected, or for errors in the administration, or fulfillment of this contest, including without limitation, mechanical, human, printing, distribution, or production errors and may modify or cancel this promotion based on such error at its sole discretion without liability. This contest is subject to all federal, and Michigan state and local laws and regulations. Void outside of Michigan and where otherwise prohibited. All decisions of the contest officials are final. Violation of any rules may lead to immediate disqualification, as determined in the contest officials' sole discretion. Income and other taxes, if any, are the sole responsibility of the winners. The parent or legal guardian of winners may be required to sign an affidavit of eligibility upon accepting the prizes or an alternate winner may be chosen. No substitutions for prizes except by Sponsors in which case a prize of equal or greater value will be substituted.

For a list of prize winners, send a self-addressed stamped envelope to: Great Saginaw River Free Fishing Fun Day Winners, The Saginaw News, 203 S. Washington, Saginaw, MI 48607 after June 9, 2007 but before December 9, 2007.

THIS FUN-FILLED EVENT IS SPONSORED BY:

The Saginaw News
Helping You

Higher Standards
meijer
Lower Prices

CITY OF
Saginaw
DOW CHEMICAL
Michigan Division
Fishing Club



U.S. FISH & WILDLIFE SERVICE
Shiawassee National Wildlife Refuge

REFRESHMENTS:

The Son's of Italy will again sponsor the refreshment stand. They will offer FREE popcorn, snow cones, cookies and McDonald's orange drink. There will be a small charge for hot dogs.



GENERAL RELEASE.

By signing your name above and in consideration of your participation or the participation of your child or legal ward, in the Great Saginaw River Free Fishing Fun Day held on Saturday, June 9, 2007 (The "Event") organized by The Saginaw News, City of Saginaw, Meijer, U.S. Fish and Wildlife Service and The Dow Chemical Michigan Division Fishing Club ("Sponsors"), the above-signed hereby releases Sponsors and any related or affiliated companies and their respective officers, directors, agents, employees, licensees, subsidiaries, consultants and independent contractors (collectively, the "Releasees") of and from any and all liability, claims, demands, actions, and causes of action whatsoever, arising out of or related to any loss, damage, or injury, including death, that may be sustained by the above-signed, his/her child or legal ward, or any property of such individuals, arising from or in connection with the Event, or any prizes awarded, including claims that are known and unknown, foreseen and unforeseen, future or contingent, or that arise out of the negligence of Sponsors.

The above-signed, being fully aware of the risks inherent in participating in the Event, hereby elects voluntarily to engage in such activity, and/or allow his/her child or legal ward to do so. The above-signed hereby voluntarily assumes all risk of loss, damage, or injury, including death, that may be sustained by the above-signed, his/her child or legal ward, or any property of the such individuals, in connection with such activity.

This release shall be binding upon the distributees, heirs, next of kin, personal representatives, executors, and administrators of the above-signed.

The above-signed also acknowledges the fact that Sponsors may publish photographs of the Event and entrants' names, likenesses and photographs, for advertising, editorial or publicity purposes. The above-signed hereby grants, releases and quit claims to Sponsors the right to use his/her name or likeness, and/or the name(s) and likeness(es) of his/her child or legal ward in the above promotional, advertising and editorial materials and acknowledges that any photographs videotape or film taken may be exhibited and re-exhibited without limitation or liability or further compensation.

In signing the foregoing General Release, the above-signed hereby acknowledges and represents that he/she has read the foregoing release and fully understands it. The above-signed understands that this is a release of liability which will legally prevent him/her or any other person from filing suit or making any other legal claim against Releasees relating to the causes of actions or claims hereby waived or released by above-signed. The above-signed nevertheless enters into this agreement freely and voluntarily and agrees that is binding upon the abovesigned, his/her heirs, assigns and legal representatives.

Copies of this form are available at The Saginaw News, Green Point Environmental Learning Center, City of Saginaw Recreation Department, Meijer - Gratiot and Tittabawassee customer service department or call 776-9701 to have one faxed to you.

Eagle Scout Takes on Woodland Trail Parking Lot Project

by Becky Goche, Visitor Services Manager

Boy Scout Jeff Wojewoda of Troop 312 in Saginaw, completed a rehab project at the refuge's Woodland Trail parking lot on June 19, as part of one of his requirements in earning his Eagle Scout rank. Jeff began meeting with me last fall to discuss possible refuge projects for him to work on. The Woodland Trail parking lot was in dire need of a facelift and Jeff decided that he wanted to take it on.

Jeff and his crew of 22 helpers, most of which were other Boy Scouts, spent four days over three months beginning in April, working on this project. Altogether, 23 volunteers donated 122 hours. Jeff worked with local Master Gardener and refuge volunteer Susan Scott to determine what wildflower species would work well and what was the best way to prepare and plant the gardens that are scattered around the parking

area. He then got donations of plants, mulch, compost and fertilizer. After the plantings were done, Jeff and his crew stained all the parking lot posts, rails, and the kiosk and entrance sign structures. He also painted two metal gates. The refuge provided 7 gallons of stain and some brushes to complete the project. Jeff got donations for the paint, rollers, and food for the hungry crew.

The Woodland Trail is Shiawassee's most used hiking area. Several thousands of hikers, bicyclers, bird watchers, and others who love nature use these trails each month. The "look" of the parking area and that of the refuge is vastly improved thanks to the efforts and leadership of Jeff Wojewoda.

New Federal Lands Park Pass

The new National Parks and Federal Recreation Lands Pass for seniors and people with disabilities are now available at the refuge. These passes cover the entrance and standard amenity fees charged for using federal recreation lands. The new "America the Beautiful—The National Parks and Federal Recreational Lands Pass" series includes Interagency Senior Passes, \$10, for U.S. citizens 62 and older; and Interagency Access Passes, free for U.S. citizens who are permanently disabled. The new program also introduces an interagency admissions pass for volunteers who donate 500 hours during a year, for hours accrued after January 1, 2007.

Paper versions of the Golden Age and Golden Access Passports should be exchanged for the new Senior or Access passes. However, plastic Golden Age or Access passes are valid for the pass holder's lifetime and do not need to be exchanged. The Senior and Access passes are good for the lifetime of the holder and make available to the pass holder 50 percent discounts on some expanded amenity fees.

For more information about these passes, contact the refuge at (989) 777-5930 or visit www.recreation.gov.

REFUGE REPORTER

Published quarterly by the Friends of Shiawassee National Wildlife Refuge for the refuge.

Volume 10, Issue 4

Editor: Becky Goche

Shiawassee National Wildlife Refuge

Established in October, 1953 and administered by the U.S. Fish and Wildlife Service, Shiawassee NWR provides resting, nesting and feeding habitat for waterfowl and other birds. Its mission is to preserve or manage an undeveloped expanse of floodplain forest, marshes, rivers, and associated habitat within an agricultural and urban landscape through habitat management, encouraging public stewardship, educational programs, and private lands activities.

Refuge Manager—Steve Kahl

Assistant Refuge Manager—Ed DeVries

Biologist—Jim Dastyck

Private Lands Biologist—Michelle Vander Haar

Visitor Services Manager—Becky Goche

Administrative Officer—Mary Ann Gillette

Maintenance Staff—Marion "Butch" Nowosatko and David Peters

Friends of Shiawassee National Wildlife Refuge

A nonprofit 501 (c)(3) organization established in 1999 to promote the preservation of the natural and historical resources of the Refuge, foster its use and enjoyment by the public consistent with the protection and preservation of its environment, and engage in such educational, scientific and civic activities as will assist the management of the Refuge in carrying out its mandates.

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

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.

We're on the web!

[Http://www.fws.gov/midwest/shiawassee](http://www.fws.gov/midwest/shiawassee)



Lots of Events Planned for this Year's Refuge Open House Weekend

Schedule Your Fall Field Trip

By Becky Goche, Visitor Services Manager

Attention teachers: Fall is a great time to visit Green Point Environmental Learning Center. We have a number of programs for all ages. A few of our more popular ones are a habitat study, insect safari and food webs. Visit our website at www.fws.gov/midwest/shiawassee and click on the "Environmental Education" button. From here you can download a copy of the "Educator's Guide."

We also have several programs that can be brought to your school, like a Careers program or a "Virtual" Refuge tour. All of our programs are free. Call me at (989) 759-1669 or email me at Becky_Goche@fws.gov to set up your trip today.

2007 Trail Closures Due to Hunting

Ferguson Bayou Trail at Curtis Road*

October 27-31

November 1-5, 15-20, and 24-25

December 1-5, 7-10, 14-15, and 27-31

Woodland Trail at Stroebel Road

October 27-31

November 1-5, 19-20

December 7-10, and 14-15

Cass River Unit in Bridgeport

October 27-31

November 1-5

December 1-5 and 27-31

*Please note that the goose hunting schedule has not been set yet for October.



Shiawassee National Wildlife Refuge 2007 Deer Hunt Information (Federal Hunts Only)

Pre-Registered Drawings

APPLY ON-LINE! Visit our website at <http://www.fws.gov/midwest/shiawassee> and click on "Hunting" for more information. Applicants may also apply by submitting cards to the Refuge. There is no fee to apply. **Cards must be postmarked by August 1, 2007, to be entered into the drawing and to be eligible for priority points.**

Instructions for Pre-Registered Hunt Applications

1. Applicants may apply **once** and may choose only **ONE** (1) hunt. Hunt choice code numbers 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's License Number or Sportcard Number
Hunt Choice Code Number

*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 and no priority points will be awarded for the hunter.

3. Hunters may apply with one (1) partner. Please note that one partner may not be entered into the drawing nor receive priority points if his/her card information is incomplete. Partners must apply for the same hunt choice code number. Each hunter must fill out a card and then mail both cards, stapled together, in one envelope. **NO helper permits will be issued at a later date; hunters must apply with a partner if they need help in the field.**
4. Youth applying for hunts must have one (1) supervising adult listed (aged 18 or older) as their partner. Youth hunters **MUST** have Hunter Safety certification.
5. 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.
6. Only successful applicants will be notified by mail before September 7, 2007. Hunters may also check our website (click on "Hunting") to check if he/she was drawn.
7. **Permits cost \$15.** All permits must be claimed by October 26, 2007, or negative points will be assigned.

Priority Deer Drawing System Guidelines

- A priority drawing system was started in 2001.
- 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.

Shiawassee National Wildlife Refuge Pre-Registered Hunts

Hunt Choice Code #	Dates	Type	Hunt Area	Number Hunters	2006 Applicants	Harvest Permits
201	Oct. 27 – Oct. 31	Archery	1 & 5	100	558	Antlerless Only
202	Nov. 01 – Nov. 05	Archery	1 & 5	80	794	Either Sex
203	Dec. 01 – Dec. 05	Archery	4 & 5	100	324	Either Sex
204	Dec. 27 – Dec. 31	Archery	4 & 5	100	191	Either Sex
205	Nov. 15 – Nov. 16	Shotgun (N-A*)	3	18	19	(N-A Shotgun hunts are 60% antlerless & 40% either sex permits)
206	Nov. 17 – Nov. 18	Shotgun (N-A*)	3	18	22	
208	Nov. 19 – Nov. 20	Shotgun (General)	1	75	241	Antlerless Only
209	Dec. 07 – Dec. 08	Muzzleloader	3	65	545	Antlerless Only
210	Dec. 07 – Dec. 08	Muzzleloader	2	20	120	Antlerless Only
211	Dec. 09 – Dec. 10	Muzzleloader	3	65	341	Antlerless Only
212	Dec. 09 – Dec. 10	Muzzleloader	2	20	107	Antlerless Only
213	Dec. 14 – Dec. 15	Muzzleloader	3	65	827	Either Sex
214	Dec. 14 – Dec. 15	Muzzleloader	2	20	220	Either Sex

* N-A shotgun hunts are Non-Ambulatory hunts – you must be confined to a wheelchair. **MUST APPLY BY CARD ONLY**

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

Hunt Areas: (Maps will be included in the hunter packet if you are selected or you can visit our website to download them.)

- **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 Stroebel Road bounded by Bullhead Creek, Shiawassee and Tittabawassee Rivers.
- **Area 5** - Cass River Unit in Bridgeport Township.

Special Youth Shotgun: Contact www.MYHEC.org for more information on how to register for the class on August 25-26, 2007, at the Looking Glass Sportsmen's Club in Laingsburg, MI. Twenty youth hunters will be selected from those attending the training to hunt on the Refuge from November 24 – 25 (Hunt 207) in Hunt Area 3.

Scouting Dates: September 8 and 9, 2007, daylight hours only, during our Open House Weekend.

APPLY ON-LINE: Visit <http://www.fws.gov/midwest/shiawassee> and click on "Hunting" for more information. **Deadline to apply on-line is 11:59 p.m., August 1, 2007.**

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

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 NW, Washington, DC 20240

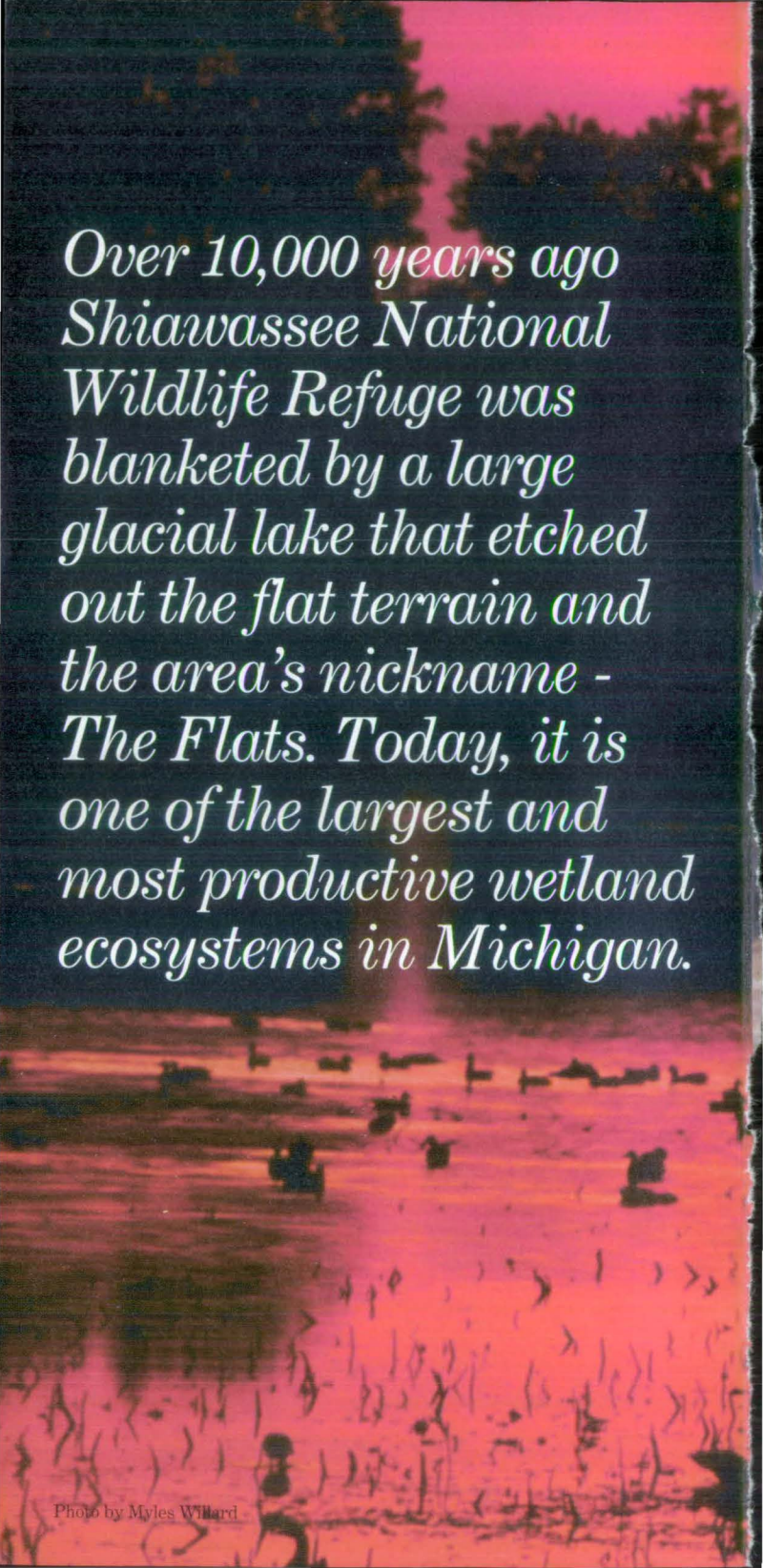
You can also apply for a Shiawassee River State Game Area hunt. Call 989/865-6211 for more information.

U.S. Fish & Wildlife Service

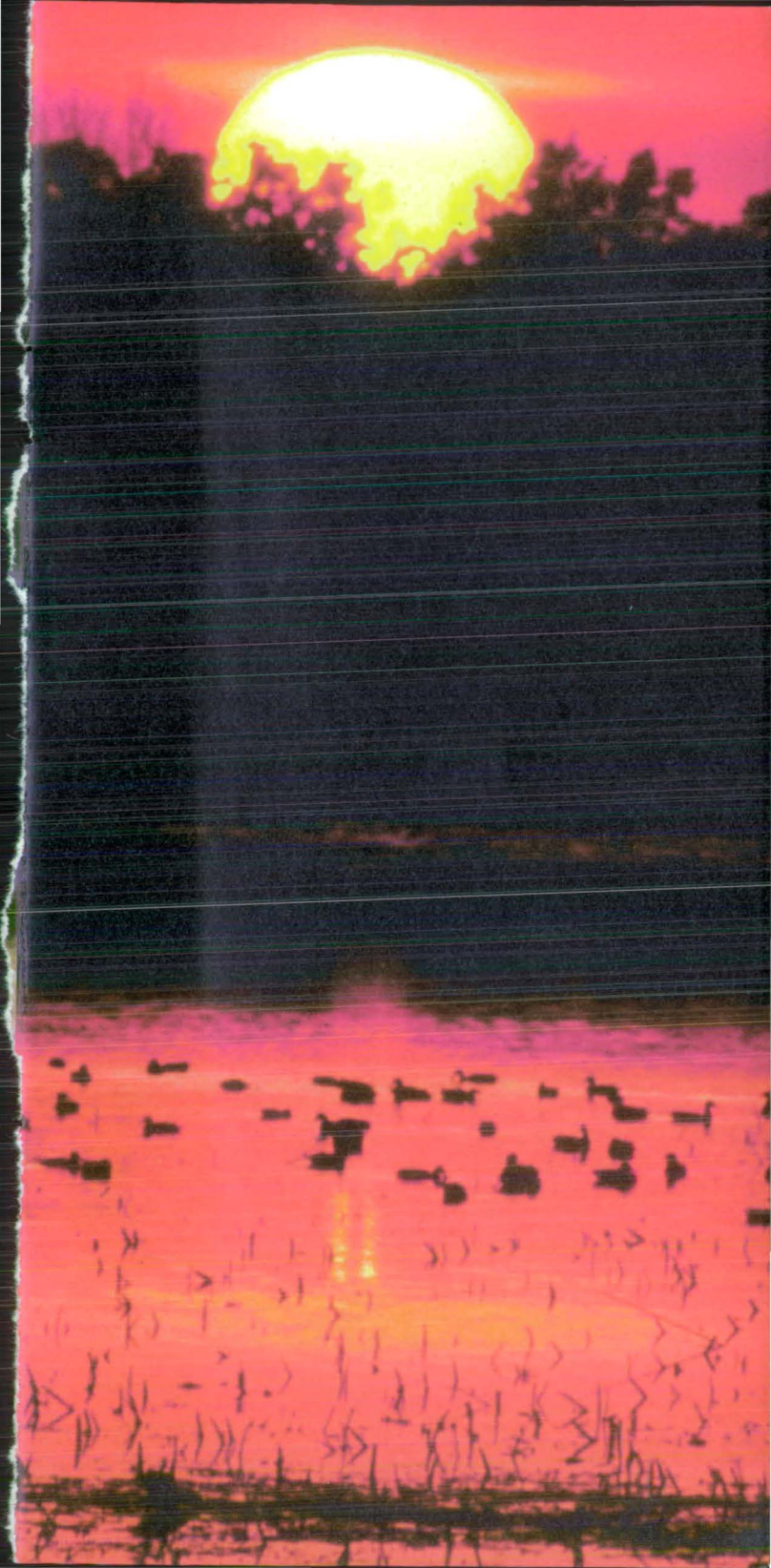
Shiawassee

*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.



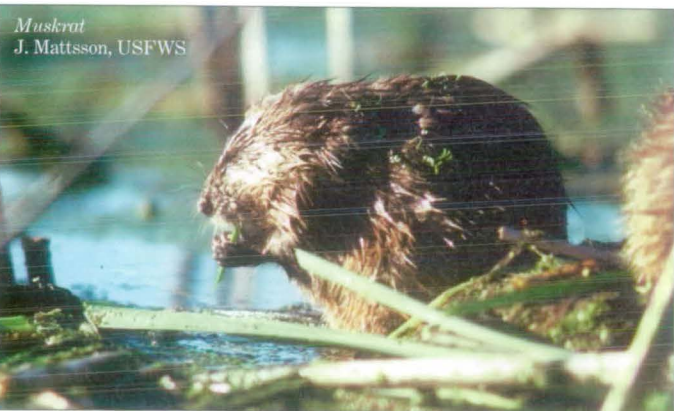
White-tail Deer
J. Mattsson, USFWS



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.

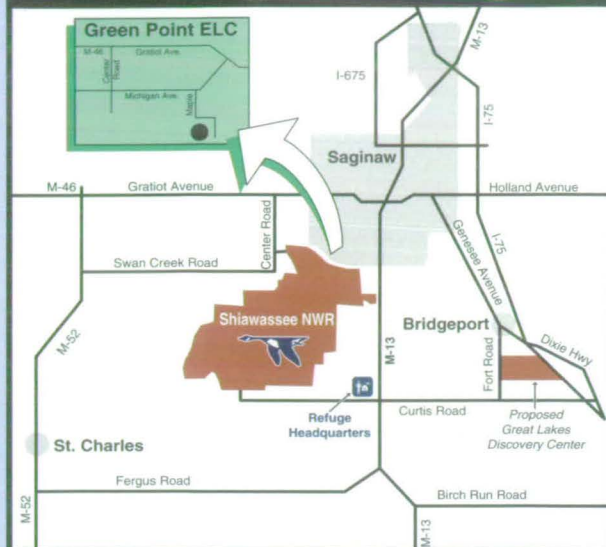
- Obey posted "Closed Area" and "Refuge Boundary" signs
- Stay on established roads and trails
The following are prohibited!
- Firearms and other weapons, unless you have a refuge hunting permit and appropriate State- issued license
- Pets
- Collecting, removing, or damaging artifacts, plants or animals,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

Hours










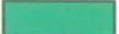
The refuge headquarters, located on the corners of Curtis and Mower Roads, is open 7:30 a.m. to 4:00 p.m., Monday through Friday throughout the year. Closed on all federal holidays. Refuge visitors are welcome to stop by if they have questions or need assistance.

Please
remember!

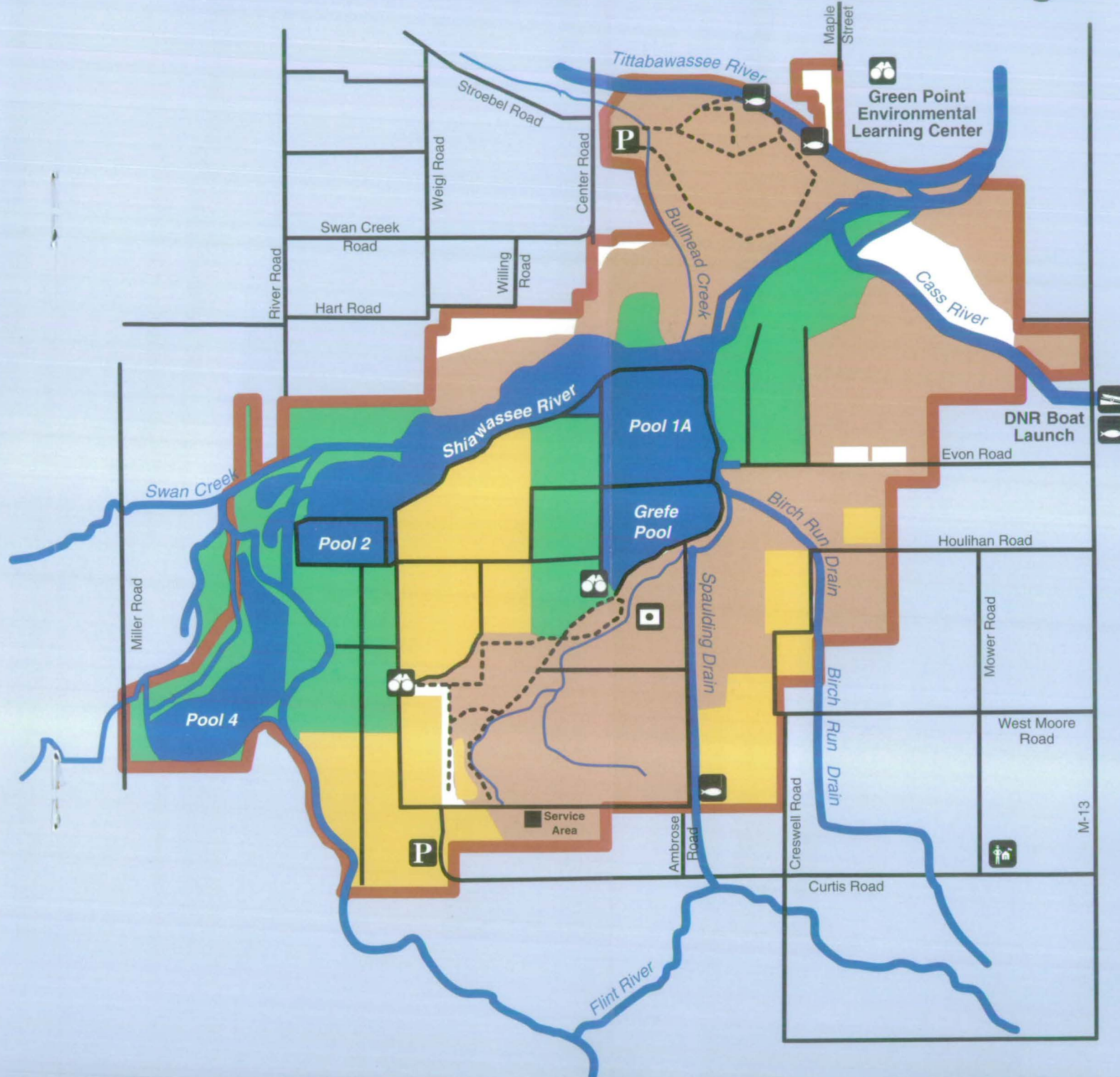
Finding the Refuge



Legend

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

Shiawassee National Wildlife Refuge





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.



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

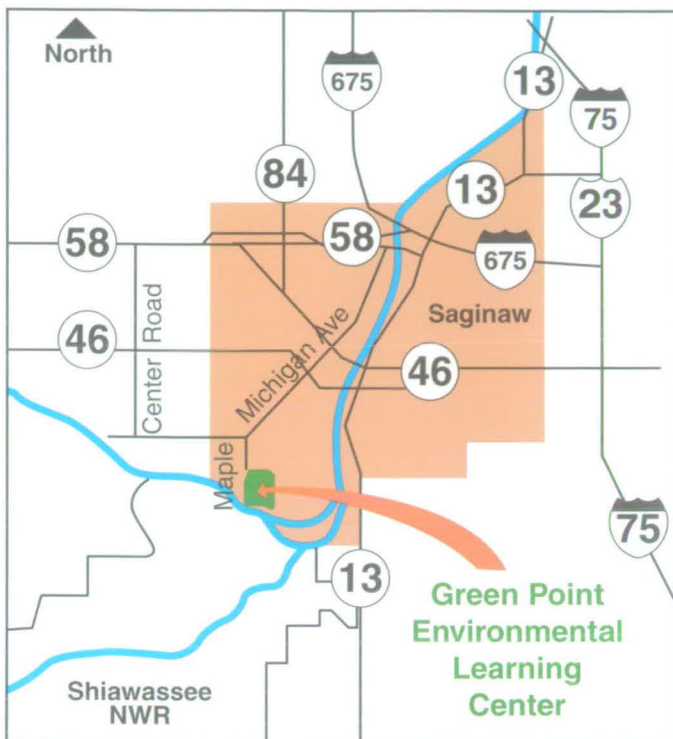
1 800/344 WILD

<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.





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>

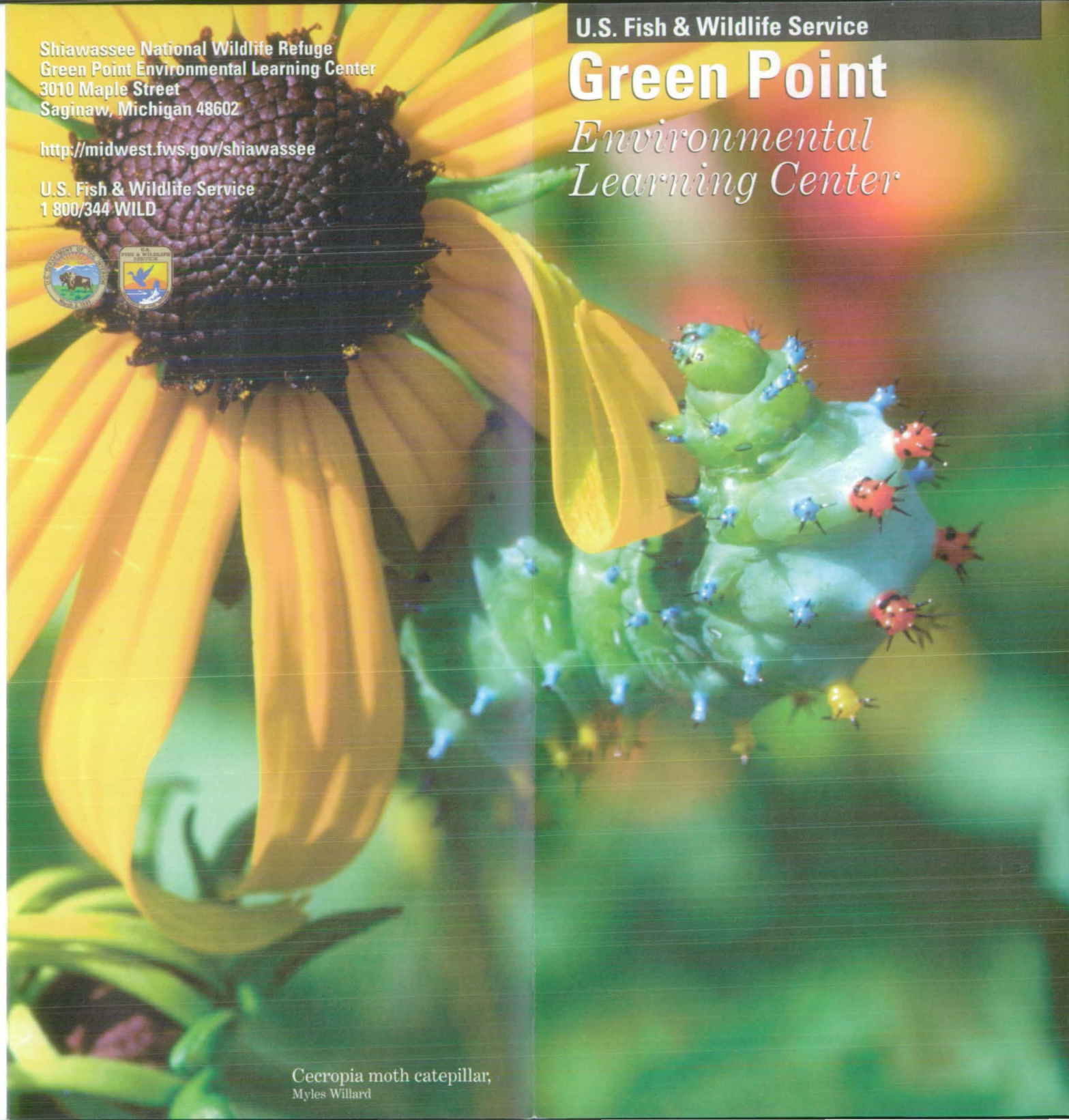
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U.S. Fish & Wildlife Service

Green Point

Environmental Learning Center



Cecropia moth caterpillar,
Myles Willard

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-kon 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

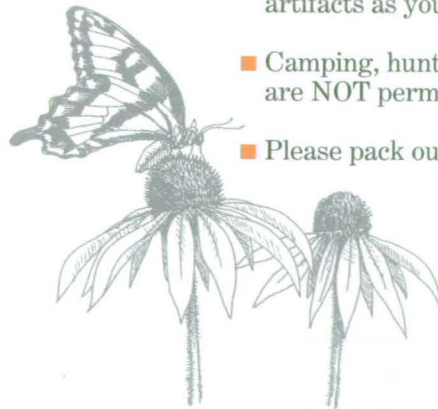


Green frog,
Myles Willard

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.

Shiawassee

National Wildlife Refuge Bird List



Shiawassee National Wildlife Refuge Bird Checklist

Welcome to Shiawassee National Wildlife Refuge. Over 9,400 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 large waterfowl concentrations during the spring and fall migrations.

You will find 277 species of birds listed. The bird list follows the 45th American Ornithologists' Union Checklist.

Visiting birders are encouraged to share their sightings with refuge staff.

Bird Legend

Symbols used are as follow:

- * 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

i incidental: seen only once OR seen every 5 years or more

Common Name	Sp	S	F	W
Swans, Geese, and Ducks				
Greater White-fronted Goose	o	i	o	-
Snow Goose	u	-	u	r
Ross's Goose	r	-	r	r
Cackling Goose	o	-	o	r
Canada Goose*	a	c	a	c
Mute Swan	o	r	o	o
Trumpeter Swan	r	r	r	r
Tundra Swan	c	r	c	o
Wood Duck*	c	c	c	r
Gadwall	c	o	c	-
American Wigeon	c	o	c	r
American Black Duck	c	r	c	u
Mallard*	a	c	a	c
Blue-winged Teal*	c	c	c	-
Northern Shoveler*	c	o	c	r
Northern Pintail	c	r	c	r
Green-winged Teal	c	o	c	r
Canvasback	u	r	u	-
Redhead*	u	o	u	-
Ring-necked Duck	c	r	c	-
Greater Scaup	o	-	o	-
Lesser Scaup	c	r	c	-
Surf Scoter	i	-	-	-
White-winged Scoter	-	-	i	-
Black Scoter	-	-	i	-
Long-tailed Duck	r	-	-	-
Bufflehead	u	-	u	-
Common Goldeneye	r	-	r	r
Hooded Merganser*	c	u	u	r
Common Merganser	c	r	a	c
Red-breasted Merganser	-	r	-	-
Ruddy Duck	c	o	c	-
Grouse & Turkeys				
Ring-necked Pheasant*	c	c	c	c
Ruffed Grouse	r	r	r	r
Wild Turkey*	c	c	c	c
Quail				
Northern Bobwhite	r	r	r	-
Loons				
Common Loon#	i	-	-	-
Grebes				
Pied-billed Grebe*	c	c	c	-
Horned Grebe	o	-	r	-
Eared Grebe	r	-	-	-
Pelicans				
American White Pelican	o	o	r	-

Common Name	Sp	S	F	W
Cormorants				
Double-crested Cormorant	c	r	c	r
Hérons & Bitterns				
American Bittern*	u	u	u	-
Least Bittern*#	u	u	u	-
Great Blue Heron*	c	c	c	o
Great Egret	u	c	c	-
Snowy Egret	r	r	-	-
Little Blue Heron	i	-	-	-
Cattle Egret	r	r	r	-
Green Heron*	u	c	u	-
Black-crowned Night-Heron	u	c	u	-
Yellow-crowned Night-Heron	-	i	-	-
Ibises				
White Ibis	-	-	i	-
Glossy Ibis	r	r	r	-
Vultures				
Turkey Vulture*	c	c	c	-
Hawks & Eagles				
Osprey#	r	r	r	-
Bald Eagle*#	c	u	u	c
Northern Harrier	r	o	u	u
Sharp-shinned Hawk	o	-	o	r
Cooper's Hawk*	u	o	u	u
Northern Goshawk	-	-	r	r
Red-shouldered Hawk	r	-	r	r
Broad-winged Hawk	r	-	r	-
Red-tailed Hawk*	c	c	c	c
Rough-legged Hawk	o	-	o	u
Golden Eagle	r	-	-	r
Falcons				
American Kestrel	o	o	o	u
Merlin#	r	-	o	-
Gyr Falcon	-	-	i	-
Peregrine Falcon!	o	-	o	-
Rails & Coots				
Yellow Rail	-	-	i	-
King Rail*!	r	r	r	-
Virginia Rail*	c	u	u	-
Sora*	c	u	u	-
Common Moorhen*	u	u	u	-
American Coot*	c	c	c	-
Cranes				
Sandhill Crane*	u	o	u	r

Common Name

Sp S F W

Plovers

Black-bellied Plover	o	r	o	-
American Golden-Plover	o	r	o	-
Semipalmated Plover	u	o	u	-
Killdeer*	c	c	c	r

Avocets & Stilts

Black-necked Stilt	-	i	-	-
American Avocet	r	r	r	-

Sandpipers

Greater Yellowlegs	c	c	c	-
Lesser Yellowlegs	c	c	c	-
Solitary Sandpiper	o	u	u	-
Willet	i	-	-	-
Spotted Sandpiper*	c	c	c	-
Upland Sandpiper	r	r	r	-
Whimbrel	i	-	-	-
Hudsonian Godwit	r	r	r	-
Marbled Godwit	r	-	-	-
Ruddy Turnstone	r	r	r	-
Red Knot	r	r	r	-
Sanderling	-	-	r	-
Semipalmated Sandpiper	u	u	u	-
Western Sandpiper	i	i	-	-
Least Sandpiper	u	u	u	-
White-rumped Sandpiper	o	o	o	-
Baird's Sandpiper	r	-	o	-
Pectoral Sandpiper	u	u	u	-
Dunlin	c	o	u	-
Curlew Sandpiper	i	-	-	-
Stilt Sandpiper	o	u	u	-
Buff-breasted Sandpiper	-	-	r	-
Ruff	i	-	-	-
Short-billed Dowitcher	u	u	u	-
Long-billed Dowitcher	-	-	u	-
Wilson's Snipe	u	-	u	-
American Woodcock*	u	u	u	-
Wilson's Phalarope*	o	r	o	-
Red-necked Phalarope	r	-	r	-

Gulls & Terns

Laughing Gull	i	i	-	-
Franklin's Gull	i	-	i	i
Little Gull	i	-	-	-
Bonaparte's Gull	o	-	u	o
Ring-billed Gull	c	u	a	o
Herring Gull	u	o	c	u
Iceland Gull	-	-	-	r
Lesser Black-backed Gull	-	-	-	r
Glaucous Gull	-	-	-	r
Great Black-backed Gull	-	-	-	r
Caspian Tern#	u	u	u	-

Common Name	Sp	S	F	W
Common Tern#	o	-	o	-
Forster's Tern	o	-	o	-
Black Tern*	o	o	o	-
Pigeons & Doves				
Rock Pigeon	o	o	o	o
Mourning Dove	c	c	a	c
Cuckoos				
Black-billed Cuckoo*	o	o	o	-
Yellow-billed Cuckoo*	o	u	o	-
Barn Owls				
Barn Owl	-	i	-	-
Owls				
Eastern Screech-Owl*	u	u	u	u
Great Horned Owl*	u	u	u	u
Snowy Owl	r	-	-	r
Barred Owl*	u	u	u	u
Long-eared Owl#	-	-	-	i
Short-eared Owl!	o	-	u	u
Nightjars				
Common Nighthawk	o	-	o	-
Whip-poor-will	r	-	-	-
Swifts				
Chimney Swift	c	o	c	-
Hummingbirds				
Ruby-throated Hummingbird*	-	u	u	u
Kingfishers				
Belted Kingfisher*	c	c	c	r
Woodpeckers				
Red-headed Woodpecker	o	r	o	-
Red-bellied Woodpecker*	c	c	c	c
Yellow-bellied Sapsucker	u	-	u	-
Downy Woodpecker*	c	c	c	c
Hairy Woodpecker*	u	u	u	u
Northern Flicker*	c	c	c	o
Pileated Woodpecker*	u	u	u	u
Flycatchers				
Olive-sided Flycatcher	r	-	-	-
Eastern Wood-Pewee*	c	c	u	-
Yellow-bellied Flycatcher	r	-	-	-
Acadian Flycatcher	-	i	-	-
Alder Flycatcher	r	-	-	-
Willow Flycatcher*	c	c	o	-
Least Flycatcher*	u	u	o	-

Common Name	Sp	S	F	W
Eastern Phoebe*	u	u	u	-
Great Crested Flycatcher*	c	c	u	-
Eastern Kingbird*	u	u	u	-
Shrikes				
Northern Shrike	r	-	-	o
Vireos				
Yellow-throated Vireo*	u	u	o	-
Blue-headed Vireo	o	-	r	-
Warbling Vireo*	c	c	u	-
Philadelphia Vireo	r	-	r	-
Red-eyed Vireo*	u	u	u	-
Crows & Jays				
Blue Jay*	c	c	c	c
American Crow*	c	c	c	c
Larks				
Horned Lark*	c	c	c	c
Swallows				
Purple Martin	o	r	r	-
Tree Swallow*	a	c	a	-
Northern Rough-winged Swallow*	c	u	c	-
Bank Swallow	c	o	c	-
Cliff Swallow	u	o	u	-
Barn Swallow*	c	u	c	-
Chickadees & Titmice				
Black-capped Chickadee*	c	c	c	c
Tufted Titmouse*	c	c	c	c
Nuthatches				
Red-breasted Nuthatch	r	-	r	r
White-breasted Nuthatch*	c	c	c	c
Creepers				
Brown Creeper*	c	c	c	c
Wrens				
Carolina Wren	i	-	-	-
House Wren*	u	u	u	-
Winter Wren	u	-	u	-
Sedge Wren*	c	c	u	-
Marsh Wren*	c	c	u	-
Kinglets & Gnatcatchers				
Golden-crowned Kinglet	u	-	u	r
Ruby-crowned Kinglet	u	-	u	-
Blue-gray Gnatcatcher*	c	c	u	-

Common Name	Sp	S	F	W
Thrushes				
Eastern Bluebird*	u	o	u	-
Veery	o	r	r	-
Gray-cheeked Thrush	o	-	o	-
Swainson's Thrush	u	-	u	-
Hermit Thrush	u	-	u	-
Wood Thrush*	u	u	u	-
American Robin*	c	c	c	o
Thrashers				
Gray Catbird*	c	c	c	-
Northern Mockingbird	r	r	r	-
Brown Thrasher*	o	o	o	-
Starlings				
European Starling*	c	c	c	c
Pipits				
American Pipit	u	-	u	-
Waxwings				
Bohemian Waxwing	-	-	-	r
Cedar Waxwing*	u	u	u	u
Wood Warblers				
Blue-winged Warbler	o	r	o	-
Golden-winged Warbler	o	r	o	-
Tennessee Warbler	u	o	u	-
Orange-crowned Warbler	r	-	o	-
Nashville Warbler	u	o	u	-
Northern Parula	o	-	o	-
Yellow Warbler*	c	c	u	-
Chestnut-sided Warbler	u	o	u	-
Magnolia Warbler	u	r	u	-
Cape May Warbler	o	r	o	-
Black-throated Blue Warbler	o	r	o	-
Yellow-rumped Warbler	c	-	c	r
Black-throated Green Warbler	u	r	u	-
Blackburnian Warbler	u	-	u	-
Pine Warbler	o	-	r	-
Kirtland's Warbler!	i	-	-	-
Palm Warbler	u	-	u	-
Bay-breasted Warbler	o	r	o	-
Blackpoll Warbler	o	-	o	-
Cerulean Warbler*	r	r	r	-
Black-and-white Warbler	u	o	u	-
American Redstart*	u	u	u	-
Prothonotary Warbler*	u	u	u	-
Ovenbird	u	o	u	-
Northern Waterthrush	u	o	u	-
Connecticut Warbler	o	r	o	-
Mourning Warbler	u	o	u	-

Common Name	Sp	S	F	W
Common Yellowthroat*	c	c	c	-
Hooded Warbler	i	-	-	-
Wilson's Warbler	u	o	u	-
Canada Warbler	u	r	u	-
Yellow-breasted Chat	i	-	-	-
Tanagers				
Scarlet Tanager*	u	u	o	-
Sparrows				
Eastern Towhee	o	r	o	-
American Tree Sparrow	u	-	o	c
Chipping Sparrow*	u	u	u	-
Clay-colored Sparrow	i	-	-	-
Field Sparrow*	o	r	o	-
Vesper Sparrow*	u	u	u	-
Lark Sparrow	i	-	-	-
Savannah Sparrow*	c	c	c	-
Henslow's Sparrow	i	-	-	-
Fox Sparrow	u	-	u	-
Song Sparrow*	c	c	c	o
Lincoln's Sparrow	u	-	u	-
Swamp Sparrow*	c	c	c	r
White-throated Sparrow	c	-	c	-
Harris's Sparrow	i	-	-	-
White-crowned Sparrow	u	-	u	-
Dark-eyed Junco	c	-	c	u
Lapland Longspur	o	-	o	o
Snow Bunting	o	-	o	u
Grosbeaks & Buntings				
Northern Cardinal*	c	c	c	c
Rose-breasted Grosbeak*	u	u	u	-
Indigo Bunting*	c	c	u	-
Dickcissel*	-	i	-	-
Blackbirds & Orioles				
Bobolink*	u	u	u	-
Red-winged Blackbird*	a	a	a	o
Eastern Meadowlark*	o	o	o	r
Western Meadowlark	i	-	-	-
Yellow-headed Blackbird*	r	r	r	-
Rusty Blackbird	c	-	c	-
Brewer's Blackbird	r	-	r	-
Common Grackle*	a	c	a	r
Brown-headed Cowbird*	c	c	c	r
Orchard Oriole	o	r	-	-
Baltimore Oriole*	c	c	r	-

Common Name	Sp	S	F	W
Finches				
Pine Grosbeak	-	-	-	i
Purple Finch	r	-	r	r
House Finch*	u	u	u	u
Common Redpoll	-	-	-	r
Hoary Redpoll	-	-	-	i
Pine Siskin*	r	-	-	r
American Goldfinch*	c	c	c	c
Evening Grosbeak*	-	-	-	i
Old World Sparrows				
House Sparrow*	u	u	u	u



Mallards, Kim LeBlanc



Common Yellowthroat, Steve Gasser



Great Egret, Kim LeBlanc

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

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

Individuals with hearing impairments may reach the refuge through the Federal Information Relay System at (800) 877-8339 (V/TTY)

