

Hunting Plan

Shiawassee National Wildlife Refuge
Saginaw, Michigan

Submitted by: Douglas G. Jensen Refuge Manager Date 10-26-92
Concurrence: Tone Wright - Regional O.R.P. Date 11/6/92
Don Daulton, WPM-1 (act.) Date 11/9/92
Approval: Susan Haseltine Date 11/13/92

HUNTING PLAN
SHIAWASSEE NATIONAL WILDLIFE REFUGE

I. Introduction

A. Location and General Description

The 8,984-acre Shiawassee National Wildlife Refuge was established in 1953 as part of a joint land acquisition waterfowl project designated as the Shiawassee Flats Wildlife Management Area. The project was composed of two adjacent operating units, the Shiawassee National Wildlife Refuge and the State of Michigan's Shiawassee River State Game Area. Development of Shiawassee National Wildlife Refuge is proceeding under U.S. Fish and Wildlife Service guidelines established at the time of this joint project.

The Shiawassee Flats Wildlife Management Area lies in the central part of Saginaw County, six miles south of Saginaw, Michigan. Seney National Wildlife Refuge in Michigan's Upper Peninsula is 250 airline miles north of Shiawassee; Ottawa National Wildlife Refuge in northwest Ohio is 140 miles to the southeast. A small satellite refuge of Shiawassee National Wildlife Refuge (Wyandotte) is less than 100 miles to the southeast. The project boundary includes the flood plain known as the "Shiawassee Flats" in which six major rivers and streams (Bad, Cass, Flint, Shiawassee and Tittabawassee Rivers plus Swan Creek) converge to form the Saginaw River. This river flows northward into nearby Saginaw Bay of Lake Huron.

Although the Saginaw River is only twenty miles long, this river and it's tributaries form the largest drainage system in the State of Michigan. The major runoff from twenty counties in east-central Michigan passes through the system into Saginaw Bay of Lake Huron. Because of the low plain comprising the Shiawassee Flats and the relatively flat gradient of the Saginaw River the water level of Lake Huron affects the stage and normal rate of flow of the Saginaw River. Deforestation, increased land drainage, and the low infiltration rates of major soil types have contributed to increased runoff in the Saginaw Valley. These factors allow frequent flooding of refuge lands and adjacent upstream acres during periods of high runoff.

The original vegetation of the Shiawassee Flats Area was typical of the northern forest type characteristic of the Great Lakes Region. Deciduous and coniferous forests, prairies, and marshlands provided a diversity of habitat for a great many species of wildlife. Early drainage projects altered water levels and reduced vast sedge meadows and wild rice producing marshes to dense growths of cattails, phragmites, and water-tolerant shrubs. Much aquatic vegetation, valuable as waterfowl food, was destroyed by draining and siltation. At the present time the refuge habitat consists of

750 acres of controlled marsh, 386 acres of moist soil units, and 1,440 acres of cropland, with the remainder left in grassland, uncontrolled marsh along the river, and forest-land, much of which is in greentree reservoir.

Soils of the area are predominately clay-loam, the majority of which are very fertile. Classification of these soils is chiefly influenced by drainage and frequent flooding. High yields of crops attractive to wildlife can be obtained when the farmlands are improved by dikes and tiling.

B. History

The Saginaw Valley was the center of timber operations in lower Michigan during the period 1870-1910. The various tributaries carried logs to the saw mills located in the valley. As the mixed stands of deciduous and coniferous trees were logged from the surrounding areas, agriculture development increased. Because of the low level and wet conditions of the Shiawassee Flats Area, little development occurred until around 1925. It then became evident that the vast areas of marsh grasses, which up to that date, had provided excellent migratory waterfowl habitat, could be easily cleared, plowed, and farmed whenever water levels permitted. Gradually the farmers began to construct open ditches through the area to improve drainage and by 1940 many protective dikes were built. During World War II, additional water control facilities were constructed to alleviate flood problems and permit more intensive cultivation. By 1950 more elaborate dikes, ditches, pumping stations, and tile drainage systems were being placed into operation. This trend is continuing today.

C. Proposed Development

The flooding hazard and need for improved agricultural drainage presented a complex engineering problem. The most recent proposal to control flooding in the Saginaw Valley was the Saginaw Flood Control Plan prepared by the U.S. Corps of Engineers. The flood control plan provided that a system of storage reservoirs be constructed on the refuge and state game area; with the necessary development to benefit all agencies concerned. The Federal and State areas were developed to provide a major resting and feeding area for migratory waterfowl in the north-eastern Great Lakes Region of the Mississippi Flyway. Management programs are directed toward Canada geese, dabbling ducks, endangered and threatened species, and shorebirds.

Each agency will be responsible for development and administration of their respective units, but the entire project will be operated under the terms of the agreement.

The Shiawassee National Wildlife Refuge is located in the eastern half of the Shiawassee Flats area. Land acquisition was completed within the approved boundary of the refuge by the early 1970's. Initial biological development of new marsh units began in 1967.

Presently, 473 acres on four units are developed or being developed as deep marsh units. Two additional units comprising 505 acres act as shallow marsh and loafing areas for waterfowl and marsh birds. Another two units comprising 820 acres are included as greentree reservoirs or pools; bringing the pool or permanent marsh units to eight with a total of 1,798 acres. No further marsh or pool development is presently scheduled for the refuge.

The following plan pertains to the service lands described above.

II. Conformance With Statutory Authority and Funding

Shiawassee National Wildlife Refuge was authorized by the Federal Migratory Bird Conservation Commission and established to preserve historically important waterfowl habitat and provide for a major waterfowl refuge on the northern portion of the Mississippi Flyway. The refuge was to provide food and habitat for waterfowl on their northern and southern migrations through the Shiawassee area. Opening Shiawassee NWR to migratory waterfowl and big game deer hunting will result in only minor temporary disturbances to refuge habitat as hunters gain access to hunting sites. Therefore, the hunting program is consistent with the National Wildlife Refuge Administration Act of 1966 (16 U.S.C. 668dd-668ee; 80 Stat.927) and conservation purposes for which the refuge was acquired. Waterfowl hunting is limited to 1,298 of the 8,984 acres that comprise the refuge, while deer hunting is open on all but 25 acres of the refuge. Therefore, opening Shiawassee National Wildlife Refuge to hunting is also in compliance with the Refuge Administration Act. The initial cost of this hunting program was approximately \$6,000, and the current cost will be approximately \$12,600. Within the annual refuge budget of approximately \$382,000, the necessary funds are available for administration of the hunting program. Therefore opening Shiawassee National Wildlife Refuge to hunting is consistent and in compliance with the Refuge Recreation Act of 1962 (P.L. 87-714; 16 U.S.C. 460k-460k-4; 76 Stat. 653).

III. Program Relation to Refuge Objectives

A. Primary Objectives

The primary objectives of the Shiawassee Refuge are to restore and preserve an historically important waterfowl marsh near Saginaw Bay to benefit migrating and nesting waterfowl and to protect endangered and threatened species. Secondary objectives are to: (1) improve nesting habitat for ducks and geese; (2) provide the public with an opportunity to observe wildlife in its natural habitat; (3) provide high quality waterfowl hunting opportunities; and (4) to provide day-use recreation for the public including fishing and nature trails so long as such use is compatible with the primary objectives of the refuge.

Specifically, wildlife management objectives of the refuge are as follows:

Tundra Swans: To provide food and sanctuary during migrations and to conduct trapping and banding programs when necessary to update the life history of wild swans.

Canada Geese: To provide adequate food and resting habitat for peak populations of up to 40,000 geese; to conduct studies on the Shiawassee goose flock to evaluate reproductive success, migration patterns, and mortality rates; to produce and maintain a local goose flock of 500 birds.

Blue and Snow Geese: To provide adequate resting and feeding areas, such management being coincident with Canada goose management.

Ducks: To develop and maintain habitat capable of supporting a peak population of 56,000 - 76,000 during the migration periods and a production of 500 ducklings annually.

Other Wildlife Species: Wherever possible, controlled marshes and moist soil units will be manipulated during the spring and fall periods to encourage their use by migratory shorebirds. Other wildlife native to the area will be managed in line with the primary refuge objectives.

B. Principal Wildlife Classes on the Refuge

Geese: The management objectives for Canada geese are listed above. Blue and Snow geese are occasional visitors to the refuge and use the area significantly in some years. As in the case of Canada geese, management should be directed to favor increased use of these birds.

Tundra Swans: These birds use the refuge briefly during their spring and fall migrations. Management will be directed to assure maintenance of an adequate resting and feeding area for these birds on their way to breeding and wintering grounds. Biological data will be collected as needed to best meet the management requirements of this species.

Mallards, Black Ducks, and Blue-winged Teal: These are the principal duck species using the refuge during fall months. Management of marshes and croplands is directed toward improvement of nesting and migration habitat. All three of these principal fall migrants appear most commonly in the hunter bag on nearby state and private lands.

Pintail and Widgeons: Pintail give this area heavy spring use and will appear only in moderate numbers in the fall. They make up only a small portion of the hunter bag in the area. Widgeon are an important fall species in the hunter bag throughout the Saginaw Bay Area. Moist soil units and small marshes favor these species as well as the principal users on the refuge.

Wood Ducks: A significant amount of wood duck breeding and migration habitat is available on the refuge. A moderate harvest of wood ducks occur each year on the Shiawassee Flats Area.

Diving Ducks: Fall use of the refuge by diving ducks is normally low. Spring use is low if water levels are minimal and moderate to high if flooding occurs. Hunters from the local area bag few diving ducks.

Other Migratory Birds: A significant number of coots, moorhens, snipe, rails, herons, and egrets use the marsh and pool habitat on the refuge. Shorebirds use is rising rapidly as management techniques are refined. Use by woodcock is minimal; limited to rest stops on migration flights.

Upland Game birds: A small but expanding population of ring-necked pheasants can be found on the refuge under normal conditions. Hunting of this species will probably never occur as it would conflict with other objectives.

Big Game Animals: White-tailed deer are native to the area. The refuge and surrounding area supports a sizeable herd. The Refuge receives it's heaviest use during the fall and winter months. In the spring and summer portions of the herd disperse into the surrounding area. Archery and gun hunting of this species is allowed on a permit basis, with target levels set from biological data.

C. Role of the Refuge in Flyway Management

The primary objective of the Shiawassee Refuge is to restore and preserve a historically important waterfowl marsh near Saginaw Bay that will benefit migrating and nesting waterfowl. Adequate resting and feeding areas are necessary to maintain the physical condition and vigor of birds moving to and from the breeding grounds.

Secondary objectives are to:

1. Improve nesting habitat for ducks and Canada geese.
2. Provide the public an opportunity to observe wildlife in its natural habitat.
3. Provide high quality waterfowl hunting opportunities.
4. Provide day-use recreation for the public including fishing and nature trails as long as such use is compatible with the primary objectives of the refuge.

Although the refuge is concerned with Canada goose management, we have the opportunity to obtain information (as funds and time permit, and the resource demands) on Tundra swans and a variety of ducks in connection with Flyway Management.

D. Public Hunting as a Refuge Objective

Public hunting on units of the National Wildlife Refuge System is an acceptable and desirable form of wildlife-oriented public recreation which may be permitted, provided it is compatible with the objectives for which the refuge was established and complies with the authorities set forth in 4AM4.9B.

The following objectives illustrate some ways in which public hunting can be employed on refuge lands:

1. Provide recreational opportunities where there is a real need.
2. Utilize renewable resources.
3. Regulate wildlife populations.
4. Teach and provide for the development of wildlife appreciation and sportsmanship.
5. Demonstrate the symbiotic relationship of hunters and wildlife.

Public hunting must not conflict with the basic objectives of the refuge and must conform as nearly as possible to state regulations. The hunting program must be properly funded so as not to conflict with otherwise needed funding for other wildlife management programs.

The objectives of the controlled public waterfowl and deer hunts on Shiawassee NWR are as follows:

1. To provide a quality outdoor recreational experience for a limited number of hunters.
2. To reduce and maintain populations at a level commensurate with the quality and quantity of available habitat.

With the achievement of the above objectives, the following benefits can be derived:

1. Reduced incidence of damage to local farm crops and residential properties.
2. Reduced effects on associated wildlife resulting from habitat destruction by forging of excessive numbers.
3. Provide opportunities for public outdoor recreation within a healthy ecological community.

Public hunting is planned, assessed, and reviewed each year so as to properly determine the number of hunting visits that can be allowed for the waterfowl and big game hunts permitted on the refuge.

IV. Assessment

A. Waterfowl Status and Utilization

Refuge use by waterfowl species had increased every year from the establishment of the refuge in 1953 to the early 70's; when populations peaked at 40-50,000 geese and 80-90,000 ducks. The increases were attributed to land acquisition and subsequent cropland management. After this time frame waterfowl use on the refuge has declined to population peaks of 20-30,000 geese and 25-30,000 ducks, while use days have remained steady for geese and slowly declined for ducks to 1.5 million use days each. Management of present and planned marsh, moist soil, and cropland units will enable the refuge to support it's projected goal of 40,000 geese and 50-75,000 ducks; flyway populations permitting. Presently these goals are unrealistic with the current national population trends.

The bulk of the fall duck population will be made up of mallards and black ducks. Teal, widgeon, wood ducks, and pintail will also contribute to the total. The goose flock will be comprised primarily of Canada geese with limited numbers of Snow and Blue geese.

At the present time, the major proportion of waterfowl use on the refuge takes place in pools 1A and 1B, the Shiawassee River, farm units 1, 2, and 5, and moist soil units 1, 2, 3, and 4. Good use is also made of pool 4 and the North Marsh. Canada, Blue and Snow geese make extensive use of the croplands and the controlled marshes in the spring and fall. Mallards and black ducks make good use of the croplands during the fall and utilize all marsh, pool, moist soil, and green tree areas available to them during both the spring and fall migrations. Teal, pintail, widgeon, and wood ducks make limited use of the croplands but utilize all other units intensively during migrations. Tundra swans, a frequent visitor, make extensive use of flooded croplands.

B. Whitetail Deer Status and Utilization

Whitetail deer have been a periodic problem at Shiawassee since 1953. Populations have fluctuated widely with the herd being impacted by flooding, hunting pressure, civilian development, politics, and management policies. With a management goal of 500 to 600 animals wintering in Management Zone 222 (Public and private lands within Hwy 13 on the east, Hwy 46 on the north, Hwy 52 on the west, and Fergus Rd. on the south); the population has acted like a roller coaster with boom and bust cycles. In the mid 60's the population was less than 200 deer but increased to 800 to 1000 by the late 60's to 1970. At that point the population went through a gradual decline reaching a low of 300 deer in the mid 70's. Again the herd went through a rapid expansion peaking at 1,500 deer by the early 80's, followed by a crash to less than 100 animals in the

mid to late 80's. The herd again expanded to a wintering population of 1000 animals in 1990-91 and to a high of 1500 by the fall of 91.

Whitetail deer use all of the available habitats found on the refuge. The bottomland hardwoods and agricultural cropland sustains most of the year round use by deer. The Moist Soil units are used from early summer through early fall. Marsh units are used somewhat year round, but sustain their heaviest use from fall through early winter. They provide excellent escape cover from hunting during this time.

When whitetail numbers expand past the management goal of 500 to 600 wintering deer; the habitat becomes unequivocally impaired and the refuge programs suffer. Heavy browsing prevents regeneration of trees and shrubs in our forested areas. The deer compete directly with waterfowl for food in our cropland units. They reduce or eliminate standing corn intended as a hot spring waterfowl food and compete for waste grain during the fall harvest at a time of peak need by migrating waterfowl. Damage to private property and farmland reaches a level where the State receives requests for summer shooting permits and the Refuge receives complaints about our management.

The need for a hunting program is well documented. The herd must be reduced each year to remain at the target level. Improvements in habitat quality, herd health, and protection of public property is best achieved if the herd remains at or below the target level. Hunting by the general public is the best option to achieve this goal.

C. General Hunting Recommendations

The hunting program on the refuge is to be:

1. Compatible with the specific objectives of the refuge.
All refuge hunting programs are planned and administered in such manner so as to insure the welfare of wildlife and wildlife habitat.
2. Coordinated with other forms of wildlife-oriented public use of the refuge to insure a minimum of conflict with non-consumptive users.
All hunting is initiated at such time and place so as to buffer the non-hunting public from the impacts of the hunt. This is done through the establishment of hunting zones which separate the Refuge's two trail systems. Each zone is closed during a portion of the hunting season, thus leaving one trail system open to the non-hunting public. This provides a buffer between the activities of the two user groups. When a necessary hunt must be initiated and a potential safety hazard to the non-hunting

public arises, the refuge will be closed to the non-consumptive public use for the period of the hunt. This may occur during the months of October, November, and December for the waterfowl and deer hunts. Usually there are areas open to public visitation away from the hunting zones and only limited closures maybe required.

3. Biologically sound.

The refuge hunting program will be geared to maintaining wildlife populations at desired optimum levels so as to reduce competition between species or to maintain habitat at the density for a natural population. Waterfowl and deer hunting is initiated on a management zone concept with a quota or desired harvest established for the zone each year. Only a harvestable surplus of waterfowl as determined by the flyway council and Michigan Dept. of Natural Resources and deer by the refuge and Michigan Dept. of Natural Resources is taken each year.

4. A meaningful, quality public recreational experience.

The refuge hunting program is designed to facilitate as many hunters as possible while still maintaining the quality of the hunting experience. Quality incorporates such elements as challenge, minimum of crowding, ability to use decoys, calls, and other hunting skills, and a reasonable opportunity to see and harvest game. Hunter ethics also play an extremely important role in a quality hunting experience. All hunters using the refuge should at least: 1) respect the rights and property of others and adhere to laws and regulations; 2) be knowledgeable of the capabilities and limitations of weapons employed; 3) have an understanding and respect for the wildlife itself, particularly, the target species and their habitats.

V. Program Description: Problems and Solutions

A. Program Policies and Administrative Control

Refuge hunting programs are restrictive in their administration and control. The hunting programs require a permit for hunting of any kind on the refuge. This is necessary because the demand for public hunting is greater than what the refuge can provide. Hunters participating in the Refuge hunting programs must conform to state hunting regulations in addition to obtaining the Refuge permit.

B. Waterfowl Hunting

Goose Hunting Area

1. General

Public goose hunting is restrictive and conducted on a permit basis in conjunction with current Federal and State regulations. Goose hunting will be conducted only on designated areas with a maximum of 40% of the refuge acreage to be potentially opened.

2. Eligibility

Public goose hunting will be available to those persons who have successfully obtained a permit and who possesses a current, valid Michigan small game license, Michigan waterfowl stamp, and federal migratory bird stamp.

3. Location

Public hunting is located on the periphery of refuge lands, mainly along the south and east boundaries. Hunting is allowed only from predetermined blinds. Presently, 684 cropland acres and 399 river marsh acres are designated as public hunting zones for geese only. These parcels bring the total refuge land open to goose hunting to 1083 acres or 12%.

4. Access and Vehicle Parking

Hunters are required to enter refuge lands on access routes as shown on map in appendix, and to park vehicles in designated parking areas nearest to their hunting unit. No vehicles will be permitted in the hunting areas; hunters must park their vehicles and walk to their assigned unit.

5. General Regulations

All public hunting on refuge lands is in accordance with all current federal and state regulations. Public goose hunting is limited to inclusive dates and bag limits established each year by the Michigan Dept. of Natural Resources. Additional special restrictions may be imposed as conditions warrant. Only geese can be hunted in the public hunting units mentioned above. All hunters successful or not must report to the Check Station at the conclusion of their hunt.

Goose and Duck Hunting Area- Pool 4

Management of Pool 4 and impact on Hunting Programs

1. History

Pool 4 was originally part of what was known as the Little Prairie. Farming began in the late 30's and continued until 1978. All structures and improvements (dikes, roads, ditches, and bridges) were built prior to government ownership. The land was acquired in 1965 under condemnation proceedings.

It was a high risk area for farming from the beginning but if kept dry, produced excellent crops. It was common to lose one crop in three years. From 1965 to 1977 the refuge cooperative farmed the unit with Bowden Brothers. This permittee repaired at his own expense the dikes, entrance roads, and Miller Drain Bridge. Even with these repairs high water levels and floods continued to deteriorate the dikes and silt the ditches to the point that farming was impractical by 1978.

It's location has always posed a management problem. The tract is at the confluence of Swan Creek, Shiawassee, and Flint Rivers. Access is difficult and accomplished only by crossing through the Shiawassee State Game Area. The entrance road has two bridges, the smallest supporting a load not more than 12 tons.

Exchange of this tract for other state land was proposed in 1971. The state was to acquire for trade, lands along our southern boundary, east of the Flint River. This proposal fell through when the state was unable to acquire the necessary funding.

In 1978 the Bear Creek Bridge was rehabilitated to permit loads of up to 12 tons. The north dike was also repaired that year and a 200 foot rock spillway established. In 1980 a 22 inch Lang Pump belt driven by a diesel engine was installed to allow control of water depth.

By 1986 flooding had left the dikes in poor repair and washed out the Miller Drain Bridge. This eliminated any access to the unit and made management of the unit impossible. From 1989 through 1991, the Shiawassee Flats Citizen and Hunter Association had volunteered to repair breaches in Pool 4 dikes and attempt to manage water levels on the unit. Operational expenses were high with little or no success in being able to manage the unit.

In 1989 the Service and the State of Michigan showed renewed interest in a reality transaction concerned with Pool 4 and associated marsh, totaling 464 acres. In exchange for this tract, the State would trade to the Service lands under their ownership adjoining Seney and Shiawassee National Wildlife Refuges. The State is proceeding with appraisal of all tracts under consideration in this transaction; and it appears that the trade should be completed in 1992 or 93.

2. Management

Pool 4 contains 214 acres and when possible is managed as a controlled marsh for migratory waterfowl, marsh birds, and shorebirds. The ideal level allows for 1.5 and 2 feet average water depth. A late summer drawdown is normally accomplished to accommodate migratory marsh and shorebirds. By mid-September the pool is once again brought back to it's approved level. Water levels from mid-September are maintained through the remainder of the year.

Management plans and objectives are frequently impacted by seasonal flooding, and with the remoteness of this unit, habitat conditions are often left to nature's whims.

3. Refuge Hunting Program in Pool 4

Pool 4 is open to both waterfowl and whitetail deer hunting during their respective seasons. During the waterfowl season this area is unique in that it is the only location on the Refuge open to both duck and goose hunting. In all other portions of the Refuge duck hunting is prohibited. Access to the unit for both hunts is by boat. Participants in both hunts are restricted in numbers and must be pre-registered.

The waterfowl hunt in Pool 4 has been administered, under cooperative agreement, by the State of Michigan, since 1969. In 1982 the area was opened to include both duck and goose hunting under administration by the State of Michigan. The agreement to allow both duck and goose hunting administered by the State of Michigan is still currently in effect. The hunt in this unit is open throughout the state waterfowl season and not just the 23 day Refuge goose season.

Deer hunting in Pool 4 is administered by the Refuge and follows the guidelines and regulations set up in the hunt plan. There is some potential for conflict between waterfowl and deer hunters, both using the area at the same time. In the past, Pool 4 has been

open to both waterfowl and firearms deer hunting during the last four days of November. No complaints have been received and appears that conflict between the hunts has not been a problem to date. However, to avoid any potential for conflict between groups, the Refuge and State of Michigan have agreed to close the area to deer hunting during any overlap of seasons.

4. Impacts of Pool 4 Land Exchange on Hunting Programs
The land exchange between the U.S. Fish and Wildlife Service and the State of Michigan could be finalized in 1992 or 93. When completed, administration and regulation of hunting in Pool 4 and the adjacent area will have been impacted. Most of the area (464 acres) will become State property. All hunting will be administered by them. This would leave only 200-300 adjacent acres still under Federal regulation; with a waterfowl agreement allowing the State of Michigan to administer duck and goose hunting on this land. All other hunting activities would be administered by the Refuge. When this transaction is completed, the Refuge Staff should review the hunting program and the Pool 4 agreement. The staff should determine if there is a continued need for the waterfowl hunting agreement between the State of Michigan and the Service, assess any potential problems or conflicts with the change in ownership, and determine what hunting activities should be allowed and how they should be administered.

Current Hunting Regulations-Pool 4

1. General
Public waterfowl hunting is restrictive and conducted on a permit basis in conjunction with current Federal and State regulations. Waterfowl hunting will be conducted only on designated areas with a maximum of 40% of the refuge acreage to be potentially opened.
2. Eligibility
Public waterfowl hunting will be available to those persons who have successfully obtained a permit and who possesses a current, valid Michigan small game license, Michigan waterfowl stamp, and federal migratory bird stamp.
3. Location
Combined public waterfowl hunting for both ducks and geese is permitted only the 550 acres of Pool 4 and adjacent marsh units. A portion of Pool 4 was once a farm unit on the Refuge. It had been abandoned because of an insecure bridge which was the only

access into the unit. Entry is now limited to boat traffic only. Pool 4 is immediately adjacent to the state wildlife management area and is administered by the Michigan Department of Natural Resources during the waterfowl hunting season. This parcel brings the total Refuge land open to either goose or goose and duck hunting to 1633 acres or 18% of all available land.

4. Access and Vehicle Parking

Hunters are required to enter refuge lands on access routes established by the Michigan Dept. of Natural Resources and park vehicles in designated parking areas nearest their hunting unit. Hunters must use boats to obtain access to their hunting unit.

5. General Regulations

All public hunting on Refuge lands is in accordance with all current federal and state regulations. Public waterfowl hunting is limited to inclusive dates and bag limits established each year by the Michigan Dept. of Natural Resources. Additional special regulations may be imposed as conditions warrant. Only waterfowl can be hunted in the public hunting area. All hunters successful or not must complete their survey card and deposit it in a drop box location at the conclusion of their hunt.

C. Big Game Hunting

1. General

Hunting for deer will be held within the State seasons which open October 1st and extend through December 31st. Weapons are restricted by hunt period to those permitted by refuge regulation. The number of archery, muzzleloader, and shotgun hunt periods will vary with the Refuge's assigned harvest quota. When the deer population in Management Unit 222 reaches a post hunting season level of 1,000, consideration will be given to opening shotgun hunt periods for the general public.

2. Eligibility

Deer hunting will be available to persons who successfully obtain a federal permit in addition to their Michigan hunting licenses. Instructions on how to apply for the limited federal permits are available at the refuge headquarters. A random drawing will be held by the Service and the State of Michigan to determine the eligible hunters. Only successful applicants will be notified of their selection. The number of permits issued each year will be determined by the Refuge staff, based on biological and management considerations.

3. Location
Except for the 22 acres in and around the refuge office at 6975 Mower Rd., the two acres of the Service Area, and the one acre comprising the Secondary Pad, the entire refuge will be open for deer hunting during some portion of the general season. The refuge comprises 8,894 acres.
4. Access and Vehicle Parking
Private vehicles will not be permitted within the hunting area. Hunters must park their vehicles along public roads or in designated refuge parking lots.
5. General Regulations
Hunters with valid permits may enter the refuge without checking in at the refuge headquarters. Hunting is in accordance with State and Federal regulations. Special restrictions will be initiated should conditions warrant. No other types of wildlife may be taken on the refuge during the hunting season. All successful hunters must report to the Check Station with their kill.

D. Refuge Ecology

The original vegetation of the Shiawassee Refuge was typical of the Northern Forest Flora which occupied much of the Great Lakes Region. Deciduous forests, pine-clad ridges, semi-open prairies and marshlands provided diverse habitat for many species of wildlife.

Ecological types on the refuge area at the present time are as follows:

Cropland	1,440 acres
Grassland.	580 acres
Controlled marsh	1,323 acres
Rivers	950 acres
Moist soil units	386 acres
Uncontrolled marsh	780 acres
Forestland	4,047 acres
Total.	8,894 acres

These ecological types can be expected to change somewhat as land management goals for the refuge are realized and as refuge operations demand.

E. Justification of Program

The hunting program has and will continue to be employed as a compatible component of wildlife management on the refuge. The restrictive hunting program has served as a valuable wildlife management tool, while at the same time providing much needed

recreational opportunity to both waterfowl and big game hunters.

1. Under existing agreements, Shiawassee National Wildlife Refuge will continue to hunt waterfowl in order to fulfill an obligation of a cooperative agreement between the Service and the Michigan Dept. of Natural Resources so long as the hunting remains consistent with refuge goals and objectives. Hunting furnishes a recreational opportunity for the public which is compatible with the total refuge program and fulfills one of the secondary objectives of the refuge.
2. The hunting of big game on the Shiawassee National Wildlife Refuge will help to relieve direct competition for food between a growing population of white-tailed deer and current waterfowl populations. With continued increases in waterfowl use, this competition can be expected to increase and supervised big game hunting program will be in the interest of sound wildlife management. Again, the public will be furnished with a recreational opportunity compatible with the refuge program.

G. Refuge Development

Land acquisition was complete in the early 1970's. Another 40 acres was purchased in 1978 bringing the total refuge acreage to 8,897. All primary dike construction was completed and refuge operation and maintenance facilities were present on the area. Installation of an electric pump in 1977 facilitated the creation of 212 additional acres of Moist Soil Units. An equipment storage building and repair shop facility were constructed in 1983. Rehabilitation of the 1.6 miles of dike around Pools 1A and 1B was completed in 1991. A new refuge headquarters building is scheduled for construction beginning in 1994. Additional development plans include dike rehabilitation around Moist Soil Units 3 and 4, the entire East side of the refuge and, Pool 2. Electric pumps will be needed for Moist Soil Unit 2 and Pools 3 and 5. In addition, plans call for the conversion of the Trinklein Unit from farming to various wetland habitats and the possible expansion of Refuge boundaries to approximately 10,000 additional acres. These plans will ensure the necessary waterfowl habitat to maintain a resting and feeding area for up to 75,000 ducks and 40,000 geese during the migration.

H. Physical Plan

The hunting program has been operating sufficiently well for a number of years with the present facilities intact. Problems still exist with maintenance and expansion of parking lots. Parking areas are used by both waterfowl and big game hunters but under wet conditions access can be difficult. Physical facilities and items

for the hunting program include 45-55 hunter blinds, five parking areas, 12 dozen loaner goose decoys, and one Refuge Check Station. Some maintenance costs are incurred to repair hunter blinds and goose decoys.

I. Special Action Required of the State

As stated before the Shiawassee National Wildlife Refuge was established in 1953 as part of a joint land acquisition project with the State of Michigan. In the development of this venture, the Refuge agreed to provide recreational waterfowl hunting opportunity so long as the hunting remains consistent with refuge goals and objectives. Waterfowl hunting on Shiawassee NWR follows the guidelines and regulations set out by the State of Michigan except when the Refuge has set stricter regulations for biological or management reasons. In connection with this agreement, the Michigan Dept. of Natural Resources has the authority and must take special action on the following factors affecting the goose hunt for Management Unit 222:

- > Annual adjustments of the opening date for goose hunting in the Saginaw County Goose Management Area.
- > Closing of goose hunting on the opening day of the deer hunting and small game seasons (for all of management unit 222).
- > The Director of the Dept. of Natural Resources has the authority to close the goose hunting season when the quota is reached or to change the quota (within Flyway guidelines) when necessary.

J. Special Conditions

The Refuge hunting program and regulations will generally conform to current state regulations with certain exceptions as follows:

- > If there is conflict with service and refuge objectives.
- > If there is conflict with management for threatened and endangered species.
- > If there is conflict with other prominent recreational uses.
- > Special modifications within the state program.

The following recommended special conditions deviate from the current proposed state regulations in conformance with the above exceptions:

- > Only goose hunting is permitted on Shiawassee National Wildlife Refuge during waterfowl hunting season; except for Pool 4. There both geese and ducks can be hunted under agreement with the Service and the Michigan Dept. of Natural Resources.
- > All goose hunters are confined to their blind within the public hunting area on the refuge.
- > A user fee for goose hunting is required under federal regulation.
- > All hunters must pre-register for a hunting reservation during the first two weeks of the refuge season and be selected through a drawing to qualify for hunting on the refuge. Hunters must enter a daily open drawing for opportunity to hunt geese during the last week of the refuge season.
- > All game taken must be submitted for examination to refuge personnel at the Check Station at the conclusion of the days hunt. This is required to monitor the harvest for unit 222, provide biological data for the state and flyway, assist in law enforcement, and provide a hunter safety check.

K. Funds and Staffing Requirements

All permanent refuge personnel participate to some degree in the hunting program. Five people work the Refuge Check Station during the annual goose hunt; two of them full time, the other three part-time in the check station and part-time on other duties. During the deer hunt two people work the Refuge Check Station full time and three people part-time with additional help from four volunteers.

All equipment and materials directly needed to maintain the hunting program are presently available on the refuge itself. Operations such as administration and handling of applications, maintenance, check station operations, and printing of regulations and maps occur annually with the hunting seasons.

VI. Measures Taken to Avoid Conflicts with Management Objectives

A. Public Reaction to the Program

Public appreciation of the hunting program has been strong since its inception. The refuge program in combination with the adjacent state game area hunting program provides some of the much needed recreational opportunity for the people in the lower one-third of Michigan. People from all over the state send applications for the special goose and deer hunts. As many as 4,000 hunters can hunt at some time during the goose and deer seasons on the refuge. The program provides a quality hunt which involves a large cross-

section of the local population in an area where hunting opportunities dwindle each year. Elimination of, or curtailment of, these hunts probably would result in major public reaction against the mode of operation and program selection on the refuge.

B. Benefits and Conflicts

A variety of benefits have been realized since the inception of public hunting programs on the refuge lands. Some are listed below:

- > Helps "sell" both the refuge system and the hunting program. People are more aware of refuge operations and purposes because they have been able to participate in and reap benefits from the program.
- > Stimulates animal populations by taking a reasonable harvest and removing surplus animals. This will aid in reduction of competition between animal populations and insure a more balanced ecological situation.
- > Provides people who are able to participate in the hunting program with a quality hunting experience by limiting the number of hunters in the area at any one time.
- > Hunting on the refuge disperses the game and prevents congregations in one area. This distributes the harvest both from a state and flyway point of view.
- > Facilitates the collection of certain research data on individuals from hunted populations.
- > Eases enforcement problems in that hunter numbers and/or areas to be hunted may be restricted.
- > Fulfills the agreement made with the state to hunt the refuge; therefore, helping to provide a good mutual liaison relationship with the state and helps to distribute both local and statewide hunters.

Conflicts regarding the hunting programs have been minimal. Increased enforcement is obviously necessary, requiring additional posting, time, personnel and funds. Poor public information and/or education could also lead to the demand for more or less open hunting, areas, or species which could be inconsistent with refuge objectives. Unforeseen effects upon wildlife populations and refuge objectives is possible but thus far has not materialized.

C. Waterfowl Habitats Affected

Hunting programs are scheduled by time and place in such a manner as to minimize disturbance to primary waterfowl habitat areas. Areas used for waterfowl hunting are located along the south and

east periphery of the refuge, away from the large concentrations of waterfowl. Big game hunting occurs in November and December in areas not frequented by waterfowl. In general all areas concerned in the hunting program are away from primary areas of waterfowl use.

VII. Conduct of the Hunt

Program units for hunting at the Shiawassee National Wildlife Refuge have been established for each type of hunting program implemented.

A. Public Waterfowl Hunting

1. Area to be opened: Hunting of waterfowl is mostly limited to the perimeter of the refuge on the south and east sides. The exception to this is the Shiawassee River near the northern boundary of the refuge. The goose hunting areas are comprised of cropland or river habitats totaling 1633 acres or about 18 % of the total refuge acreage.

Hunting zones were selected for a number of reasons:

- a. The areas presented easy access for both hunters and vehicles.
 - b. The locations simplified the required check-in and check-out procedure by hunters through the Refuge Check Station.
 - c. Law enforcement duties were reduced.
 - d. Disturbance to waterfowl flocks using the interior refuge sanctuary was eliminated.
2. Harvest: The number of waterfowl taken is predetermined on a flyway harvest plan. The estimated number of geese using the flyway will determine the quota to be taken. The quota is determined not just for the refuge but for the entire Saginaw County Management Area, an estimated 90 sq. miles. The waterfowl harvest since the inception of the hunting program has been conservative, seldom reaching more than 1000 - 1200 birds on the refuge. The quota set for the entire goose management area has varied over the years but has remained between 4,000 and 5,000 since 1984.
 3. Hunter Participation: Refuge public goose hunting is restricted to 33 cropland blinds and 8 river parties within the public hunting area. Three persons are allowed to hunt from any one blind at a time, with hunts ending at 12 noon each day. In addition Pool 4, administered by the state, have 6 blinds available for public waterfowl hunting. Four persons are allowed to hunt from any one

blind at a time; with both morning and afternoon hunts available. This situation allows for a maximum of 171 people per day or 4557 individuals to hunt during the season. Demand for participation in the waterfowl hunting program has been heavy statewide. Each year hundreds of individuals send in applications for the refuge hunt. If hunters with disabilities should apply for the waterfowl hunts, they are given blind assignments where access problems will be minimized; other special arrangements are made as needed. Hunter preference is usually for the first part of October and pressure tends to decline after this time frame. Occasionally the harvest quota is reached during the month of October, eliminating any further waterfowl hunting until the following year. The public has been and can be expected to continue to fully utilize all available hunting opportunities.

4. Justification: Paragraph 3 of the Cooperative Agreement between the Service and the Michigan Department of Natural Resources, dated September 10, 1965, states in part, "Public waterfowl hunting is recognized as a definite requirement of the management plan for this area. The major portion of department-owned lands will be opened to hunting. The Service agrees to manage public waterfowl shooting on its lands up to a maximum of 40% of its holdings, as provided in the Amended Duck Stamp Act (Stat. 72 486-487)....".

Since the inception of the refuge the public has been advised that public shooting areas would be provided in the development of the refuge. Major public reaction and state liaison problems could be expected if it was determined that public hunting would no longer be allowed on the refuge.

Fall goose use of the refuge has increased and stabilized somewhere between 18,000 and 25,000 Canada geese. The steady use of the refuge and surrounding state and private lands has made possible the establishment of a harvest quota of 4,000 to 5,000 geese per season in the management zone. This quota provides an index as to the goose population in the Mississippi Flyway and the flocks using the management zone. The harvest is composed of surplus birds and is consistent with both flyway, state, and refuge objectives.

5. Shiawassee NWR Youth Goose Hunt: A special youth goose hunt for hunters from 12 to 17 years of age is available at the Refuge each year. The hunt is usually held the second weekend of the season. Regulations and guidelines for this hunt are the same as the general waterfowl season with the following exceptions:

1. Hunter participation is limited to the 33 cropland blinds, no river hunting is permitted.
2. Youth hunters must be accompanied by an adult. The adult is there as a supervisor and helper; he cannot carry a shotgun or shoot at geese.
3. Goose decoys are available to parties participating in this hunt. The refuge has 12 dozen decoys to be loaned out during this hunt. There is a limit of 1 dozen decoys per hunting blind.

6. Regulations and controls

a. Public Hunting Areas

- (1) General: Public waterfowl hunting on designated areas will be limited to goose only or goose and duck hunting only. Upland game, small game, and predator hunting will not be permitted on the refuge.
- (2) Location: Public hunting areas are located on the periphery of the refuge lands along the south and east boundaries, the Shiawassee River, and Pool 4. Approximately 1,600 acres are included in the hunting zones. Hunting zones are situated in harvested croplands and river habitat. Thirty-three to forty-seven blinds are placed in the hunting zone.
- (3) Vehicle Parking and Access: Hunters are required to park vehicles in designated parking areas or along the shoulder of the road near the parking area closest to the assigned blind. No private vehicles will be permitted in the public hunting area. Hunters must park vehicles and walk into the their assigned blinds or access Pool 4 by boat from their parking area.

b. Hunting Periods

- (1) Hunting Dates: Each year, waterfowl hunting is limited to dates and hours established cooperatively between the Michigan Department of Natural Resources and the Service. Opening day for the waterfowl management unit is usually around October 1st and runs to the end of November; with the refuge hunting 23 consecutive days near the start of the season for geese and the entire season for ducks and geese in Pool 4 managed by the state.

- (2) Shooting Hours and Bag Limits: Goose hunting in the public hunting area will be from the legal morning opening time until noon each calendar day of the refuge hunt season. Waterfowl hunting in Pool 4 will be from the legal morning opening time until legal evening closing time each calendar day of the management hunt season. The daily bag limit is established cooperatively between the Michigan Department of Natural Resources and the Fish and Wildlife Service. The daily bag limit is usually around five to seven geese of which only one or two may be a Canada goose or subspecies. The daily bag limit for ducks is 3 in various combination.

c. Permitted Hunting Methods

- (1) Use of Pre-determined Blinds: All hunting in the refuge is from blinds. The blinds in the refuge cropland units are provided by the Service to insure proper location and hunter distribution. The blinds consist of nothing more than a wooden bench set in tall rows of corn. The corn rows are adjacent to crops of winter wheat or similar lure crop. All blinds are numbered for easy identification by hunting parties. The river hunters are allowed to select their hunting location but must use their boats as the blind. Once they have set up they are not allowed to relocate. Hunters must remain outside a 100 yard buffer zone along the south shore of the river and 50 yards along the north shore. The number of hunters per blind is limited to three; for both river and cropland blinds.
- (2) Use of decoys: The use of decoys increases hunter success and improves the quality of the sport of goose hunting. Hunters using decoys to attract geese within shooting range are less likely to shoot at extreme range. Thus scoring clean kills and greatly reducing crippling of birds.

The refuge has encouraged the use of decoys and use to provide a rental service through the check station. This policy has been discontinued as most of the hunters participating in the hunt at Shiawassee are experienced goose hunters and have their own decoy sets. The refuge still has 12 dozen sets of decoys that are made available to hunters during youth hunt periods. As most of the hunters during these hunt periods are novice and few own goose decoys there is still a need for the refuge to make decoys available

for these hunts. Hunters loaned decoys are required to pay for any decoys lost or damaged while in their possession.

- (3) Firearms: Hunter are limited to the use of shotguns capable of shooting steel shot or its approved substitute. The shotguns must also be capable of holding no more than three shells. The refuge converted its goose hunt to steel shot starting in 1977. Steel shot shells must be loaded with No. 6 shot up to BBB. Shot sizes F, T, and buckshot are not permitted.

d. Daily Hunting Permits

(1) Applications for Blind Reservations

- (a) To apply, potential hunters must obtain special application cards available at the refuge office, field offices of Michigan Department of Natural Resources, and selected hunting license outlets. The application allows the applying individuals to select the month and day he/she wishes to hunt.
- (b) Only one application per hunter will be accepted. Hunters are limited to one hunt as a permit holder and twice as the guest of the permit holder, excluding stand-by hunts.
- (c) All applications must be postmarked by September 9th each year.

(2) Selection of blind Reservations

- (a) Selection of reservations will be done by the Michigan Department of Natural Resources; using a computer to select a random list of hunter names. The selection will be made approximately one week after the closure of the application deadline.
- (b) Only the successful applicants will be notified. Notifications will be by self-addressed application cards, validated by stamp indicating date of the blind reservation.
- (c) All blind reservations are non-transferable and can be used only by the individual to whom it was issued.

- (d) Reservations not claimed by 5:30 AM on the date of the reservation will be cancelled. Any vacancies created by cancellations will be available to a standby hunter.

(3) Allocation of Blinds to Hunters

- (a) Assignment of blinds is by random drawing, by holders of valid blind reservations, until 5:30 AM on the day of the reservation. Daily blind permits will be issued as drawn and all blind assignments will be final. After blind assignments have been issued to valid reservation holders, the same procedure will be used to issue any blind assignments to stand-by hunters. Blind assignments could be made during computer hunter selection but hunters like to pick their own locations and have the opportunity apply hunter skills in the selection of their blinds. The staff has to be present to collect user fees and conduct the open drawing for the river hunt so little additional time is needed to conduct the blind selection. This procedure will be maintained as long as staff and time problems are not encountered and benefits are derived by hunters and the Refuge.
- (b) A user fee of \$4.00 per hunter is payable at the time a blind assignment is made.
- (c) When asked, hunters must exhibit a valid Michigan Small Game License, A Michigan Waterfowl Stamp, A Public Access Stamp, and current Federal Migratory Bird Hunting Stamp.
- (d) Blinds will be assigned only once per day. Blinds vacated early in the hunting day will not be reallocated on the same day.

(4) Hunt Procedure

- (a) Hunters must park in designated areas and walk to their assigned blind.
- (b) Only geese may be hunted on Shiawassee National Wildlife Refuge during the 23 day goose hunting season; except for Pool 4 which is open to goose and duck hunting for the entire management zone season.

(c) All shooting must stop at noon each hunting day on the refuge goose hunting units and legal evening closing time in Pool 4 for ducks and geese. After completion of the day's hunt the hunters must proceed immediately to the refuge headquarters check station for the morning goose hunts and the St. Charles Field Station for Pool 4 waterfowl hunts.

(d) All hunters must check out through the headquarters check station at the conclusion of the daily goose hunt. Those hunters who were successful must submit their geese for inspection.

B. Big Game Hunting

1. Program Units: Deer hunting will be permitted on all but 25 acres of refuge land as shown on the map in appendix B. Special hunting units will be established separating the north and south trail systems. This will enable the refuge to provide and separate recreational opportunity for the hunting and non-hunting public. Both trail systems will be open to deer hunting during portions of the hunting season; alternating the trail systems open to each user group. This allows the refuge to achieve the needed harvest in all portions of the refuge and provide a safety buffer between user groups.
2. Management Objectives: The Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service as a joint effort will build and maintain a uniform deer herd of 500 - 600 animals (post season) for Management Unit 222. Population levels will be maintained so each agency's goals and objectives will not be affected by the population. Meetings between the agencies will be necessary to coordinate population estimates and harvest quotas.
3. History: When we speak of the Shiawassee deer herd we are in fact referring to deer found on the Shiawassee State Game Area, Shiawassee National Wildlife Refuge, and private lands bounded by Highway 13 on the east, Highway 46 on the north, Highway 52 on the west, and Fergus Road on the south. This land encompasses approximately 110 sq. miles. The optimum deer population for the area is estimated at 500 - 600 animals (post season).

The Shiawassee deer herd has been allowed to fluctuate from high levels to relatively low levels since State and Federal agencies started buying lands in 1953. By the 1960's the population had increased to an estimated 1,200

animals. At such high numbers deer were in direct competition with waterfowl for the available food. Gun hunters were unable to remove the harvestable surplus because of the Michigan "buck only" regulation. In 1968, bow hunting was proposed and legalized. It's purpose was to aid in the removal of surplus deer as either sex could be taken.

Hunting deer both by gun and bow continued until 1972. It was at this time that gun season closed on the refuge and the state adopted a permit system. The problem was too many hunters were utilizing the area. All quality hunting had ceased. The hunters were so numerous that it really was unsafe to be on the refuge. The illegal kill of antlerless deer was extremely high.

Bow hunting continued but only during the month of December. At first, permits were issued only for the first two weeks of the season; with the rest of the season being open to all of the public. Later permits were issued only for the first nine days.

Popularity of the Shiawassee archery hunt grew as years progressed. Masses of hunters would invade the refuge as soon as the permit system ended. What occurred was an unacceptable and unsuitable form of wildlife-oriented public recreation. An use day figure of 2,000 hunters was recorded in 1974. This was a deplorable situation creating danger for the hunter and physical exhaustion from hunter pressure for the white-tailed deer. Unmanaged hunts of this nature give increased fuel for anti-hunting sentiments and give wildlife management as well as the refuge hunting program a dubious recognition.

A permit system was established for all deer hunting on the refuge in 1975. The permit system limited hunter numbers throughout the archery season providing safer hunting conditions and has allowed refuge personnel better law enforcement ability. Everyone wishing to hunt was permitted to do so because of the number of permits issued and the limited interest by the public.

The hunting regulations and hunter interest remained the same until 1979. In 1979 the refuge added muzzleloader hunting to it's permit system. This was in response to an increase in the deer herd and the lack of hunter pressure on the refuge north of the Shiawassee River. That same year, over 7,000 applications were received for 3,200 available archery and muzzleloader permits. The following year (1980) over 12,000 applications were received for these hunts. In 1981 only 9,700 applications were received after instituting a two-dollar user fee. The increased hunter interest after 1979 seemed to parallel an increase in the Shiawassee deer herd after 1978.

Things reached a peak in 1982 with a January aerial count of 1,500 deer.

In 1982, the Michigan Department of Natural Resources and the Shiawassee National Wildlife Refuge formed an experimental hunting area which would make it exempt from the normal statewide hunting regulations, thus allowing greater flexibility in setting effective regulations. With this new authority and a target of reducing the herd to it's management goal of 500 - 600 animals, all hunts for 1982 were designated antlerless only. In addition, a shotgun season was added to the permit system. After 1982, this new authority has allowed regulations to be tailored year by year to the needs of the Shiawassee deer herd and the management goal for the area.

Heavy hunting pressure from 1982 through 1984 appeared to leave the Shiawassee deer herd well below it's target goal. The result of this was the formation of Shiawassee Flats Hunters and Citizens Association and added a new component to the problem of managing the deer herd. This group has been very vocal and has pushed strongly for restrictive hunt on public lands within the management unit. With the deer herd being below target levels and the added pressure from this group, very restrictive regulations were in effect for 1987 through 1990. This again allowed the deer herd to increase to a level of 1,000 deer during the 1991 January aerial survey.

Since 1974 attempts to manage the white-tailed deer as well as the hunts have been directed at manipulating populations to a desired level in stead of unpredictable cyclic highs and lows of the past. Uniform population management allows for quality hunting experiences and provides for less chance for criticism. A number of factor have complicated deer management in Zone 222 and prevented us from reaching that level to date. Chief among these are periodic flooding of deer habitat, political pressure from private interest groups, and the natural movements of deer in and out of the management unit.

With the new era of cooperation between the State of Michigan, Shiawassee National Wildlife Refuge, and several private organizations and clubs; it is hoped that a sustained winter population level of 500-600 animals can finally be achieved.

4. Population Estimates and Kill Data: The size and kill data of the deer herd from 1958 through 1991 is available on Table I in the appendix.

Peak deer populations are found on the refuge from middle November through December. Three-fourths of the adjacent Shiawassee River State Game Area is flooded in October for waterfowl hunting purposes. This, coupled with the regular November gun deer season, shifts almost all the deer from the state and private lands to the refuge.

Our current permit system is based upon the uneven deer distribution and structured accordingly.

5. Regulations and Controls

- a. Legal Hunting Methods: Bow and arrow hunting for deer on the refuge will be held during the State's archery season. The season runs from Oct. 1st through Nov. 14th and again from Dec. 1st through Jan. 1st. Muzzleloader seasons will coincide with State firearms seasons which run from November 15th through November 30th and again from December 11th through the 20th. Any shotgun seasons allowed on the refuge will also coincide with State firearms seasons. Shotgun seasons would be considered on the Refuge when the deer population in the management unit reached 1,000 animals post season.
- b. Hunting Permits: To apply, potential hunters are to obtain special application cards available at the refuge headquarters, Offices of the Michigan Department of Natural Resources, and selected hunting license outlets. The application allows the applying individual to select the method he/she wishes to use to hunt and the time frame he/she would like to hunt in.

Only one application is accepted per person and duplicate applications will make them ineligible for the drawing. If one wishes to hunt with a partner, the applications must have identical hunt periods. Applications must be postmarked by Sept. 24th to be eligible for the drawing.

Selection of reservations will be by computerized random drawing conducted by the Michigan Dept. of Natural Resources. Only the successful applicants will be notified. All reservations are non-transferable and can be used only by the individual to whom issued.

The number of permits available to applicants varies from year to year according the refuge harvest goals. The management objective is to maintain a deer herd of 500-600 animals for the management unit post season. With a stabilized herd the Refuge would have to harvest approximately 100 animals annually.

- c. Hunting Area and Accessibility: Except for the 22 acres in and around refuge headquarters at 6975 Mower Road and 2 acres at the refuge service area, and one acre around the secondary pad the entire refuge will be open for deer hunting during portions of the season. Private vehicles will not be permitted within the hunting area. Hunters must park vehicles along public roads or in the refuge parking lots.
 - d. Shooting Hours and Bag Limits: Hunting hours are one-half hour before sunrise to one-half hour after sunset local time. Regulations pertaining to the sex and number of deer each individual may harvest vary from year to year. These regulations are set in cooperation with the Michigan Dept. of Natural Resources prior to issuing the special applications.
 - e. Hunt Procedure: Hunters with valid permits may enter the refuge without checking in at refuge headquarters. Any individual bagging a deer must report to the Refuge Check Station and submit the animal for examination.
6. Special Nonambulatory Deer Hunt: In 1991 the refuge established a annual nonambulatory deer hunting program. In establishing the special hunt the refuge hoped to provide a hunting opportunity to individuals who had given up the sport they enjoyed because they felt they could no longer access a hunting area. With this goal in mind, the Refuge limited participation in this hunt to person confined to a wheel chair. The structure of this hunting program, selection of participants, and the guidelines and regulations the hunt operates under is the same as all our other deer hunts.

The Refuge will try to offer a maximum of 40 hunting opportunities each year with this program; in two 2 day hunts with 20 hunters per period. The Refuge has developed 20 platform blinds designed for wheel chair use. These blinds will be placed on dike systems accessible by vehicle along known deer crossing areas.

In addition to the regulations all our deer hunts operate under, the following restrictions apply:

1. Hunter are assigned to a blind location and must remain at the blind while they are actively hunting.
2. All hunters are required to have a non-hunting helper with them during their hunt. They may choose their own helper if they wish, or a volunteer will be assigned to them.

Appendix

- A. Table I - Wildlife Use data
- B. Map I - Public hunting and Fishing Areas
- C. Pool 4 Status

Table 1 - WILDLIFE USE DATA

Shiawassee National Wildlife Refuge

Year	<u>Geese</u>			<u>Ducks</u>			<u>Deer</u>	Est. Kill
	Spring	Fall	Total	Spring	Fall	Total	Peak Population	
1955	94,500	18,400	112,900	608,900	92,500	701,400		
1956	158,780	2,030	160,810	1,055,600	63,060	1,118,660		
1957	136,780	14,308	150,508	821,765	95,459	917,224		
1958	56,980	1,001	57,981	111,429	13,160	124,589	100	33
1959	55,249	28,830	84,079	232,918	184,464	417,382	110	40
1960	96,656	51,072	147,728	738,628	284,413	1,023,041	100	40
1961	217,890	95,221	313,111	623,473	508,502	1,131,975	115	35
1962	308,460	188,920	497,380	1,155,455	1,457,248	2,612,733	140	22
1963	596,250	214,203	810,453	1,373,305	1,609,520	2,982,825	200	27
1964	444,582	437,022	881,604	1,043,356	1,587,075	2,982,825	350	50
1965	446,810	618,870	1,065,680	457,207	1,755,089	2,212,296	450	150
1966	600,431	807,737	1,408,078	809,074	2,271,885	3,080,959	600	210
1967	563,652	568,477	1,132,129	451,765	3,590,419	4,042,094	950	100
1968	532,084	1,148,622	1,680,706	878,526	4,517,800	5,396,326	1,000	300
1969	1,003,460	1,910,055	2,913,515	587,531	4,131,843	4,719,374	1,000	200
1970	1,401,148	1,627,780	3,028,928	1,015,935	4,389,070	5,405,005	700	100
1971	917,168	1,154,421	2,071,589	402,710	2,778,398	3,181,108	550	125
1972	600,376	974,032	1,514,398	556,290	2,382,709	2,938,999	500	175
1973	834,540	964,290	1,798,830	695,970	2,985,270	3,681,240	400	95
1974	888,330	807,360	1,695,690	601,350	2,219,700	2,821,050	350	70
1975	599,280	1,248,000	1,847,280	298,050	2,367,600	2,665,650	250	125
1976	862,500	820,330	1,682,830	935,400	1,922,425	2,857,825	300	20
1977	310,000	1,065,000	1,375,000	261,000	1,657,000	1,918,000	400	25
1978	300,000	1,600,000	1,900,000	400,000	2,439,000	2,839,000	550	72
1979	650,000	1,260,000	1,910,000	35,000	2,266,000	2,301,000	800	170
1980	496,000	2,600,000	3,096,000	433,000	2,710,000	3,143,000	1,000	270
1981	758,000	753,000	1,511,000	605,000	1,425,000	2,030,000	1,100	151
1982	460,000	1,440,000	1,900,000	429,000	2,251,000	2,680,000	1,500	415
1983	475,000	1,415,000	1,890,000	478,000	2,855,000	3,333,000	1,100	285
1984	845,000	2,100,000	2,945,000	189,000	1,370,265	1,560,073	600	150

1985 771,255 1,636,677 2,409,482 187,709 1,346,000 1,533,709 500 60

Table 1 - WILDLIFE USE DATA (CON,T.)

Shiawassee National Wildlife Refuge

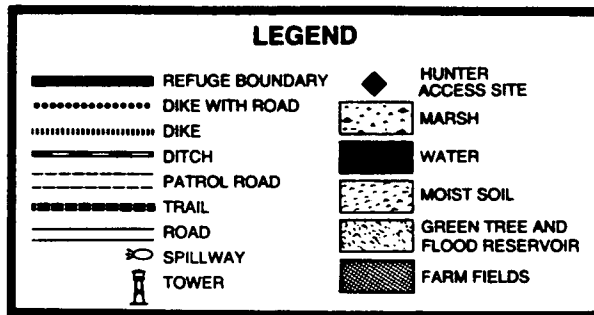
Year	Geese			Ducks			Deer	
	Spring	Fall	Total	Spring	Fall	Total	Peak Populations	Est. Kill
1986	422,530	2,213,365	2,635,895	211,501	3,006,076	3,217,577	506	12
1987	508,805	1,863,579	2,372,384	130,968	2,345,203	2,476,171	200	3
1988	433,226	1,122,312	1,555,538	277,952	1,584,547	1,822,499	350	26
1989	209,657	1,193,343	1,430,000	86,317	1,447,251	1,533,568	480	116
1990	293,212	1,567,934	1,861,146	169,681	1,134,968	1,304,649	240*	6*
1991	684,207	1,563,936	2,248,143	308,697	1,606,517	1,915,214	983	182
1992							1,432	

* Population estimate based on an error in the winter aerial survey. The population was actually close to 1,000 animals.

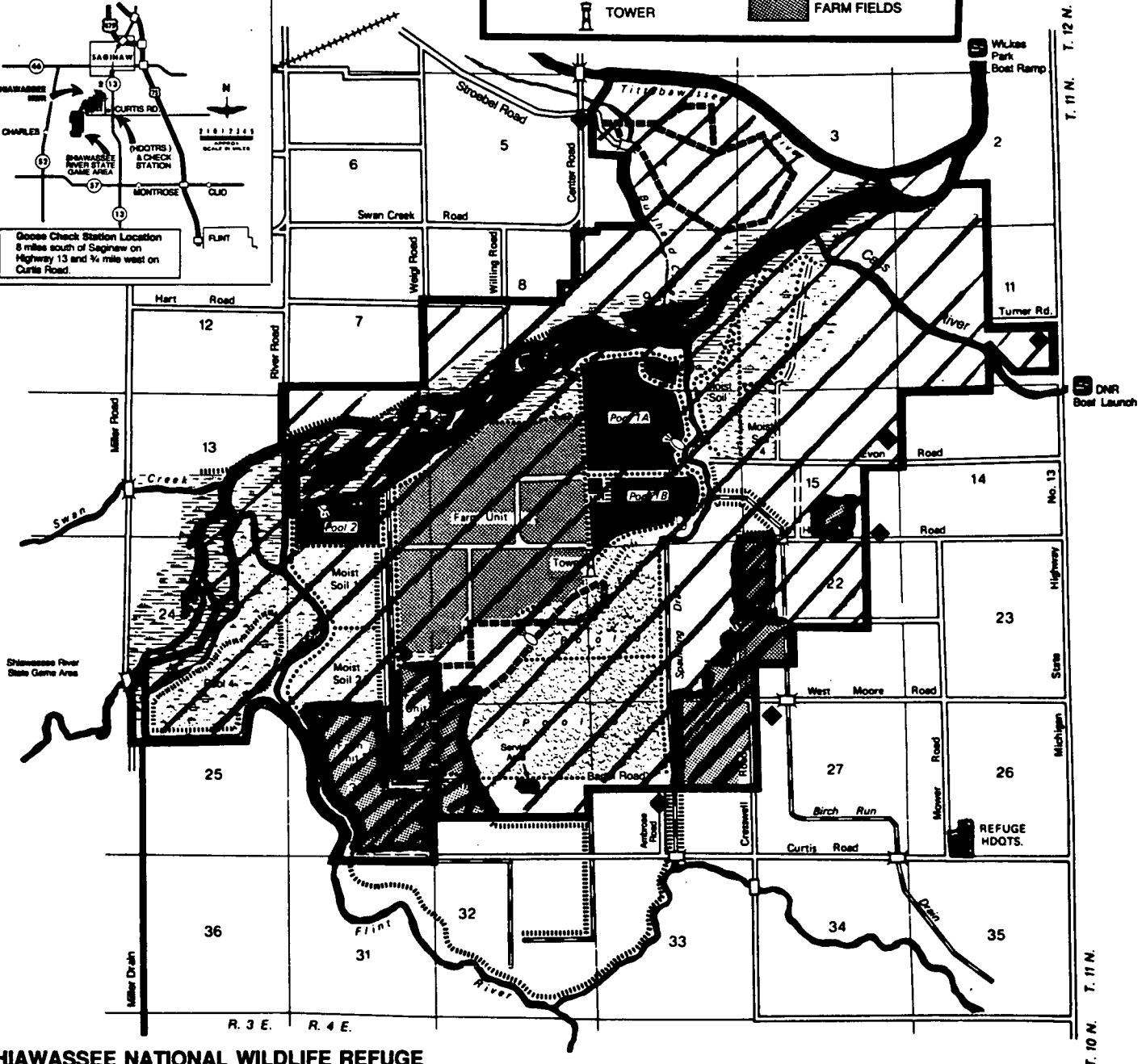
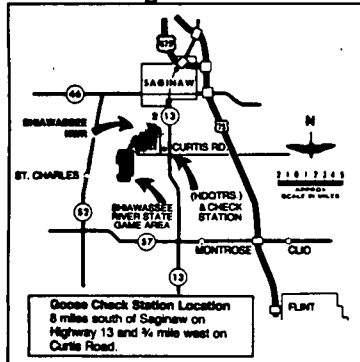
Public Use is restricted to the nature trails.

SHIAWASSEE NATIONAL WILDLIFE REFUGE

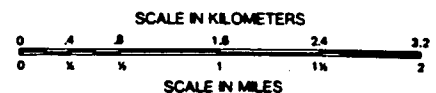
DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE



Refuge Location



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



REVISED NOV. 1988

- Goose Hunting admin. by Refuge
- Waterfowl Hunting admin. by State
 - Deer Hunting admin. by Refuge

- Closed to Deer Hunting

memorandum

DATE: 10/25/92

REPLY TO:
ATTN OF:

Refuge Manager, Shiawassee NWR

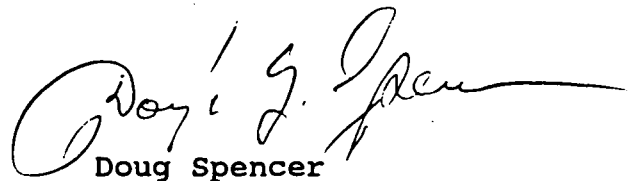
SUBJECT:

Hunt Plan

TO:

WAM-1 

Attached to this memo is a revised copy of the hunt plan for Shiawassee National Wildlife Refuge. The concerns with the plan you outlined in your previous memo have been addressed. Please review the plan and route for concurrence and approval.



Doug Spencer

Refuge Manager