OTTAWA NATIONAL WILDLIFE REFUGE COMPLEX

(Ottawa, Cedar Point, West Sister Island)

Oak Harbor, Ohio

ANNUAL NARRATIVE REPORT

Calendar Year 1982

U.S. Department of the Interior
Fish & Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

WASHINGTON OFFICE

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Front Row: Lee, Larry, Virginia
Back Row: Bots, Alson, Ryan 82 WB



Charlie 82 WH

Permanent Personnel

1. Lee Herzberger - GS-12, PFT.....Refuge Manager
2. Larry Wargowsky - GS-9, PFT.....Ass't Refuge Manager
3. W. R. Botsford (Bots) - GS-9, PFT.....Outdoor Recreation Planner
4. Virginia Behnke - GS-5, PPT.....Admin. Tech.
5. Alson Radsick - WG-8, PFT.....Maintenance Worker
6. Wood Holbrook - WG-8, PFT.....Equipment Operator
   (Retired 3-19-82)
7. Charles Holbrook - WG-6 (50 week seasonal)....Tractor Operator
   (Transferred Loxahatchee NWR 10-31-82)

Temporary Personnel

1. Ryan Fought - WG-1 (EOD 11-28-82).....Laborer

YCC Personnel

1. Tammy L. Weirich - 5/30 - 8/7/82
2. Brenda L. Smith - 5/30 - 8/21/82
3. Mark E. Rister - 6/13 - 8/21/82
4. Michael J. Tscherne - 6/13 - 9/4/82

Volunteer Services

1.	Laurie Thomas Blakeslee	1/19/82 to present	162 hrs.
2.	Keith Luchas	1/12/82 to 4/23/82	210 hrs.
3.	Jeffrey R. Nehls	6/24/82 to 7/11/82	86 hrs.
4.	Darin VanNess	6/01/82 to present	80 hrs.
5.	Ryan Fought	10/13/82	8 hrs.
6.	Dan Nally	10/25/82 to 11/10/82	87 hrs.
7.	Kevin Higgins	9/27/82 to 10/25/82	80 hrs.
8.	John Redman	8/27/82 to 10/25/82	242 hrs.
9.	47 Girl Scouts and 10 adults	10/02/82	171 hrs.
10.	Mark Coci	12/13/82	8 hrs.
11.	Jayne Brim	12/13/82 to 12/17/82	40 hrs.
12.	Birding Guides	10/01/82 to 12/31/82	126 hrs.
		Total	1300 hrs.

Review and Approvals

Lee Hersberger 2/25/83
Submitted by Date

Richard E. Dee 4/8/83
Regional Office Review Date

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A. HIGHLIGHTS

Record high water level of 576.1 ft. (IGLD) on Lake Erie topped some 2 miles of dikes around controlled pools at 15 locations. (Sections B, F.2, I.2)

Revised Trapping Plan changed method of trapper selection from a drawing to a sealed bid system. (Section D.2, H.10)

Four year YACC program at Ottawa closed March 23, 1982 when the last enrollee was terminated. (Section E.2)

178 acres of retired cropland were converted to moist soil units by diking and were flooded in the fall. (Section F.2)

Record number of 4 eaglets produced from the 2 bald eagle nests on the refuge. (Section G.2)

Winter of 1982-83 was the second consecutive winter some 5,000 migrant Canada geese overwintered with our normal overwintering resident flock of 4,000. (Section G.3)

$1,225,000 Pool 4 Dike Rehab project for FY83 got off the ground with an onsite meeting of RO, DEC and Ohio DNR personnel. (Section I.2)

East Lansing Area Office closed in August. (Section J.2)



Director Robert A. Jantzen spoke in nearby Toledo at League of Ohio Sportsmen Waterfowl Symposium. (Section H.1) 82-WB

B. CLIMATIC CONDITIONS

Table 1. Annual Precipitation and Temperatures, CY 1982

Month	Precipitation CY-82	Precipitation Normal	Snowfall	Temperature Max.	Temperature Min.
January	3.29	2.33	17.5	49	-16
February	1.16	1.88	17.8	49	- 9
March	3.06	2.26	8.6	71	- 2
April	1.74	2.77	7.0	79	30
May	2.95	3.04		89	48
June	3.28	3.79		88	48
July	1.66	2.59		94	53
August	1.28	3.33		91	42
September	2.09	2.13		90	40
October	0.80	2.39		84	45
November	8.02	2.04	2.0	72	23
December	3.43	1.95	0.7	70	12
Annual Totals	32.76	30.50	53.6		
Extremes				94	-16

1982 will be remembered for its major winter storms which occurred not only in January and February but way into April. Above normal snowfall fell in 1982 with 66% of the 53.6" falling in January and February.

The first blizzard for 1982 occurred on January 16 when steady winds over 30 mph made visibility extremely poor and produced a chill factor of 53 degrees below zero.

The second major storm occurred on February 1 when 8" of snow along with very strong winds made 4-6' drifts. All the schools were closed in the area plus the Toledo Express Airport. A snow emergency was declared in Toledo and National Guard vehicles were called in to assist.

Even before the February 1st snow could be cleared another storm hit February 3-4 dumping another 7" of heavy snow on top of freezing rain. The mayor of Toledo asked employers to let their employees go home early and to shut down. Almost all the factories and businesses closed down in Toledo plus the Toledo Express Airport. Graders were brought in to clear Highway 2 adjacent to the refuge.

No other major weather problems occurred until March 13 when a very fast melt-off plus rain caused local flooding. Highway 2 plus numerous side roads were closed and traffic rerouted. Water damage was reported to numerous homes in both Ottawa and Lucas County.

A complete ice breakup of all ponds on the refuge occurred March 29.

The major storm of the year occurred late April 5th when 8" of snow fell along with a 60 mph wind. Thunder and lightning also accompanied the snowstorm. The 60 mph NE winds caused record high water levels on Lake Erie which caused extensive damage to refuge dikes and roads on the Ottawa Division. Elevations surged to 576.10 feet (IGLD), the highest on record, and 6' to 8' seas battered the lakefront dikes and some interior dikes. Ottawa County, where Ottawa NWR is located, caught the brunt of the storm.

After a severe winter with a greater than normal snowfall, a very dry spring occurred in 1982. A spring drought with only 1.74" in April and only 2.95" in May greatly reduced the winter precipitation. Eight months in 1982 had total precipitation below the norm. Up until November the annual precipitation was way down and numerous shallow ponds were dry for the first time in years. Monsoon rains came in November as 8.02" of rain fell compared with a norm of only 2.04". November alone altered a record dry year and, in fact, brought the total for the year to 2.26" over the norm for a 7.4% increase in precipitation.

1982 came to a close with record high temperatures the first week of December (70's) and the last week of December (60's). To everyone's dismay, we had a brown Christmas.

C. LAND ACQUISITION

1. Fee Title

The fee title land acquisition program is essentially complete except for one main inholding at the south boundary of Ottawa Division. This 75 acre parcel designated as tract 31 is owned and farmed by Herman Kohlman and is bounded on three sides by the refuge. The access route to the refuge and the Butternut Lodge Environmental Study Area across what used to be a public road along side Mr. Kohlman's farmland had to be changed to a less advantageous location. This could have been precluded if the inholding had been refuge land.

2-3. Easements and Other - "Nothing to report"

D. PLANNING

1. Master Plan - "Nothing to report"

2. Management Plan

The Trapping Plan was revised to change the method of selecting non-government trappers. Since the mid-60's when trapping was initiated on the refuge, trapper selection was accomplished through a public drawing. Problems often surfaced in regard to quality and experience of the trappers drawn, monitoring the 50/50 split of the animals trapped and holding and

marketing the 50% government's share of the pelts. Revising the plan involved changing to a bidding system that is mutually beneficial to the government and the trapper. Trappers submit sealed bids, including a 100% payment, for up to 13 trapping units on the refuge. The highest bidder is issued a Trapping Permit and keeps all of the traptake.

3. Public Participation

Input for revising the Trapping Plan was invited from Ohio DNR, Ohio State Trapper's Association, and interested local trappers. Two public meetings were held at the refuge prior to accepting bids, during which interested parties made suggestions.

4. Compliance with Environmental Mandates - "Nothing to report"

5. Research and Investigations

Ottawa NR82 - "Woodcock Habitat Analysis and Population Estimate on Ottawa NWR" (WMS-16) Mark Shieldcastle, Ohio DNR Experiment Station. Birds were badly displaced from existing singing grounds by the April 6 flood. No banding was accomplished. On-going.

Ottawa NR82 - "Habitat Use and Migrational Movements of Non-Game Birds in the Lake Erie Marsh Region of NW Ohio" (WMS 19) Mark Shieldcastle, Ohio DNR Experiment Station. Navarre Division of Ottawa NWR appears to be a very important lay-over for migrating non-game birds. 376 birds were banded on 5 days. On-going.

Ottawa NR82 - "Migrational Patterns of Non-Game Birds" (WMS 20) Bruce Buckingham, Private Study. Darby Division of Ottawa NWR appears to be a point where many non-game birds split into eastward or westward movements. 748 birds were banded. On-going.

Ottawa NR82 - "Movement and Habitat Useage of the Black-Crowned Night Herons of the West Sister Island Rookery" (WMS 28) Mark Shieldcastle, Ohio DNR Experiment Station. 136 nestlings were banded, including 25 with patagial tags. An estimate of 1300 to 1500 nests was made. Two reports of color-mark sightings occurred at Cedar Point NWR in late August. On-going.

Ottawa NR82 - "Phenology and Hybrid Resistance of Red-winged Blackbird Damage to Corn" Richard Dolbeer and Paul Woronecki, Denver WRC, Ohio Field Station, Sandusky, Ohio. Study suggests that the use of non-preferred corn hybrids may have utility in controlling red-winged blackbird damage, but only if sufficient alternative food is available for the blackbirds. Eight varieties were studied. On-going.

E. ADMINISTRATION

1. Personnel

The staffing pattern stayed fairly stable in 1982 after a substantial turnover in 1981. Four office personnel and 2 field personnel comprised the work force the majority of the year with only one turnover in field personnel at the end of the year. Supplemental manpower was made available with YACC, YCC, and volunteers.

Wood Holbrook, Equipment Operator, retired 3-19-82 after being on sick leave pending medical retirement since 6-29-81.

The only staff change occurred 10-31-82 when Charlie Holbrook, Tractor Operator, transferred to Loxahatchee NWR in Florida to fill an Outdoor Recreation Planner position. Ryan Fought entered on duty as a temporary Laborer on 11-28-82.

Table 2. Staffing Levels at Ottawa NWR, FY 1978-1982

Fiscal Year	Permanent Personnel			Temporary	FY Total
	Full Time	Part Time	Seasonal		
1982	4	1	1	1	7
1981	4	1	2		7
1980	6	1	1	1	9
1979	6	1	1	1	9
1978	5	1	2	2	10

2. Youth Programs

a. Youth Conservation Corps (YCC)

A resident YCC camp has been at Ottawa NWR from 1975-1980. The YCC program was not funded in 1981 but returned in 1982 with only 4 enrollees. The 1982 program was non-residential in contrast to the earlier residential camps, and was greatly reduced with only 4 individuals (2 boys and 2 girls) in contrast to approximately 40 enrollees in past years.



YCC enrollees preparing one of six foot bridges for painting. 82 WB

No additional funding or additional staff to supervise YCC was provided for the program. Assistant Refuge Manager, Larry Wargowsky, was in charge of the whole program from recruiting through supervision.

A variety of work projects in different locations were given the YCC enrollees over the nine week program. Projects ranged in scope from the basic vehicle and facility maintenance to the more glamorous work such as waterfowl banding. With a very large Interpretation and Recreation Program with extensive use of the Butternut Lodge Complex, a major portion of their time (37.8%) was spent on basic maintenance formerly done by YACC enrollees: Butternut Lodge Maintenance 14%, Headquarters Facility Maintenance 9%, Lawn Care and Maintenance 8.8%, and Vehicle Maintenance 6%. The most glamorous project was the annual goose roundup where they assisted chasing young goslings into traps with Ohio DNR helicopters assisting and TV cameraman taping the whole event. They also participated in the banding of four eaglets from two nests which was documented by TV and newspaper personnel.

Projects which meant hard work but gave them a sense of pride and will be around for them to show their parents included painting 6 foot bridges and landscape work in 4 separate areas.

b. Young Adult Conservation Corps (YACC)

1982 turned out to be the shutdown of a youth program in existence at Ottawa since 1978. The program had its peak in 1978 with an enrollment

approaching 80 enrollees and 10 staff at all units under Ottawa's control. Ottawa's camp itself had over 50 enrollees in 1978. A transition to 12-15 enrollees and 1 crew leader occurred in 1979 and 6-8 enrollees and no crew leader from 1980 to its shutdown in 1982. Larry Wargowsky, Assistant Refuge Manager, supervised YACC until its termination March 23, 1982.

Major work projects during the last three months of the program included assisting in vehicle rehabilitation of an old Army Jeep and a 2½ ton stake/dump truck, assisting in rehabilitation of two bathrooms at the refuge office, painting of ceilings and/or walls in 5 other rooms in the office, snow removal, clerical support, and general office and shop maintenance.

3. Other Manpower Programs - "Nothing to report"

4. Volunteers Programs

Our current Volunteers Program has been enhanced by the evaluation of several Volunteer Programs from within and outside of the Fish and Wildlife Service. Our relatively small program has tremendous expansion possibilities.

Seventy volunteers provided 1300 hours of service to the refuge. Of those 70 people, 10 were males and 60 were females. Habitat surveys led the list of areas where volunteers were used. Exhibit design and public relations were other areas of significant support.

An area of concern within the Volunteer Program is the problem of the volunteers basically setting their own schedule. Project planning becomes difficult when the few volunteers are intermittently present. With more volunteers and better scheduling this problem will diminish.

Volunteer interest has increased over last year. This trend looks positive for the refuge for the coming year. This past year the advantages of using volunteers offset the management of those volunteers.

As shown in the following photos, the volunteers have provided excellent service in an area they were really needed. A recently established shelter belt was almost eliminated by rodents and rabbits during the severe winter of 1981-82. Cub scouts provided the labor to cut damaged trees.

While demonstrating the proper method and type of cut, ORP Botsford was interrupted twice. The first time, "thinking he was kicked," he stopped, but seeing no one close by resumed cutting. The second similar interruption caused concern. As he stood up he shook his pant leg and out fell a meadow vole. All of the scouts immediately put their socks on the outside of their pants to deter any critters from making similar visits on them. More about the damage can be found in section F.3.



Cub Scout Pack 136 volunteered to cut damaged shelter belt trees. Rodents and rabbits had girded most of the trees during the severe winter. 82 WB



Regrowth, shown here, is after only one growing season of a tree that would have otherwise been dead. 82 WB

5. Funding

A gradual increase in funding has occurred from 1978-1981 but these increases are very slim when compared with the rate of inflation. Additional money from the Bicentennial Land Heritage Program (BLHP) was greatly needed the past few years, but its funds are gone. 1982 was a bleak year with a reduction in funds and 1983 looks even worse.

Table 3. Funding Levels at Ottawa NWR, FY 1978-1982

Fiscal Year	Management Funds 1210	1220	1240	1400	1994	6810/6820	8384	FY Total
1982	185,500	6,000	28,000	750	4,500	1,000		225,750
1981	206,000	6,000	37,000	700	2,600	2,000	500	254,800
1980	186,000	3,000	35,000	700		2,000		226,700
1979	179,000	300	30,000	700		2,000		214,700
1978	155,300	300	36,300			2,000		193,900

6. Safety

The Safety Officer for Ottawa for 1982 was Larry Wargowsky, Assistant Refuge Manager. He was in charge of the whole safety program including planning topics for monthly safety meetings, monthly safety meeting reports, safety inspections of fire extinguishers, smoke alarms, first-aid kits, furnaces and chimneys, accident reporting, as well as the day to day monitoring for safety hazards.

1982 was an excellent year for safety with no lost time accidents. December was the worst month of the year due to three incidences occurring to a new laborer brought on board 11-28-82. The first incident occurred when he backed a van out of the shop and caught the driver's door which was still partly open. The door was sprung and had a slight dent in it. The second incident occurred when he caught the GMC dump truck mirror on a low limb and broke the mirror. The third incident occurred when he backed up to dump a load of riprap with the GMC dump truck and the bank gave away causing the truck to drop down and hang up the axle.

A safety calendar was prepared in January detailing meeting dates, topics, and discussion leaders. Films and/or slide presentations were ordered for the entire year in January. Each month the discussion leader was responsible to prepare material to supplement the film or slides and to lead a discussion on the topic. YACC and YCC enrollees were required to sit in and participate at safety meetings.

A list of safety checks and items corrected during the year is as follows:

-Smoke detectors inspected and batteries replaced.
-Fire extinguishers inspected and recharged.
-Broken mirrors replaced on vehicles.
-First aid kits inspected.

-Brushed and mowed dangerous intersections.
-Annual inspection and servicing of all furnaces.
-All chimneys inspected and cleaned.
-Replaced broken handrail on foot bridge.
-Repaired 4 catwalks at Darby.
-Replaced 2 portable fuel storage tanks.
-Excessed old equipment and broken and unsafe tools.
-Bought 7 new tires.
-CPR training to half the refuge staff.
-Installed a protective cyclone fence around moist soil pump station.

7. Technical Assistance

Assistant Refuge Manager, Larry Wargowsky, served as a member of the Ottawa County Wetlands Task Force which was coordinated by the local Soil Conservation Service. The group was first formed in 1981 and includes professional wetland managers of private and public marshes. The main purpose of the group is to encourage private landowners to convert low areas of their land which are marginal for growing crops into wetland areas.

8. Other Items - "Nothing to report"

F. HABITAT MANAGEMENT

1. General

Wildlife Habitat on Ottawa Complex continued to swing toward more wetland types instead of intensely manipulated cropland and mowed uplands. The complex was in excess of 85% marsh, water and moist soil habitats in 1982. This resulted from flooding more acreage as moist soil units and allowing water to stand in as many odd acres as possible throughout the year.

2. Wetlands

Winter and early spring excess water was drained from most of the pools on the complex during the spring months. Spring was early in 1982 and some gates were opened to discharge water in mid-March. A general inability to discharge as much water as planned, due to high lake levels, was counteracted by lower than normal precipitation. The end result was proper spring water elevations in most of the pools.

The April 6th flood, previously discussed in more detail in section B, topped 2 miles of dikes surrounding controlled pools and moist soil (MS) units and caused dike damage in 15 locations. Control of Pool 3 was

permanently lost. Control was temporarily lost in MS3 (212 acres) but repairs to short sections of damaged dike were made shortly after flood water subsided.

MS4 and 5 (totalling 344 acres) were pumped full in late May and mid-June respectively and were maintained at these elevations the rest of the year to control woody growth. Cottonwoods were controlled but willows were not. Water is again planned to be kept on these areas during 1983.

MS8a (47 acres) was drained to a mudflat stage by May 31. What we were hoping for was a lush stand of smartweed. What we got was a plush stand of cockleburs. Fortunately, beneath the cockleburs was an excellent stand of wild millet. The cockleburs were mowed down and the wild millet took off providing some of the best fall food for waterfowl after flooding.

MS7a (50 acres), MS7b (43 acres), and MS8b (85 acres) were all flooded in the fall. These 178 acres had recently been in cropland. MS7a and b had been retired from cropland for several years and MS8b had been last farmed in 1981. Low level dikes totalling 2,400 feet were constructed in MS7a and 8b that allowed the units to be fully flooded by the end of November.

Literally waves of ducks and geese piled into these areas as each one was flooded. Incidentally, MS8b is out the Refuge Manager's office window and, needless to say, he took every opportunity to lean back in his chair and "document" the response the birds made to the flooding, as thousands of critters piled in.



Before a 1,000 foot dike was constructed to keep MS8b water from flooding a woodlot at the Blue Heron Trail parking lot. 82 LH



After construction of the MS8b dike that will double as a short loop trail for the handicapped.
82 LH

Pool 4 at Darby was pumped nearly dry in August and the main open-water bay was rotenoned to control carp. At the same time a 48" discharge pipe was fitted with a flap gate.

3. Forests

The 37 acre shelterbelt that had been established over the past three years sustained severe damage during the winter of 1981-82. Heavy snow cover during the winter provided ideal conditions for mice, voles, and rabbits to gird many of the small trees. A high population of meadow voles was observed and it appeared they did most of the damage.

In most cases girding penetrated the cambium layer and death of the tree was quite apparent by spring. Black locust was hit the worst. However, on May 12 volunteer Cub Scouts cut the dead trees just below the damage, which resulted in many suckers sprouting from the stumps.

The cutting project was a success in that it saved what would have been dead trees and, also, the numerous suckers that came on provided bushier trees.

4. Croplands

The farming program at Ottawa utilizes a system in which local cooperators conduct all of the farming activities on their respective units. They harvest two-thirds of the available acreage for themselves. On the remaining one-third of the acreage cooperators plant designated crops in a configuration specified by the refuge. These crops are all left standing in fields for use by wildlife. The cooperators bear all expenses in the farming operation except that major repairs to farm pumps and protective dikes are accomplished when needed by refuge funds.

In 1982, 410 acres were under cultivation. Of those 410 acres, 282 acres were harvested (236 soybeans plus 46 corn). A total of 128 acres of refuge crops were left standing in fields for utilization by wildlife.

Table 4. Crops Planted on Ottawa NWR, CY 1978-1982

Refuge Crops	1982	1981	1980	1979	1978
Corn	92	98	112	115	110
Sorghum		26	26	45	61
Buckwheat	24	29	52	81*	103
Barley	5	33	38	10**	
Millet				3**	
Wheat	6				
Sunflowers	1				
Co-op Crops					
Soybeans	236	335	418	540	571
Corn	46	73	13	___	___
Total	410	594	659	794	845

*Includes 11 acres force account
**All force account

Ottawa has realized a 51% decrease in acres (845 acres down to 410) devoted to cropland over the past five years. Emphasis on converting to moist soil units and grassland habitat brought about the reduction this year.

A total of 184 acres was withdrawn from the cropland program this year. Of these 184 acres, 85 acres were converted to a moist soil unit, 74 acres are planned to be converted to upland nesting habitat (tentatively native grasses) and the remaining 25 acres are planned as permanently mowed grass strips in front of seven goose hunting blinds.

The bulk of these reduced cropland acres had been farmed by the Millingers who had been refuge co-op farmers for years. Conversion of 85 acres of what they farmed had been scheduled as a moist soil unit for several

years. However, they decided to quit farming on the refuge entirely when they found more productive off-refuge farmland they could rent.

Except for too much rain in late May, the growing season was a dry one and resulted in lower than normal production. Corn yields average 85 bushels per acre, yields were poor in buckwheat, barley and wheat fields and sunflowers, tried for the first time in 1982, yielded about 600 pounds per acre.

5. Grasslands

Ottawa Division has some 900 acres of grasslands, the largest of which is about 100 acres south of refuge headquarters that used to be farmed. It is encouraging to see an abundance of nesting wildlife, particularly ducks, utilize this unmowed habitat a few years after conversion to permanent grassland. There is a need for more at Ottawa and some 75 acres of cropland last farmed in 1981 is planned to be established into native grasses. Jayne Brim, Ohio State University student through the Wildlife Co-op, took soil samples from these 75 acres that had been kept disked up in 1982. Other baseline data were gathered also. Several contacts were made with SCS, Ohio DNR, and others with expertise in establishing native grasses in Ohio and it was decided to concentrate on getting switchgrass established first and possibly seed other warm season natives later.

In farm unit 2 the refuge maintained 35 acres of perennial green browse. There are two fields in this unit that were mowed the first week of August, well after the peak duck nesting season.

Several green browse fields are maintained by the Ohio Division of Wildlife as shooting fields for the refuge goose hunt. In 1982 these fields amounted to 47 acres and were mowed once during the summer. Also, for the first time this year, some 50 acres of 10 year old growback areas adjacent to the shooting fields were mowed by the State in Sept. and Oct. Woody growth had invaded where grassland was desired. Mowing and burning of these areas will provide additional upland nesting cover.

6. Other Habitats

A small wet brushy area near refuge headquarters was stripped by mowing some of the brush. Woodcock have used this area for several years as singing grounds and the mowing will provide more edge effect and in general be more attractive to the woodcock.



A brushy area west of Public Use Natural Area Part C woodlot was stripped to enhance singing grounds for woodcock. 82 WB

7-8. Grazing, Haying - "Nothing to report"

9. Fire Management

Habitat conditions were too wet or green to carry out any prescribed burning this year.

10. Pest Control

Purple loosestrife has become established at the Darby Division, Cedar Point, especially in the Pheasant Farm and to a lesser degree at Ottawa Division. None has been noted at Navarre Division or on West Sister Island.

Most infestations were considered too advanced to feasibly use the hand digging method of control, so no time was spent this year in that endeavor. We attempted to control a large patch in the Pheasant Farm at Cedar Point NWR by maintaining water elevations above the plants. However, the loosestrife just grew up through it. Control using a combination of flooding and Roundup spray is planned for next year.

Most pesticides that were approved this year were used in the cropland program. They included Amiben, Sencor, Basagran, Lexone D.F., Treflan, Atrazine WP, Sevin, Bladex. Weedfree G was used on parking lots. Roundup, 2, 4-D, Tordon 10K and Weedone 170 were approved for new brush and sapling growth between dike top roads and large lake-front rip-rap, but were not used. No insecticides or treated seeds are used in the cropland program.

A small area of Canada thistle east of the refuge entrance sign was mowed and controlled this year. A complaint was received last year but this year's control work satisfied the adjacent landowner.

11. Water Rights - "Nothing to report"

12. Wilderness and Special Areas

Management of West Sister Island NWR Wilderness Area, nine miles out in Lake Erie, continues to be basically "no management." Protection involves posting, litter cleanup, news releases relating to its being closed to the public and periodic law enforcement activities citing trespassers.

13. WPA Easement Monitoring - "Nothing to report"

G. WILDLIFE

1. Wildlife Diversity

Wildlife diversity has been maintained as well as expanded at Ottawa by managing an interspersion of different habitat types. A variety of intermixed habitat types provides more edge effect and provides the necessary habitat type within the daily range of more wildlife species. Northwest Ohio, with very reduced wildlife habitat available, needs intense management of the remaining land.

Habitat diversity which in turn creates wildlife diversity, is created at Ottawa by maintaining an interspersion of small woodlots, brushland, grassland, cropland, moist soil areas, shrub swamps, deep and shallow marshes, open water, as well as many smaller subdivisions. These areas are subdivided into smaller units of irregular sizes and shapes by such management practices as water manipulation (wildlife diversity dramatically changes when mudflats are interspersed with open water), crop rotation and strip farming, grassland mowing for green browse, or for brush control and strip mowing of brush for woodcock habitat.

Wildlife diversity has also been expanded by converting additional cropland each year into moist soil food production areas. These areas are far superior as year 'round habitat for wildlife over cropland with its monotypic plant species and barren landscape in winter.

2. Endangered and/or Threatened Species

1982 was a record year for the endangered bald eagle in Ohio and especially at Ottawa. Two of the five active bald eagle nests in Ohio were on the Ottawa Complex and four eaglets, or 50% of the production in the state, were fledged from Ottawa's two nests. Three eaglets were the most fledged from refuge nests prior to this year.

The bald eagle pair at Cedar Point NWR had built a new nest in the fall of 1981 after losing two young eaglets June 4, 1981 when a windstorm blew the nest down. The pair remained at Cedar Point all winter and successfully reared three eaglets this year. All three male eaglets were banded by Jack Holt, a "free lance" raptor bander on June 7th. Band numbers were 509-50722, 509-50723, and 509-50724. All three successfully fledged and were seen with the adults in trees adjacent the nest in late July and August.

The bald eagle pair at the Ottawa Division successfully fledged three eaglets in 1981. The nest tree they used in 1981 had a badly cracked trunk and was deteriorating rapidly. To no avail, Ohio DNR and F&WS personnel constructed a man-made stick nest in a strong tree nearby on 11-4-81. A conduit pipe which suspended short strips of yellow rope over the old nest was attached to the trunk of the old nest tree. It was hoped this would discourage the birds from using the old dead tree and start using the stronger tree with the artificial nest.

The eagle pair did abandon the old nest in late November, 1981, but selected a new tree nearby instead of the artificial nest. A small nest was constructed in late November, 1981 which was expanded in March 1982. Incubation was in full swing in the new nest by March 16 and on March 31 the old abandoned nest blew out of the tree in a wind storm with wind gust up to 60 mph. Lady luck must have given the eagles ESP to not use the old nest after hatching three young successfully the year before.

The female eaglet was banded by Jack Holt on June 7th with band number 692-00639. The banding received TV coverage (channel 24 - Toledo) as well as newspaper coverage (Toledo Blade).

Other birds on the Ohio endangered species list that were observed at the Ottawa Complex in 1982 included the common tern with 99,409 use days, the sharp-shinned hawk with 2153 use days, the upland sandpiper with 153 use days and the king rail with 16 use days. The American peregrine falcon and osprey were also observed on several isolated occasions.

3. Waterfowl

a. Ducks

Total duck use days in 1982 were 3,693,087, down 26.1% from 1981 (4,998,615) but still a 23% increase over the last five year average of 2,990,728 duck use days. A steady increase the last few years can be attributed to more of our wetland units becoming functional due to BLHP funding and also due to conversion of farm units to moist soil units.

A fast melt-off of snow plus abundant rain caused local flooding on March 13. The ground still frozen was unable to absorb the water fast enough. This occurred about the same time as a major movement of waterfowl passed through our area. Extensive areas of flooded fields outside the refuge lured tremendous flocks of waterfowl which would have normally used the refuge. This fact, plus a later spring break-up (March 29), helped reduce the duck use days in 1982 from 1981.

The peak spring migration for ducks occurred the last week of March with approximately 13,000 ducks using the refuge. The peak occurred one month later than 1981 and was a decrease of 58% from 30,893 birds in 1981. The 1982 spring migration was almost a duplicate of 1980 (10,500) with only about a one week difference in time and 23% increase in 1982. The 1982 spring migration was larger in magnitude than previous years but was not reflected in refuge counts due to the abundance of flooded farm fields on private land.

Approximately 480 ducks were produced on the Ottawa Complex in 1982, a slight decrease from the projected 500 the year before. Mallards took over the lead for the highest production followed by wood ducks, blue-winged teal, hooded mergansers, pintails, and finally shovelers. Nest predation may have lowered production. The local flooding not only matted down residual vegetation but it also concentrated both predators and ducks on higher areas.

The fall duck population peaked as in 1981 around mid-December but with approximately 66,300 birds, a decrease of 28.7% from the 1981 peak of 93,000 birds. 1981 was an unusual year with weather causing the big peak of 93,000 birds. The 1982 migration was more in line with past years and actually showed an increase of 47% over the 1980 peak of 45,000. Mallards comprised about 57% of the peak with over 38,000 birds followed by black ducks with 39% (26,000).

b. Geese

Total goose use days for 1982 was 2,149,491, an increase of 33% from 1981 (1,606,704). This is 43% above the goose use days objective level of 1,500,000. The five year average for 1978-1982 is 1,811,638 goose use days which is 20% above the objective level. The primary reason for the higher goose use days the past few years is because more geese are overwintering. There were some 9,200 geese at Ottawa January 3, 1982.

The spring peak for geese was March 7 with almost 11,000 birds. This was an increase of 70% over 1981 (6,452) and was almost two months later. Both years are low counts as the birds do not concentrate here but pass through fairly fast in the spring. The fall peak for geese was slightly over 14,000 birds on December 2 which was a 24% increase over the peak of 11,297 in 1981.

The goose production for the Ottawa Complex for 1982 was approximately 1,150 which was down from previous years. Geese nest about equally on artificial nesting tubs and the ground. Goose nesting tubs are maintained by the Ohio DNR via a cooperative agreement. The goose tubs get in excess

of 70% useage most years. An annual goose roundup to band flightless geese at Ottawa and Cedar Point is discussed in section G.16. There is also an annual controlled goose hunt at the Ottawa Division and is discussed in section H.8.

Spring started out very dry so crop depredation by geese on soybeans was not as severe as in past years. Normally geese do the most damage to soybeans when wet weather causes water to stay on the fields in lower sections. The geese usually cause problems only when the beans first leaf out in spring and again in the fall when the beans are mature.

Tremendous hunting pressure occurs on private farms adjacent the refuge boundary. Lead shot being legal on these areas is picked up by geese in spring when these areas are flooded. Every year geese are observed on the refuge with crop impaction, possibly due to lead poisoning. At any rate, lead poisoning is being found to be associated with crop impaction. This fall a greater than normal number of impacted geese were observed which may have been due to last spring's extensive flooding of farmland April 6th.



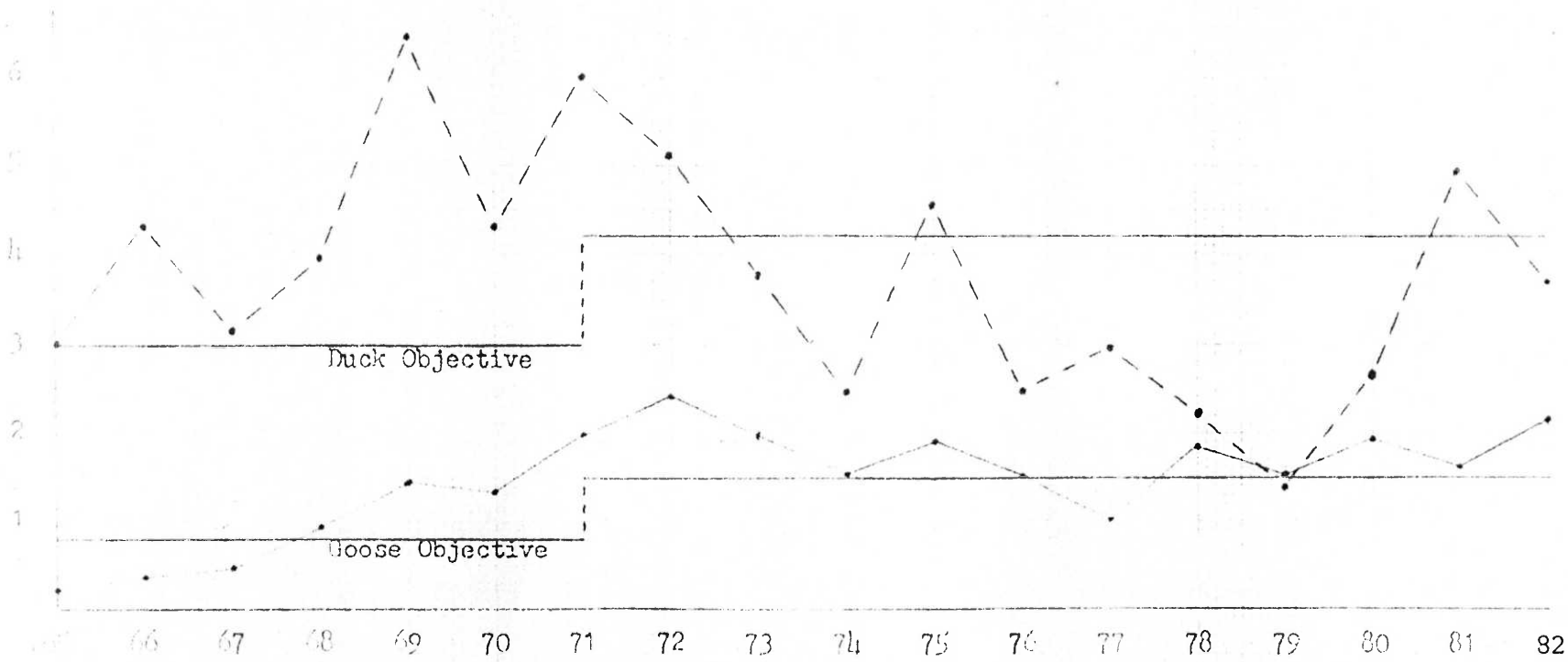
Local Canada goose with crop impaction due to lead poisoning. 82 WB

The following graph shows goose and duck use day trends and how they compare with objective levels.

Figure 1. GOOSE AND DUCK USE DAYS

Actual Duck Use Days -----

Actual Goose Use Days _____



c. Swans

Whistling swan use days for 1982 was 90,949, up over 93% from 1981 (47,091). This is almost 82% above the swan use days objective level of 50,000. The increased use days is due to a larger fall population and a milder winter allowing the swans to stay longer.

The spring migration peak was missed as only 138 were seen on March 7th. Depending on weather conditions the swans sometime pass through rather rapidly in the spring where as in the fall they stay around as long as possible keeping pockets of water open. The peak fall population was 1,866 on December 2, which was up from 1,500 birds in 1981. Over 90% of the whistling swans on the Complex are seen at Cedar Point with the next largest group found at the Darby Division.

d. American Coot

Total coot use days in 1982 was 296,387, a slight decrease of 4% from 1981 (309,572), but an increase of 6.7% from 1980 (277,549). The spring population peaked at 2,457 birds on April 18 and the fall population peaked at 5,100 birds on October 10.

4. Marsh and Water Birds

Total use days for marsh and water birds for 1982 was 1,240,753. Some of the rare species observed included the American bittern, common loon, little blue heron, Virginia rail, white pelican, king rail, eared grebe, and yellow-crowned night heron. Some of the more common species observed at the Ottawa Complex along with their peak numbers and the date of each peak are as follows:

Species	Peak	Date
Black-crowned night heron	9,000	7/1
Great-blue heron	4,200	7/1
Great egret	789	8/8
Pied-billed grebe	53	8/1
Snowy egret	24	7/1

The largest heronry in the Great Lakes region is located on West Sister Island NWR located in Lake Erie. The four principle nesters in the heronry include the black-crowned night heron, great-blue heron, great egret, and the cattle egret. More information concerning the heronry is discussed in the section on West Sister Island NWR.

5. Shorebirds, Gulls, Terns, and Allied Species

The total use days for shorebirds, gulls, terns, and allied species for 1982 was 803,688, a decrease of 11.5% from 1981 (908,512). One reason for the decrease may have been the very dry spring we had. There was only 1.74" rainfall in April and only 2.95" in May. A lack of seasonally flooded areas may have caused spring migrants to continue on to other areas which reduced use days on our units.

blizzard dealt a deadly blow to some of the "early birds." Dead starlings, killdeers, sparrows, robins, etc. were found a few days after the late blizzard.

The Fish and Wildlife Service Research Field Station at Sandusky, Ohio conducted research on blackbird depredation on field corn in Unit 2 of the Ottawa Division. Different corn varieties as well as different planting dates were tested to determine different susceptibilities to blackbird damage. A one acre plot of sunflowers was also tested for the first time on the refuge to determine blackbird damage. A possibility exists that a sunflower processing plant may open in the vicinity so local farmers may start growing sunflowers. Blackbirds have caused extensive damage in the large sunflower producing states out west.

8. Game Mammals

Mammals commonly referred to as "game species" which are present at Ottawa NWR include the following: white-tailed deer, fox squirrel, eastern cottontail, raccoon, red fox, gray fox, opossum, muskrat, and mink.

The white-tailed deer population stands at about 50 deer which is down a bit from 1981 but still a sizeable population considering over 85% of the refuge is wetlands with only a few small woodlots. The deer travel between our cropland and woodlots with intermediate useage of our grass and shrubland areas. Moist soil areas are used to some degree in winter and during a drawdown. The deer also make use of adjacent private land which results in deer-car collisions on Highway 2. The fawn production was down a bit from 1981, but still good. Several groups of twin fawns were observed.



A very common occurrence at Ottawa this year. 82 WB

A decrease in population size was noted in the following species: fox squirrel, red fox, gray fox, opossum, muskrat, raccoon, and eastern cottontail. A very large population of eastern cottontails was present in the winter 1981-82 but decreased gradually in 1982 with rare observations by December 1982. A mild winter may bring their numbers back. A more detailed discussion about the effect the high cottontail population had on our shelterbelt is noted in Section F.3.

Mink have gradually increased the last few years as indicated by more frequent observations, and a higher trapping disturbance by mink destruction of trapped muskrats. The trappers at the Magee Marsh adjacent the Ottawa Division have increased their take of mink the last few years.

One factor which may have decreased the muskrat population a bit was the April 6 flood and blizzard. It was observed that numerous muskrats were forced to higher ground perched on floating debris, ice, dike tops, etc. and were exposed to freezing weather. This was at a time when their population would be at its lowest point after the trapping season and after winter. The flood and blizzard could have perhaps cut into the breeding stock for 1982.

9. Marine Mammals - "Nothing to report"

10. Other Resident Wildlife

The ring-necked pheasant population has been gradually increasing over the years on the Ottawa Division. The conversion of cropland into moist soil units has greatly helped as these areas provide excellent cover in winter and provide nesting areas in the summer on the dryer sections. Last February and March several flocks with up to 15-25 birds were seen on the west end of Ottawa. Good production was also noted with several good groups of young observed this summer. With a mild winter and no snow, pheasants have not grouped this winter. Consequently, fewer observations of pheasants have been made.

The striped skunk population is down from 1981 and 1980. Fewer observations of skunk have been made by refuge personnel and road kills on adjoining roads to the refuge boundary have been considerably lower. Also, very few skunks were caught by trappers during the fall season. A reduced skunk population may give waterfowl some relief next spring as the skunk is a major predator on waterfowl nests.

The woodchuck population was extremely high the first half of 1982. The main concern is the burrows they make in dikes which could possibly lead to leaks and washouts. Woodchucks also cause damage to crops in isolated pockets near their burrows. The extremely high population of the spring diminished by fall. Internal biological control may have reduced reproduction or perhaps some disease reduced their numbers.

11. Fishery Resources

Carp continue to be a constant problem in almost all our pools. Their rooting action removes aquatic plants and the movement causes the water to become turbid which reduces sunlight penetration necessary to re-establish new plants. Aquatic plants are necessary not only for waterfowl but for muskrats and other aquatic wildlife.

Attempts are made to periodically drawdown pools on a rotational basis as low as possible to reduce the carp population. The remaining burrow pits are then treated with Rotenone to eliminate the carp. Complete drawdowns along with Rotenone treatments are not the complete answer to carp control. Pumping to obtain a drawdown as well as the expense of Rotenone make it only a limited management tool. The carp control also is not permanent.

An experiment to control carp reproduction naturally by stocking predator fish was initiated in 1981. Fish were stocked in Pool 2b and 2c at the Ottawa Division and the Pheasant Farm at Cedar Point NWR. Water levels were maintained high enough through the winter to eliminate any winter-kill. Geese also kept a portion of pools 2b and 2c open all winter.

The following fish were stocked from the Hebron Hatchery in 1982:

Table 5. Predator Fish Stocked on Ottawa Division - 1982

	Pool 2b	Pool 2c	Total
May 20, 1982			
3½" Northern pike	2,000	2,000	4,000
June 17, 1982			
1" Largemouth bass	12,500	12,500	25,000
Totals	14,500	14,500	29,000

The Ohio Coop Fishery Research Unit at Columbus, Ohio electroshocked fish in Pools 2b and c on July 12, 1982 to estimate the survival and growth of 1981 and 1982 stockings. The 1981 stock of bass in Pool 2b had reasonably good survival and excellent growth. One northern was captured and its growth was excellent. It was too early to say much about 1982's stocking. Bass were scarce and no northerns were sampled in Pool 2c. Northerns are often difficult to sample during summer, however. Carp were more abundant and covered 4 year classes in Pool 2c.

12. Wildlife Propogation and Stocking

On January 4, 1982 the Ohio DNR released approximately 375 hand reared ring-necked pheasants just off the eastern edge of the Ottawa Division on the state owned Magee Marsh Wildlife Area. The ratio released was one cock pheasant for each ten hens. Several birds wandered onto the refuge.

The survivorship was extremely low as numerous severe storms hit after the release date. Also many of the birds were seen too close to busy Highway 2 and never made it across.

13. Surplus Animal Disposal - "Nothing to report"

14. Scientific Collections

Six wildlife specimens were collected in 1981 as part of a continuing environmental monitoring project at our Navarre Division. Cliff Biggert from the Davis-Besse Nuclear Power Station supervised collection and analysis of specimens. The collection schedule went as follows: April, two muskrats; June, one snapping turtle; July, one Canada goose (to be collected by Refuge personnel); and October, two muskrats.

15. Animal Control

An attempt was made to reduce the woodchuck population on certain dikes where extensive damage was occurring from their burrows. Ed Butler, biologist with Wildlife Assistance at Sandusky, Ohio, demonstrated the proper technique to gas bomb woodchuck burrows on May 13, 1982. Refuge personnel used the bombs throughout the summer whenever woodchucks were observed. The bombs did not seem to give us satisfactory results even when some burrows were hit several times.

Several cases of crop depredation by "our" geese on soybeans or buckwheat on private land was noted in 1982. All cases were referred to Wildlife Assistance personnel located at Sandusky, Ohio. In most cases propane carbine guns or cracker shells loaned to the farmers solved the problem.

Soybean depredation on young plants was way down in 1982 due to the dry spring. Pockets of water in fields to lure geese were not present as in past years. The highest number of complaint calls were for buckwheat depredation in late summer.

16. Marking and Banding

Spring banding of divers was undertaken by Ohio DNR personnel from the Crane Creek Wildlife Experiment Station in March. Baited traps were set at the Ottawa Division in flooded farm fields in unit 9 and 12 and in moist soil unit 7a. A breakdown of the banding is as follows:

Lesser Scaup	522	Ring-necked duck	12
Redhead	185	Wood duck	6
Canvasback	26	Northern shoveler	1
Black duck	23	American wigeon	1

An annual summer goose "round up" organized by Ohio DNR personnel from Crane Creek Wildlife Experiment Station along with 2 state helicopters and assistance by federal personnel was again accomplished in 1982.

Ottawa YCC enrollees assisted in helping chase the flightless goslings and molting adults into traps. The 1982 goose roundup was June 24-25. A breakdown of the roundup in 1982 is as follows:

Local females	273
Local males	257
After hatching year males	264
After hatching year females	145
Unknown	9
	948

Banding was also accomplished by private individuals working on several research projects. Mark Shieldcastle banded non-game birds on the Ottawa and Navarre Division and Bruce Buckingham banded non-game birds on the Darby Division. These research projects are described in more detail in section D.5.

17. Disease Prevention and Control

No apparent disease outbreaks occurred in 1982. Cedar Point NWR had a confirmed botulism outbreak in 1980 when 2,871 carcasses were collected in four months with an estimated death toll possibly approaching 5,000. Water levels were elevated at Cedar Point NWR in 1982 starting late August and continued all fall for disease prevention. Abundant rainfall in November flooded numerous areas throughout the county dispersing any waterfowl concentrations. This greatly eliminated any serious threat by botulism.

The only other potential disease threat occurred during winter when overwintering waterfowl concentrate in pockets of open water. No apparent problems developed in 1982. Birds did not confine their activity to the immediate area of the open water but made daily flights to refuge cropland as well as private farmland.

One potential threat to waterfowl at our Darby Division was an outbreak of duck plague May 10, 1982 at Port Clinton, Ohio. This outbreak occurred in a small flock of muscovies and domestic mallards. The National Wildlife Health Laboratory at Madison, Wisconsin confirmed the findings of duck plague on May 16. The owner of the flock elected to destroy the remaining birds in his small flock, decontaminate the pond area and drain and fill the small (500 gallon) wet area being used by his domestic birds. Edwin Butler, Wildlife Assistance, Sandusky, Ohio, was on-site coordinator during the outbreak.

H. PUBLIC USE

1. General

1982 continued to keep the Ottawa National Wildlife Refuge in the public eye within the local area. The on-refuge public use programs brought back those who previously had had a "quality experience" and at times they brought new visitors with them. Although fewer off-refuge programs occurred, those programs which were given were often sited as one of the reasons for others to visit the refuge. Word of mouth is one of the best tools we have to attract new visitors.

Director Jantzen and Refuge Manager Herzberger addressed the League of Ohio Sportsmen in February 1982. This is one example of the off-refuge program curtailed the second half of 1982. The twenty-six programs off-refuge had approximately 40,649 in attendance. The two largest percentage of audience occurred during National Wildlife Week and the Ottawa County Fair.



Butternut Lodge just after dawn presents a picturesque background. 82 WB

When feasible, we encourage groups to use the Butternut Lodge facility for their meetings instead of scheduling our time for off-refuge speaking engagements. The social/professional groups such as: Garden Clubs, League of Ohio Sportsmen, Kiwanis Clubs, Lions Clubs, Scouts, and Nature Clubs are all invited to hold their meetings at the Butternut Lodge. The movement to halt many of the off-refuge programs

is in concert with the current U.S. Fish and Wildlife Service guidelines. The groups respond favorably for various reasons: "some like to meet at different locations to halt the stagnant feeling they get from their present location, some use it for a function or an outing, and some like the 'get back to nature' feeling the lodge provides." For us it is much easier to plan a program using our own facilities than it is to take it on the road.

The Butternut Lodge facility, through the "Birding at Butternut" program, accommodated 29 overnight groups this year, three more than in 1981. The schools, Audubon groups, and other conservation organizations which use our overnight facility reserve dates up to one year in advance. Michigan and Ohio groups used the lodge the most. The spring and fall migration periods bring the largest share of overnight use. Some groups have visited twice a year for the last several years.

There has been a change in the fee structure at the Butternut Lodge. The $30.00 deposit is required by all groups. The charge is $30.00 a night for the use of the lodge and cabins. The deposit is applied to the first night's stay. The fee change reflects reduced staff time and services associated with the Birding at Butternut program.

National Wildlife Week has traditionally been heavily emphasized by the refuge and 1982 was no exception. Eighteen school assemblies in five working days allowed ORP Botsford to give a program to 4,500 students. Prior to visiting the schools, information packets were sent to the schools. There were enough packets so that each teacher could have one. There was strong evidence that this method of passing out the packets was not in vain. Some schools were literally decorated with information gleaned from the packets. Letters from the students indicated the programs were well received and many students requested further information.

2. Outdoor Classrooms - Students

The Butternut Lodge environmental education site was heavily used during the spring and fall. Many teachers and students spoke well of the facility and the education that occurred at Butternut Lodge. Some of the teachers bring their classes twice each school year and some have been returning for years. Some 1,500 students took part in 4,364 hours of environmental education in our outdoor classroom. Two-thirds of the outdoor classroom experiences occurred in just three months. September was at the top of the list. The second highest month was April when 480 students had 1,000 hours of exposure to the outdoor classroom.

Teachers must attend at least one workshop prior to bringing out students. The students gain a better understanding of the lake effect and the uniqueness of the Ottawa area because the teachers are better prepared to deal with the physical surroundings at the site. The students' zeal is present from the time they get off the busses, through the day, and even when we receive the mail from the students after they leave.

Three of the most frequently requested teacher aids are the "We Can Help," "Whirligigs," and "Project Learning Tree." These tools are available to the teachers from the refuge. There are many other sources for information which the teachers bring to Ottawa to test. The State Department of Natural Resources has an education section which provides special information when requested by teachers, such as the geology of the area and updates on the "Project Learning Tree" materials. The "Whirligigs" EE material is available through the Regional Office in the Twin Cities.

As the requirement to become more oriented to the needs of the public becomes greater, we are receiving more visitation through our Environmental Education and "Birding at Butternut" programs. Some schools, however, lack the funding or the dedication to continue their Environmental Education programs.

3. Outdoor Classrooms - Teachers

Teacher workshops and teachers both seem to come together at the Butternut Lodge in increasing numbers yearly. The word has gotten out that we have an excellent site and some excellent material to go with it. Some of the personal satisfaction we hear from teachers who use the area are that the "teachable moments" seem to happen more frequently, the pace is unhurried and different than the normal school grind, the resource is both ever changing and static, and the experience is unforgettable. Positive experiences tend to reinforce behavior modification in a positive manner. Teachers tend to pass on the positive experiences they have had here at Ottawa. The students tend to further the chain and modify their behavior around similar types of experiences. The quality of students we have at the lodge immediately reflect the types of teachers that come to use the Butternut Lodge.

The teacher workshops held at the refuge help to insure a quality EE experience. By requiring the teachers to attend these EE workshops, we have eliminated the need for student sitting by the refuge staff. By holding the workshops at the lodge site we start to familiarize new teachers to the surroundings and the resources available to them.

On occasion, cooperative workshops are held at the refuge. The ODNR held three workshops at the Ottawa NWR. The spring and fall migration workshops had considerable interest but the waterfowl workshop had the largest attendance. The workshops are advertised through the ODNR statewide network and is open to all who are interested. This federal and state combined effort works very well.

Another area of cooperation concerns the Outdoor Awareness Group. Teachers, school administrators, naturalists, and outdoor educators pool their resources and offer workshops for teachers who want to teach environmental education but do not know how to start. The organization also promotes the development of environmental education sites and materials.

We are currently in the planning phase for more workshops at the Butternut Lodge. The Outdoor Awareness Group is planning on using the Butternut site as part of their springtime teacher workshop. Toledo University has expressed an interest in assisting in another one and several school districts have expressed an interest in Ottawa on workshops in concert with the Ohio Sea Grant program. Many other high schools, colleges, and universities frequent the refuge throughout the year.

4. Interpretive Foot Trails

There have been no major changes in the overall trail system at the refuge. Our moist soil unit 8b, adjacent to the visitor parking lot, had some dike work done during the summer and fall. This dike work will extend our trail system ½ mile. About ¼ mile of this dike work is next to the public use parking lot and will be ideal for handicapped use.

A bridge which crosses the Frederick ditch allows those who use Butternut Lodge access to the 8 mile trail system. The Frederick ditch bridge was painted by the YCC program participants during the summer.

Fabrication of large interpretive signs were put on hold again this year. The messages that have been developed are specific to the uniqueness of the area. These interpretive messages explain some of the special characteristics of the refuge area, and the historical significance of the marsh region in Ohio. As to be expected, the heaviest use of the trail system coincides with the spring and fall migration. On many prime weekends and evenings the parking lot is full of beginning and avid birders. There were 8,792 visits and 26,759 hours spent on the trails during the collective migrations. Mid-summer provides a good opportunity to view the flightless local giant Canada geese.

There was considerable brushing done along several areas of the trail system. Vistas were cut in the dense brush areas to allow the people hiking the trails a place to view wildlife unobserved by the wildlife. These vistas have also proved beneficial to the wildlife and they seem to meet the specific habitat requirements for additional species.

One of our photo blinds on the trail was rennovated in 1982. This maintenance was accomplished by one of our YACCers. New cattails were placed over the existing frame. The new material was taken from the general vicinity and woven around and through the chicken wire. The blind blends very well with the surrounding flora. This view is from our northeast blind and is the closest one to the visitor parking lot.



Pool 2b at Ottawa offers a unique backdrop when viewed from our photo blind. 82 WB

5. Interpretive Tour Routes - "Nothing to report"

6. Interpretive Exhibits/Demonstrations

Our use of the System 70 increased during 1982. Our first use occurred when the League of Ohio Sportsmen requested our static display early in February. The System 70, a program, and our leaflets all combined to assist us in putting the "word" out about the refuges in Ohio, and Director Jantzen came to address the League of Ohio Sportsmen's waterfowl symposium the same date.

The System 70 has been requested as part of our display at the Ottawa County Fair for the last four years. Many good comments have been spoken in favor of the display. We have even been asked to supply information to the Toledo Metro Parks so they could have a movable display of the same calibre as ours.

During the annual Ottawa County 5th Grade Conservation Tour several types of demonstrations occurred at the refuge. Some 600 students stopped at 6 locations for 15 minutes each and were introduced to concepts dealing with conservation, natural resource management, and forestry practices. Local professionals gave 20 fifteen minute programs in a five hour time frame. The students were moved from station to station by hay wagons pulled with tractors. The day was organized by the Ottawa Soil and Water

Conservation District and Ottawa County Office of Education. The local FFA club assisted with tractors and wagons.

Other less formal demonstrations occurred on the refuge when a local birding authority, Lou Cambell, brought a class out to the site while duck banding was occurring. The entire banding program and reasons for banding was discussed. This was not a planned demonstration but rather a "teachable moment" that became a demonstration.

We are planning to re-do our wing board at the Butternut Lodge early 1983. We will be receiving the replacement wings after the 1982 hunt season wing bee. This static display has been a "primary" factor in determining the last two state championship FFA waterfowl and mammal ID teams. Two local teams have studied intensively at Ottawa the wing board and the "Ducks at a Distance" film. In 1981 the state championship team was Oak Harbor and in 1982 the Genoa team. Our assistance was requested to run the waterfowl ID portion at the regional level twice in 1982.

The 1982 Ottawa County Fair had between 35,000 and 40,000 visitors. We used this opportunity to explain the status of the bald eagle in Ohio. There was a little carry over from National Wildlife Week observed. Some of the students which viewed the NWW programs dragged their parents to our booth to expound their knowledge about the bald eagle. It was very interesting to hear the students explain what they heard several months before. The county fair provided good exposure for the refuge and many refuge leaflets were handed out. Between the System 70, leaflets, our slide show, and our mounted bald eagle, a conservative guess would put our contact with the public at about 27,000.

7. Other Interpretive Programs - "Nothing to report"

8. Hunting

Canada, snow, and white-fronted geese are hunted by permit only on the Ottawa division and the four days a week season is from mid-October to late November. Few snows or white-fronted geese stop at the refuge so the hunt is basically interior and giant Canada geese. This past hunting season was the seventh one held on the refuge. A cooperative agreement provides for the hunt to be administered by the Ohio DNR personnel from Crane Creek Wildlife Experiment Station ½ mile east of the refuge.

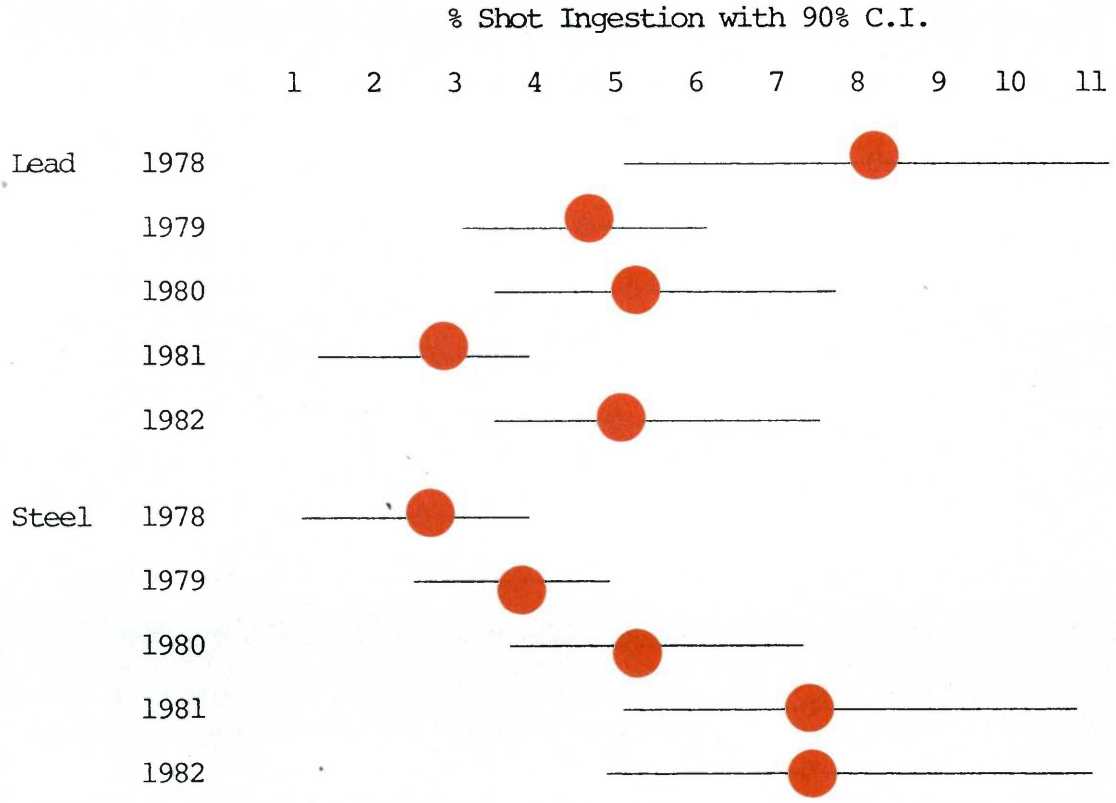
In 1982 704 hunters harvested 267 for a success ratio of 38%. This represents an increase of 36% over the last goose hunting season. There were 2,284 applications received by the state prior to their computer generated selection of hunters. There were 46 counties represented from the state of Ohio and some from the state of Pennsylvania.

We are frequently requested to expand both the season and the number of permits issued. There is also some pressure to include duck hunting here at the refuge. There is considerable duck hunting in the vicinity and the refuge acts as a sanctuary. However, many people fail to see the correlation.

Recent data received from Ohio DNR show a dramatic increase in lead poisoning in ducks. They believe that this is due to the increase of lead shot being used for waterfowl hunting. 1981 showed 2.5% of the birds had ingested lead. In 1982 more than 5% incident rate was seen. Mark Shieldcastle, Ohio DNR waterfowl biologist, is credited with doing the research. Since 1978 the lead shot has been declining. However, in 1982 a dramatic increase was evident as illustrated in Figure 2.

Figure 2. MALLARD SHOT INGESTION RATES ON MAGEE MARSH

(Area adjacent to Ottawa Division)



9. Fishing - "Nothing to report"

10. Trapping

The refuge trapping program, although a wildlife management tool for the refuge, is a commercial activity as well as recreational activity for the trapper. Five trapping permits were issued for the '81-'82 season, three at Cedar Point NWR, one for the Ottawa Division, and one for Navarre and Darby Divisions combined. A total of ten trappers (five trappers and five helpers) harvested 2,473 muskrats, 18 raccoon, and 6 opossum during the '81-'82 season. The refuge share of the 50/50 split was sold for $4,058.40 in two sales. The combined average put muskrats at $4.82 and raccoon at $6.33 per pelt.

Even with falling fur prices, a record number of applications (146) were received for the public drawing. The old record was 126 applications for the 1980-81 season.

As in the past, the refuge permittees were selected through a lottery system. This system requires extensive staff time administering the program; dividing hides, checking trappers' daily tallies, advertising and selling hides, and long hours in law enforcement with trespassing, poaching, and theft as major problems. (See section H.17 for theft of muskrat pelts.) The likelihood of the refuge obtaining its fair share of the 50/50 split is always a question with this system. One or two extra muskrats in the trappers' daily take over the four month season gradually counts up. This also gives us inaccurate harvest data with lower population counts than really exist.

A need for a change in the trapping system was deemed necessary, and 1982 became the year for the transition. A revised trapping plan covering the bid system was completed and approved. A news release in all local newspapers and mailing of bid system information to all local fur dealers and past permittees was used to inform the public of the change in the trapping system. Two review days were scheduled to allow interested trappers to check out perspective areas they might bid on. Bid selection was open to the public on November 8, 1982. A total of 55 bids were made for 12 trapping units. The 12 winning bids totaled $11,451.99. The success of this new system will be seen as the trapping season progresses into 1983.

11. Wildlife Observation

The singularly most significant non-consumptive recreation that occurs on the refuge complex is birding and those activities which are associated with it. Wildlife observation can be sighted as the largest calling card for the refuge. Birders came from all across the United States and Canada. Our guest book kept at the headquarters can attest to that.

The "Birding at Butternut" program at the lodge is the focal point for many of our weekend groups. In 1980 the lodge was designated a fee account area and utilization has been almost continuous since. Birding, hiking, nature photography, environmental education, and wildlife observation all add to the experiences at the lodge.

On the Blue Heron Trail system located on the main refuge there are two wildlife photograph blinds. These blinds are useful in remaining concealed while observing wildlife for enjoyment or a specific study and while photographing otherwise illusive subjects. Approximately 65% of all the wildlife observations occurring at the Ottawa Complex occur on the Ottawa Division. The remaining 35% occurs on the Cedar Point Refuge. Of the many groups that visit the refuge a large percentage of them have the wildlife observation as their primary reason for visitation.

12-16. Other Wildlife Oriented Recreation, Camping, Picnicking, Off-Road Vehicling, Other Non-Wildlife Oriented Recreation - "Nothing to report"

17. Law Enforcement

1982 started out in bad style when sometime between 4:30 p.m. 1/8/82 and 1:30 p.m. 1/9/82 someone stole 376 muskrat pelts, 2 opossum, and 2 raccoon from the refuge shop locked cage. 701 muskrats were left, so they only took part of the hides. They forced entry through a shop window, then forced a clasp off the locked cage. Four burlap sacks containing cob corn were emptied and used to transport the hides. The Ottawa County Sheriff, federal special agents, and the FBI investigated the incident. No one was apprehended and no charges filed.

The next big law enforcement activity to highlight the year was a refuge officers' in-service-school at Ottawa NWR July 26-30. Refuge personnel with law enforcement authority from Ottawa, Shiawassee, Seney, and Muscatatuck attended the one week session. Key speakers including special agents, state game portèctors, Assistant U.S. attorney, and personnel from the Ohio Division of Watercraft gave presentations. Subjects covered included the following: search and seizure, firearms policy, testifying in court, use of informants, documentation of cases, storage of evidence, booking prisoners, hypothermia, plus other relative subjects. Self-defense training, firearms qualifications, and practical exercises out in the field were also included.

A flurry of excitement occurred two days prior to the opening day of the waterfowl season when two cases of baiting on private land adjacent the Ottawa Division were discovered. Both were deliberate cases of baiting to deprive the adjacent landowner the right to hunt. One area was two feuding neighbors while the other one attempted to stop hunting on adjacent federal and state land. Both were resolved semi-peacefully with the help of special agents from Columbus, Ohio, Wildlife Assistance personnel from Sandusky, Ohio, and propane exploders. In both cases the person baiting was unable to deprive the adjoining landowners from hunting.

Refuge officers, Larry Wargowsky and Charlie Holbrook, attended a one week Fish and Wildlife Service follow-on law enforcement training session at Glynco, Georgia, June 16-22, 1982.

The most time consuming LE for the year was night stakeouts for muskrat poachers at the Darby Division. This has also required the most time in past years, not only at Darby but at the Ottawa Division as well. No one was caught in 1982, but refuge permittees had their trapline "run" several nights at Darby and several traps stolen both at Darby and at Ottawa Division (unit 6).

Field information reports or "pink slips" were written for 39 charges in 1982. Total individuals apprehended was below 39 as some pink slips represented more than one charge against an individual. Refuge officers Lee Herzberger, Larry Wargowsky, and Charlie Holbrook made all the cases except a few made by special agents from Columbus. A breakdown of the violations for 1982 is as follows:

General trespass	21
Taking violation (fish)	14
Campfire in closed area	4

No charges were filed on several of these cases if a juvenile was involved, incomplete information and/or evidence available or boundary signs missing where trespass violation occurred.

Deer poaching has occurred in the past but there is evidence of an increase the last couple of years. Lee Herzberger made a case last year of jack lighting deer at night with loaded guns in a car and this year we found a nice 13-point buck shot on the refuge out of season. With the economy as it is today, a 100-150 lb. deer probably looks pretty good to someone who needs food for the table.



One of our best deer found shot inside the refuge. Note the bullet hole - 12 gauge?? 82 WB

18-19. Cooperating Associations, Concessions - "Nothing to report"

I. EQUIPMENT AND FACILITIES

1. New Construction

New construction in 1982 included completing the loading dock at refuge headquarters, constructing 2,500 feet of moist soil (MS) dike and building a water control structure. In addition, the FY83 $1,125,000 Pool 4 Dike construction project was kicked off with a planning meeting at the refuge.

A two-level loading dock was built at the edge of the shop parking lot to accommodate both commercial trucks and pick-up height trucks. Earthen backfill surfaced with gravel was placed behind excess cedar utility poles.



Horizontally placed utility poles support the front and sides of the new two-level loading dock. 82 LH

Some 1,100 feet of low-level dike were constructed at the southwest corner of MS7a to allow complete flooding of the moist soil area, but not the adjacent Quarters-3 area. The dike top was also gravel surfaced to complete an all-weather road system entirely within the refuge boundary. When the Crane Creek bridge is replaced in FY84, we will have a safe and efficient internal route from headquarters to the western and northern parts of the refuge.

Some 1,400 feet of low-level dikes were constructed at the southeast corner of MS8b to allow complete flooding of this moist soil area, but not the adjacent public use parking lot and small wooded area. The low level dike will also double as a short loop of the Blue Heron Trail

system for the handicapped. A 24-inch corrugated metal pipe water control structure complete with a concrete headwall and slide gate was added to MS8b to provide gravity water flow capabilities to this unit.

The final $40,000 phase of a $165,000 electric pump station project was finally negotiated by GSA in March, 1982. This final phase involved upgrading 2½ miles of single phase electricity to 3-phase to service the 40 hp motor on the new 10,000 gpm pump.

Progress on this $40,000 final phase was as slow as molasses in January. Negotiations with the utility company had begun in 1978, the contract to build the pumping station was awarded in 1979, the station was built and accepted in 1980, the pump sat useless with no electricity during 1981 and 1982 . . . and we still couldn't flip the switch at the end of 1982. Toledo Edison had completed the majority of the line burial and transformer placement work on the refuge, but continued to slowly work on upgrading the aerial lines outside the refuge. This gave us plenty of time to add a six foot high chain link fence around the orphaned pump station.

2. Rehabilitation

As discussed earlier, record high water levels on Lake Erie (576.1 IGLD) topped 2 miles of refuge dikes and caused damage in 15 locations. In addition, debris was left atop dikes and roads which had to be removed.

Some $10,000 was spent on cleanup and repair of damaged facilities. Included in this amount was a $2,000 stone purchase. Rehabilitated facilities that were damaged included earthen areas around the new moist soil (MS) pump station, MS8b pump, MS3, 7a and 8a water control structures, a tube near the Butternut Lodge and graveled road surfaces.

Up to 160 pound pieces of stone rip rap protecting the creek-side of Pool 2b dike slid down the slope, leaving spots along the dike slope void of rip rap. These dikes are directly exposed to the intense wave action on Lake Erie during storms and caught the brunt of the April 6th storm.

In most cases, flood debris was removed, earthen fill placed and repaired areas were either seeded to grass or surfaced with stone. No repairs were made to the badly damaged south dike of Pool 3. Control of the pool was lost but sufficient funds were not available to properly rehabilitate it.



Record high water on April 6th shoved ice and debris from Rader Ditch across the refuge entrance road for the first time ever. 82 LH



Flood waters that funneled across lower spots in dikes moved road gravel quite some distance from its original roadway location. 82 LH

An initial planning meeting was held at the refuge on December 1, 1982 regarding the FY83 $1,125,000 Pool 4 Dike rehabilitation project. The primary purpose of the meeting was to determine where the mile-long lake-front dike would be rebuilt in relation to an existing ridge of accumulated sand. A decision was made to let Lake Erie have the sand and to rebuild the dike on the Pool 4 side of the sand ridge. Representatives from the Denver Engineering Center, Regional Office and Ohio DNR were in attendance. Initial field surveys had previously been accomplished by DEC during the week of September 13.

The one major rehabilitation project in 1982 involved the $14,510 Tank Ditch clean-out and rip rap placement contract. Mid-Am Excavating Co., Inc. cleaned 5,000 feet of Tank Ditch and protected 1,000 feet of the ditch bank with rip rap. The project started on June 21 and was completed on June 29, 1982. The ditch was cleaned to remove silt, debris and vegetation that was restricting drainage from off-refuge land through the refuge. Stone rip rap protection was needed to stop severe bank erosion that in many places had progressed to the point of undermining the adjacent asphalt Veler Road.



Before: Tank Ditch bank erosion had progressed to a point of undermining adjacent Veler Road. 82 LH



After: 1,000 feet of bank was protected with rip rap to save Veler Road. 82 LH

The Air National Guard, Camp Perry, Ohio, again supplied equipment and manpower to rehabilitate dikes on Ottawa Division. The cooperative training program between the Guard and USF&WS allowed several pieces of heavy equipment to raise, widen and reslope some 3,000 feet of the south bank of Tank Ditch.

3. Major Maintenance

The development of the new official F&WS shield logo required that all old circular logos be replaced. This was accomplished this year on the entrance sign, all secondary signs, all gates, and all vehicles.

Four catwalks on water control structures at Darby Division had deteriorated and new boards were added to three of them and one was completely replaced. Several other structures required the same attention but manpower and funds did not allow it.



Old shields were replaced by the new shields when they arrived.
82 WB



New sign was erected at the Navarre Marsh Unit. 82 WB



Four identical catwalks at Darby Division got a face lifting. This one was completely replaced. 82 WB

A flap gate was installed on an existing tube at the northwest corner of MS8b, as well as installing both a tube and flap at the southwest corner. These, along with the new dike and screw gate structure discussed earlier, were required in order to convert the area to a moist soil unit.

Another flap gate was installed on the outside of the MS8a tube so water could be moved both ways automatically. The project was complicated by having to construct a temporary ship-lap board coffer dam to hold back water from Lake Erie while the gate was attached.

Four overhead doors, 2 on the refuge shop and 2 on the YACC shop, had to be adjusted. Several rooms in the office were painted and both restrooms were fitted with new paper dispensers, new floor tile was laid and a urinal was installed in the men's. Also, the office and shop phones were changed to touch tone.

Another major maintenance project developed but no repairs had been made by the end of the year. It involves the water control stucture between Lake Erie and Pool 2 at Cedar Point NWR. The lakeward end of the tube had silted shut from what we thought was just normal wave action on Lake Erie. What we didn't know at the time was that a six foot diameter cavern was developing beneath the road/dike surface just above the tube itself. The situation became clear when the cavern dome collapsed and exposed the gigantic hole beneath. Fortunately, the dome

collapsed on its own and no vehicle fell in, etc. Funds did not allow repairs to be made in 1982 so the hole was barricaded. We plan to work on it next year.



This "manhole" was the first indication that a 6 foot cavern was developing above a seam on a corrugated metal pipe structure at Cedar Point NWR. 82 LH

4. Equipment Utilization and Replacement

New BLHP era vehicles and equipment have eased our maintenance and repair problems, but some still surfaced in 1982.

YACC assisted in repairing the doors, bed, and engine of the 1963 Dodge 2½ ton stake/dump truck and finished by giving it a new paint job. The 1952 Jeep was also fixed up, painted and a new vinyl top

ordered. The 3010 John Deere tractor developed a funny noise in the transmission and it was repaired locally.

The 1980 GMC dump truck windshield got broken and the hood got damaged at the rock quarry and finally got repaired (quarry paid for it) by the "lowest" bidder on July 21, 1982 - one year later. The body shop couldn't get the truck inside their small building so had to schedule the paint work outside during "good" weather which finally came 12 months later. Incidentally, the body shop is no longer in business!

Twenty-seven items valued at $94,000 were excessed in 1982. Larger items included a 14' Crestliner boat, motor and trailer, 1979 and 1970 Dodge 3/4 ton pickups, 1979 Ford stationwagon, 1953 Reo lowboy and a Quick Way truck mounted crane. Most of the items physically remained on the station using valuable storage at the close of the year.

Emphasis the past several years on excessing vehicles and equipment has allowed for more organized and safe storage areas, and at the same time, has allowed more items to be stored inside. Our motor vehicle fleet of 10, now consists of a stationwagon, a van, 6 small trucks, and 2 dump trucks.

New equipment received included a lawn tractor mounted snowblower, lawn sweeper, lawn roller, replacement mower deck, 7 dump truck tires, 2 portable fuel tanks with electric pumps, 3 inch pump hoses, and 2 re-chargeable flashlights.

5. Communications Systems - "Nothing to report"

6. Energy Conservation

The year saw no major changes to save additional energy. However, emphasis was placed on making refuge personnel continually aware of conservation measures such as less frequent trips for parts and supplies, driving habits, vehicle pooling during routine refuge projects, turning lights and heat off or down when not needed and heating with wood or kerosene whenever possible.

7. Other - "Nothing to report"

J. OTHER ITEMS

1. Cooperative Programs

Two Memorandums of Understanding between the Ohio Department of Natural Resources and the United States Department of the Interior - U.S. Fish and Wildlife Service are active today. One is for cooperation in the

production of Canada geese in the State of Ohio and the second one is for cooperation in a managed hunting program of Canada geese in the State of Ohio.

A cooperative program exists between the Toledo Edison Company and the USF&WS for management of the Toledo Edison owned Navarre Marsh as part of the Ottawa NWR. Refuge personnel provide a management plan for water manipulation of the unit and Toledo Edison personnel regulate the water levels.

A cooperative program also exists between the U.S. Department of Commerce - Weather Bureau and the U.S. Fish and Wildlife Service. The Weather Bureau provides all the weather recording instruments plus a shelter for the instruments and the refuge personnel record data daily and send to them.

The farming program at the Ottawa Division is also a cooperative program whereby six local farmers plant crops on the refuge as designated by refuge personnel, harvest a given percent of the crops and leave the remainder for the wildlife instead of paying rent for the land.

A cooperative program exists with Bowling Green State University to conduct terrestrial ecology studies on the Navarre Division under contract with the Toledo Edison Company and to conduct necessary control area studies on the Ottawa Division for comparative purposes.

2. Items of Interest

On February 6, F&WS Director Robert Jantzen and Refuge Manager Herzberger addressed the League of Ohio Sportsmen at the Waterfowl Symposium. Area Manager Popowski, plus Wargowsky and Botsford were also in attendance.

Mr. Eugene Knoder, Director for environmental studies for the National Audubon Society, was given an impromptu tour of the Ottawa and Cedar Point NWR's by Ass't Manager Wargowsky. Mr. Knoder was a presidential appointee to the task force which was determining the status of the National Wildlife Refuge System.

On February 8, Herzberger and Wargowsky attended the Wildlife Programatic meeting in Minnesota.

The 35th annual meeting of the Ohio Wildlife Society met in Columbus, Ohio, February 19 and was attended by Herzberger and Botsford. A topic of particular interest was the "Status of the American Bald Eagle in Ohio."

March 20 saw the retirement of Wood Holbrook. Wood started with the federal government with the Job Corps and finished it here as a Heavy Equipment Operator. Woody will be missed by us all.

Herzberger attended a Population Management Course in East Lansing, Michigan, March 23-25, attended the mid-year meeting at the area office April 15, and addressed an advanced wildlife management class at Ohio State University April 21.

Botsford was converted to full time from a 50 week appointment July 25.

Herzberger, Wargowsky and Behnke completed the Defense Small Purchases course this year as a requirement for Contracting Officers.

The Annual Work Plan meeting held in Duluth, MN, August 24-26 was attended by Manager Herzberger.

On September 28 and 29, Steve Wilds from RFI in the Regional Office was at the refuge to become oriented to Ottawa's programs and problems.

Charlie Holbrook was on detail at the Loxahatchee NWR for the highly controversial controlled deer hunt October 11-15.

Herzberger, Radsick and Charlie Holbrook took the Red Cross CPR course October 20.

October 25-26 brought Tex Hawkins to Ottawa to review the technical services offered by the refuge. Tex does double duty as half of his time is charged to the Minnesota Valley NWR and half to the Regional Office.

Charlie Holbrook was transferred to Loxahatchee NWR as the Outdoor Recreation Planner October 29. With Charlie's loss our permanent staff reached a new low of five.

On November 19 Toledo Metro Park Director Bob Metz came to the refuge at our invitation to research the common ground we share. This cooperation marks our efforts to work with the local communities on many levels.

AW Harold Benson and RFI Supervisor Dick Toltzman from the Regional Office were here to find out about the Ottawa Complex and attend a Pool 4 Dike Rehab meeting November 30 and December 1. Toltzman had become our RO supervisor after the East Lansing Area Office closed in August and Area Manager John Popowski transferred to ARD Fishery Resources and Federal Assistance in Minneapolis.

3. Credits

The 1982 Annual Narrative Report was written jointly by the following people:

Behnke	Information retrieval and reproduction
Herzberger	Sections A, C, D, F, I, K
Wargowsky	Sections B, E, G, H.10 and 17, Satellite areas
Botsford	Sections E.4, H, J, Photos

All sections were edited by Herzberger and typed by volunteer Ann Botsford.

K. FEEDBACK

"Nothing to report"

CEDAR POINT NATIONAL WILDLIFE REFUGE

NARRATIVE SUMMARY

Calendar Year 1982

CEDAR POINT NWR

The 2,445 acre Cedar Point NWR is undoubtedly one of the finest waterfowl marshes along the southwest shore of Lake Erie. It is located 6 miles west of the Ottawa Division. An excellent interspersion of open water with cattail and bullrushes draws tremendous numbers of waterfowl every year. Use days for 1982 for Cedar Point for ducks, geese, swans, and coot was 1,462,332. The peak number of birds was 22,229 in December. The mallard was the dominate duck found throughout most of the year with periodic influxes of migrating species such as widgeon, black duck, pintail, blue-winged teal, etc.

Cedar Point NWR has traditionally been a stop over place for whistling swans, both spring and fall. The spring migration has always been shorter and with fewer birds. The fall migration has been increasing the past few years and the birds staying longer. The fall peak this year was 1,800 on 12/2/82.

Cedar Point is used by waterfowl primarily as a feeding and resting area for spring and fall migration. Waterfowl production does occur on the unit and has gradually been increasing. A minimum level of waterfowl production to flight stage for Cedar Point for 1982 was estimated at 50 Canada geese and 119 ducks. Goose nesting platforms as well as wood duck nest boxes are present in minimum numbers.

Cedar Point NWR is divided into three pools; Pool 1 (main pool), Pool 2 (east pool), and the pheasant farm (west pool). Pool 1 was gravity lowered in 1982 to increase vegetative growth and then gravity filled in the fall. Large open pockets of water still exist where carp have suppressed the growth of aquatic vegetation due to their rooting action destroying new plants and keeping the water turbid, blocking out sunlight. A dry spring and summer along with excellent water evaporation this year and moderate Lake Erie water levels to allow gravity discharge, gave us an excellent drawdown this year. Vegetative response was tremendous in most areas.

Pool 2 had a complete drawdown in 1982, the first in many years. A good vegetative response also occurred in this pool but to a lesser degree than Pool 1. Refilling this pool caused many headaches as the water control structure was plugged. Lake Erie wave action constantly has plagued us by plugging the one water control structure that services this whole pool. In late 1982 another problem was discovered when a hole in the road appeared one day. See section I.3. for more detail.

The pheasant farm was left flooded in 1982 in an attempt to suppress the expansion of purple loosestrife. A solid stand first developed on the east side of this pool and now is expanding along the north dike. This aggressive species tends to crowd out native aquatics valuable to waterfowl and other wildlife. A serious threat exists if this plant expands out of control into the main pool.

A botulism die off which probably approached 5,000 birds in 1980 did not cause any problems in 1981 or 1982. To prevent any potential problem, water levels were gradually elevated starting in late August to bring in fresh water and eliminated any potential shallow stagnant pockets of water.

An American bald eagle pair successfully fledged three eaglets at Cedar Point in 1982. See G.2 for more detail.

Cedar Point NWR is probably one of the best muskrat marshes in Northwest Ohio. Although managed primarily for waterfowl, the muskrat is a by-product of a well managed marsh. Its existence increases the value of the marsh for waterfowl by "eating out" pockets of vegetation in mono-typic stands of cattail. These openings plus their muskrat houses, used for loafing sites, get tremendous utilization by waterfowl. This unit always receives the greatest enthusiasm by trappers and yields the best muskrat harvest. Cedar Point accounted for 68% of the muskrat harvest of the Ottawa Complex.

The last major importance of Cedar Point after wildlife habitat for waterfowl, endangered species (American bald eagle), and fur bearers, is its impact on the general public as a showplace of what a great Lake Erie marsh should be. Public use on Cedar Point occurs only through a carefully controlled special use permit system and usually only on weekends in the spring and fall months.

WEST SISTER ISLAND NATIONAL WILDLIFE REFUGE

NARRATIVE SUMMARY

Calendar Year 1982

WEST SISTER ISLAND NWR

West Sister Island is an 82-acre island nine miles off shore in Lake Erie. It was Ohio's first national wildlife refuge and is designated a Wilderness Area today. Tall hackberry trees with an understory of abundant poison ivy dominate most of the island.

The island is composed of glacial fill over a limestone shelf. The limestone shelf protrudes along the edge of the island showing where large coves have been eroding by hydraulic action and in one case formed a crumbled rock beach. The soil contains a great amount of clay and loam.

West Sister Island is noted for having the largest heronry in the Great Lakes region. Almost 2,000 nest of four species exist in the heronry. The great blue heron and black-crowned night heron are the major nesters followed by the great egret and a few cattle egret. The cattle egret has just recently started to nest on the island and may be in direct competition with the black-crowned night heron for nesting sites. Both nest at the same elevation. The island also supports a large nesting colony of herring gulls. The newest bird in the rookery is the snowy egret with 5-6 nests in 1982.



A view of only a small portion of the 2,000 nest heronry.
82 WB

On April 15-16, 1982 five dead great blue herons were found in several locations around the Ottawa Division. To check out the possibility of any die-off in the rookery on West Sister Island a survey of the rookery was made April 26, 1982. Three refuge personnel in half a day found only three more great blue heron plus one herring gull. Four birds were shipped to the National Disease Health Lab at Madison, WI. The results were as follows: (1) parasitic ventriculitis, (2) PCB toxicity/ myocardial sarcocysts, (3) trauma, (4) cause undetermined. It was determined that no serious threat to the rookery existed, only a large population of birds, which due to its size, will have mortality by various causes.

Approximately 15 hen mallards were flushed off nest on West Sister Island during our rookery survey April 26, 1982. This was a surprisingly high number considering the portion of the island covered. Hatching success should be fairly high on an island with possibly only avion predators to contend with. However, with 9 miles of Lake Erie to traverse to reach good brood habitat on the mainland, survival of broods becomes a problem.



Northern Jack-in-the pulpit is a common plant seen on West Sister Island. 82 WB

West Sister Island has been a very popular area for research, not only for the large heronry, but also for other forms of wildlife such as snakes. Information concerning research on West Sister Island is described in greater detail in section D.5. The melanistic garter snake, a common occurrence on West Sister Island, is sometimes mistaken for a blue racer or black water snake.



The abundance of snakes, especially melanistic garter snakes, on West Sister Island keeps you on your toes.

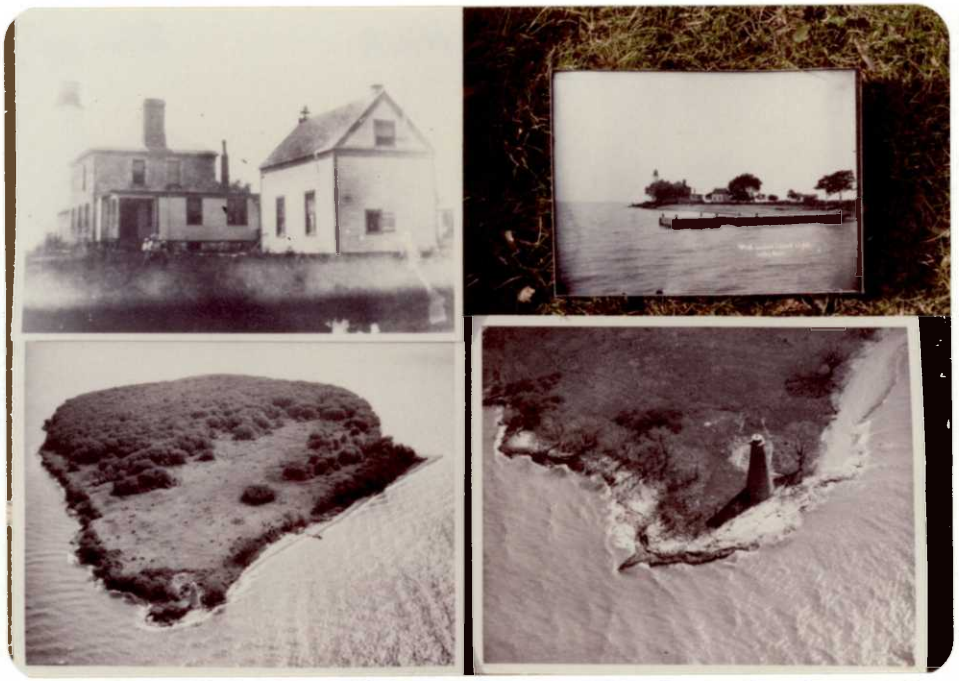
82 WB

A Wilderness Area such as West Sister Island NWR does not require intensive management, basically only periodic surveillance for trespassers and boundary posting. Several trips were made in 1982 to check on boundary signs, pick up litter, check on the heronry, and check for trespass violations.

A lone white lighthouse still present on the island is a landmark for fishermen and also a reminder of the island's past history. The old foundation of the home for the resident lighthouse keeper can still be seen today. Mrs. McMeans, daughter of a former lighthouse keeper, lived on the island from 1908-1910. Mrs. McMeans has provided the refuge with some historical records of the island, and an oil painting of the West Sister Island lighthouse and residence as it appeared at the turn of the century.



Painting of West Sister Island, 1910, by granddaughter of lighthouse keeper, Horace Curd. (Elma Rubright) 82 LH



Composite of photos of West Sister Island at the turn of the century on top proceeding to more recent times on the lower half. 82 LH