SHIAWASSEE NATIONAL WILDLIFE REFUGE

Saginaw, Michigan

ANNUAL NARRATIVE

Fiscal Year 1999

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Refuge Manager — Date

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Regional Chief, NWRS — Date

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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 and the Wyandotte NWR are 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 toward reclamation (from marginal agriculture to natural habitats), the state of Michigan established the Shiawassee River State Game Area adjacent to the Refuge. Together, these two areas encompass and practice complimentary management on approximately 20,000 acres of some of the most valuable waterfowl habitat in the State. The Refuge is 9,179 acres.

Shiawassee NWR, a portion of an area known locally as the *Shiawassee Flats*, has a contributing drainage area of approximately 6,060 square miles (10.6 percent of the state of Michigan). Four rivers converge in the Shiawassee NWR and account for the majority of the contributing drainage area. These rivers, along with their drainage area at the nearest U.S. Geological Survey gauge, are as follows: the Tittabawassee (2,400 square mile drainage), the Flint (1,200 square mile drainage), the Cass (850 square mile drainage), and the Shiawassee (640 square mile drainage). 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; Mistequay 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, an arm of Lake Huron.

Topography on the Shiawassee NWR is flat and generally ranges from 580 to 590 feet Mean Sea Level (M.S.L.). Flooding of the Refuge area occurs often, due to the Saginaw River's inability to carry the full load of runoff from the various tributary rivers. Flooding may be compounded by ice blockage of the various river channels during late-winter breakup. Water level elevations in the Saginaw Bay also have a heavy influence on flooding events in the Refuge area. Bay water levels are influenced by winds which may change water level elevations by four feet or more. The average water level in Saginaw Bay is 579.5 feet M.S.L.; however, deviations above and below that level are the rule rather than the exception. Although water level fluctuations from these "wind tides" are not as great on the Refuge as on the Bay, daily changes of one or two feet are quite common. The combination of water levels in the Bay and high river discharges occurring concurrently pose the greatest threat to flooding.

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 current 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 Management District, established in 1988, covers 45 counties in central and southern Michigan. It includes 111 easements totaling 4,607 acres, located in 34 different counties. The District also manages a 22-county area for wetland restorations.

In September, 1993, Shiawassee NWR entered into a partnership with the City of Saginaw through which the Refuge manages Green Point, 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 adjacent to the Refuge.

Currently, the Shiawassee NWR is staffed by nine permanent employees and one term employee. The positions include a refuge manager, three refuge operations specialists, one wildlife biologist, one administrative technician, one tractor operator, one engineering equipment operator, one biological sciences technician, and one park ranger.

HIGHLIGHTS

- **A total of 738 acres of wetland habitat restored through the Shiawassee Private Lands Program (Section 2a).**
- **Second year of drought affects Refuge habitat management (Section 3).**
- **Over 107,000 *Galerucella* species beetles raised for purple loosestrife control (Section 3g).**
- **Three separate bird banding programs conducted on Refuge, including MAPS program (Section 4a).**
- **New land acquisitions total nearly 85 acres (Section 6g).**
- **Public provided with many opportunities both on and off-refuge, to learn about the Service (Section 7).**
- **Comprehensive Conservation Planning for Shiawassee, Michigan Islands and Wyandotte NWRs begins in earnest (Section 8a).**
- **Friends of Shiawassee NWR group formed (Section 8).**

CLIMATE DATA

Shiawassee NWR and the surrounding area experienced a second consecutive year of severe drought conditions. In addition, temperatures were warmer than normal, adding intense drying and drought characteristics to habitats on the Refuge. This left most of the Refuge wetlands without water from mid-summer through the end of the year. Exceptions were Pool 1B, Pool 4 and Moist Soil Unit 1. Other habitats were not so severely affected. Widely scattered rains occurred frequently enough to permit vigorous development of agricultural crops, grasslands, and berry and mast crops. Agricultural crops ripened earlier than usual due to the weather.

1

MONITORING AND STUDIES

1a. Surveys and Censuses

The refuge has several routine, ongoing wildlife surveys and censuses. The following are some of the highlights from these and other survey initiatives in FY 1999.

Spring returning male red-winged blackbirds were noted on February 11. A total of 33 bald eagles were observed on the Refuge on March 8. An abundant population of meadow voles in the wet meadows of the Trinklein marshes sustained record numbers of short-eared owls (state endangered), northern harriers, and rough-legged hawks throughout the fall and winter months of FY-99. Unusual sightings during the year included an American avocet in June, a ruddy turnstone in August, and during the fall, a Baird's sandpiper, an American pipit, and two peregrine falcons.

Dry conditions experienced in the summer of 1998 and continuing on into 1999, reduced the distribution and/or numbers of breeding frog and toad populations. This reduction was most notable for wood frogs, leopard frogs, and green frogs.

Records for sixteen dragonfly and one damselfly species were obtained during the inaugural year of an effort to properly determine and record the basic composition and distribution of the Refuge's *Odonata* community. This information was subsequently submitted to the Michigan Odonata Survey at the University of Michigan Museum of Zoology.

1b. Studies and Investigations

Round Goby Survey on the Shiawassee NWR, Saginaw County, Michigan in 1999.
The Alpena Fisheries Resource Office (FRO), with the assistance of Refuge staff and volunteers, conducted a follow-up to the 1998 study of round goby occurrence on the Refuge. Bank fishing was selected as the method of capture, and volunteer anglers were recruited for one day hook and line fishing surveys in May and August. A total of 27 volunteers participated in the spring survey, while 35 participated in the summer. Volunteers were stationed at three different locations on the Refuge. Many fish were caught (62 in the spring and 47 in the summer) including freshwater drum, channel catfish, and carp, but no gobies were collected during either of the two sampling dates. Ten different species of fish were caught during the study, and a total of 27 species have been recorded on the Refuge since the study began in 1998. The study will continue in 2000, possibly using trap nets.

Survey of Forest Hill Bird population, Goodspeed Easement, Gratiot County.
The Forest Hill Nature Area has a Conservation Easement managed by the U.S. Fish & Wildlife Service and owned by the Gratiot County Soil Conservation District. This study was funded by the Service and completed by Alma College. This 1999 study was a survey of the bird population of the 90-acre Forest Hill Nature Area. The survey was conducted between July 4 and August 8, and resulted in 69 bird species observed during that time period.

Partners for Fish & Wildlife Project-Forest Hill Nature Area.
7/99 JTH

2

HABITAT RESTORATION

2a. Wetland Restoration

On-Refuge

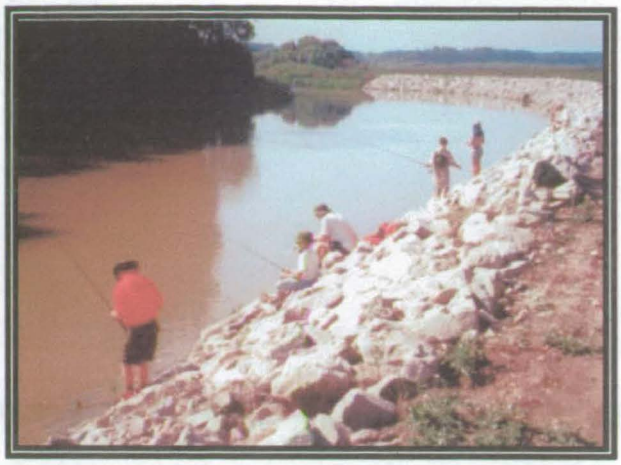
Shiawassee NWR enhanced wetland management capabilities on 430 acres of existing wetland habitat on the Refuge. Projects included the reconstruction of 1,200 linear feet of low level dike and the placement of rock rip-rap along the east dike of Pool 2. A total of 1500 feet of the east dike of Pool 1A was reshaped and fortified with riprap. The Pool 2 and Pool 1A projects were completed through a $92,000 Saginaw Bay Watershed – North American Wetland Conservation Act Grant (NAWCA). Funds were provided by Ducks Unlimited, Inc, Great Lakes Regional Office.

The Moist Soil Unit 2B dike was mulched and seeded, and the Moist Soil Unit 1 pump was reconditioned. The Pool 1A-1B pump was reconditioned, the inlet and outlet screw gates were repaired, and 500 linear feet of inlet ditch leading to the pump were cleaned out. A total of 1000 linear feet of farm ditch leading to the Bremer pump (along Farm Unit 2) was also cleaned out.

Table 2-1. On-Refuge Wetland Restorations

UNIT	ACRES	ACTIVITY
Pool 2	115	Reconstructed east dike, and riprapped drain side of dike.
Pool 1A	315	Re-shaped and riprapped 1500 feet of the east side of dike along Spaulding Drain.
TOTAL	**430**	

A total of 1,500 linear feet of Pool 1A dike was resloped and fortified with riprap.
8/9/99
EPD



Pool 1A dike following improvements. Anglers in photo are boy scouts assisting with the Alpena FRO's goby research (Section 1B).
8/28/99 EPD

Off-Refuge

The Shiawassee National Wildlife Refuge Private Lands Office (PLO) administers a 22-county Private Lands Management District (PLMD) located in central Michigan. Seventeen wetland basins were restored for 131 acres in 6 counties within the PLMD, under the Services's Partners for Fish and Wildlife Program (PFW) in partnership with the Timberlands Resource Conservation and Development Council and the Mason Lake Conservation District.

The Shiawassee NWR-PLO in partnership with the East Lansing State PLO was involved in two North American Wetland Conservation Act (NAWCA) Grants for fiscal year 1999. The $105,000 Lower Michigan NAWCA grant administered by the Michigan Association of Conservation Districts, in partnership with Ducks Unlimited, Inc ($115,000 contributor), County Soil Conservation Districts, Pheasants Forever, Wetlands Foundation of West Michigan, Michigan Department of Agriculture, Michigan United Conservation Clubs, the PFW program, and private landowners was completed in May of 1999. The Lower Michigan NAWCA grant covered 40 counties in the lower peninsula of Michigan, excluding the 22 counties of the Saginaw Bay Watershed. The primary delivery of this grant was the Service's PFW Program. In 1999 the Lower Michigan NAWCA grant resulted in nine wetland basins restored in four counties located in the Shiawassee PLMD for 39 acres.

A second NAWCA grant utilized in 1999 and delivered through the Service's PFW Program, was a $750,000 Saginaw Bay Watershed Grant which encompassed the 22 counties of the Saginaw Bay Watershed. The private lands component of this grant provided $260,000 in 1998-99 for the Shiawassee NWR, East Lansing Ecological Services PLO, and the East Lansing State PLO. This Grant is administered by the Great Lakes Regional Office of Ducks Unlimited, Inc and is in partnership with the Michigan DNR, Michigan Duck Hunters

Association, Michigan Natural Resources Trust Fund, county drain commissioners, Bay Area Community Foundation, county Soil Conservation Districts and private landowners. In 1999, the Saginaw Bay Watershed Grant resulted in 161 wetland basins restored in 18 counties located in the Shiawassee PLMD for 568 acres.

2b. Upland Restoration

On-Refuge

The Refuge restored 1 acre of native grassland and wildflower habitat adjacent to the Refuge headquarters on Mower Road.

Off-Refuge

The PFW Program restored 137 acres of native prairie grassland habitat on 7 properties adjacent to restored PFW wetlands in 5 different counties, to provide nesting cover for waterfowl and other songbirds. The grassland was seeded with a native grass drill provided by the Michigan Department of Natural Resources and Pheasants Forever of Michigan. Seed and site preparation costs were provided by Ducks Unlimited, the Saginaw Bay Watershed NAWCA Grant and the PFW Program.

2c. Riverine Restoration

On-Refuge

Nothing to Report.

Off-Refuge

The Shiawassee NWR-PFW Program was able to complete several instream fish habitat

Fish habitat restoration project Martin Creek
(Muskegon River Watershed)
Gale Nobes, Newaygo NRCS

restoration projects in the Shiawassee PLMD. In partnership with the Timberland Resource, Conservation and Development Council, the Gerber Foundation, Michigan Wildlife Habitat Foundation, and the U.S. Forest Service, 1,375 linear feet of trout stream habitat in the Muskegon River watershed were restored. An additional 1.5 mile reach of warm water stream habitat on the North Branch of the Bad River was completed in partnership with the East Lansing State PLO, Michigan Wildlife Habitat Foundation and the Friends of the Bad River. The Bad River flows directly into the Refuge and is part of the larger Saginaw Bay Watershed.

2d. Deepwater/Coral Reef Restoration

Nothing to Report.

3

HABITAT MANAGEMENT

3a. Water Level Management

The ability to manage Refuge wetlands is tied directly to the level of the Saginaw River System and Saginaw Bay, which is part of Lake Huron. Over the last 30 months Lake Huron levels have dropped from near record highs to depths at or below average levels; with corresponding implications for management of Refuge wetlands.

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

Pool 1A
This 315-acre open water unit operates chiefly as a loafing area for waterfowl. Pool 1A also supports year round habitat for a variety of marsh birds and occasional seasonal habitat for shorebirds. With the conversion of 241 acres in the Trinklein Tract, Pool 1A acts as one portion of a complex used by the birds. The Refuge operated the unit as an emergent marsh/open water area during the spring flights. However, in 1999, the ongoing drought never permitted the water table to recover much above ground level leaving the unit almost entirely dry through the year. Scattered shallow water areas provided some wildlife habitat, but use figures declined for all species. The unit finished the year totally dry with massive amounts of available moist soil seeds left unused. Refuge staff took advantage of the dry conditions to continue repairing portions of the dikes surrounding this wetland.

Pool 1B
This 190-acre unit operates in a similar fashion to Pool 1A. Encroachment of woody species from scattered islands and along dikes has developed a unique habitat for some of the wading birds such as herons and bitterns. The trees have reached a height that offers nesting potential for night herons. This Pool followed the same pattern as reported for Pool 1A, with the unit gradually drying out over the year. However, precipitation was able to recharge the water table on this unit enough so portions of the Pool remained wet for the entire year. Waterfowl and wading birds took advantage of these wet sections. No dike repairs were carried out on this Pool.

Pool 2
This 115-acre Pool has just recently been restored as a manageable wetland. For years structural failure of the north dike allowed the unit to revert to a homogeneous stand of cattails. Repairs carried out from 1994 through 1997 permitted Refuge staff to place water on

the Pool year-round and muskrats aided in management efforts to move the unit toward a hemi-marsh condition. However, in 1998 and 1999, the Pool took a step back with drought and drawdowns drying out the entire unit early in the year. This allowed the unit to slip back towards a homogeneous stand of cattails with few if any muskrats present. The maintenance staff was able to reseed portions of the repaired dikes and raise the dike elevation on the east side of this Pool.

Pool 2 dike improvements included elevating the dike and riprap placement on the slopes
8/18/99 EPD

Pools 3 and 5

These two units total 820 acres and are managed as a greentree reservoir. The continuing drought and low river levels simply did not permit the units to be used as greentrees at any time during the year. Precipitation was barely able to recharge the slough area during the spring and early summer. However, by late summer drought conditions caused the slough to revert to scattered intermittent pools. Fall rains never came and the slough remained in a dry state for the rest of the year. The dike separating these Pools from the Spaulding Drain has been eroding for years. In 1998 the area was surveyed and soil samples were taken as a first step toward offsetting the dike and road running along the drain. Construction work is scheduled for 2000.

Pool 4

Land exchange negotiations with the State of Michigan for this isolated 440-acre tract may be finalized by the summer of 2000. There is little interest in rehabilitation or repairs to currently deteriorated dikes and water control structures on this Pool until the status of the tract is finally decided.

North Marsh

North Marsh is a 113-acre wetland providing a stable emergent marsh habitat used by waterfowl, marsh and shorebirds plus a variety of other wildlife. Continuing drought plus low river and lake levels gradually moved this wetland unit from a mosaic of wet and dry areas to

an area entirely dry except for the extreme north central portion of the marsh. This resulted in aerobic soil conditions and a lush growth of moist soil plants. However, the continuing dry conditions resulted in a drop in bird use throughout the year and little use was made of these plants.

Trinklein 1N, 1C and 1S

This area was used extensively by wildlife in 1999 as a feeding, loafing and brooding area. The year started wet, offering excellent waterfowl use during the spring flight. In late spring, stop log boards were removed from the water control structures to provide more of an interchange between the wet and dry areas for shorebird use. The severe drought continued to dry the unit out over the summer. Heavy moist soil plant development occurred, but the unit went into the fall and winter totally dry, offering little opportunity for wildlife use.

3b. Moist Soil Management

The Refuge currently has five units designated as moist soil units. By the end of the year the Refuge had renovated the Kaufmann Tract and currently plans to manage the tract as a moist soil unit. The following summarizes activities and results for the year.

Moist Soil Unit 1

This 137-acre wetland is operated for optimum feeding potential for waterfowl during the spring and fall flights. The unit also provides mudflats for shorebirds after the waterfowl migration. In 1999, water was retained for the spring flights through the first part of April, offering good use by waterfowl and shorebirds. The unit was drained in early summer to dry the ground sufficiently to permit power line equipment access for needed repairs. In August, after the repairs were completed, the unit was disced to set back succession and retard undesired plant development. In addition, the west dike was seeded and mulched to help stabilize the slopes. This was one of the few units where the Refuge was able to add water during the fall. The added water provided conditions that were used to advantage by shorebirds and waterfowl. This tract went into the winter with about 70% of the area covered by standing water.

Moist Soil Unit 2

This unit is operated and managed with the same intent as MSU 1. The area also experienced the same water regime through the year. Migrating birds were able to make good use of the unit during the spring. The early drawdown not only optimized use by puddle ducks and shorebirds, but allowed time for the staff to complete final alterations to the newly subdivided unit. The Refuge now has independent water control to each of the three separate moist soil units in these two fields. The severe drought experienced this year offered little opportunity for water manipulations to alter vegetative response. However, during the summer and fall, improvements to the west portion of the unit were carried out. The west dike was seeded and mulched to help stabilize the slopes, the west subunit (MSU 2W) was plowed to set back succession and unit 2E was mowed to prevent seed development in the purple loosestrife community there. Low river levels and repairs required on the pump left the subunits dry

going into the winter.

Moist Soil Unit 3
A planned water regime is not possible on this 92-acre unit due to dike and water control weaknesses. As a result, the management objective of providing feeding and loafing habitat for migratory birds is dependent on unpredictable weather patterns. This year, river levels and weather patterns left the unit dry for most of the year. Some spring use was reported. An interesting historic cordgrass community has reestablished itself over most of the unit. Any future dike repairs or renovation work should take into consideration this developing grassland community and the height needed to maintain and manage this habitat independent from the rest of the area.

Moist Soil Unit 4
This 82-acre unit is adjacent to MSU 3 and operates under the same weaknesses as mentioned above. This unit also suffered from severe drought which left the field dry for most of the year. Some spring use was reported in the northern part of the unit where puddles and mudflats offered some habitat use. The unit has separated into three minor habitat types; with an emergent marsh in the northern section, woody shrubs and brush dominating the central section and the southern portion comprised of grasses and wetland vegetation.

Kaufmann Tract
This 51-acre wetland is managed as a moist soil unit. The drought this past year offered limited spring use by wetland bird species, with no summer or fall use of any kind. About the only use experienced this year was by raptors and some grassland species. This tract has water management problems associated with adjacent land owners. Historically, the landowners near this wetland drained their fields through the Kaufmann Tract, with the previous owner's consent. Now that the Refuge is operating the area as a moist soil unit, the adjacent landowners are having difficulty draining their areas and must find alternate means for moving water from their fields. To accommodate the landowners this year, the unit was allowed to drain in late spring, and finished the year totally dry.

3c. Graze/Mow/Hay

The Refuge has approximately 580 acres of grasslands in several scattered parcels. Most of the tracts are naturally maintaining themselves in meadow-like conditions while the remainder are slowly converting to brush habitat. 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, limited nesting opportunity for resident species, and a ready food source for raptor populations during the year. Two small grassland tracts (near the Curtis Road parking lot and observation platform) which were seeded in 1998 showed signs of a developing big bluestem community, but forbs seeded with the grass displayed limited progress. The Refuge has mowed the fields several times early in the growing season to set back cool season plants. However, it will take a few more years before it can be told

how well these tracts will do.

3d. Farming

The Refuge manages 1,180 acres as cropland under a soybean/corn/small grain rotation. The primary objective for the program is to provide food for waterfowl during the spring and fall flights and support the managed goose hunt. The 1999 growing season was excellent for the cooperators. The unusual warm and dry conditions allowed the farmers to seed the fields early and the scattered summer rains came frequently enough to provide top yields. Warm weather and extended drought through the fall allowed the cooperators to experience earlier harvest dates. Crop depredation was a minor issue this year due to the early height of crops and the early harvest offering little opportunity for wildlife impacts.

3e. Forest Management

The 4,225 acres of forested habitat at Shiawassee NWR include two tracts that operate as a greentree reservoir. The acreage is almost exclusively bottomland hardwoods made up of second growth even-age timber. The forest management goal is to develop a two-tier canopy forest, favoring mast and cavity producing trees without jeopardizing populations of forest interior birds. Regeneration of the selective and clear cuts, carried out in the late 80's have shown steady improvement, after the deer numbers were dropped below threshold levels. Deer numbers have stabilized at approximately 30 per square mile and seedlings such as green ash and cottonwood have shown significant growth. Other tree species such as oak and hickory appear to be at the break-even point, where the plant is surviving but almost the entire year's growth is being browsed. The mast producing seedlings planted in 1997 suffered additional mortality, now totaling 30%, as a result of drought and mice nipping off the seedlings. Buckthorn is invading the edges of several wooded tracts. Efforts to set back this invasive development will be undertaken in the year 2000.

3f. Fire Management

In 1999, spring conditions offered ideal circumstances to complete a number of prescribed burns. However, most of the time personnel were not available due to trips, training and leave. Successful burns were completed on portions of the Trinklein Dikes and the western half of the Schrems grassland located on the north portion of the Refuge. During the Schrems burn, Thomas Township firefighters supported Refuge staff with additional equipment and personnel. No wildfires were experienced this year.

3g. Pest Plant Control

In the fourth year of *Galerucella* species beetle production for control of purple loosestrife, the Refuge began with approximately 600 beetles, most gathered from overwintered outdoor plants, and a few that survived overwinter storage in the refrigerator. An additional 1,190 overwintered beetles were acquired from Michigan State University (MSU). A total of 107,586 beetles were raised this summer, of which 84,031 were released on the Refuge. Ottawa NWR took 21,850 beetles on netted plants, and 1,705 beetles were released on Thunder Bay Island. Approximately1,200 beetles were kept to overwinter on plants in the beetle nursery. In addition, 14,000 beetles were brought from MSU and released directly onto the Refuge. Permanent plots were surveyed at two established release sites, to monitor beetles and purple loosestrife response over time.

Purple loosestrife plants, cottonwood, and willow seedlings were hand-pulled over areas of the Trinklein 1C unit. In the Trinklein 1N unit, several stands of young willows and cottonwoods were mowed in the fall. Several thickets of young willows were cut by hand in MSU 4. Approximately 39 acres of purple loosestrife were mowed (during flowering period) in MSU 2 to decrease seed production.

4

FISH AND WILDLIFE MANAGEMENT

4a. Bird Banding

The Refuge operated three banding programs this year. These included the usual waterfowl banding program, the development of a new Monitoring Avian Productivity and Survivorship (MAPS) banding site, and assisting the Michigan DNR with banding resident goose populations. During the fall waterfowl banding operation, the Refuge captured and banded 23 black ducks, 9 green-winged teal, 6 wood ducks and 8 mallards. The Refuge also assisted DNR personnel with banding 350 mallards in the Shiawassee River State Game Area.

The MAPS program is coordinated through the Institute for Bird Populations based in Point Reyes Station, California. The MAPS banding location on Shiawassee NWR is a grassland site within the Trinklein 1S unit. Volunteers operating the banding site were able to capture and band 66 birds comprised of red-wing blackbirds, sedge wrens, common yellowthroats, least flycatchers, American goldfinch, tree swallows, rough-winged swallows, savannah sparrows, indigo buntings, eastern kingbirds, song sparrows, common grackle, yellow-shafted flicker and belted kingfisher.

The Refuge assisted the Michigan DNR with banding local Canada geese on the Refuge. A total of 96 geese were "rounded-up," captured and banded.

Canada geese were guided toward this portable pen placed on the shoreline of a borrow pond. A total of 96 Canada geese were captured and banded.
7/1/99 EPD

4b. Disease Monitoring and Treatment

Since the establishment of the refuge in 1953, conditions have rarely offered opportunities for disease outbreak situations. However, in 1998 and again in 1999 wetland habitats, particularly through the summer and early fall, seemed to offer ideal conditions for the potential outbreak of botulism. The wetlands were characterized by shallow water, high ambient temperatures, low oxygen content and rotting carcasses of hundreds of fish. The staff watched diligently for problems to occur, but the Refuge moved through the seasons without an incident; though outbreaks were reported in Saginaw Bay.

4c. Reintroductions

Nothing to report.

4d. Nest Structures

The refuge operates two nest box programs for wood ducks and bluebirds. A total of 22 nest structures have been placed on the refuge for the bluebird program and 36 for wood ducks. The 1999 results showed three songbird species using the boxes with 88 young fledged, including 5 eastern bluebirds, 37 house wrens, and 46 tree swallows. The wood duck program results showed wood ducks and hooded mergansers using the boxes with 222 wood ducks and 12 hooded mergansers fledged.

4e. Pest, Predator and Exotic Control

Nothing to Report.

5

COORDINATION ACTIVITIES

5a. 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 which are interested in the environmental improvement of the system. Refuge staff participate in the Agricultural, Land Use, Wildlife Stewardship, and Water Resources Task Groups. The Dow Foundation and The Conservation Fund are the lead funding organizations involved in WIN.

Each year Shiawassee NWR coordinates both the goose and deer hunting programs with the Shiawassee River State Game Area and the Shiawassee Flats Advisory Council. The Michigan DNR has designated both state and federal areas as Deer Management Unit 222 and the Saginaw County Goose Management Unit, with goose and deer populations viewed as one management unit within the area. To regulate the harvest and the hunting pressure, both state and federal staffs meet year round to work out any differences.

The Refuge staff met with the Natural Resource Conservation Service throughout the year to discuss sites within the Shiawassee NWR boundary expansion plan that could be entered into the Wetland Reserve Program. Sites were identified but funding differences between the agencies have held up the process. The Refuge has a list of approximately 20 landowners that have requested the Service to purchase their lands, but the Service lacks funding.

The Refuge staff met on a couple of occasions with the Flint River Dike Board and the Saginaw County Drain Commission regarding the Misteguay Dike rehabilitation project. The Drain Commission, the Board and Service personnel have all agreed that the dike both on and off the Refuge needs to be repaired. Both federal and private lands and facilities will be damaged in the future without the rehabilitation project being completed. The Service requested funding through the MMS process, and local agencies are looking to assess local landowners and request both state and federal funding.

Refuge staff met throughout the year with representatives from The Conservation Fund regarding the purchase of the Warner Tract and the donation of the Bridgeport Township Tract in Bridgeport Township to house the future Great Lakes Discovery Center. The Conservation Fund met with Mr. Fred Warner to discuss his willingness to sell. Both tracts combined total over 400 acres of upland, bottomland hardwoods, buttonbush marsh, and riverine habitat.

This station participates in the Midwest Natural Resources Group (MNRG) for the Saginaw Valley Watershed and the Lake St. Clair/Detroit River focus areas. The MNRG consists of the 14 federal agencies that deal with natural resources within the Midwest. This group has identified these two focus areas as areas of concern. Refuge staff have provided habitat and wildlife management within both focus areas with Shiawassee NWR and Wyandotte NWR located in the heart of each area. Refuge Manager Spencer attended the annual meeting of the MNRG in Lake Geneva, WI on November 17 -19.

Refuge staff participate on the Waters for Wildlife Technical Committee for the St. Clair River. On December 17, Refuge Manager Spencer discussed habitat loss in this watershed and provided ideas for outreach to the local school systems.

The Refuge staff throughout the year participated in technical committee meetings for the American Heritage River program for the Detroit River. The meetings identified projects that federal, state and local agencies, as well as private organizations could collaborate on through combined funding or in-kind services.

5b. Tribal Coordination

Nothing to report.

5c. Private Lands Activities

The Shiawassee Wetland Management District (WMD) is responsible for a 45-county area located in southern Michigan. Currently, the WMD administers 111 conservation easements in 34 counties, totaling 4,607 acres. Two of the 111 conservation easements were transferred in fee title to two County Soil and Water Conservation Districts to be managed as outdoor education areas.

Enforcement problems continue to occur on many of the conservation easements. Annual inspection visits continue to identify posting and minor easement violations. Resale of easements and property (easements) division continues to occur and many easements have not been inspected in three to four years. One Special Use Permit was issued to a land owner of a conservation easement to allow the cutting of downed trees damaged in a severe storm in the spring of 1998. Shiawassee NWR has one person to implement the PFW Program and manage the 111 conservation easements on the WMD. Additional funding through the establishment of a Waterfowl Production Area in Southern Michigan would allow for the hiring of staff to effectively manage the 47-county, 4,607-acre conservation easement program and the 22-county PFW Program.

Technical Assistance Programs
A total of 119 sites on private lands in 25 counties received technical assistance through the Private Lands program. This assistance was in the area of potential wetland development, fish pond development, game species management, and other wildlife habitat and management information.

Swamp buster actions are non-existent with the Natural Resource Conservation Service (NRCS). Debt write-down requests for farmers appear to be increasing with two requests made for technical assistance from the Refuge late in 1999.

Wetland Reserve Program (WRP)
The Shiawassee National Wildlife Refuge - PLMD assisted the NRCS, Saginaw Bay and Lake Huron WRP Teams in determining wetland eligibility and ranking requirements for 18 sites. These were sites which were registered for the 1999 Wetland Reserve Program across southern Michigan. The WRP team consists of an NRCS soil scientist, engineer, and District Conservationist, and a Service or State biologist. Five tracts were accepted into the 1999 WRP program and four sites from the 1998 sign up are having WRP Plans Of Operation developed by NRCS with the assistance of the Shiawassee NWR Private Lands Office.

6

RESOURCE PROTECTION

6a. Law Enforcement

There are presently three commissioned refuge officers on the staff. Nine violation notices and five formal warnings were issued during the year, mostly for hunting regulation and Refuge trespass violations. A total of 42 incidents were recorded during the year, which included vandalism of Refuge signs and gates, and Refuge trespass into closed areas.

Green Point ELC was broken into on November 2, 1998 at 11:36 p.m. Saginaw City Police arrested an adult male for breaking and entering. The individual broke out a window in the front office and had taken the phone off the desk. The individual's sentence included paying the City of Saginaw restitution for repairing the broken window.

RO Becky Goche turned over to State Conservation Officer Kimmerly a case which involved four people and an illegally harvested deer taken on the Refuge on December 15, 1998. RO Goche and Biologist Jim Dastyck received a tip from two hunters who noticed suspicious individuals hunting within the Refuge. There were actually three brothers (one legally hunting, two hunting illegally) on the Refuge that day, using another person's Refuge-issued permit and state license. In January, RO Goche assisted in the arrest of the deer poacher. His State-issued sentence included paying over $1,000 for the fine and restitution, and loss of his hunting privileges for three years.

In another case involving cooperation with the DNR, an individual who had been observed removing artifacts from the Refuge was apprehended by CO Kimmerly in June. The subject was subsequently served a search warrant of his home, which resulted in the seizure of 328 archeological artifacts, including 136 pieces which the subject confessed he removed from the Refuge. The case was turned over to RO De Vries who fined the individual a total of $1,200 for appropriation of objects of antiquity from federal land and for refuge trespass. This case is pending in federal court but when it is concluded the seized artifacts will be placed in a display for educational purposes.

RO Goche attended PPCT Defensive Tactics Instructor course in February, 1999. She is now a certified instructor and will assist with training at law enforcement refreshers.

Law enforcement refresher training was completed by all three officers in Des Moines, Iowa in late March-early April. Semi-annual weapons requalifications were completed in September.

6b. Permits and Economic Use Management

A total of twelve Special Use Permits were issued this year for activities which included permits to allow military training, archaeological research, beekeeping, mosquito control (Saginaw County), tree removal, Refuge photography within closed areas, and camping on Thunder Bay Island (MI Islands NWR).

6c. Contaminant Investigation

On June 10, a major sewage release in the City of Flint resulted in the escape of 22 million gallons of human, industrial, and commercial waste into the Flint River. The Flint River flows into the Shiawassee River and then the Saginaw River via the Shiawassee NWR. The release was monitored by the Saginaw County Dept. of Public Health and Michigan Dept. of Environmental Quality as the polluted plume made its 60-mile journey to the Saginaw Bay. Elevated, dangerous levels (2-4 times the safe level) of E. coli bacteria were detected. The contamination diluted as it traveled through the system, but public advisories were issued for the Flint and Saginaw Rivers throughout the month. During this period, Refuge staff detected no fish or wildlife die-offs associated with the spill.

Also in June, Refuge staff were alerted to the leakage of creosote from the newly constructed Refuge bridge over the Birch Run Drain. Michigan DEQ reported the discharge on June 9, along with the discovery of dead fish and aquatic insects near the bridge. Refuge staff investigated the problem and found a steady drip of excess creosote from the treated bridge timbers into the waterway below. The R-3 Div. of Engineering as well as the bridge contractor were alerted to the problem and absorbent booms were placed in the water on either side of the bridge as well as below the bridge. Evidently an excess amount of creosote oozes out of the timber bridge whenever the temperature reaches a certain level, and will continue to leak until the problem is corrected. The leakage diminished in the fall, when temperatures cooled. Ecological Services contaminant specialists are aware of the problem and the R-3 DEN office was investigating possible solutions at year's end. The booms are still in place floating near the bridge with diaper-like absorbent material suspended under the bridge.

Three Level I Contaminant surveys for land acquisition were completed in FY-99, including the Case Tract (52 acres), the Warner Tract (113 acres), and the Shultz Tract (74 acres). No hazardous substances or other environmental problems were noted on the Case and Warner Tracts, however the Shultz Tract will require clean up of suspected hazardous substances by the landowner before the property is transferred to the Service.

6d. Contaminant Cleanup

The 500-gallon underground waste oil tank at the shop/maintenance facility was removed by

Kessler Environmental Excavating in December, 1998. This work was ordered by the Region 3 Engineering/Safety Office as it was thought the former tank was steel and single-walled. The former tank was actually double-walled, fiberglass, only 13 years old, and in fine condition when it was removed. The new tank is also double-walled fiberglass, and has the added feature of a spill monitor alarm system. Total cost of the contract was $ 13,600.

A storage shed to store hazardous materials was purchased at a cost of $ 5,306 and installed on a concrete pad at the shop/maintenance facility. The shed is double-walled metal with a containment basin which will retain up to 50 gallons of spilled liquid.

Double-walled contaminants storage shed purchased with Safety funding.
2/10/00 EPD

6e. Water Rights Management

Nothing to report.

6f. Cultural Resource Management

A contracted Overview Study of Archeological and Cultural Values on Shiawassee NWR is being completed as part of the Refuge Comprehensive Conservation Plan (CCP). The Michigan Islands and Wyandotte NWR's are also being researched for cultural resources under the same study. A draft report was completed and comments were submitted in June, but the final report hadn't been received by year's end.

Due to low river levels and the potential for loss of archeological information as sites are exposed through erosion with the resultant vulnerability of the artifacts to removal, an Archaeological Resources Protection Act permit was issued to the Historical Society of Saginaw County to monitor and collect artifacts from exposed sites. The permit was issued

by the R-3 Regional Director so that known sites could be monitored and additional sites documented. The permit was issued in July and the survey continued through the end of the year. All artifacts collected, as well as information and field notes are being curated at the Saginaw Archeological Commission repository, with a report of findings to be submitted to the Service.

In July, the Shiawassee NWR was contacted by the US Department of Interior's Office of Surface Mining (OSM). The OSM had contracted Monarch Environmental and Manis Drilling to seal the mine shaft at the coal mine site south of Hart Road. This mine has been defunct since the early 1900's, and the work was planned to comply with safety standards. No work was completed this year due to work schedule conflicts with the contractor.

6g. Land Acquisition Support

On December 16, Mr. & Mrs. Win Case of Thomas Township donated to the Refuge 52 acres of bottomland hardwoods adjacent to their residence near the Tittabawassee River. Located on this tract is a great blue heron rockery. This is the first tract of land acquired by the Service in Thomas Township. Refuge Manager Spencer and ROS DeVries presented Mr. And Mrs. Case with a signed appreciation plaque from the Region 3 Director for their support of the Shiawassee NWR.

Win and Mary Case donated 58 acres of bottomland habitat to the Shiawassee NWR.
6/3/99 EPD

In January, the Refuge acquired a 33 acre wetland tract (Leach) through a funding grant of $44,000 from the Saginaw Bay North American Conservation Act and Ducks Unlimited, Inc. The land is located along the Cass River, west of M-13. It is mostly agricultural land with approximately 10 acres of shrubs and trees along the river.

Throughout FY-99, Refuge staff and Peg Kohring from The Conservation Fund (TCF) met with Mr. Fred Warner in Bridgeport Township to negotiate the acquisition of his 113 acre tract which consists of an apple orchard and bottomland hardwoods and sloughs along the Cass River, adjacent to I-75. A portion of the tract is zoned commercial and has very good access to and from I-75. Over 3 million travelers utilize this interchange annually to visit the Village of Frankenmuth which is a few miles from the site. On December 11, TCF signed an option with Mr. & Mrs. Warner to hold the tract for the Service for a year while a funding source is found. The Service and TCF both appraised the tract at a value of $835,000. Bridgeport Township officials agreed to lease to the Service 337 acres of land the Township owns, once the Warner Tract is purchased. The Township land lies adjacent to the Warner Tract, is comprised primarily of bottomland hardwoods and sloughs, and would be used for recreational purposes. The Township expects that trails and public facilities will be provided by the Service once the tract is leased.

On April 6, Ducks Unlimited, Inc. agreed to provide $156,000 to assist in the purchase of the Warner Tract. Congressman Dave Camp (District 5) requested $835,000 of funding from the House Appropriations Committee. The Committee contacted this office requesting that the "Friends of Shiawassee NWR" sign a Memorandum of Understanding stating that once the land is acquired, the Great Lakes Discovery Center will be housed there and will be constructed by matching private or state funds, with the stipulation that the Center will be a FWS facility. On July 31, the M.O.U. was signed by the president of the "Friends" and forwarded to Washington, DC. On August 16, U.S. Congressman Dave Camp and U.S. Senator Spencer Abraham visited Shiawassee NWR to address both the staff and the Great Lakes Discovery Center committee members concerning the progress of the funding for the Warner Tract. At that time, the spending bill had made it through the House and was awaiting Senate approval. Meetings with federal, state, county, local and private organizations (Ducks Unlimited, Trout Unlimited, Pheasants Forever, Michigan United Conservation Clubs, etc.) were held throughout the year to discuss the status of the Congressional funding for the Warner Tract and how the committee would raise private matching funds for the Great Lakes Discovery Center.

Throughout the year both the Michigan DNR and the Service continued the process of transferring the Service's Pool 4 area to the State, with the DNR purchasing approved lands from the Shiawassee NWR expansion plan. The DNR purchased an additional 40 acre tract (Sawatzki) east of M-13 in Spaulding Township this year, bringing the total acres acquired by the State to 189. Once both agencies agree that the state has acquired enough land to match the appraised value for the Pool 4 area, the exchange will take place.

While the Service awaits the Bureau of Land Management transfer of Thunder Bay Island to the Service after the US Coast Guard removes contaminants from the island, the Thunder Bay Island Preservation Society has been negotiating with U.S. Congressman Stupak to transfer a portion of the island to them. The Society is interested in the southern portion of the island which houses the lighthouse, tower, generating building and life saving station. Congressman

Stupak agreed to intervene if both parties wish it. The Service is in agreement to transfer the historical structures to the Society while the Service retains most of the land. In September, Refuge Manager Spencer met with members of the Society to agree upon boundaries of the island and develop a map to be used in the transfer.

The process to transfer the Charity Islands to the Service continued this year. In October, a Level I Contaminant Survey was completed by the E. Lansing Field Office. In July, RM Spencer and Regional Appraiser Rick Johnson visited Big Charity Island to perform a site visit for the appraisal of the remaining tracts of land that were not part of the original transfer of land from the General Motors Corporation. In August RM Spencer and Dr. Bill McCort (TNC) met with Attorney O'Rouke, administrator for the lighthouse tract on Big Charity Island. The owners of this tract are willing sellers and are negotiating with TNC to purchase the tract for the Service.

In April, Refuge Manager Spencer and Refuge Field Supervisor-1 Siegfried met with the City of Ecorse mayor and city council members to discuss the possible donation of Mud Island to the Service from the potential owner, National Steel Corporation. Mud Island would be an addition to Wyandotte NWR, located in the lower Detroit River. National Steel Corporation and a local Ecorse citizen are in disagreement of the ownership of the island. The courts are litigating over the issue. Mud Island and other lands (Humbug Marsh, Calf and Stoney Islands, etc.) in the lower Detroit River have been discussed by Congressman John Dingell and the American Heritage River Navigator John Hartig as possible additions to the Refuge. The Service is looking into this possibility.

U.S. Senator Spence Abraham and Representative Dave Camp visited the Refuge in August to discuss the Great Lakes Discovery Center.
8/16/99 EPD

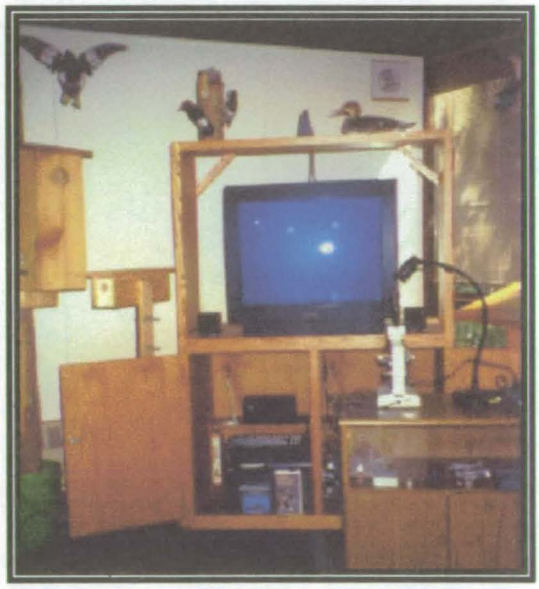
7

PUBLIC EDUCATION AND RECREATION

7a. Provide Visitor Services

In fiscal year 1999, a total of 69,634 visitors came to the Refuge to participate in a variety of public use activities, including a record number of 940 people on the auto tour route at the annual Refuge Open House on September 11, 1999. Green Point ELC had a total of 5,908 visits during the year.

During the year, Refuge staff provided educational programs for 2,644 students of all ages both on-site and off-site. Green Point ELC hosted an "Educator's Environmental Fair" on September 9, 1999, from 3:00 p.m. to 6:00 p.m. Ten organizations participated either by hosting an exhibit or by providing materials for distribution.



Video microscope at Green Point ELC
8/99 RSG

Green Point ELC received a $1,880 grant from the Michigan Natural Heritage Program in 1999. The grant money was used to purchase a flexvideo camera, microscope, and other materials needed for the "Video Microscope Exploration Station." This equipment is used with the Gateway computer system donated to Green Point as part of an Eagle Scout project.

The "Video Microscope Exploration Station" will help Green Point staff teach students about the microscopic world around them. An entire class will be able to view a slide at one time. No more waiting to take turns to see what's under the microscope.

The "First Wednesday Discovery Series" programs at Green Point ELC continue to be popular. Programs were held every month except July and August (too hot and low attendance last year). Even with the shorter season, 336 people attended the programs, up slightly from 318 people in FY1998. Topics each month were: Blind Trail Walk, History of Riverside Park, Night of the Wolf, The Call of the Loon, Mammals of the Canadian Rockies, Great Grizzlies, Butterflies, Words for the Birds, Hitting the Trail: A Camping Primer, and Edible Plant Walk.

The International Migratory Bird Day Celebration on May 8, 1999, attracted 50 people. Michigan United Conservation Clubs (MUCC) staff presented their live "Michigan Birds of Prey" program. Other events included a guided bird hike, bluebird nest box building, and the "Bird Trivia Contest."

The Refuge offered goose hunting, deer hunting and trapping to the public under a permit system. Special deer hunts were held for youth and non-ambulatory hunters, in addition to the regular archery, muzzle loader, and shotgun hunts. Two people were awarded permits to trap specific areas of the Refuge for various fur bearing mammals. See Table 7-1 for a summary of the hunting and trapping programs.

Table 7-1. Data for FY 1999 Hunting and Trapping Program on the Refuge

	Total Visits	Harvest	Hunter Success
Goose Hunt	1,013	379	39%
Deer Hunt	1,232	228	28%
Trapping	90	1,225	4.24 fur bearers/hour

7b. Outreach

The Refuge reached 25,763 people of all ages through various outreach activities during the year. Refuge staff participated with the "Great Lakes Ecosystem" exhibit at MUCC's Outdoorama 1999 in Novi, MI, and at the Sustainable America Conference in Detroit in May, 1999. The Refuge reached over 200 high school students at career fairs at Saginaw and Birch Run High Schools. Approximately 250 people viewed the Refuge exhibit at Central Michigan University's Environmental Fair on November 16, 1998. A total of 110 students at Jerome Elementary School learned about endangered species and what the Fish and Wildlife Service does to protect them at the "Read Across America" day on March 2, 1999.

Nearly 200 children registered for the Kids Free Fishing Day
6/5/99 EPD

The annual "Scout Reach Day Camp" in June was held at Ojibway Island in Saginaw. Over 200 boys and girls, aged 5 to 14 years attended. Many agencies and organizations participate in this camp. The camp's goal is to reach inner city youth and expose them to different recreational and educational activities to spur their interests in either Boy or Girl Scouts. Other Scout activities included a Cub Scout Camp for 40 boys in Birch Run on July 16, 1999, and a Boy and Cub Scout Camp at Roethke Park on August 4-5, 1999, for 204 boys. Brent Coffell completed his Eagle Scout project at Green Point ELC. He did some trail work and constructed and installed several wood duck nesting boxes around Green Point.

ROS Becky Goche led a training session and orientation to the Refuge for the staff of the "All Around the Neighborhood" summer program. Hundreds of inner city youth attend this summer-long program. The younger children from this program visit Green Point ELC at least once during the summer.

8

PLANNING AND ADMINISTRATION

8a. Comprehensive Conservation Planning

Shiawassee, Wyandotte, and Michigan Islands National Wildlife Refuges began the process of developing Comprehensive Conservation Plans (CCPs) at the beginning of FY-98. At that time, John Schomaker (R3, Realty-Planner) met with the Refuge staff at the Refuge office to discuss plans for scoping meetings with the public. It was decided that a separate scoping meeting would be held for local farmers, educators, consumptive users and non-consumptive users. Also, meetings would be held for the general public in three locations around Shiawassee NWR, at three locations for the Michigan Islands NWR, and at one location for Wyandotte NWR.

Scoping meetings for the Shiawassee NWR CCP were held in FY-99 at the Bridgeport Charter Administrative Office, at the Thomas Township Administrative Office, at the Green Point Environmental Learning Center, and at the Refuge Headquarters office. Scoping meetings for the Michigan Islands NWR CCP were held at Alpena Community College, at the Charlevoix Administrative Office, and at the Whitney Township Hall. A scoping meeting for the Wyandotte NWR CCP was held at the Wyandotte City Hall. All scoping meetings were hosted by the Refuge staff and John Schomaker.

Refuge staff also met with the DNR to discuss issues the State may have concerning the Shiawassee NWR CCP, and RM Spencer and Refuge Biologist Dastyck traveled to the Regional Office to review the draft sections of the CCP with members of the Regional staff.

Throughout the year the refuge staff were assigned various sections of the CCPs for Shiawassee, Wyandotte and Michigan Islands to complete. On September 2, a review of the draft CCPs and completed Refuge Operations Needs (RONS) for the Plans were sent to the Regional Office for review and concurrence.

8b. General Administration

Personnel

Maintenance Worker Marion "Butch" L. Nowosatko was promoted to Engineering Equipment Operator, WG-09, effective March 14, 1999.

Refuge Manager Douglas G. Spencer was detailed to the Region 3 Office to serve as Acting Refuge Supervisor for Geographic Area I during the month of November.

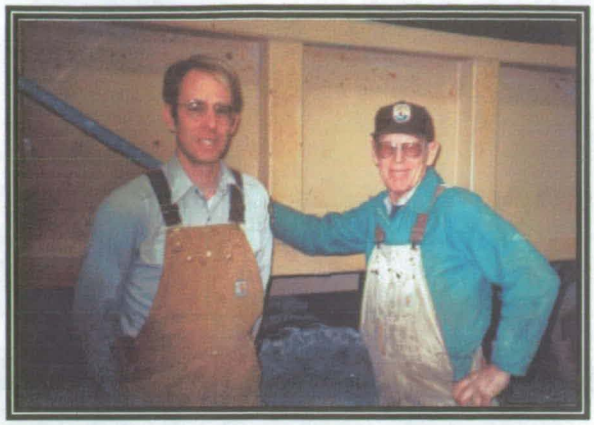
The Refuge hosted a Youth Conservation Corp (YCC) summer program which consisted of six enrollees plus a group leader. The enrollees were all minority students from Buena Vista High School, which is a member of the Service's Cultural Diversity Partnership along with the University of Michigan. The crew leader was a Delta College student. The enrollees maintained the landscaping for wildlife area, assisted with the *galerucella* species beetle project, did some trail and facility maintenance, assisted with bird banding, and provided administrative support. The crew also received training in CPR, and in compass use, pacing and map reading. Field trips taken by the enrollees included a visit to the University of Michigan School of Natural Resources, the Kirtland's Warbler NWR, and the Detroit Zoo.

YCC enrollee Stephenol Santos and Refuge biologist Jim Dastyck with one of 96 geese captured for banding.
7/1/99 EPD

James Van Liew worked from June 21 to August 20, 1999, as a conservation aide at Green Point ELC. This was Jim's second summer at Green Point. His position is funded through a program with the Saginaw Public School District. Jim took over many of Park Ranger Marc Beaudin's duties during Marc's LWOP in July. Jim helped with educational programs, did trail maintenance, and cared for the aquariums.

The following is a list of employees who were members of the staff at Shiawassee NWR in Fiscal Year 1998:

1. Adams, Shirley L. - Administrative Technician, GS-07, EOD 08/17/97, PFT
2. Beaudin, Marc D. - Park Ranger, GS-05, EOD 08/17/97, TFT- 2 year term appointment
3. Dastyck, James J. - Wildlife Biologist, GS-11, EOD 11/04/90, PFT
4. De Vries, Edward P. - Refuge Operations Specialist, GS-11, EOD 02/09/92, PFT
5. Goche, Rebecca S. - Refuge Operations Specialist, GS-09, EOD 08/22/93, PFT
6. Hazelman, James T. - Refuge Operations Specialist, GS-11, EOD 10/02/94, PFT
7. McAvinchey, Richard J. - Biological Sciences Technician, GS-05, EOD 04/26/98, PPT
8. Nowosatko, Marion L. - Engineering Equipment Operator, WG-09, EOD 06/29/78, PFT
9. Peters, David J. - Tractor Operator, WG-07, EOD 02/01/98, PFT
10. Spencer, Douglas G. - Refuge Manager, GS-13, EOD 09/01/91, PFT



David Peters and "Butch" Nowosatko

Marc Beaudin and Becky Goche

Jim Dastyck, Jim Hazelman, and Rick McAvinchey

Doug Spencer, Shirley Adams, and Ed DeVries

Volunteer Program

Volunteers continue to play an important role in many Refuge activities from helping with Refuge events to doing bird surveys. One hundred forty-three volunteers donated 2,179.5 hours to the Refuge in FY-99. Gary Van Kirk was selected as the 1998 Refuge Volunteer of the Year for his continuing work with the wood duck nesting box program. He and other volunteers were recognized at the Volunteer Appreciation Dinner held on April 15, 1999.

Friends of Shiawassee NWR

The Friends of Shiawassee NWR organization was officially formed at a meeting held at Green Point ELC on December 17, 1998 and has a membership of 57 people. The main focus of this group has been to raise funding for purchase of the Warner Tract in Bridgeport, and to raise funds for the construction of the Great Lakes Discovery Center on the Warner site. The Friends group has a Board of Directors and holds monthly meetings at Green Point ELC. A Friends group brochure was developed and fund raising has been through the sale of engraved bricks, sweatshirts, t-shirts, beverages and snacks, as well as memberships. The Friends Group helped staff the FWS Outdoorama booth, and on September 12, during the Refuge Open House, the group held a Bike-a-Thon for which pledges were collected for bicycle mileage on several routes through the Refuge. The Friends group has also been approaching

private foundations and other organizations for funding support and partnerships to build the Center. During August 26-27, a "Friends" mentoring team made up of Friends members from other refuges, met with the Friends group and Refuge staff to offer assistance and guidance in how to cultivate an active, productive, support organization.

Through sales and donations in FY-99, a total of $ 3,532.40 has been raised, of which $160.00 has gone directly to the Refuge for the purchase of bird seed.

Equipment and Facilities

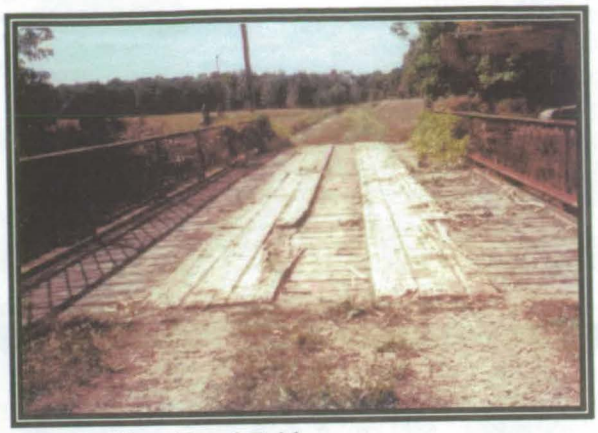
City of Saginaw workers addressed several safety issues at Green Point ELC. They replaced six outlets with ground fault interrupters in the kitchen area and around the aquariums. The emergency exit steps on the east side of the building were repaired and a fan "on-off" switch was installed in the multi-purpose room. Other improvements at Green Point included painting the multi-purpose room and installing two new exhibits: "Beaver-Made Wetland" and "Neotropical Migratory Birds."

With funding through the Saginaw Bay Watershed Initiative (WIN), an observation platform was constructed at the Curtis Road parking lot in November, 1998. The platform is a 20' x 20' deck with a 75' long ramp to provide accessibility for everyone. This platform will provide visitors a chance to see waterfowl and shorebirds that are attracted to shallowly flooded agricultural fields near the parking lot. The cost of the platform was $18,000 and it was totally funded by private partnership sources.

Wildlife Observation deck funded through the Saginaw Bay Watershed Initiative Network.
3/99 JTH

Contracted work to replace the Houlihan Road bridge was started on August 31, 1998, and completed on May 24, 1999 by Gerace Construction. The laminated timber bridge is 112 feet long and 26 feet wide, and is load rated for 58 tons. It consists of three spans of southern pine timber stringers which are laminated together, pressure soaked in creosote, and serve as the deck. The deck surface is overlayed with treated 3x12 WearDeck planks. The spans are supported on steel encased concrete piles. The bottom of the pilings were driven as deep as 63 feet in the Birch Run Drain. The total contract cost was $ 473,468.00. The bridge was inspected by Geocal, Inc., & Range Engineering, Inc. of Denver, CO on June 15 and was

rated as being in good condition.



Old Houlihan Road Bridge
8/98 EPD

New Houlihan Road Bridge
6/10/99 JJD

The gravel entry road and parking lot at the Refuge HQ was blacktopped in FY-99. The work was contracted by Yeager Asphalt and began on August 20, 1998. The blacktopping was completed on October 28, with the project fully completed May 19, 1999. Besides the blacktop, the project included construction of a wooden planter on the northwest corner of the parking lot, concrete wheel stops, and pavement marking. Total cost of the project was $27,267.25.

Three pre-fab comfort stations from Romtec, Inc. were delivered to the Refuge in August. These facilities are of masonry construction and will be installed along the nature trails. The comfort stations were purchased with RONS funding at a cost of $44,065.

Computer equipment purchased this year included a Micron Millennia 400 Max for use by the Refuge biologist. This equipment was purchased with Comprehensive Conservation Plan funding from the Region 3 Ascertainment Office. A Gateway Solo 9100 lap top was purchased for use by the Refuge Private Lands ROS, two Micron ClientPro 450 computers were purchased for the Refuge manager and ROS, and a Micron Millennia Series B computer was transferred from the Region 3 Federal Aid Office to the Refuge for use by the biological technician.

Two excess computers were donated to the Family and Neighborhood Empowerment Institute in Saginaw, and another excess computer has been set up at the Refuge headquarters for use by the Friends of the Shiawassee NWR.

Table 8-1. Funding - 1999

Description	Subactivity	Amount
Refuge Operations	1261	$467,297.00
Maintenance Management System	1262	$50,000.00
Refuge Operating Needs System	1261	$45,000.00
Title V-1998 LWCF Priorities (Misteguay Dike)	1983	$263,000.00
Partners for Fish & Wildlife	1121	$32,000.00
Fire Preparedness	9251	$1,700.00
Total		**$858,997.00**

Table 8-2. Challenge Cost-Share Summary

Project	FWS Share	Cooperator Share	Total
Video Microscope Exploration Station	$2,000.00	$2,426.00	$4,426.00
International Migratory Bird Day	$300.00	$300.00	$600.00
Wood Duck Nest Box Survey	$1,000.00	$3,010.00	$4,010.00
Summer Discovery Camp for Kids	$150.00	$150.00	$300.00
Digital Learning Computer Technology	$200.00	$200.00	$400.00
Ithaca School Dist. Observation Deck	$1,000.00	$1,325.00	$2,325.00
Kids Free Fishing Day	$1,700.00	$2,486.00	$4,186.00
Grassland Restoration on Private Lands	$5,000.00	$19,000.00	$24,000.00
Totals	**$11,350.00**	**$28,897.00**	**$40,247.00**

WILDERNESS AND SPECIAL AREAS ADMINISTERED BY SHIAWASSEE NWR

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 and Pismire Islands in Lake Michigan, and Scarecrow Island in Lake Huron, islands of two, three, and seven acres respectively, were the first acquired. Thunder Bay Island in Lake Huron was added in 1965, by a U.S. Coast Guard/FWS agreement under a revocable permit with five-year renewal periods, for secondary FWS jurisdiction on 121 of the island's 168 acres. Last, Lake Michigan's 230-acre Gull Island was ceded to the FWS by the U.S. Coast Guard in 1969. In 1970, PL 91-504, Stat.1104, designated the original three small islands as Wilderness Areas.

A sixth island was added to the Refuge in 1995, when Hat Island was transferred to the Service by the Nature Conservancy. This ten-acre island is located in Lake Michigan, to the north of Shoe Island. Due to the geographic location of the islands, the management of Michigan Islands NWR is split between Seney NWR and Shiawassee NWR. Thunder Bay and Scarecrow are administered by Shiawassee NWR; Gull, Shoe, Pismire, and Hat by Seney NWR.

Scarecrow Island is a small, limestone bedrock island covered with boulders and gravel, with a minimal soil layer supporting shrubs, scattered forbs, and a few snags which are utilized by double-crested cormorants for nesting. Ring-billed gulls, terns, shorebirds, and ducks also nest on Scarecrow Island.

Thunder Bay Island is limestone bedrock as well, but with a more substantial layer of soil which supports a dense interior forest of American yew, white cedar, spruce, fir, and birch. The shoreline includes cobble beach, limestone pavement, and freshwater coastal wetlands. The U.S. Fish and Wildlife Service manages this island under a cooperative agreement with the Bureau of Land Management. Region 3 Realty is currently working with BLM to acquire the island.

Both Scarecrow and Thunder Bay Islands lie within the waters of the proposed Thunder Bay National Marine Sanctuary, currently proposed by the National Oceanic and Atmospheric Administration. The Final Environmental Impact Statement/Management Plan for the Sanctuary was issued for review in June, 1999.

The Thunder Bay Island Preservation Society (TBIPS) is interested in the historic preservation of the lighthouse (built in 1857) and has been in negotiations with the Service to gain ownership or management of the southern portion of the island. Their intent is not only

to protect, document, and uncover historic artifacts, but also to restore the lighthouse for visitation within the next five years. Boundaries have been agreed upon and the agreement states that the TBIPS will have ownership of all the buildings except for the boathouse, while the FWS maintains management rights over the wildlife and habitat.

A nesting survey visit to the island in May, 1998 found reduced gull nesting colonies, and more signs of egg predation than other local islands visited. A visit in May, 1999 was even more disappointing as Refuge staff found very little evidence of ground nesting by gulls, terns, shorebirds, and waterfowl. A few herring gull nests with broken eggs were found, but it is highly suspected that the lack of nesting this year and reduced nesting in 1998 were due to disturbance and/or predation by mammalian predators which may have invaded the island. Two years of low lake levels may have allowed predator immigration to the island. As there is a healthy population of purple loosestrife encroaching on Thunder Bay Island, approximately 1,700 *Galerucella* species beetles were released on its northwest portion during a July 9 visit.

Big Charity Island shoreline
8/31/99 EPD

Through a legal settlement with General Motors Corporation under a Natural Resources Damage Assessment, Big and Little Charity Islands will soon be transferred to the Service. These islands are both located near the mouth of Saginaw Bay, approximately seven miles from the mainland. Big Charity is 250 acres and is heavily wooded, with an 11-acre lake in the center. Bald eagles nest on the island, and Pitcher's thistle (federal & state threatened) is found there. There is an old, dilapidated U.S. Coast Guard lighthouse from the 1880s located on the SW portion of the island. A harbor of refuge was constructed by the landowner in 1992, followed by boat slips and a picnic shelter. Hiking paths cross the island and picnic tables, barbecue grills, and benches are located in several locations. Little Charity Island is an undeveloped 5.4-acre island approximately two miles from Big Charity. The island is wooded and colonial waterbirds such as cormorants, herons, and gulls nest throughout the island. Level I surveys for these islands have been completed. Negotiations to complete the land transfer of these two islands took place throughout the year.

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

Wyandotte NWR

Wyandotte NWR was established by an act of Congress–Public Law 87-119, 75 Stat. 243, 87th Congress, H.R. 1182, dated August 3, 1961 "...to be maintained as a refuge and breeding place for migratory birds and other wildlife." From 1948 to 1961, the islands were administered by the U.S. Coast Guard. The Refuge consists of two islands, Grassy and Mamajuda, and adjacent shallow water areas. It totals 304 acres and is located in the Detroit River, offshore from Wyandotte, Michigan, from which it takes its name. Wyandotte is named for a Native American tribe that once dwelled in the area. Public access is not permitted on either island, although Mamajuda Island no longer has significant land above the waterline.

The Refuge is situated in what was once one of the most significant migratory staging areas in the United States for diving ducks. Extensive beds of aquatic vegetation, particularly wild celery, attracted large concentrations of divers–primarily canvasback and scaup. However, in the past 100 years, discharges from the steel and chemical industry, and municipal sewage effluent, along with the effects of large, deep-draft vessels, have degraded the lower Detroit River ecosystem. This has contributed to the substantial decline of preferred foods and habitat. Today, only remnant numbers of the once vast rafts of migratory waterfowl are seen at Wyandotte NWR.

Historically, Grassy Island was a 4-acre shoal. Today it is a diked 72-acre island which is covered to a depth of 12 feet (within the dike) with a total of 1.9 million cubic yards of material containing contaminated sediments from the nearby Rouge River, Trenton Channel, and Lake Erie. All these sediments were placed on the island between 1961 and 1983 when it was utilized by the US Army Corps of Engineers as a confined disposal facility for dredged material. The dike which surrounds the island is built up to an elevation of approximately 30 to 40 feet above the river, and was constructed from material dredged from the nearby shoal. Riprap was added later.

In 1995, Grassy Island was designated as a Hazardous Materials Management (HAZMAT) demonstration site by the Department of the Interior. Refuge staff, US Geological Survey (USGS) Biological Resources Division, USGS Water Resources Division, and US FWS Engineering and Ecological Services personnel gathered soil and water samples from the island and shoals during 1997 and 1998. Reports of these surveys were completed in 1999, and confirmed the presence of polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), copper, mercury, lead and zinc in the island soils. These soils showed the highest levels of contaminants of any of the nine CDFs in the Great Lakes.

A wildfire was observed in the north portion of Grassy Island during the week of May 3. The fire was allowed to burn itself out as local authorities felt there was no reason to make an effort to extinguish the fire. The fire burned mostly brush, grass, and emergent growth. Only the north portion of the island burned due to predominately westerly winds.

The Service goal for the Wyandotte NWR is to remediate the contaminants on Grassy Island, restore the historically extensive wild celery beds, restore off-shore sturgeon spawning habitat, and acquire and/or protect other existing islands and marshes in the Lower Detroit River.

CREDITS

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David J. Peters:	Section 1
Douglas G. Spencer:	Section 5a, Section 6g, and Section 8a

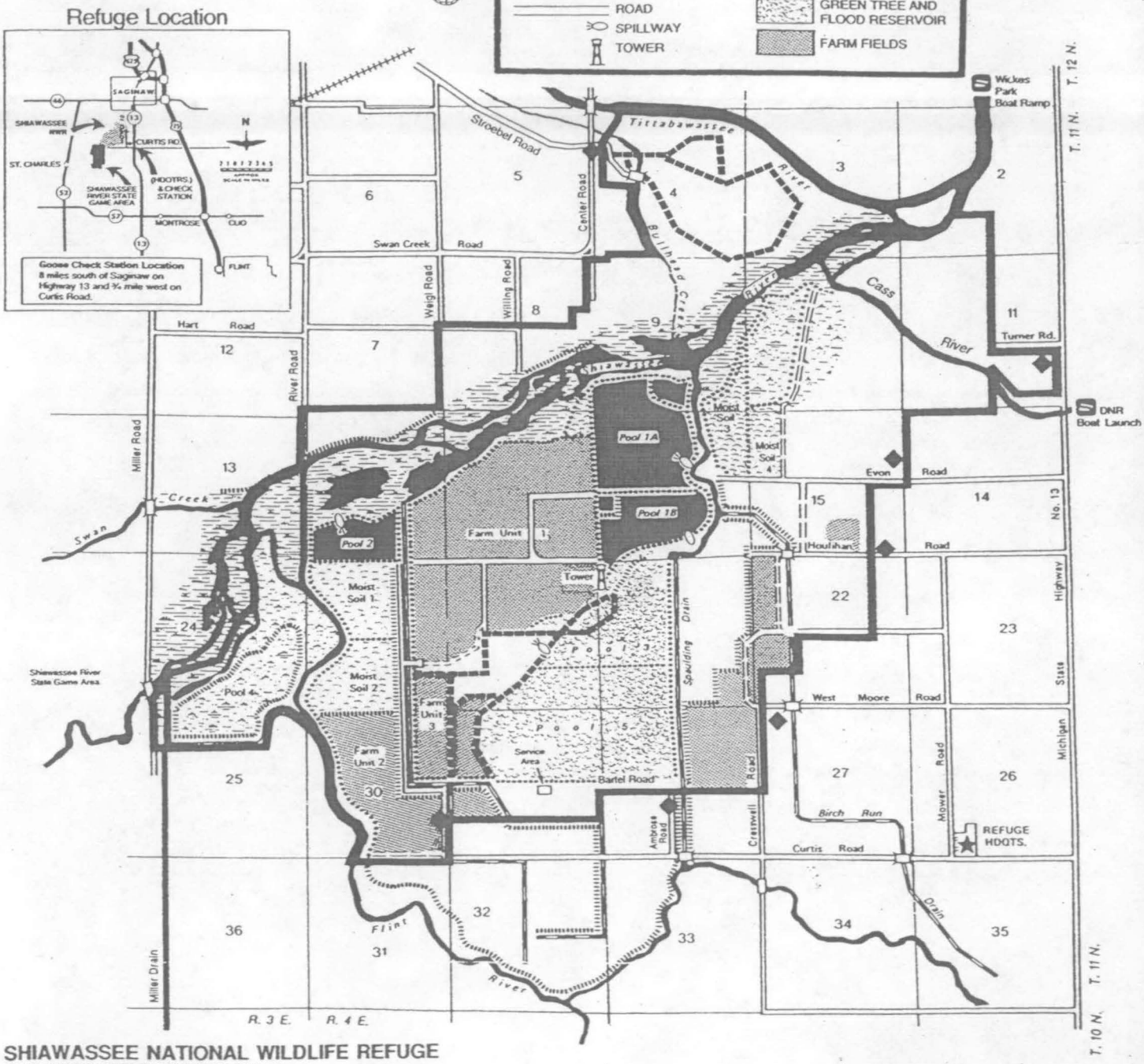
* * * * * * * * * * * * * *

Appendix 1

Public Use is restricted to the nature trails.

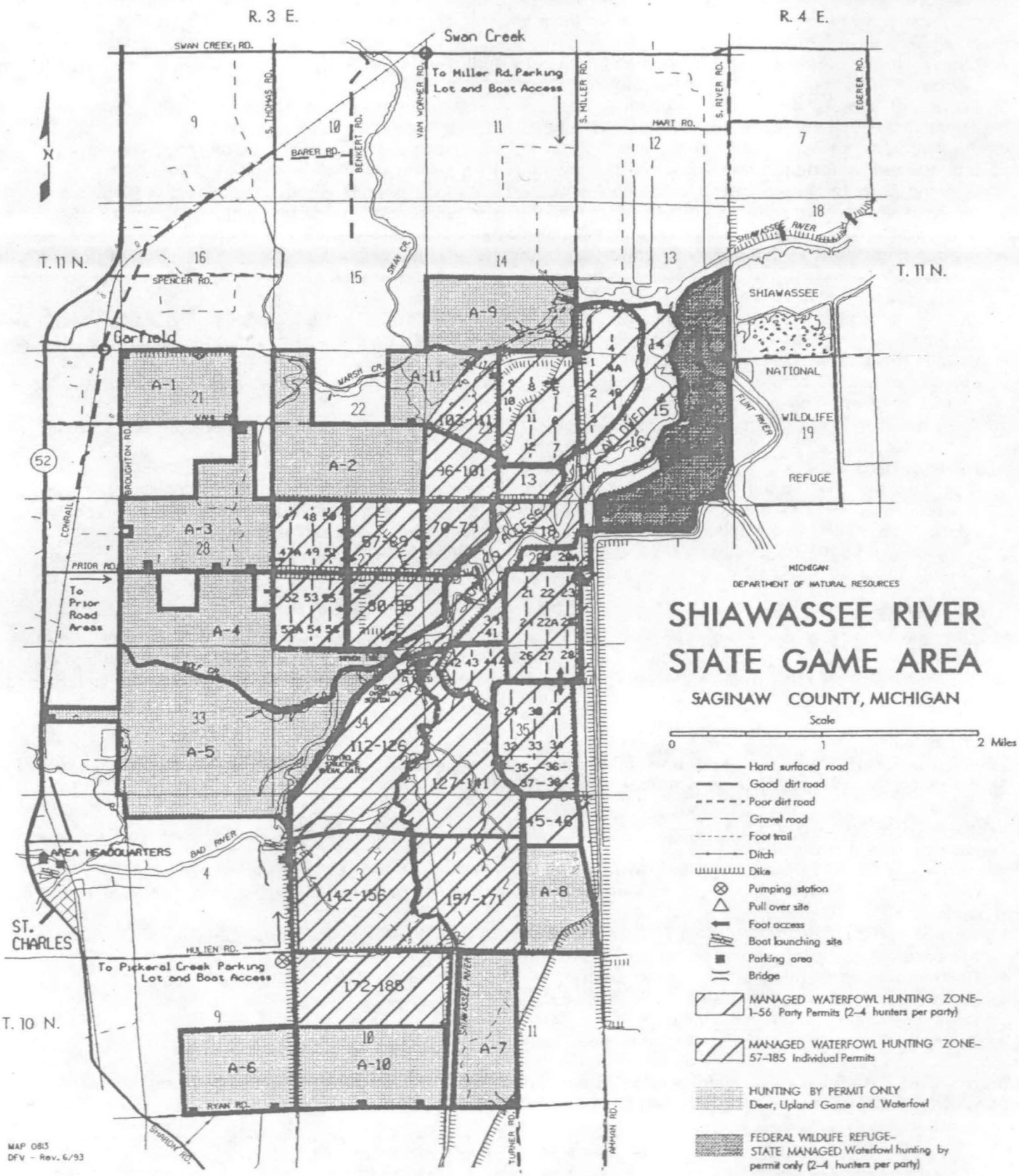
SHIAWASSEE NATIONAL WILDLIFE REFUGE

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



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

REVISED NOV. 1988



R. 3 E.

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 48826.

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

DNR

DEPARTMENT OF NATURAL RESOURCES • WILDLIFE BUREAU

1999 SHIAWASSEE DEER HUNT INFORMATION

STATE HUNTS - SHIAWASSEE RIVER STATE GAME AREA - (517) 865-6211
FEDERAL HUNTS - SHIAWASSEE NATIONAL WILDLIFE REFUGE - (517) 777-5930

PRE-REGISTERED DRAWINGS

Applicants will apply by submitting postcards to the St. Charles DNR Field Office. There is no fee to apply. Postcards must be postmarked by September 10, 1999. Postcards postmarked after the deadline or filled out incorrectly will not be entered in the drawing.

Instructions for Pre-registered Hunt Applications

1. Applicants may apply **once** and may choose only **ONE** (1) hunt. Applicants may choose **either** a State hunt **or** a Federal hunt. Hunt choice code #'s for State hunts are listed below and hunt choice code #'s for Federal hunts are listed on back of this sheet.

2. Hunters must mail a card (at least 3"x5", but not larger than 4"x6") to **DNR Field Office, 225 E. Spruce St., St. Charles, MI 48655** with following information on one side of the card:
   Name
   Address
   Driver's License # or Sportcard #
   Hunt Choice Code #

3. Hunters may apply with a "partner" in which case they will both receive a permit or neither will receive a permit. "Partners" must apply for the same hunt choice code #. For hunters who wish to apply as partners each hunter must fill out a card and the cards must be mailed together in one envelope. Youth applying for Federal hunts must have a supervising adult listed as their partner.

4. **Hunters who are successful for antlerless permits will be notified with instructions on how to purchase a $3.50 DMU 222 Public Land Antlerless Deer license using the Retail Licensing system.**

5. Only successful applicants will be notified. They will be notified by October 14, 1999.

STATE PRE-REGISTERED HUNTS
SHIAWASSEE RIVER STATE GAME AREA

HUNT CHOICE CODE #	DATES	TYPE	HUNT AREA	NUMBER HUNTERS	1998 APPLICANTS	HARVEST PERMITS*
101	Oct. 28 – Nov. 02	Archery	A	150	095	State Regulations
102	Nov. 03 - Nov. 08	Archery	A	150	100	State Regulations
103	Nov. 09 - Nov. 14	Archery	A	150	098	State Regulations
104	Nov. 15 - Nov. 19	Shotgun	B	100	203	State Regulations
105	Nov. 20 - Nov. 24	Shotgun	B	100	197	State Regs. & 15% Bonus
106	Nov. 25 - Nov. 30	Shotgun	B	100	133	State Regs. & 15% Bonus
107	Dec. 10 - Dec. 14	Muzzleloader	C	100	177	State Regs. & All Bonus
108	Dec. 15 - Dec. 19	Muzzleloader	C	100	192	State Regs. & All Bonus

State Hunt Areas: Area A – Entire area, except zones 142-171, Area B - A1 through A11, Area C - The entire game area. **Scouting**: January 2 - September 30, 1999. **Fees**: $13.00 seasonal or $4.00 daily. **Permit Return**: Permits must be returned within 48 hours after the last day of the hunt period. Failure to return permits on time will result in ineligibility for future permits. Deer hunters having any outstanding permits for any of the 1999 hunts will not be issued any deer permits in 2000. Other: The possession and use of buckshot is prohibited. The use of bait is prohibited.

*Bonus allotments are subject to change.

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IC 2612 (06/16/1999)

FEDERAL PRE-REGISTERED HUNTS
SHIAWASSEE NATIONAL WILDLIFE REFUGE

HUNT CHOICE CODE #	DATES	TYPE	HUNT AREA	NUMBER HUNTERS	1998 APPLICANTS	HARVEST PERMITS
203	Oct. 29 - Nov. 02	Archery	1	050		Antlerless Only
204	Nov. 04 - Nov. 08	Archery	1	050	238	Either Sex
205	Nov. 09 - Nov. 13	Archery	1	050	310	Either Sex
206	Dec. 03 - Dec. 07	Archery	3	100	100	Either Sex
207	Dec. 22 - Dec. 26	Archery	3	100	169	Either Sex
208	Dec. 27 - Dec. 31	Archery	3	100	290	Either Sex
209	Nov. 15 - Nov. 16	Shotgun (N-A)	3	015	19	(All shotgun hunts
210	Nov. 17 - Nov. 18	Shotgun (N-A)	3	015	22	are 55% antlerless
211	Nov. 15 - Nov. 16	Shotgun (General)	2	020	91	and 45% either
212	Nov. 20 - Nov. 21	Shotgun (General)	3	050	406	sex permits)
214	Dec. 10-Dec. 11	Muzzleloader	3	070	351	Antlerless Only
215	Dec. 10-Dec. 11	Muzzleloader	2	025	45	Antlerless Only
216	Dec. 12-Dec. 13	Muzzleloader	3	070	100	Antlerless Only
217	Dec. 12-Dec. 13	Muzzleloader	2	025	30	Antlerless Only
218	Dec. 14-Dec. 15	Muzzleloader	3	070	581	Either Sex
219	Dec. 14-Dec. 15	Muzzleloader	2	025	208	Either Sex

Hunters harvesting a deer must use a valid license to tag the deer. **N-A shotgun hunts** are Non-Ambulatory hunts (Must be confined to a wheelchair). **Federal Hunt Areas are**: Area 1- Area bordered by the north boundary of the refuge, south to the Shiawassee and Cass Rivers, plus the area east of Spaulding drain to the south border of the 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 area except for the area north of the Shiawassee and Cass Rivers, and Green Point Island.
Scouting: September 11 and 12, 1999. **Hunter Orange Clothing**: Must wear at least 400 square inches of solid hunter orange. **Firearms**: Rules are the same as statewide regulations, except buckshot is prohibited. **Other**: Permits must be claimed by November 1, 1999. Only long guns may be used during muzzleloading hunt periods, muzzleloading handguns are prohibited. Boat access is permitted into the area in river system only, not within diked units. Successful applicants may obtain a hunt packet by mail. Payment of a $10 fee is required before permit is mailed (Make checks payable to "U.S. Fish & Wildlife Service.") Helper permits are prohibited.

LOCAL ARCHERY HUNTS

FEDERAL – A local drawing will be held at the Shiawassee National Wildlife Headquarters on Curtis Rd. on October 16, 1999, for hunt periods October 19-23 and October 24-28, 1999. Thirty-five hunters per period. Antlerless only.

STATE – There will not be any local archery drawings for the Shiawassee River State Game Area this year. A first-come, first-served system will be used for three (3) hunt periods: October 1-27, December 1-9, and December 20-January 2. Hunters may obtain their permits from the St. Charles Field Office in person, by phone, or by mail.

Archers may hunt the entire game area, except during the duck hunting season when zones 142-171 will be closed.

Permits will be issued as follows:

HUNT PERIOD	PERMIT ISSUING PERIOD
For hunt period October 1-27:	September 13 – October 27
For hunt period December 1-9:	November 15 – December 9
For hunt period December 20–January 2:	December 13 – January 2, 2000

Equal Rights for Natural Resources Users

The Michigan Department of Natural Resources (MDNR) provides equal opportunities for employment and for access to Michigan's natural resources. State and/or Federal laws prohibit discrimination on the basis of race, color, sex, national origin, religion, disability, age, marital status, height or weight. If you believe that you have been discriminated against in any program, activity, or facility, please write the MDNR, Office of Equal Opportunity, Litigation and Program Services, P.O. Box 30028, Lansing, MI 48909-7528, or the Michigan Department of Civil Rights, 1200 6th Avenue, Detroit, MI 48226, or the Office of Human Resources, U.S. Fish and Wildlife Service, Washington, DC 20240.

This publication is available in alternative formats. For additional information or assistance on this publication, contact: MDNR, Wildlife Bureau, P.O. Box 30444, Lansing, MI 48909-7944.

Vol. 2 No. 1 Winter 98/99

Refuge Reporter

Happenings at Shiawassee NWR & Green Point ELC

Sprucing up the Refuge for you!

by **Ed DeVries**, *Asst. Refuge Manager*

By the time you read this, a new wildlife observation deck with benches will have been completed for your enjoyment. This deck is approximately 20' x 20' in size and is elevated about 4 feet high with a 75 foot long accessible ramp leading up to it. It is located near the southwest corner of the Curtis Road parking lot and overlooks a natural "wet spot" in our cropland area. This area has traditionally been attractive to waterfowl and shorebirds during migrational periods and the deck will enhance viewing opportunities for everyone. The deck construction was funded by Ducks Unlimited, through the Saginaw Bay Watershed Initiative Network.

A new bridge west of the Houlihan Road parking lot is also nearing completion. This bridge spans the Birch Run Drain and is located in a closed area of the Refuge, accessible by Refuge permit only. Goose and deer hunters have had to deal with a "no bridge" situation all fall, so many of them are familiar with the project. The timber bridge is 24 feet wide and has a 72 ton rating for hauling farm machinery and heavy equipment.

The Refuge Headquarters driveway was blacktopped in late October, but final touch-up work on it probably won't be completed until next spring. This new entrance will smooth out your drive into the HQ and keep the mud off your feet as well.

Thanks to our refuge maintenance crew you no longer have a bone-jarring, rim-bending rut to ride your bicycle over as you cross Bullhead Creek on the Woodland Trail. Butch and David installed a new tube/culvert through the portion of the south trail where it crosses Bullhead Creek and smoothed out the roadway there also.

Refuge goose hunters totaled 1,013 visits during the 3-week goose hunt this year, with 376 Canada geese harvested. This harvest is quite low compared to past years when anywhere from 595 to 615 geese have been taken over the same time period. Low or non-existent water conditions on the Refuge, along with early crop harvests off-refuge, a warm October, and beautiful, blue-sky days probably contributed to those low numbers. We all know that geese are pretty smart, too!

Trail Closures

Deer hunting continues on the Refuge through the month of December. For safety reasons, we close the Refuge trails when there is hunting in the immediate area. Hunting is not allowed at Green Point ELC, so trails remain open during daylight hours, throughout the year. Please note the following closures on the Refuge trails. We appreciate your cooperation.

Woodland Trail
(off of Stroebel Road)
Closed December 11-16.

Ferguson Bayou Trail
(off of Curtis Road)
Closed December 11-16.
Closed December 20-24.
Closed December 26-30.

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Partners for Wildlife

by **Jim Hazelman**, *Private Lands*

The U.S. Fish and Wildlife Service and its partners are restoring wetlands, native prairie grassland, and stream habitats on private lands in Michigan and throughout the Country, through our Partners for Fish and Wildlife Program. The Shiawassee National Wildlife Refuge Private Lands Office administers a 22 county Private Lands Management District located in central lower Michigan.

Partners for Fish and Wildlife efforts on private lands reflect a voluntary, pro-active, non-regulatory approach to protecting and restoring wetlands and other habitats. Restoration projects are completed with U.S. Fish and Wildlife Service and partner funds, at little or no cost to the landowners. In return, landowners voluntarily commit to leave projects in place on their land for a minimum of 10 years. Nearly every landowner involved in the program has indicated to us their intent to maintain the restored habitat as long as they own the property. Restoration projects are generally small and inexpensive. Wetland projects average 1-3 acres in size, cost less than $300.00 per acre to complete, and landowners can view the results the following spring.

Partnerships are the key to this program. Primary partners in this program include private conservation organizations such as Ducks Unlimited, Michigan Wildlife Habitat Foundation, Michigan Duck Hunters Association, West Michigan Wetland Foundation, and Pheasants Forever, as well as federal, state and local government agencies. In cooperation with these groups, the Partners for Fish and Wildlife Program has restored over 1,200 wetlands, totaling over 4,500 acres in 50 counties across Michigan.

In 1998, the Shiawassee NWR Private lands Office restored 145 wetland basins on 113 properties within the Management District under the Partners For Wildlife Program, for a total of 533 acres. In addition, 20 acres of native prairie grassland habitat were planted adjacent to two restored wetlands in Tuscola County, to provide nesting cover for waterfowl and songbirds. This year we expanded our program to include instream fish habitat restoration projects. In cooperation with the Timberland Resource Conservation and Development Council, Trout Unlimited, Michigan Wildlife Habitat Foundation and the U.S. Forest Service, we restored 2.5 miles of trout stream habitat on the Muskegon River watershed. Closer to home, a 1.5 mile instream fish project on the Bad River was completed in partnership with Dr. Pat Rusz of the Michigan Wildlife Habitat Foundation and the Friends of the Bad River.

For more information on the Partners for Fish and Wildlife Program, contact Jim Hazelman at Shiawassee NWR, Private Lands Office, at (517) 777-5960.

Friends Group

The Shiawassee NWR "Friends Group" is moving ahead. In August, 1998, two Refuge volunteers attended the Friends Group training in Minneapolis. These two individuals, Ed Becker and James Finlayson, are now co-coordinating the Friends Group. They plan on holding an organizational meeting sometime in the near future. Keep an eye out for further information and updates.

Nature Notes

Of Leaves and Colors

by **Marc Beaudin**, *Park Ranger*

I'm looking at a maple leaf that I picked up on my way back from filling our bird feeders. Its base is a flaming scarlet which slowly bleeds through reds, pinks, oranges, and yellows on its way to the sun-gold of its tips. It's like I've never seen an autumn leaf before: I can't believe how beautiful it is.

We have a program here at Green Point called, "Why Leaves Change Color," but it should probably be called "*How* Leaves Change Color," because although it explains about shorter days providing less chlorophyl-producing energy, and therefore the green color fades revealing all the other colors; it doesn't explain *why* these other colors are so breathtaking. Why not just brown?

It seems to me that Nature is not frivolous. It does what it does for very meticulously evolved survival purposes. Color patterns are usually attributed to camouflage, intimidation, or mate-attraction. Do trees need to hide from, frighten, or attract other trees? Of course not. So then why this annual explosion of vibrant colors?

It may well be that beauty itself, as well as the drive for creative expression, are vital survival purposes to the natural world. That would explain why birds sing far more than is needed for staking out territory and wooing partners, and why every human culture is filled with art and poetry and song. Somehow, beauty may be linked to the continuance of the cycles of life on our planet; and therefore, to the survival of human culture. We who have been given eyes to see and brains to comprehend, may need the forest's beauty as much as we need the oxygen which it breathes into us with each stirring of the wind.

What do you do in the winter?

by **Ed DeVries**, *Asst. Refuge Manager*

Many times at this time of year, when people visit us on the Refuge we are asked, "So... what do you people do here during the winter?" Many are surprised to learn that we are actually employed here after the goose and deer hunts. The pace generally slows down a little bit after an extremely busy season which includes the preparation for and actual management of three weeks of goose hunting, plus 19 separate permit deer hunts. These refuge hunts involve a lot of inquiring telephone calls and visits for information as to where the really "big bucks" are hiding out. When the hunts are over and the pace slows, we have to take advantage of the opportunity to catch up with the paperwork.

The winter season is a time for reporting accomplishments from the past year and to plan for the season ahead. Plans required annually include prescription burning plans, water management plans, and crop management plans. These plans have to be reviewed, edited, submitted, and approved each year. We may also plan future wetland dike work which, besides the actual dirt moving, involves ordering materials such as filter fabric, large stone, and grass seed for the dike slopes. The refuge maintenance crew usually works on equipment repairs and facility upkeep during the winter. They plow roads and parking lots when the weather gets nasty, but as long as the conditions allow, they will continue to actively work on dike and road improvement/ maintenance projects.

Some of our training sessions are also conveniently scheduled during this less-busy time of year, including administrative, safety, and fire-training courses, as well as mandatory refresher training for refuge law enforcement officers. This is also a time when it seems everybody wants to have a meeting or include you on a committee.

Shiawassee National Wildlife Refuge
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6975 Mower Road
Saginaw, MI 48601

Green Point Environmental Learning Center
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Both are open Monday-Friday
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Green Point Director:
Becky Goche

Refuge Reporter
Published quarterly by the Shiawassee National Wildlife Refuge

Editing and Layout:

Calendar of Events

Night of the Wolf
December 2, 7 - 8:30 pm
Green Point ELC
Numerous displays and a film will help separate the myths from the facts, and give us a better understanding of this controversial and inspiring predator.

Christmas Holiday
December 25
Offices are closed.

New Year's Day Holiday
January 1
Offices are closed.

The Call of the Loon
January 6, 7 - 8:30 pm
Green Point ELC
A close look at this beautiful bird through displays, a film, and a story.

M. L. King Holiday
January 18
Offices are closed.

Mammals of the Canadian Rockies
February 3, 7 - 8:30 pm
Green Point ELC
A slide presentation by Myles Willard, a local wildlife photographer, featuring images captured on his recent visit to the mountains of Canada's pristine west.

Presidents' Day Holiday
February 15
Offices are closed.

U.S. Fish and Wildlife Service
Green Point ELC
3010 Maple Street
Saginaw, MI 48602

Vol. 2 No. 2 Spring 99

Refuge Reporter

Happenings at Shiawassee NWR & Green Point ELC

Spring Choruses

by **David Peters**, *Tractor Operator* and **Janie Dinsmore**, *Refuge Volunteer*

Songbirds won't be the only residents of the refuge singing this spring. When the sun begins to set, the calls of red-winged blackbirds are replaced by those of their fellow wetland inhabitants, the amphibians. Six frog and one toad species are found at Shiawassee NWR, and they can be heard in the evening throughout the spring and into early summer. Vocalizing is a significant aspect in the breeding cycle of frogs and toads, as males call to attract females. Unlike many other animals, amphibians congregate in the same area during breeding, their many calls becoming a chorus.

As with so many species that live in wetlands, amphibians are declining in number. In order to determine and assess this decline in Michigan, they are now monitored at sites throughout the state, including Shiawassee NWR, by a DNR coordinated frog and toad survey program.

The refuge survey encompasses ten sites in the vicinity of the Ferguson Bayou. The survey is conducted three times each spring. During the first run, which occurs during the very first warm days of early April, northern leopard frogs and wood frogs are heard. These species occurred on 14% and 24% respectively, of roughly 1700 sites in the southern lower peninsula (SLP). The second run is conducted in early May, the most abundant species at this time of spring being the American toad, which occurred at 34% of the SLP sites. On the final run, during late May to early June, green frogs and eastern gray tree frogs are calling. They each occurred on about 65% of the SLP sites. Spring peepers and chorus frogs also occur at the refuge, in the vicinity of the Woodland Trail and at Green Point ELC. They are heard at the same time as the wood and leopard frogs. Early spring breeders such as these have the shortest calling periods, while that of late spring breeders, such as green frogs, is more prolonged.

Providing a protected site for frogs and toads is one of many important roles of Shiawassee NWR. We encourage you to visit this spring and listen to their evening choruses.

Ferguson Bayou History

by **Ed DeVries**, *Asst. Refuge Manager*

Many of you, like me, may have wondered about the Ferguson Bayou. How did it gets its name? Was there a Ferguson family who lived or farmed in this area? What is the history of this natural feature from which the nature trail gets its name?

The Ferguson Bayou is a quiet, meandering waterway which extends in a northeasterly direction through the bottomland hardwoods of the Refuge. It supplies water to the greentree reservoir (Pool 3 and Pool 5). The Bayou once extended north and emptied into the Shiawassee River, and may have been named by a member of the several Ferguson families which lived in East Saginaw during the 1880's. Spaulding Drain, which flows near the northeast end of the Bayou, was constructed many years ago to divert water into Ferguson Bayou during flood stage. Area

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farmers have told me that the Spaulding Drain was probably dug with horses and moldboard plows prior to the 1930's. At that time, the Drain had much less water flow as it didn't divert as much water from the Flint River as it does today. A road was built along the Spaulding Drain during the late 1960's which blocked the natural flow of the water course. Today, the Spaulding Drain has actually annexed the northeast portion of the Bayou which was cut off by the road, and most people probably wouldn't recognize it as being part of the old Ferguson Bayou.

Historic resettlement of "the Flats" changed the channel patterns of various streams as linear ditches replaced natural meander patterns. The meandering nature of the south portion of the Ferguson Bayou was changed by ditching at the south boundary of the Refuge, where the Bayou becomes "Ferguson Drain". The Drain extends east and then turns abruptly south where it flows through a culvert under Curtis Road, and then continues nearly all the way to the Flint River. The Refuge has also interrupted the Bayou in the area where the service road and nature trail intersect. The old water course was cut off at this location approximately 30 years ago and literally dead-ended on both sides of the road.

Today, the Ferguson Bayou is a quiet backwater which serves as nesting habitat for wood ducks, prothonotary warblers, and a colony of great blue herons. It is also the water source for flooding Pools 3 and 5 in the Spring, providing a food source for a host of water-dependent migratory birds. Hikers along the Ferguson Bayou Trail enjoy the tranquil scenery found there throughout the year. Summertime produces the deep greens of emergent vegetation and flowering plants. Yellow water lilies add color, and buttonbush bordering the Bayou provide food and cover for duck broods. The clear water makes it easy to spot a big, old carp lazily sunning itself at the water's surface. In winter, the stark, black and white beauty of the ice-covered water and vertical lines of the bare trees are pure art. Anytime of year, the Bayou can provide rest for the eyes and soul. We hope you take advantage of the leisure opportunity found there.

Great Lakes Visitor Center - Friends Group

by Doug Spencer, *Refuge Manager*

Many of you may have heard about a Great Lakes Visitor Center and a Friends of Shiawassee NWR and may be confused as to how these relate to each other.

In 1995, while the refuge was developing plans to expand its boundaries, Bridgeport Township presented an idea to house a visitor center either on or adjacent to township-owned land along the Cass River near I-75. The idea made sense because of the high tourism in and near Frankenmuth.

Negotiations concerning this idea continued and in 1998, the Great Lakes Basin Ecosystem Team endorsed a proposal for a center which would provide information about all Service activities. Potential displays could include archeology, fisheries, wildlife, endangered species, habitat, geological and cultural history, law enforcement, and contaminates. The team suggested that partners be asked to participate in the center's development.

Ed Becker and Jim Finlayson organized the Friends of Shiawassee NWR. They made their first goal to help fund the visitor center. Thus the confusion over the purpose of the Friends Group: They didn't organize to fund a center, but to assist the refuge staff with many issues that effect the community and the refuge. The visitor center happens to be their first project.

The land in question is about 116 acres that lies adjacent to I-75 at the Dixie Highway junction, behind the Cracker Barrel Restaurant and Budgetel. The Conservation Fund has paid an option to hold the land for one year. After that time the land most likely will be sold to commercial development. This is why it is imperative that the land be purchased this year. Adjacent to this tract is about 300 acres owned by Bridgeport Township. The Service is negotiating with the Township to have them donate or lease this tract so trails, kiosks, displays, birding platforms, etc. could be developed to compliment the center.

If you'd like to join the Friends Group, contact Ed Becker at 1170 S. Center, Saginaw, MI 48603, or call (517) 790-3178.

I will keep you informed of future developments. Hope to see you down at Outdoorama, in Novi from February 26 - March 7. Make sure you visit the Great Lakes and the Friends of Shiawassee NWR displays!

Nature Notes

Visiting our Important Bird Area

by **David Peters**, *Tractor Operator*

We hope you spent some time this winter enjoying the birds at your feeders or those at Green Point. Even better, maybe you hiked on the refuge trails and saw or heard a few of the winter residents, such as brown creepers, short-eared owls, or rough-legged hawks. These are examples of species that don't frequent feeders. In fact, the overwhelming majority of birds can't be attracted to backyard feeding stations nor do they benefit from artificial nestboxes. Their conservation relies on preservation of the natural landscape. Shiawassee NWR, one of the United States' globally significant Important Bird Areas, is a fine example of this, and the spring season is a wonderful time to experience the diversity of migratory birds that visit here.

A concern we hear expressed now and again is that because so much of the refuge is closed to public entry, most of the 265 species on our current bird list are not found in locations that are accessible. With few exceptions, this is not necessarily so. Recent improvements, such as the restoration of wet meadows adjacent to the observation tower and the construction of a fully accessible observation deck at the Curtis Road parking lot, provide additional opportunities. One important key to seeing more birds on the refuge is to visit throughout the year, particularly during migration periods. Come in the morning or early evening, when birds are most active. It is also wise to think like a bird, being aware of and focusing your attention on the places where conditions are most attractive. To get you started, here are some sites that typically host an abundance of birds in the spring:

March into early April = spring waterfowl migration. Birds moving towards their nesting areas don't linger, geese and ducks are no exception. Most migrate very early in the season. Ice and snow may often still be present when waterfowl arrive at their breeding grounds, so visitors waiting until "things warm up" will often miss out. The Ferguson Bayou (Curtis Road) hiking trails and observation structures are where you'll want to be. During years when flooding causes standing water on the farm fields surrounding the refuge, these areas offer great roadside opportunities.

April and May = waterbird, wader and shorebird migration. The locations where waterfowl are will also be frequented by wading birds and other species associated with water. Shorebirds will be most plentiful at sites with very shallow water and open mudflats. The new observation deck at Curtis Road parking area and the flooded fields along Cresswell Road will get you closest to the shorebirds, as well as gulls.

Late March through end of May = songbirds, in all their great variety, migrating to and through the refuge. There are four nice areas at which to concentrate your songbird watching and listening efforts. Along the Ferguson Bayou (Curtis Road) Trail, we suggest the portion straight north from the trail head then west to the observation blind, and also the main graveled portion that follows the Ferguson Bayou itself. This trail is one of the very few places in Michigan where nesting prothonotary warblers can be seen and heard. Overall, the northern portion of the refuge may offer you the nicest "songbirding." During spring migration, the birds are particularly abundant at two sections along the Woodland Trail (Stroebel Road). One is the portion around the old mine site then up the trail on the abandoned railroad grade to the Tittabawassee River. The other is the dense shrubbery adjacent to the parking lot. This is particularly nice for those visitors who are unable to hike distances, and in an hour's time you may encounter more warblers, vireos and such that are moving through this one small area, than the person who spends the morning traveling the entire trail.

We hope this brief introduction will help you to better enjoy the wonderful diversity of birdlife found at the refuge. Subsequently, you may also better realize and appreciate the vital role that Shiawassee NWR plays in sustaining the timeless annual travels of birds throughout the world. If you're looking for a specific bird species, call the refuge office or Green Point and let us know, we may be able to help you.

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Calendar of Events

First Wednesday Program
Great Grizzlies!
March 3, 7 - 8:30 pm
Green Point ELC
A viewing of the film, *Peacock's War*, that follows Doug Peacock's battle to document and save the last grizzlies in the continental United States.

First Wednesday Program
Live Butterflies
April 7, 7 - 8:30 pm
Green Point ELC
Rick Mikula, founder of the Hole-In-Hand Butterfly Farm offers a slide show and a look at live butterflies in this educational and fun presentation.

Volunteer Dinner
April 15, 6 pm
Watch for your invitation!

Spring Clean-up Day
April 17, 9 am - 12 pm
Green Point ELC
Bring your gloves and help clean up a part of your Refuge.

First Wednesday Program
Words for the Birds, II: Nature Poetry
May 5, 7 - 8:30 pm
Green Point ELC
In conjunction with the Theodore Roethke Poetry Festival, a chance to read your favorite nature poems or just enjoy listening to others.

IMBD Celebration
May 8, 10 am - 2 pm
Featured presenter, MUCC's "Michigan Birds of Prey."
Bluebird box building, trivia contest, bird hike and more!

Memorial Day Holiday
May 31
Offices are closed.

U.S. Fish and Wildlife Service
Green Point ELC
3010 Maple Street
Saginaw, MI 48602

Vol. 2 No. 3 Summer 99

Refuge Reporter

Happenings at Shiawassee NWR & Green Point ELC

From the Refuge Front Line

by **Ed DeVries**, *Assistant Manager*.

Gosling broods started appearing on the Refuge around the first of May. Due to the lack of water and hard freezing last year, our overwintering frog/tadpole population appears to have taken a real hit. The wading birds were also well fed by wriggling tadpoles as the wetlands dried last fall. Haven't heard as much frog singing this spring as in past years. Hopefully, we'll get more water and they'll bounce (jump?) back. The frog numbers may be down, but there is still a lot of other wildlife to see out there!

The hook and line Round Goby fishing survey went well on May 1. The round goby is an rapidly spreading, exotic fish that can displace native fish and take over optimal fish habitat. About two dozen volunteers helped us attempt to catch gobies in the Shiawassee and Flint rivers, and the Spaulding Drain. No gobies were caught, but we did catch lots of freshwater drum (sheepshead). The gobies may be out there, but just not in catchable numbers.

Ducks Unlimited has contributed funding for the Refuge to finally complete the Pool 2 dike project. The work will begin in June. This marsh is currently functional and is a great nesting area for rails, bitterns, soras, and other marsh birds. The additional work will provide more dike fortification to help withstand floods. In other construction news, the new bridge at the end of Houlihan Road (over the Birch Run Drain) was completed in mid-May.

Our *Galerucella* beetle-rearing effort is underway. *G.* beetles are used to help control purple loosestrife, an exotic plant that is spreading across the country's wetlands. We started seeing beetles in the rearing facility May 10, as they emerged from the overwintering straw insulation which was placed over the potted purple loosestrife plants from last year. On May 11, a crew of volunteers helped us pot fresh plants for this year, and emerging beetles are now being placed on the plants.

Make sure you bring your children and grandchildren out to the Saginaw Field and Stream Club Lake on June 5 for Kids Free Fishing Day. We have lots of great give-away items for the kids plus they can watch us release some fish into the lake. Best of all, it's free!

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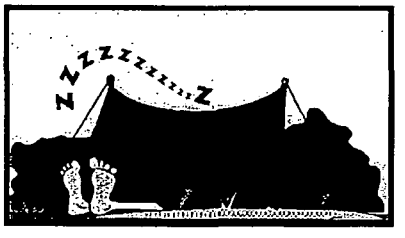

Hitting the Trail:

A Camping Primer

Prepare for the camping season with this program featuring useful camp knots and gadgets; tips and displays on choosing the right tent, sleeping bag and other equipment for your needs; and the tenets of "leave-no-trace" ethics. Join us on Wednesday, June 2, from 7 to 8:30 pm at Green Point ELC, 3010 Maple St. for this fun and informative night.

Backyard Wildlife Habitat vs. the Perfect Lawn

by Rick McAvinchey, *Biological Technician*

I've heard this story many times. You really enjoy watching wildlife, but can't seem to attract it to your backyard. The answer could be in your lawn.

The truth is that the goal of a perfect lawn and neatly maintained yard and gardens is partially in conflict with the goal of providing habitat and attracting wildlife. The grass lawn and carefully manicured shrubs and flower beds may look nice, but only a few wildlife species can use them. You can make your backyard or larger property a wildlife oasis by providing what wildlife needs - food, water, shelter/cover, and space.

The book, *Landscaping for Wildlife* by Carrol Henderson, describes vegetative components and structural, non-living components needed for the habitat needs of wildlife. Property that includes most or all of these components will provide year-round needs for a large variety of species. Important plant components are: 1) conifers, which provide foods, summer nesting and winter roosting shelter, and protection for feeding birds; 2) native grasses and legumes, which provide summer nesting and winter cover, forage for mammals, and hiding places for insects; 3) moth, bee and butterfly plants, which provide nectar or pollen for adults and leafy food for caterpillars; 4) hummingbird and oriole plants, which provide nectar; 5) summer fruit, berry and cover plants, which are important for migratory and over-wintering resident birds; 6) winter fruits and cover plants, persistent over the winter, that are not eaten by wildlife until mid-to-late winter, when other food sources are limited; and 7) nut and acorn trees.

The important structural non-living components of good wildlife habitat are: 1) nest boxes; 2) feeders; 3) dead and fallen trees, perches, loafing logs in ponds; 4) brush and rock piles; 5) cut banks, cliffs and caves; 6) dusting beds of fine soil and grit beds of coarse sand; 7) salt licks; and 8) a source of water, preferably dripping or flowing.

Get your neighbors involved because habitat management is more effective for neighborhoods than for individual backyards. For more information consult Henderson's books or try the National Wildlife Federation on the Internet at www.nwf.org. Visit our Backyard Habitat demonstration area near the Refuge headquarters building on Curtis Road.

Friends of Shiawassee NWR Update

by Becky Goche, *Refuge Operations Specialist*

The Friends of Shiawassee NWR group has been keeping busy according to Michelle Vanderhaar, Vice President. They continue to do outreach activities, like at Delta College's Earth Day and International Migratory Bird Day Celebration at Green Point, to let people know what they are trying to do. The group is planning to set up a booth, complete with refreshments, at the rest area near Clio, MI, along northbound I-75 later this summer.

Ms. Vanderhaar stated that the Friends group has filed its Articles of Incorporation. They are currently putting together the paperwork to acquire their non-profit status.

The main focus of the group is to raise money for the proposed Great Lakes Visitor Center in Bridgeport, MI. They are selling t-shirts and sweatshirts with wildlife photographs on them, in addition to selling engraved bricks for the visitor center. The Friends group is planning a fundraising "Bike-a-thon" from the Refuge to the proposed visitor center site in Bridgeport, MI. No definite date has been set, but they hope to host this event towards the end of the summer. The group's goal is to raise $20,000 by September 1.

If you are interested in learning more about the Friends group or have suggestions on other Refuge activities you would like to see them involved in, attend one of their monthly meetings. Meetings are held on the third Thursday of the month at 7:00 p.m. at the Green Point Environmental Learning Center.

Nature Notes

Think Before you Strike

by **Marc Beaudin**, *Park Ranger*

The snake coils, raises its head, and flicks its tongue. You slowly raise the shovel over your shoulder, ready to swing. *It's probably poisonous*, you think, tightening your grip on the shovel, *and either way, it will try to bite – it's either me or him.*

This scene or one's like it play themselves out all too often, and sadly, they usually end with a dead snake. As with everything; we tend to fear what we don't know, and tend to destroy what we fear. In the case of snakes, I urge you to think before you strike: our reptilian neighbors are not the slithering terrors of folktales and bad movies; on the contrary, they are helpful, virtually harmless, and tired of being harassed.

The milk snakes get their name from the myth that they sneak into barns at night and milk cows. What they are actually doing is saving the farmer untold loss in grain and other stored goods by vigilantly patrolling for rodents and insects. Unfortunately, many unknowing farmers thought they were protecting their livestock as they swung their shovel or rake. All snakes help control the rodent and insect populations in our barns, fields, garages and backyards; and no, they don't drink milk.

But how can I say that snakes are virtually harmless? After all, we've all seen those movies full of sharp-fanged, venom-spitting, lightening-fast serpents. But, as the theaters and televisions demonstrate daily, Hollywood has a huge aversion to reality. Snakes bite for two reasons: to eat and as a last ditch effort to protect themselves. Unless, you look remarkably similar to a bug or mouse; no snake is ever going to try to eat you. And if you don't act in ways that appear life-threatening for the snake, you won't get bitten for this reason either. Remember, you're a hundred times bigger than a snake: when they see you, they have one thing on their minds – escape. If they are cornered, grabbed, poked or taken by surprise, they might strike; not because they are mean, but because they are scared and feel that their life is in danger.

All of this is true for poisonous snakes as well, the only difference is a bite becomes much more serious. This is why when people go into "snake country" they wear boots, watch where they're going, and avoid sticking their hands under rocks and logs. In Michigan, we have only one venomous snake, the eastern massasauga rattlesnake. They are small (20 – 30 inches), timid, seriously under-populated, and prefer to live in swamps and bogs. Chances are you'll never see one, and if you do, it will most likely be busy getting away from the big, scary human.

Despite the great benefits snakes provide us, and the minimal threat that they pose, snakes suffer greatly at the hands of well-meaning but frightened and uninformed people. Especially in the spring, when snakes that have congregated in groups to survive a precarious hibernation now emerge from hiding sometimes looking like an invasion.

Actually, these days we are lucky to see a snake now and then. With so much loss of habitat, pollution, and poison aimed at killing their food sources; many snake species are thought to be declining rapidly. This is why staff and volunteers of Shiawassee NWR are beginning a survey to tabulate the types and numbers of snakes that live on the refuge. Only by staying well-informed can we work to protect species at risk, which will in turn help strengthen the entire ecosystem in which snakes play a vital role.

Next time you find snakes hiding under your porch or basking on your lawn, rather than letting fear lead to grabbing a shovel or other weapon, use this opportunity to become more familiar with these elegant and gentle creatures. Get a field guide and try to identify them and learn more about their habits. You could even enhance their habitat by providing shelter, flat rocks for basking, and drinking water. Finally, be sure to thank them for all they do for us in filling their place in the web of life.

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Calendar of Events

First Wednesday Program
Hitting the Trail: Camping Primer
June 2, 7 - 8:30 pm
Green Point ELC
Get ready for the summer camping season. See related article on front page for more information.

Kids Free Fishing Day
June 5, 8 am - 12 pm
Saginaw Field & Stream Club Lake
Children 16 and younger can register for all kinds of prizes.

Summer Discovery Camp
June 19, 10 am - 3 pm
Green Point ELC
Children aged 5 to 12 can come and explore a part of their National Wildlife Refuge. Fun, hands-on activities. Registration required.

Fourth of July Holiday Observed
July 5
Offices are closed.

U.S. Fish and Wildlife Service
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Vol. 2 No. 4 Fall 99

Refuge Reporter

Happenings at Shiawassee NWR & Green Point ELC

YCC Assists Refuge Programs

by **Rick McAvinchey**, *Biological Technician*

This summer the Shiawassee National Wildlife Refuge again hired 6 students from Buena Vista High School to work on a wide variety of projects on the Refuge. The Youth Conservation Corps (YCC) crew members were Yasmeen Davenport, who returned for a second year, Leonard Doxie, Jr., Stephenol Santos, April Robinson, Wendell Taylor, Jr., and Tionna Watkins.

We first hired a crew leader, Kelly Doede, from Midland, to run the daily program. Kelly is a student at Delta College, with an associates degree in science and she is finishing an associates degree in applied science/environmental sciences technician. Refuge wildlife technician Rick McAvinchey organized and oversaw the program, planned the work with Kelly, and frequently worked with the crew. The crew worked five days per week, eight hours a day.

During their tenure, the crew assisted with many different projects. One of the most helpful was collecting *Galerucella* beetles for release on the Refuge. These beetles are helping us to control the spread of purple loosestrife, an extremely invasive wetland plant from Europe.

The students also aided with Canada goose banding, bird surveys, and assembly of deer hunt information packets. Forest interior bird surveys will be more accurate due to the YCC's installation of wooden marker posts. They helped maintain important wildlife habitats through removal of cottonwood and willow seedlings from refuge wetlands, pick-up of flood refuse along Ferguson Bayou, and application of hay mulch on recently seeded dikes.

The refuge has been improved for people as well through the efforts of the YCC'ers. They lent a hand to everything from trail maintenance to painting and staining buildings and a photography blind. They installed and maintained flower beds and interpretive trail signs, and performed a trail condition inventory on the main Refuge trails.

The crew also received training in CPR, and in compass use, pacing, and map reading. They went on three environmental education field trips during the summer. Overall the program went well, with help and cooperation from most of the Refuge staff, from managers and biologists, environmental education coordinators, and especially our maintenance crew and our timekeeper. The crew helped the Refuge with a lot of work, and learned quite a bit about the environment and about working outdoors.

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An Ever-Changing Show

As summer slips into autumn and the days grow cooler and shorter, the ever-changing show of Shiawassee NWR prepares for one of its most spectacular scenes.

The trees will soon be revealing their stunning fall colors and the great southward migration of songbirds and waterfowl will bring many welcome visitors to our fields, forests, and waters.

Meanwhile, the mammals are busy preparing homes and stockpiling food. Their extra activity makes them easier to see.

It's a great time to put on your hiking boots or jump on your bike and come enjoy the show!

Youth Deer Hunt Orientation

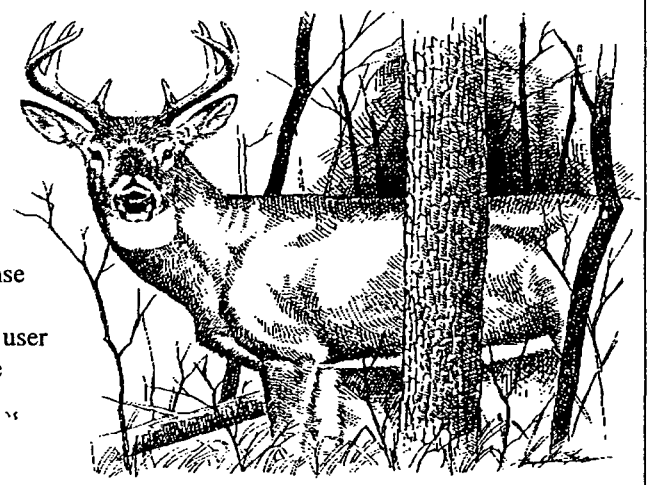
by Jim Dastyck, *Wildlife Biologist*

Shiawassee NWR will be holding a youth hunter orientation for beginning hunters between 14 and 16 years of age on October 16, at 1 pm. The meeting will be held at the Saginaw Field and Stream Club, which is located 1 mile west of the M-52 and M-46 intersection and ¾ mile north of M-46 at 1500 N. Gleaner Rd.

Any youth hunter interested in deer hunting on the Shiawassee NWR **must** attend this meeting with a parent or guardian. The orientation session will cover information on the refuge, deer biology, hunter ethics and safety, and refuge regulations.

At the end of the meeting, all attending youth will have an opportunity to draw a permit to hunt the refuge. There are twenty permits available to be issued during this process for hunt #213 on November 27 and 28. To receive a permit, the youth hunter must bring a hunter safety certificate or previous hunting license to the meeting and be prepared to pay a $10 user fee if successful in the drawing.

Contact the refuge office at (517) 777-5930 for more information on this, or other refuge hunting opportunities.



Nature Notes

The Little Things

by Marc Beaudin, *Park Ranger*

Even though I've just returned from a month of hiking through some of our greatest mountains – filled with towering cliffs, plummeting waterfalls, and giant wildlife – it's still nature's small wonders that amaze me.

Take, for example, the diminutive duckweed. We've all seen *Lemna minor*, the lesser Duckweed, by the thousands blanketing quiet ponds with their bright green cover.

This tiny plant, nothing more than one leaf the size of a match-head and a thread-like rootlet, seems incredibly frail and at the mercy of the elements. Certainly unable to survive one of our Michigan winters. Yet this remarkable plant has developed a survival tactic that rivals the hibernating grizzly.

As summer fades into fall, duckweeds begin to store excess starch. By the time we're reaching for a sweater, they have grown so heavy that they sink to the bottom of the pond where they wait out the coming ice and snow.

During the long, dark winter, they use their stored starch the way the bear in his den uses stored fat, and by spring they are light enough to rise back to the surface where they add beauty to the woods, serve as a host for the eggs the ephydrid fly and rhyncophorous beetle, and as the name suggests, provide food for ducks.

Nature is great at filling us with awe at the sight of lofty peaks, raging rivers, and majestic sunsets; but we shouldn't overlook the astonishing gems to be found with a much closer look. The little things can inspire us with awe as well.

Friends Group Sponsors Bike-a-Thon

by Marc Beaudin, *Park Ranger*

It may be the best way to view the refuge: peddling along past marshes blanketed with ducks, geese, and shorebirds; through forests of dappled sunlight catching the red fur of a fox just before it slips into the shadows; and across fields blazing with wildflowers under the intent gaze of a soaring hawk.

It's also a great way to help maintain these wild places and our enjoyment of them.

On Sunday, September 12, from 2 to 6 pm, the Friends of Shiawassee NWR is sponsoring a Bike-a-Thon to help raise funds for various refuge projects such as trail improvement and installation of trail-side comfort stations. Some money raised will also go toward the proposed Great Lakes Visitor Center.

Participants should register at the Curtis Rd. parking lot (west off M-13 to the end of Curtis) between 1:30 and 2 pm. Three different routes will be marked off to choose from: a 2-3 mile loop, a 5 mile loop, and a 10 mile loop. These trails will pass through the heart of the refuge and include areas not normally open to the public. Refreshments will be provided at the registration area and at the half-way point.

Those interested should call or stop by the refuge office (777-5930; 6975 Mower Rd., Saginaw, MI 48601) to obtain a pledge form. Then ask friends, neighbors, and businesses to pledge any amount for completion of one of the routes. A minimum pledge total of $5 is requested.

It's good fun, good exercise, and a good cause all rolled into one. And speaking of rolling, I've got to go air up my tires!

Deer Hunt Regulations Set

by Doug Spencer, *Refuge Manager* **and Jim Dastyck,** *Wildlife Biologist*

Shiawassee NWR has instituted dates and guidelines for the 1999 deer season. The refuge is offering 16 pre-registered hunts composed of six archery hunts periods, six muzzleloader hunt periods, and four shotgun hunt periods. The shotgun hunts include two non-ambulatory hunts for participants confined to a wheelchair.

For these refuge hunts, applications must be postmarked by September 10, 1999. Successful applicants will receive notification of their selection and the need to pay a $10 refuge user fee before a permit and hunting packet will be sent.

Two additional archery hunts (antlerless only) will also be held; on October 19-23 and October 24-28. For these hunts, an open draw to issue permits will take place at the refuge office on Mower Rd., west of Curtis, on October 16, with registration starting at 12:30 pm and the drawing starting at 1:30 pm. Hunters must have a driver's license, hunting license, and a $10 user fee.

There are 35 permits available for each of these hunt periods. Hunters can register for only one of the two periods.

Additional information on refuge hunting seasons is available at Michigan DNR District Offices, licensed dealers, or at Shiawassee NWR. Write us at: 6975 Mower Rd., Saginaw, MI 48601, or call (517)777-5930.

Shiawassee National Wildlife Refuge
Headquarters: (517) 777-5930
6975 Mower Road
Saginaw, MI 48601

Green Point Environmental Learning Center
(517) 759-1669
3010 Maple Street
Saginaw, MI 48602

Both are open Monday-Friday
7:30 a.m. - 4:00 p.m.

Fish & Wildlife Service web site:
http://www.fws.gov/

Refuge Manager:
Doug Spencer
Volunteer Coordinator:
Ed DeVries
Green Point Director:
Becky Goche

Refuge Reporter
Published quarterly by the Shiawassee National Wildlife Refuge

Editing and Layout:
Becky Goche & Marc Beaudin

Calendar of Events

First Wednesday Series
Edible Plant Walk
Sept. 1, 7 - 8:30 pm
Green Point ELC
Discover some of the many tasty foods that Nature has to offer. See insert for details.

Labor Day
Sept. 6
Offices are closed.

Educator's Environmental Fair
Sept. 9, 3 - 6 pm
Green Point ELC
A world of ideas and resources for your programs. See insert for details.

Refuge Open House
Sept. 11 & 12, 9 am - 4 pm
All trails open for hiking and biking.

Refuge Auto Tour
Sept. 11, 9 am - 4 pm
Enjoy a leisurely drive through the heart of the refuge. Starts at Curtis Rd. parking lot.

Friends Group Bike-a-thon
Sept. 12, 1 -6 pm
See page 3 for details.

First Wednesday Series
Where Rock Meets Sky: A Journey to the West
Oct. 6, 7 - 8:30 pm
Green Point ELC
A multi-media presentation on Park Ranger Marc Beaudin's recent adventure to various wild areas. See insert for details.

Columbus Day
Oct. 11
Offices are closed.

National Wildlife Refuge Week
Oct. 10 - 16

Wolf Awareness Week
Oct. 17 - 23

First Wednesday Series
Bringing 'em Back: A look at Endangered Species
Nov. 3, 7 - 8:30 pm
Green Point ELC
Videos, displays and information about some of our rarest animals. See insert for details.

Veteran's Day
Nov. 11
Offices are closed.

Thanksgiving
Nov. 25
Offices are closed.

U.S. Fish and Wildlife Service
Green Point ELC
3010 Maple Street
Saginaw, MI 48602

DATE IN	DATE OUT	REFUGE	REFUGE MANAGER	COMMENTS
	2-5-01	Shiawassee NWR	Doyle G. Powers	It was an exciting year.
2-9-01	2-28-01	RFS-1	Jim Flach	Lots of activity in many different areas

Have You Ever . . .

- Fished, hunted, boated or bird-watched along the rivers?
- Enjoyed a hike or bike ride on a trail through the Shiawassee National Wildlife Refuge?
- Stopped to admire the wildflowers blooming?
- Watched a Bald Eagle soar or a Blue Huron fish?

These are just a few activities and opportunities available at the Shiawassee National Wildlife Refuge. If you enjoy these activities and would like to show your support for them, become a

"Friend of Shiawassee"

With your help, innovative programs and facilities will continue to be made available.

Who We Are

Friends of the Shiawassee National Wildlife Refuge are mostly local people. We enjoy nature and wildlife. We are dedicated to the continuing protection of special places to renew the spirit and soul of mankind. We are dedicated to teaching our children and the children of our communities the importance of our own very special wild places.

Our Goals

- Support the Multi-use concept
- Inform the public through interpretive tours and workshops
- Provide opportunities for volunteers
- Locate funding for projects and activities to enhance the refuge and its facilities
- Inform elected officials about refuge issues

What Can You Do

Join us, be an active participant—exciting things are happening. Even if you do not have special skills or equipment we need help to:

--Stuff envelopes
--Make telephone calls
--Run errands
--Open mail
--Write articles and letters

Please check the box if you can help us with any of these items.

- ☐ Writing articles
- ☐ Public Relations
- ☐ Public Speaking
- ☐ Grant writing
- ☐ Fund raising
- ☐ Newsletters
- ☐ Brochures
- ☐ Photography

Computer skills

- ☐ Scanner
- ☐ Digital Camera
- ☐ Web page Design
- ☐ Adobe Acrobat
- ☐ CD writer
- ☐ Major software used:

_____

_____

- ☐ Specialized software

_____

_____

I have access to:

- ☐ Copy machine
- ☐ Printing facility
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

I have connections with other organizations who would support the Friends:

_____

_____

I have another way in which I would like to help:

_____

_____

We Need a Few Good People

Do you enjoy the outdoors?

Do you want to help protect the natural resources in the Saginaw valley?

Are you willing to make a difference?

If you answered yes to any of these questions, you may be the person for us.

The "Friends of the Shiawassee" is a local, non-profit organization devoted to protecting and preserving the natural and cultural resources of the National Wildlife Refuge. The Friends act as the collective citizen voice for the Refuge in a variety of arenas to raise awareness of the Refuge through outreach and environmental education efforts.

Yes! I want to be a Friend!

NAME _____

ADDRESS_____

CITY _____

STATE _____ ZIP_____

TELEPHONE (_____) _____

_____ Regular membership ($10)

_____ Supporting membership ($50)**

Please make your check out to "Friends of Shiawassee" and send it with this form to:

Friends of Shiawassee National Wildlife Refuge
PO Box 20129
Saginaw, MI 48602

** Your choice of T-shirt/Sweatshirt included

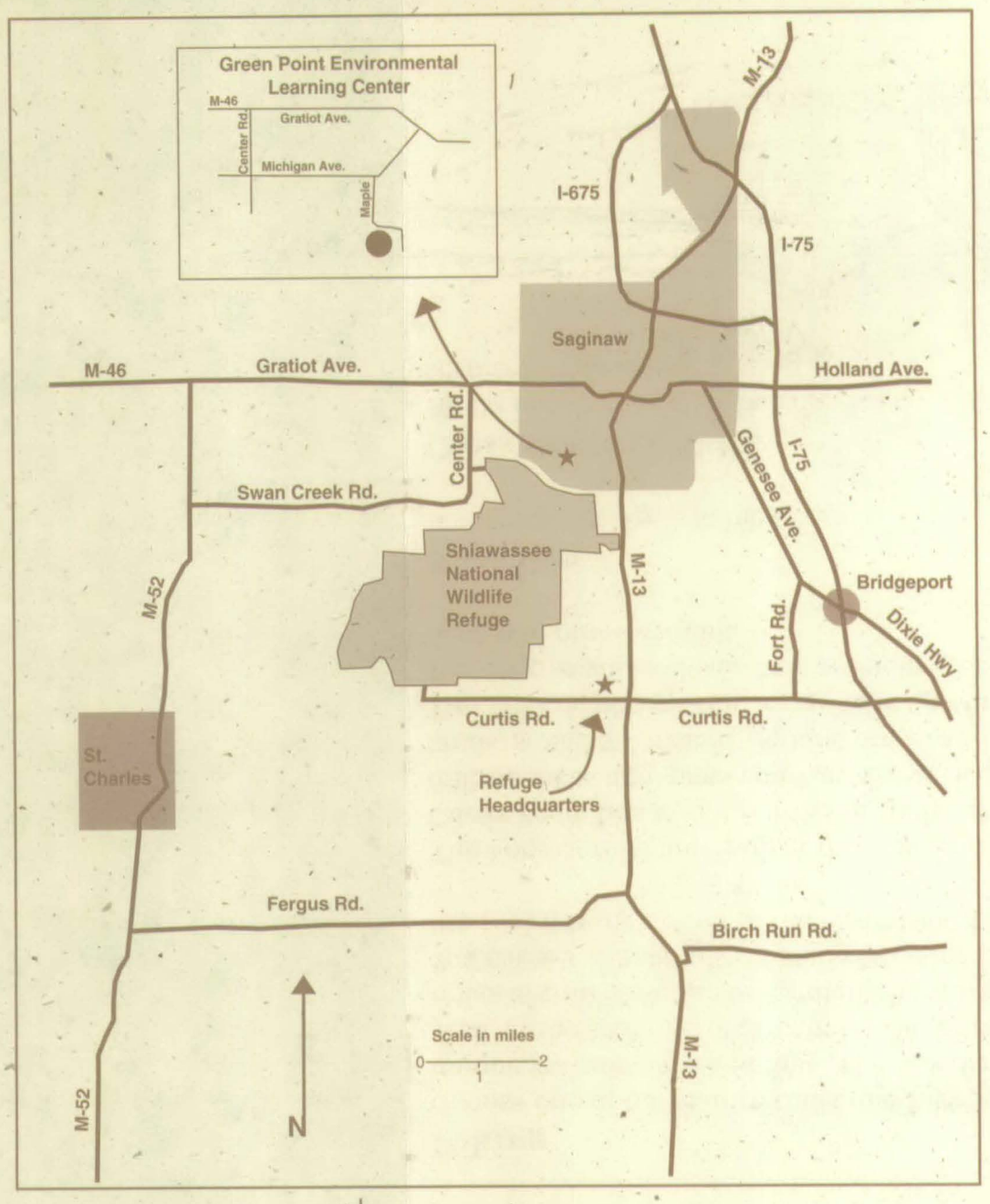
Friends of Shiawassee

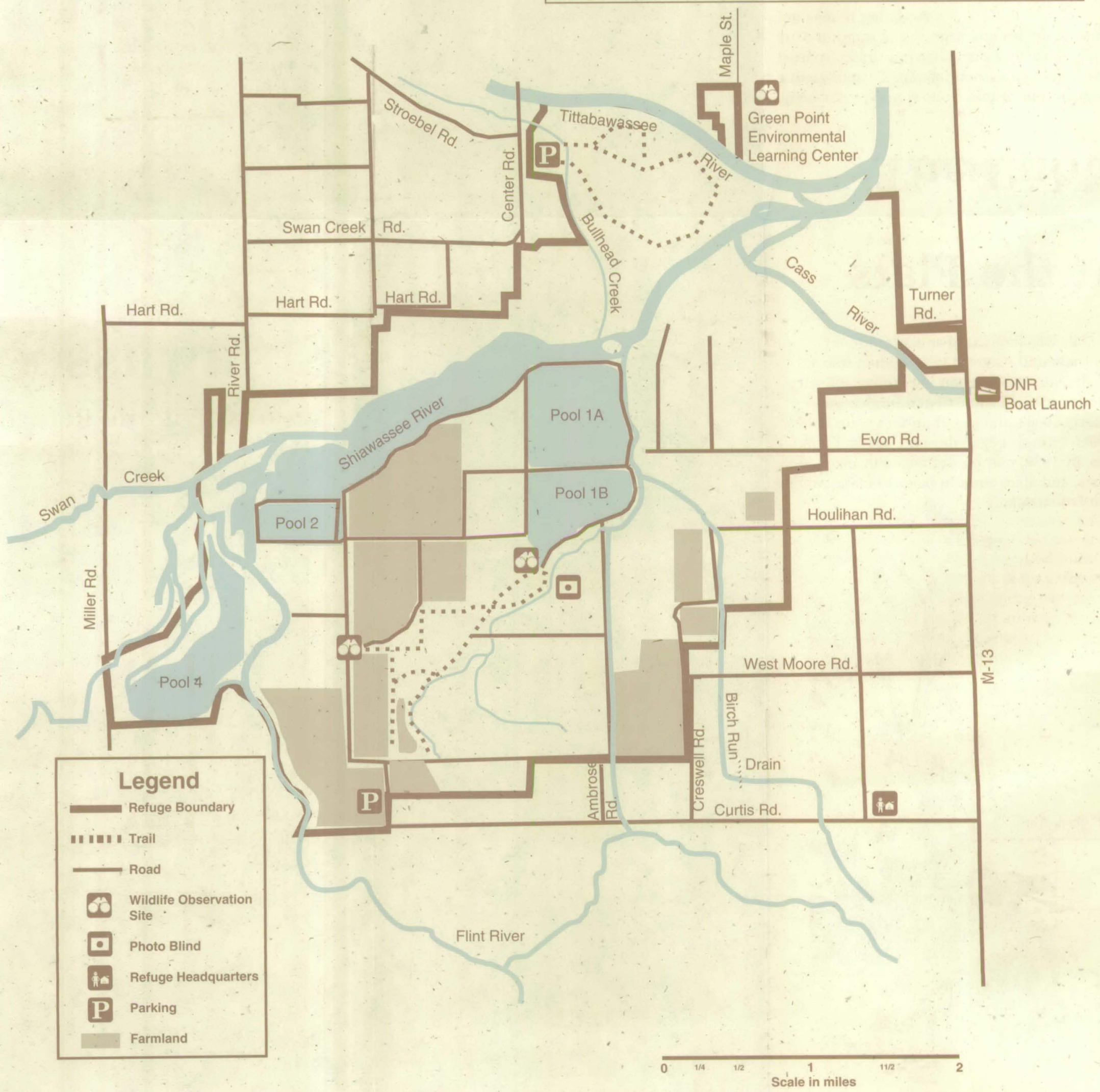
National Wildlife Refuge

Meeting at
Greenpoint Environmental
Learning Center
3010 Maple
Saginaw, MI
(517) 759-1669

3rd Thursday of the month
7:00 pm
Board Meeting 6:30 pm

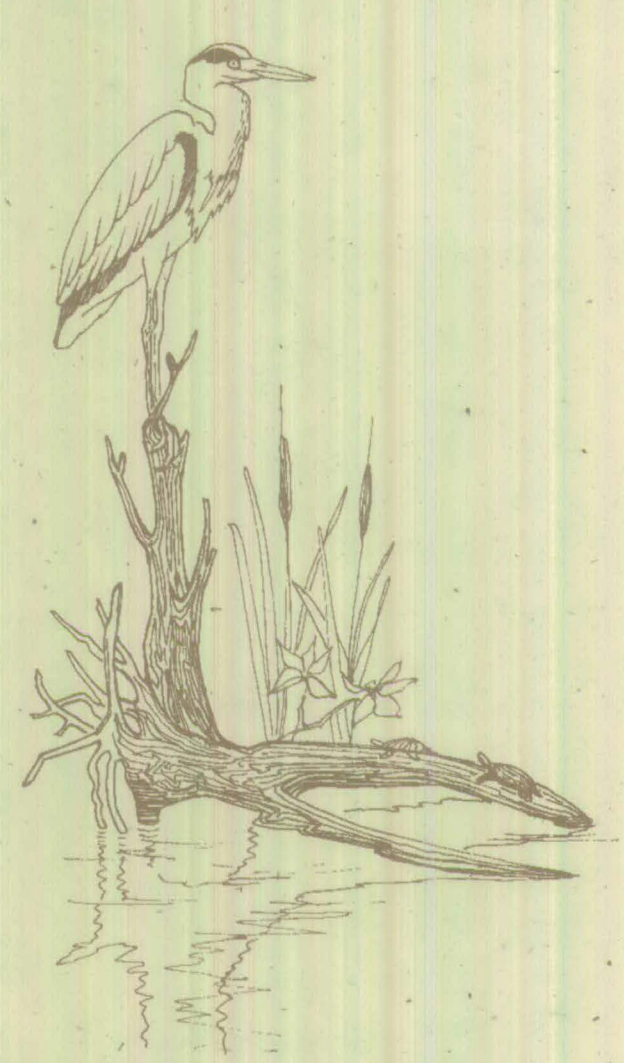
Shiawassee National Wildlife Refuge





Shiawassee

National Wildlife Refuge



Saginaw, Michigan

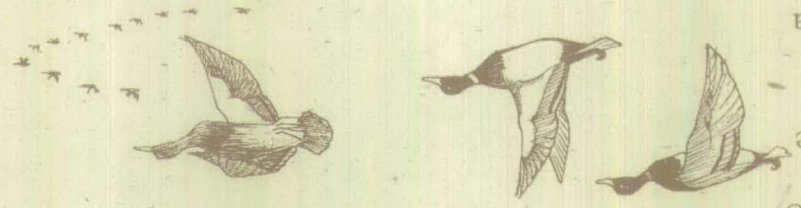
Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw, MI 48601

Where Waters Meet

Shiawassee National Wildlife Refuge (NWR) was established in 1953 to restore and enhance this historically significant wetland area for migratory waterfowl. The Refuge contains over 9,000 acres of bottomland-hardwood forests, marshes, pools, grasslands, and croplands. Four rivers meet on the Refuge - the Tittabawassee, Flint, Cass, and Shiawassee Rivers.

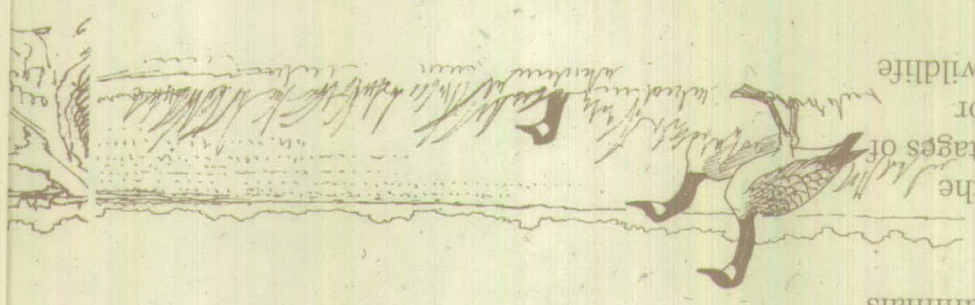
Top Birding Area

The Refuge's diverse habitats provide resting and feeding areas for over 250 species of migratory birds, including bald eagles, shore and wading birds, more than 100 songbird species, and waterfowl. During peak populations, the Refuge hosts 25,000 Canada geese, 30,000 ducks, 1,000 swans, and many wading and waterbirds. Other animals that live here include deer, beaver, muskrat, Blanding's turtles, green frogs, and green darners.



Farming for Wildlife

Farming is an important wildlife management tool on the Refuge. Refuge staff use dikes, pumps, and gravity-flow structures to flood and drain marshes and forested areas. This "wet farming" promotes the growth of invertebrates and seeds which waterfowl and other animals use for food.

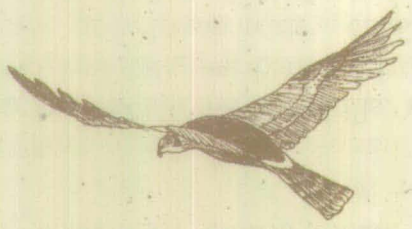


Local farmers also sharecrop some of the Refuge land. They take certain percentages of the crop, leaving the rest in the field for wildlife. These leftover crops provide wildlife with a winter food source.

Rules and Regulations

Protect your Refuge's natural resources and make your visit safe and enjoyable by following these rules and regulations.

- Stay on established roads or trails.
- Observe "Closed Area" signs.
- Snowmobiles, ATV's, and other motorized vehicles destroy fragile habitat and therefore are not allowed on the Refuge.
- Spotlighting wildlife, bank fishing, camping, fires, horses, and dogs are not permitted.
- Hunting and trapping are allowed only with the possession of a Refuge permit.
- Please take your litter with you.



Hours

The Refuge headquarters, located on Curtis Road, is open 7:30 a.m. to 4:00 p.m., Monday through Friday throughout the year. Refuge visitors are welcome to stop by if they have questions or need assistance. Visitors to Green Point Environmental Learning Center should call ahead for hours.

For More Information Contact:

Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw, MI 48601
Phone: (517) 777-5930
Internet Url:
http://www.fws.gov/~r3paO/r3home.html

Equal opportunity to participate in, and benefit from, programs of the U. S. Fish and Wildlife Service is available to all individuals regardless of age, race, color, national origin, religion, sex, or disability. Persons who believe they have been discriminated against in any program, activity, or facility operated by the U.S. Fish and Wildlife Service should contact:

U.S. Department of the Interior
Office of Equal Opportunity
1849 C Street, N.W.
Washington, D.C. 20240

December 1996

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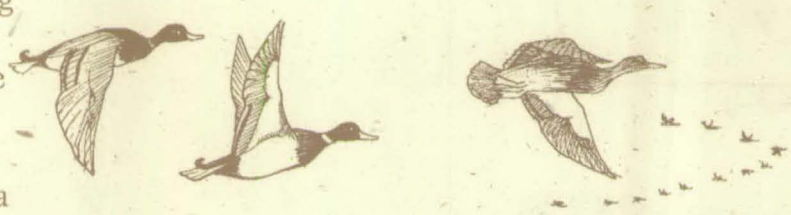

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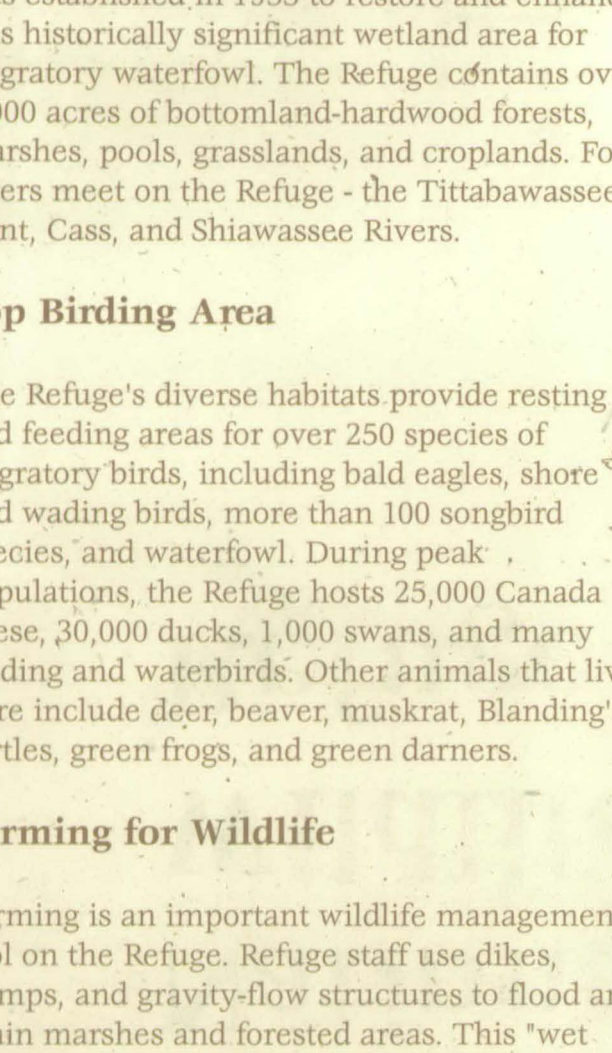
Shiawassee National Wildlife Refuge
6975 Mower Road
Saginaw, MI 48601

Shiawassee

National Wildlife Refuge



Saginaw, Michigan

The Public Is Welcome!

Shiawassee NWR is open year-round, seven days a week, during daylight hours only. (During hunt periods, hours and access may be limited.) There are a number of activities you can do throughout the year at the Refuge.

Hiking

Choose one of our nature trails that highlight unique features of the Refuge. The Woodland Trail, at the east end of Stroebel Road, offers 4.5 miles of trails through bottomland hardwoods. You can see a huge pile of shale left over from the coal mining period of the early 1900's.

The Ferguson Bayou Trail, at the west end of Curtis Road, has over 4.5 miles of trails. This trail follows dikes and gives you views of agricultural lands, sloughs, forested wetland areas, and pools. Two wildlife observation decks with spotting scopes give you a closer look at ducks, geese, deer, and other wildlife.

Bicycling

Both trails are open to bicycles.

Cross Country Skiing

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

Hunting

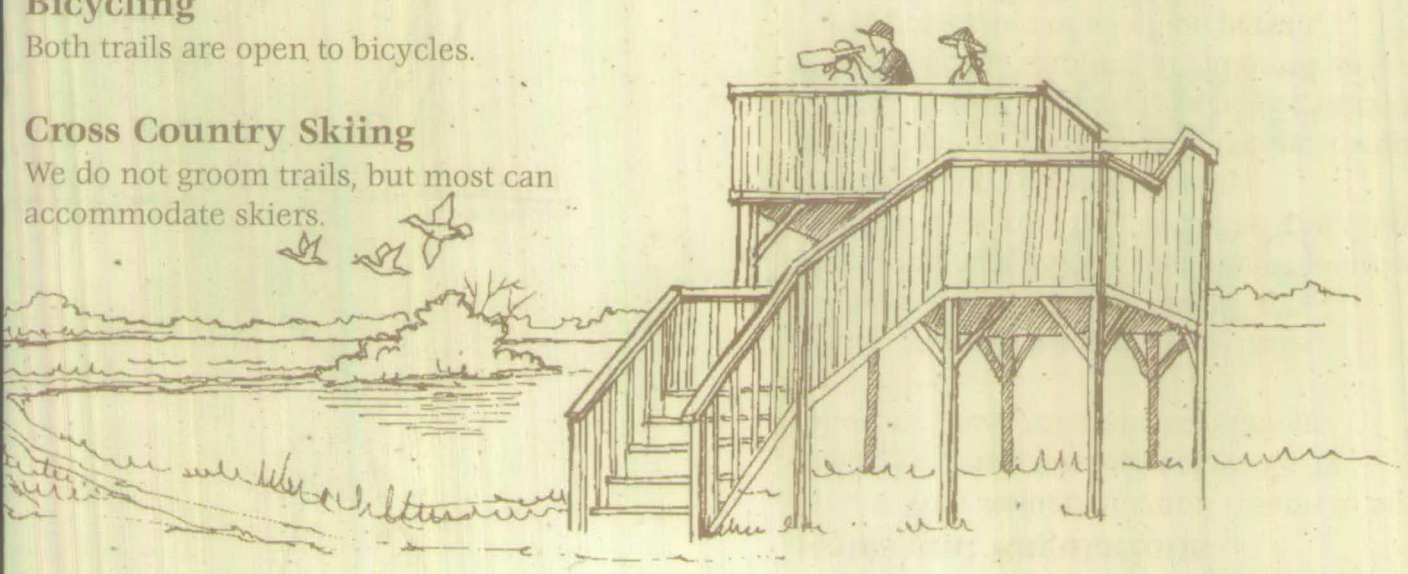
Portions of the Refuge may be open to goose and deer hunting by special permit. Maps showing open areas and details on Refuge hunting programs are available at the headquarters.

Environmental Education

Our Green Point Environmental Learning Center, located at 3010 Maple Street in Saginaw, provides programs for children and adults. You can hike the trails or view a variety of displays inside the interpretive building. Hours vary seasonally, so call ahead.

Volunteer

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.

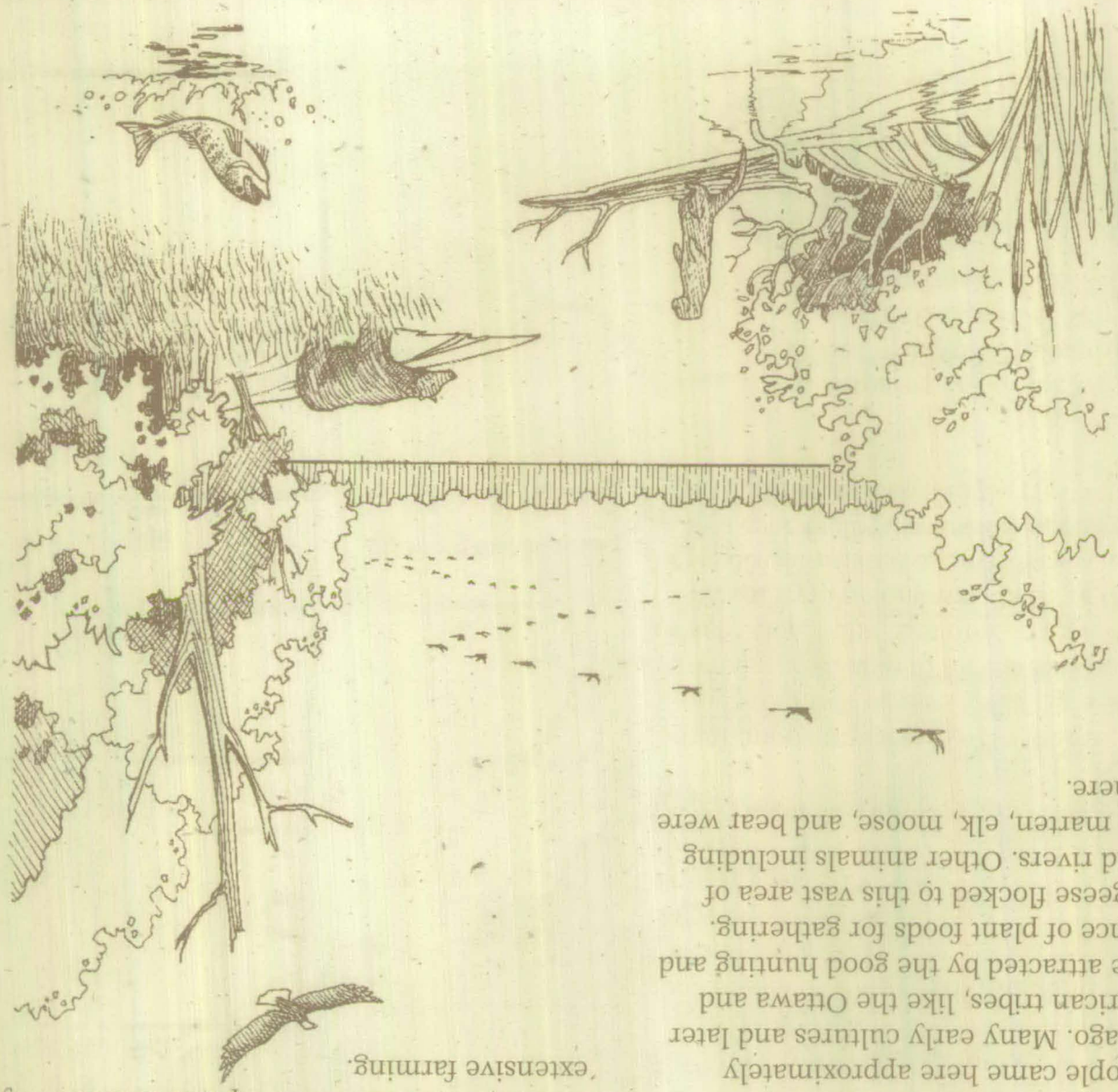


A Look Back at the Flats

Over 10,000 years ago, much of east-central Michigan, including the present day Shiawassee NWR, 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 many people call this area "The Flats".

The first people came here approximately 5,000 years ago. Many early cultures and later Native American tribes, like the Ottawa and Ojibwa were attracted by the good hunting and the abundance of plant foods for gathering. 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 and received little human impact until the late 1800's when the lumber industry expanded into the area. Coal mining began in the early 1900's and lasted until the late 1930's. In 1903, farmers began draining the land for crops. By 1950, pumps, drainage tile, elaborate ditches, and dikes were in place to make way for extensive farming.



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-ko-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.

Park Ranger with kids,
Becky Goche, USFWS

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 operates 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.

Black-capped chickadee,
Myles Willard

Diversity is the Key

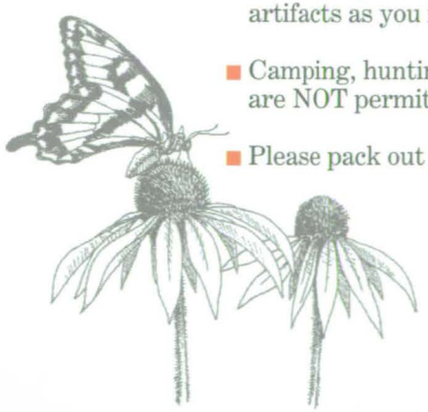
Habitat diversity is essential to a successful environmental education facility. Located just north of the Shiawassee NWR, Green Point has 76 acres of diverse habitats that range from bottomland hardwoods to wetlands, to ponds and fields, even rivers and grassy lawns. Each of these habitats supports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

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.



Things to Do at Green Point

Programs
We provide a variety of environmental programs throughout the year for school groups, scout groups, educators, families, and others.

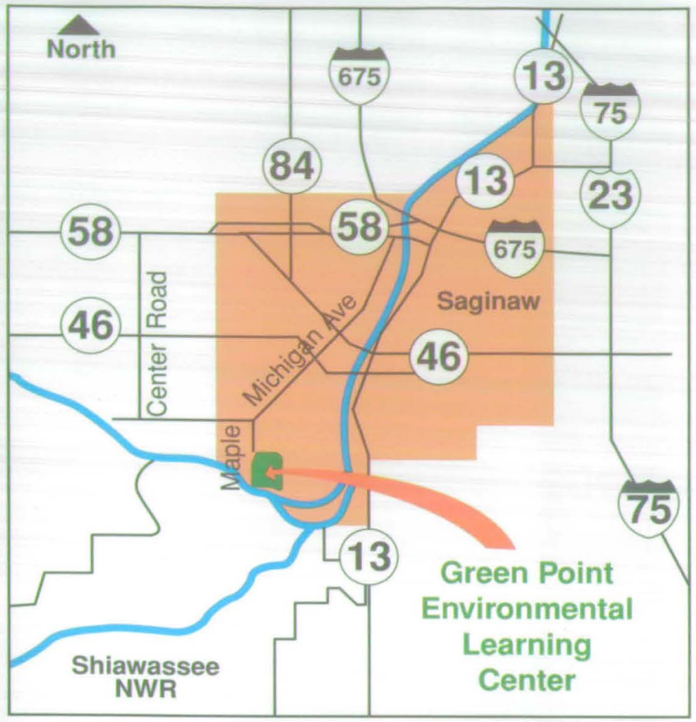
Hiking
Trails are open daily during daylight hours only. Trail maps are available in the building. Explore diverse habitats on our 2.5 miles of nature trails.

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

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

Cross-Country Skiing
We do not groom trails, but most can accommodate skiers.

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



Address
Green Point ELC, 3010 Maple Street
Saginaw, Michigan 48602

Directions to Green Point

From I-75
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 (517) 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

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

Cecropia moth catepillar,
Myles Willard

U.S. Fish & Wildlife Service

Green Point

Environmental Learning Center