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ERIE NATIONAL WILDLIFE REFUGE

Guys Mills, Pennsylvania

ANNUAL NARRATIVE REPORT

Calendar Year 1992

UNITED STATES
DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

ERIE NATIONAL WILDLIFE REFUGE

Guys Mills, Pennsylvania

ANNUAL NARRATIVE REPORT

Calendar Year 1992

Refuge Manager — Date: 4/2/93

Associate Manager-South — Date: 15 Apr 93

Regional Office Approval — Date: 4/16/93

INTRODUCTION

The 8,750-acre Erie National Wildlife Refuge consists of two divisions approximately ten miles apart in northwestern Pennsylvania in Crawford County.

1. **Sugar Lake Division**

   The Migratory Bird Conservation Commission approved Erie NWR on March 11, 1958. Establishment of the refuge occurred on May 22, 1959 when the first tract was purchased. Under the original and subsequent approvals, 107 tracts totaling 5,205 acres were acquired.

2. **Seneca Division**

   The Seneca Division was approved by the Migratory Bird Conservation Commission on June 6, 1967. Twenty-six tracts totaling 3,545 acres have been acquired. Approximately 888.15 acres remain to be acquired.

   The topography of northwestern Pennsylvania resulted from the retreat of the last continental ice age glacier. This hilly country in the upper reaches of the Allegheny River watershed is dotted with numerous lakes, swamps and marshes in association with meandering valley streams.

   Historically, the area was an important nesting and resting area for waterfowl using the western portion of the Atlantic Flyway. During the 1800s, intensive logging and farming coupled with the near extinction of the beaver resulted in the loss of much valuable wetland habitat. The corresponding decline in waterfowl use eventually led to the creation of the Erie NWR.

   Contrary to the popular belief, the refuge is not on the shores of Lake Erie. As the crow flies, the Seneca Division is 25 miles south and the Sugar Lake Division is 35 miles south of Lake Erie.

   The name, Erie, comes from the Eriez Indians. This small tribe resided along the shores of what is now known as Lake Erie. In the mid-17th century, the Iroquois Indians defeated the Eriez and the tribe ceased to exist as a distinct group. In 1969, the refuge was officially named after this extinct Eriez Indian Tribe. Unfortunately, the name, Erie, is more closely associated with the area north of the refuge because of Lake Erie, the City of Erie and Erie County. This causes much confusion especially when the public is trying to locate the refuge for the first time.

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A. HIGHLIGHTS

-- YCC Program accident free. (Section E.2).

-- U.S. Representative Tom Ridge presented volunteer awards. (Section A.4).

-- Partners for Wildlife program in Pennsylvania. (Section J.1).

-- New record set for bluebird banding. (Section E.7).

-- ORP Marvin, Regional Dedication Strike Team Leader. (Section H.1).

-- Duck Stamp Sales. (Section H.1).

-- Educational programs serve thousands of students including USSR. (Sections H.2 and 3).

-- Tsuga Nature Trail self-guiding. (Section H.4).

-- Eagle fledged. (Section G.2).

-- Erie NWR expands to 8,750 acres. (Section C.1).

B. CLIMATIC CONDITIONS

The winter of '92 was typical with colder temperatures and winter snows. Unlike the dry year of '91, in 1992 the area experienced a wet spring, typical summer rains, followed by a very wet fall.

Grouse populations remain low. The wet spring and maturing forest conditions were not favorable to even a slight increase in grouse numbers.

Apple and fruit-bearing shrubs production was very poor. Autumn olive, which normally fairs well despite the vagaries in weather patterns, produced very few fall berries. Gray Dogwood produced a few widely scattered fruit crops.

MONTH	TEMPERATURES		PRECIPITATION	
	HIGH	LOW	RAIN	SNOW
January	55	2	1.44	28.6
February	53	-2	2.30	7.6
March	75	8	3.40	20.9
April	80	22	3.31	4.3
May	86	32	2.54	
June	86	33	1.20	
July	87	48	8.58	
August	87	41	5.20	
September	83	35	4.53	
October	72	29	4.17	2.5
November	66	17	5.60	7.4
December	57	4	5.64	22.4
	TOTALS		47.91	93.70

1992	TOTAL PRECIPITATION	48.84
1991	TOTAL PRECIPITATION	25.202
1990	TOTAL PRECIPITATION	57.30

C. LAND ACQUISITION

1. Fee Title

An option was signed with Wilbur Docter, Tract 226, Seneca Division, on April 14, 1992. Mr. Docter received final payment on May 20. The Docter inholding is 81.7 acres.

In other action, the June Keyser property, 20 acres, Seneca Division, was approved on June 11, 1992 by the Regional Director. It will be included in the current acquisition boundary of Erie NWR. As funding levels permit, Realty will complete an appraisal of the property and a realty specialist will make an offer to purchase the property. There was no further action by Realty in 1992 on the Keyser tract.

Additional refuge acquisition with tract proposals exceeding 40 acres will require an approved boundary expansion plan. Categorical exclusion acquisitions will be used as appropriate for proposals less than 40 acres.

Manager Mountain submitted a proposal to expand the present boundary of both divisions of Erie NWR to the Regional Office on August 19, 1987. The proposal includes roughly 4700 acres of wooded swamp, agricultural and forested upland. The proposed area is included within the Priority Category 21 - Lower Great Lakes/St. Lawrence Basin Joint Venture (LGL/SLBJV) area. The Land Acquisition Review Committee (LARC) approved the boundary expansion on February 21, 1990. After the approval was received from the LARC Committee, a Preliminary Project Proposal (PPP) was sent on August 28 to the Regional Office identifying this 4700 acre boundary expansion. No further action on this proposal was completed in 1992. The FY93 Goals and Objectives targets this study to be completed.

D. PLANNING

2. Management Plan

Regional Office personnel conducted a station inspection on October 19-22, 1992. The administrative section of the inspection will be scheduled in 1993. A Plan was developed to cover the inspection team's recommendations. The target date for completing all items is October, 1993. A station objective setting review, however, may run through 1994. The Regional Office is the lead office for this Action Item.

A revised Wildlife Inventory Plan was submitted to the Central Biologist. Final action and submission to the ARD-Refuges and Wildlife is scheduled for 1993.

A PPP to expand the refuge boundary was completed on August 28, 1992 (Section C.3).

The station Law Enforcement Plan was drafted in September, 1992. Action will be completed on this plan in 1993.

5. Research and Investigations Erie NWR

Erie NWR NR87 "Effects of Using Production Well Brines as a Road Dust Control Agent on Environmental Quality at Erie NWR, Crawford County, PA."

During the summer of 1986, Dave Putnam, Ecological Services, State College, conducted extensive sampling techniques in ponds, streams and along roadways.

A final report was received in January, 1992. The results of the study provided no clear evidence that brine spreading to control dust on dirt roads near Erie NWR is resulting in an accumulation of heavy metals in the aquatic environment. While failing to prove or refute the possibility of risk to fish and wildlife posed by the practice of brine spreading on township refuge roads, the data will at least serve as an excellent baseline of the chemical characteristics of a variety of environmental media at Erie NWR. This information should prove useful for future studies and for long-term monitoring purposes.

Erie NWR NR89 "Preliminary Survey of Plant Communities and Use by White-tailed Deer of Woody Plants in Two Forests, Erie NWR."

The Pennsylvania Cooperative Fish and Wildlife Research Unit conducted this study. In 1989, research activities centered on obtaining funding and planning. Research field work was completed in 1990. The final research report was received in June, 1992.

The preliminary survey shows that the refuge contains a high diversity of native woody plant species. It also concluded that the white-tailed deer has a potential to be a significant impact on forest regeneration on the refuge.

Erie NWR NR 92 "Rare Plant and Natural Community, Inventory Report on Erie NWR."

During the summer of 1992, Jean Stull and cooperators from the Cleveland Museum of Natural History began this study. The study will run through 1995. The objectives are as follows: (1) Identify ecologically sensitive areas in Seneca Division, (2) Monitor known fens, explore other bogs/fens or other sites, which may support plant or animal

species of special concern in Pennsylvania, (3) Identify and list endangered and threatened birds and other wildlife species. The first year result of the study found three plant species that are of special concern in Pennsylvania: firm aster (Aster firmus), alder-leaved buckthorn (Rhamus alnifalia), autumn willow (Salix serissima); and a rare fourth plant, western mountain ash (Sorbus decara) was also found in the Seneca Division.

Erie NWR NR 92 "Song Use by Wood-Warblers," by David Specter, Department of Zoological Research, National Zoological Park.

The objectives of the study were:

1. To determine whether different wood-warbler species can alter their songs to match the pitch of playback of modified songs as has been documented for the Kentucky warbler by Morton and Young.

2. To determine whether yellow warblers modify their song repertoires in the summer after the end of their breeding as has been suggested by Specter and Byers.

3. To determine how different wood-warbler species use and alter their songs in different social situations, such as when they are mated or unmated.

4. To determine how different wood-warbler species interact with song in counter-singing bouts with neighboring males.

The final report for the 1992 field research indicated that 36 warblers were color-banded near or on the refuge (included were 20 yellow warblers and six common yellow-throats.) Recordings of yellow warblers on the refuge will contribute to the ongoing study of song learning and geographic variations in the song of this species. Measurements from the banded birds and the recordings and playbacks of songs will eventually contribute to an understanding of the use of song in territorial communications between male warblers.

E. ADMINISTRATION

1. Personnel

Thomas L. Mountain, Refuge Manager, GS-12 EOD 7/8/84, PFT

Michael L. Piccirilli, Refuge Operations Specialist, GS-9, EOD 8/1/91, PFT

Janet A. Marvin, Outdoor Recreation Planner, GS-9, EOD 11/6/66, PFT

Joyce E. Sliter, Office Assistant, GS-6, EOD 2/12/89, PFT

Socheata K. Lor, Wildlife Biologist, GS-5, EOD 1/26/92, PFT

David J. Nicely, Engineering Equipment Operator, WG-10, EOD 2/12/89, PFT

Robert E. Battin, Maintenance Mechanic, WG-9, EOD 3/14/77, PFT

Donald E. Stover, Engineering Equipment Operator, WG-8, EOD 5/3/92, TFT

David T. McClelland, Biological Technician, GS-5, EOD 9/3/91, TFT

Sheila M. Gudenburr, Stay-in-School Clerk, GW-1, EOD 5/10/91, PT (Terminated 2/8/92)

Bianca Meehan, Stay-in-School Clerk, GW-1, PT, EOD 5/10/92



Tom Mountain, Refuge Manager
Joyce Sliter, Office Assistant
MP 12/92



Michael Piccirilli, Refuge Operations Specialist, Supervisory
JM 12/92



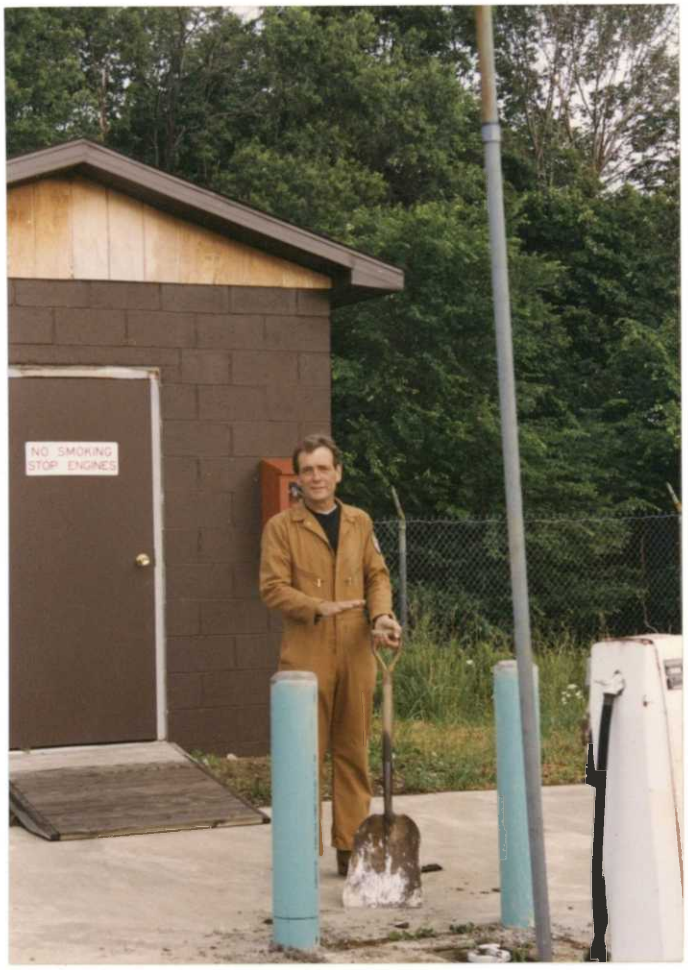
Janet Marvin, Outdoor Recreation Planner
Socheata Lor, Wildlife Biologist
MP 12/92



David Nicely, Engineering Equipment
Operator with Director John Turner
MP 9/92



Robert Battin, Maintenance Mechanic
MP 12/92



Donald Stover
Engineering Equipment
Operator
JM 7/92



David McClelland, Bio. Tech.
SJBP Canada Goose Observer
JM 12/92

YCC Staff - Temporary Appointment

1. Brumagin, Monica

YCC Enrollees - Temporary Appointment

1. Anthony, Brandi L.
2. McCurdy, David P.
3. Patton, Christina J.
4. Trout, Nathan L.
5. Vatter, Amy C.
6. Williams, Daniel N.

Volunteer Program

1. Alward, Dan
2. Byham, Howard
3. Bissell, Jim
4. Bleasdale, Kathleen
5. Bleasdale, Paul, Jr.
6. Bleasdale, Vickie
7. Blevins, Matthew
8. Briggs, Leon
9. Chut, Darith
10. Clark, Kathleen
11. Drbal, Barbara
12. Foulk, Jim, and Edinboro University of Pennsylvania Delta Chi and Theta XI Fraternities, Alpha Theta Sorority and Disabled Student Services (35 people)
13. Gordon, Howard
14. Grinarml, Jason
15. Grinarml, Robert
16. Hall, Karen
17. Howlett, Joan
18. Hunter, Mike
19. Hunter, Sean
20. Kliber, Thomas
21. Kliber, Tom
22. Knight, Brian
23. Kubena, Kody
24. Lor, Sotha
25. Marshall, Glen
26. Marshall, Joanne
27. Martin, Catherine
28. Marvin, David
29. McKellop, Trish
30. Meehan, Bianca
31. Mountain, Vicki
32. Palmer, Gary
33. Palmer, Greg
34. Palmer, Jason
35. Palmer, Kathleen
36. Peebles, Brenda
37. Presque Isle Audubon (3 people)
38. Raup, Richard
39. Schoiack, Dale
40. Schoiack, Derek
41. Schoiack, Ryan
42. Schoiack, Scott
43. Schoiack, Tristin
44. Sliter, Gary
45. Sliter, Mary
46. Specter, David
47. Stull, Jean
48. Stull, Jim
49. Terwilliger, Marian
50. Trace, Arnold III
51. Walker, Lew
52. Worminghaus, Heidi

Student Conservation Association - Volunteer

1. Emily Donald

PERSONNEL					
	Permanent		Temporary		
	Full-Time	Part-Time	Full-Time	Part-Time	Total FTE
FY88	5	0	0	1	6.0
FY89	6	0	0.25	0	6.25
FY90	6	0	0	0	6.0
FY91	6	0	0.75	0	6.75
FY92	7	0	1.75	0	8.75

2. **Youth Programs**

Area newspapers received a news release announcing job openings for Youth Conservation Corps enrollees. Posters and enrollee applications were sent to Guidance Counselors at six county schools. In a public drawing, the Guys Mills Postmaster selected three boys and three girls from the seventy-five applications (53 males and 22 females) received for six YCC enrollee positions. Monica Brumagin was hired for the YCC Group Leader position.

A diverse and industrious group of youths worked in the 1992 Youth Conservation Corp program that started June 15 and ended August 7. Enrollees were given special assignments that they were responsible for throughout the summer. One enrollee's responsibility was to ensure safety procedures were followed. The "safety" enrollee called fire drills, made sure everyone was working safely and using equipment properly on work projects. An enrollee was responsible for making sure all trash was picked up and that trash barrels were emptied regularly. The "equipment" enrollee kept the tool room clean and made sure tools were put away correctly. Another enrollee was responsible for cleaning the van at the end of each day. The remaining two enrollees were responsible for keeping the YCC building clean. Enrollees helped each other when an extra hand was needed to complete the special assignment.



Bring on the work.
JM 6/18/92

An orientation session included a discussion of Erie Refuge management programs and safety. The Group Leader and enrollees watched the videos, "Its in Your Hands" and "Hard Work and Good Times." The YCC Group Leader, enrollees, SCA and refuge staff attended Red Cross First Aid and CPR training.

Fish Commission Officer Bill Mantzell presented a training session on boating and water safety for YCCs, SCA and refuge staff. He showed the proper flotation vests to use around the water. He talked about items to use to reach a drowning person.

Group Leader Brumagin conducted a YCC and refuge staff safety meeting on June 24. She introduced Bill Robertson, Robertson Safety, who gave a hands-on demonstration on using fire extinguishers. All employees practiced using an extinguisher. She also discussed the use of personal protective equipment and the need for a daily tailgate safety meeting before starting a job.

Staining the shop and painting the garage at Quarters 9 were two important projects that YCC enrollees completed. Enrollees learned the importance of preventive maintenance to prolong the life of a structure.



Enrollees made short work of project.
JM 7/10/92



Enrollees were proud of Q-9 paint job.
JM 6/22/92

Throughout the summer enrollees did landscape maintenance at the headquarters/visitor center and refuge entrance signs. They cleared landscaped areas of weeds and rechipped around shrubs. Entrance signs and directional signs were stained and lettering was touched up. YCC enrollees built a sign storage rack to hold Kiosk panels. Enrollees repaired bridges on the Tsuga Nature Trail and repaired the Observation Blind.

YCC enrollees completed many projects at their headquarters. They mowed lawns, repaired plaster board and painted the garage bay in the YCC building. Organizing and rearranging items stored in the bay took considerable time.



YCC crew "Takes Pride" in attractive work site.
JM 7/1/92

Weeds and brush were cut along nature trails and chips were placed where needed. Enrollees replaced a foot bridge on Beaver Run Trail. The bridge washed out during a storm that produced flash flooding. Two thousand one hundred sixty (2,160) pounds of trash were removed from the Seneca Division and refuge buildings by YCC enrollees and volunteers. Leaflet boxes and four tables for outdoor education classes were constructed. A handicapped parking area at the headquarters/visitor center was signed. Enrollees helped SCA Emily Donald in replacing faded and damaged regulatory signs. A gravel banding site at Pool K to set a live trap on during preseason waterfowl banding was built by enrollees. Enrollees learned to read a print and follow the specifications that required them to place 8 to 10 cubic yards of 4-inch rock in an area approximately 12x12 feet with a 2:1 slope on the four edges of the gravel bed.



Looks like this project could take awhile!
JM 7/14/92



Entire banding site was built placing rock by hand.
JM 7/14/92

YCCs learned some construction skills when they built a fence. They learned how to shoot a line and use a level to get the fence straight. They also learned to use shovels and a post hole digger.



How much deeper?
JM 7/7/92



Does it look like this post is level?
JM 7/7/92

YCC enrollees were responsible for cleaning the Headquarters/Visitor Center weekly and they also cleaned the furnace room and woodshed. They made repairs to railings and floors on bridges. Gravel was placed on low spots on refuge trails. Enrollees hand pulled purple loosestrife growing at the Seneca Division.

Throughout the summer, the YCC Group Leader stressed environmental education explaining how the refuge functioned, what the results of certain land management practices would produce, and why specific projects were important. Enrollees learned to identify many species of wildlife.



Bluebirds and . . .
JM 7/20/93



. . .snakes were favorite wildlife.
JM 7/27/92



Albino raccoon was a new curiosity.
JM 7/6/92

YCC enrollees carried crates of black ducks to streams and ponds and helped to release them. While working on this project they learned about the reasons for the decline of black ducks on the refuge.



Away you go . . .
JM 7/24/92



. . . to a new home.
JM 7/24/92

YCC enrollees, SCA Emily Donald, Volunteer Heidi Worminghaus and Biologist Soch Lor visited the Pymatuning Laboratory of Ecology, Pennsylvania Fish Hatchery and the Pennsylvania Waterfowl Museum. Pennsylvania Fish Commission Officer Sickles talked about the Hatchery program, and showed the group bass, lake trout and muskie in rearing tanks. During the Waterfowl Museum visit enrollees learned about the Pennsylvania Game Commission eagle program and viewed museum displays.

The final day of YCC included a trip to Oil Creek State Park and Drake's Well. Enrollees learned how the "Valley That Changed the World" when oil was discovered has affected our daily lives and the environment.

3. Other Manpower Programs

Bianca Meehan, a Cochranton High School student, was hired as a Stay-in-School Clerk. Bianca did a variety of clerical and routine duties. She answered the telephone, prepared batch mailings, filed correspondence, pictures and slides. Bianca entered data into the computer, typed forms and correspondence. She filled the literature rack and prepared seasonal displays for the lobby bulletin board.

Bianca noted visitors asking about wildflowers.
JM 6/15/92



SCA Emily Donald traveled from her home in California to work on the refuge. Emily is a senior at Lewis and Clark College in Portland, Oregon. She kept the Visitor Center open Saturday and Sunday from June 15 through August 23. Saturday visitor center hours were 10:00 a.m. to 2:00 p.m. and Sunday hours were 1:00 p.m. to 4:00 p.m. The Saturday visitor center hours did not fill the needs of the visitors, so they will be changed in 1993. Emily prepared six public programs and presented them, two programs were specifically for youngsters. She helped the YCC Group Leader in supervising projects such as sign posting, landscaping and repairing bridges.



Much thought went into Emily's programs.
JM 7/8/92

4. <u>Volunteer Program</u>

Twenty-eight volunteers were presented awards by U.S. Representative Tom Ridge (R-21st) in appreciation of their work. Speaking at a breakfast honoring the volunteers, Ridge said, "I appreciate your work . . . your contributions are extremely valuable to the community." Top award went to Howard Byham, who donated 8,804 hours since 1985, working on bluebird management. Other volunteers receiving special awards and number of hours were: Howard Gordon, Lawn Maintenance, 364 hours since 1988; Matthew Blevins, sign construction and wood duck box maintenance, 360 hours since 1992; Joan Howlett, public programs, 304 hours since 1988; Karen Hall, public programs, 198 hours since 1991; Richard Raup, trail maintenance and litter clean up, 157 hours since 1991; Mary Sliter, data entry, 148 hours since 1991; Gary Sliter, bluebird and duck banding, 140 hours since 1991; and Marian Terwilliger, public programs, 105 hours since 1988.

Congressman Ridge spoke to the group about the importance of wetlands and his work in National Wildlife legislation. Ridge served coffee to the guests. He had the pot of regular coffee in his right hand and decaf in his left. "Regular or decaf?" he asked. "I would not ask you to do anything with your left hand," said one volunteer. "We're pretty stable with our left hand," Ridge joked. " We're a full service Congressional office."



Karen, Richard, Marian, Gary, Mary
Howard, Tom
"Howard, the lawns always look great, thank you."
JM 3/9/92



Volunteers from Presque Isle Audubon Society and Edinboro University of Pennsylvania are appreciated.

JM 3/9/92

Arnold Trace, III received the highest honor in Boy Scouting--the Eagle Award. He was awarded the rank during a Court of Honor for a project he completed at Erie. He repaired an existing bridge, built three more bridges, three benches and cleared brush in the Tsuga Nature Trail. ORP Marvin presented Arnold with a Certificate of Appreciation and a "duck stamp" pin. Arnold presented the refuge with a plaque in appreciation for permitting him to do his project on the refuge.



Congratulations, Arnie. You did a great job!
DM 2/2/92

Volunteers completed a variety of work projects throughout the year. Matthew Blevins, intern from Sterling College, Craftsbury Common, VT, worked on refurbishing trail head signs, cleaning, repairing and replacing wood duck boxes.

Volunteers Howard Byham and Gary Sliter attended a bluebird management seminar. Howard and Gary found the seminar very informative. A predator guard and bluebird house spacing experiment resulted from information gained. See Section G.7 for results.

Volunteers helped with nest searches, beaver control, and building nesting platforms and a variety of other projects. Volunteer David Specter started a study of songs of wood warblers at Seneca. Lew Walker identified wildflowers on refuge trails and prepared a wildflower portfolio. Volunteer Richard Raup performed litter pickup on the Sugar Lake Division of the refuge. Litter pickup on the Seneca Division was done by Joanne and Glen Marshall. Howard Gordon continued to mow the refuge lawns and Richard mowed the refuge trails.



Heidi built several goose nesting platforms.
JM 7/22/92

Clerical assistance was provided by Volunteer Kathleen Clark. She answered the telephone, typed correspondence, and filed slides, photographs and correspondence.

The Presque Isle Audubon Society Adopt-A-Refuge Committee volunteers staffed a bird identification workshop, Conservation Day at the Zoo, Earth Day exhibits at colleges and high schools, and donated and prepared refreshments for public programs.

Volunteers received an orientation packet that included maps, leaflets, regulations, a narrative history of the refuge and the refuge system, management topics and general information. New volunteers toured the refuge and all volunteer received training, when needed.

Volunteers played an important part in accomplishing many refuge projects contributing 2915 hours of work in Fiscal Year 1992. Refuge Manager Mountain and staff hosted a "Thank you" Christmas luncheon at the David Mead Inn. Volunteers were given the 90th Anniversary Edition of the 1993 Calendar, "Our National Wildlife Refuges" as a gift to show how much their work is appreciated.

5. Funding

Funding for the Erie NWR for five fiscal years is as follows:

Fiscal Year Funding

	'89	'90	'91	'92	'93
Refuge O&M	263,068	278,488	344,917	331,604	439,321
Qrters O&M	16,653	11,295	15,688	9,779	11,332
Exp.-Sales	5,000	5,000	5,000	5,000	5,000
YCC	14,280	14,280	16,665	16,732	16,666
TOTALS					
O&M	284,721	294,783	365,605	346,383	455,653
YCC	14,280	14,280	16,665	16,732	16,666
Emergency	5,600	7,600	2,400	500	500
Pre-Supp. Fire Mgt.					
9120 Hab. Mgt.					

6. Safety

The Station Safety Committee met monthly and a variety of safety topics were presented and discussed by the staff. Some popular safety topics presented include the following: Fire Safety, Water Safety, Hunter Safety Education, and Home Electric Use and Safety. Many advancements were made in Safety Management and safety deficiencies were corrected.

Annual vehicle safety inspections were performed.
Annual and monthly fire extinguisher checks were performed and documented.
Gas pump island barriers were installed.
A ventilation system was installed in the oil storage building.
A fire extinguisher was installed on the exterior wall of the oil storage building.
Cargo barriers were installed in pick-up trucks.
The oil storage building was retrofitted to contain an oil spill containment barrier.
A portable welding screen was purchased to isolate welding operations in the shop from individuals not participating in welding.
Assistant Manager Piccirilli completed Safety Officer training.
Handrails and boards on the nature trail bridge were replaced.
Overhead storage area in maintenance shop was fenced to prevent objects from falling on workers below.

Regional Safety Officer Pete Suich conducted a formal Station Safety inspection on June 11, 1992. Many identified station safety discrepancies have been completed. Action items that remain to be addressed are: Defensive Driver Training for staff, Prescribed Fire Training, and revision of the Station Safety Plan.

Assistant Manager Piccirilli completed two Safety and Health checklist inspections this year. The inspections occurred at Great Swamp and Ohio River Islands National Wildlife Refuges.

On June 10-11, a mini heavy equipment safety training session was conducted at Erie NWR by Steve Flanders. The training session was made available to the region, however, only one employee from Great Swamp completed the two-day course along with Don Stover, Tom Mountain and Mike Piccirilli of Erie NWR.

8. Other Items

Soch Lor was selected as Erie NWR Wildlife Biologist. EOD January 26, 1992.

Erie NWR received an inter-elevator check for $3,000 from DeSoto NWR on January 27.

ORP Marvin attended a "Computer Fundamentals" class from January 8 to February 12.

Maintenance Mechanic David Nicely was promoted to Engineering Equipment Operator WG-10 on February 23.

Maintenance Worker Robert Battin was promoted to Maintenance Mechanic WG-9 on February 23.

Robert Battin completed an Office of Training and Education (OTE) training questionnaire for FWS maintenance personnel the week of March 9.

Walt Quist and Steve Johnson (RE) visited the refuge March 24-26 to discuss refuge acquisition plans. A PPP to expand the present refuge boundary was submitted to the Regional Office on August 28.

On March 25, Assistant Manager Piccirilli and Office Assistant Sliter attended the Annual Fire Warden's meeting at Reno, PA.

Office Assistant Sliter attended a class for Word Perfect 5.1 March 26-April 30.

Office Assistant Sliter attended the Fifth Annual Secretaries Briefing on April 22 for Secretaries Day. It was sponsored by American Management Association with Edinboro University of Pennsylvania.

Project Leader Mountain was promoted to GS-12 on June 14.

On August 4, Tom and Dawn Comish and sons visited the refuge. ORP Marvin took them on a tour of the refuge to help familiarize Dawn with Refuge operations. Tom had an opportunity to see some recently completed YCC projects.

Because of decreased refuge funding, Erie NWR was placed in custodial status level of operation in 1992.

Manager Mountain attended a National Seminar presentation in Erie, PA on June 5 titled, "How to Handle Difficult People."

Maintenance Mechanic Battin was on military leave June 15-29.

Manager Mountain and Biologist Lor attended a meeting at State College PA on August 24. They met with representatives from the Pennsylvania Game Commission and Pennsylvania State University Research Unit on needed research projects in Pennsylvania.

See Appendix page for complete Travel Log FY92 depicting Erie NWR staff travel assignments.

9. The North American Waterfowl Management Plan Progress Report

The North American Waterfowl Management Plan (NAWMP), an international agreement signed between the United States and Canada in 1986 to protect, enhance and restore wetland habitats across the continent, presents many new opportunities and challenges for NWRs. The Plan establishes conservation goals for wetland habitats in specific regions of the continent, sets objectives for restoring waterfowl populations, and provides a framework for accomplishing local, regional, and international goals.

In the United States, six key waterfowl breeding, migration, and wintering habitat regions, called Joint Ventures (JVs), have been established to carry out the Plan. In Region 5, the LGL/SLBJV has a coalition of federal, state, and private partners working together to restore waterfowl populations.

The Erie NWR lies within the LGL/SLBJV and is playing an active role in achieving the objectives of the JV and NAWMP. Specifically, the refuge continues to acquire wetlands within and adjacent to the approved refuge boundary. The Refuge Manager proposed the acquisition of an additional 4700 acres of habitat as part of the JV.

Wetland acquisition and management is directed toward stimulating black duck production, enhancing wood duck, hooded merganser, blue-winged teal and mallard production, as well as maximizing the availability of wetland habitat for migrating waterfowl. Many other species of water birds also benefit from these management actions.

The private lands refuge initiative in New York and Pennsylvania contributed to the goals of the NAWMP.

The success of the Partners for Wildlife Private Land Wetland Restoration Program in Pennsylvania and New York was due in a large part to Engineering Equipment Operators Nicely and Stover and Maintenance Mechanic Battin. They are highly qualified and conscientious heavy equipment operators

who work independently and take a personal interest in each wetland restoration project they are assigned. They were in high demand during 1992, contributing a combined total of 200 staff days to the program. Construction work started in March under unpredictable weather conditions and continued through October. A variety of construction techniques and structures were incorporated into the program to enhance and restore wetlands. Some of these included low level dikes or levees, small dugouts, and ditch plugs.

For the most part, much of the work accomplished by the Erie staff occurred in Pennsylvania and was highlighted September 2, 1992 at a wetland restoration tour in Bedford County, Pennsylvania. Approximately 4,000 feet of dike was constructed that restored approximately 30 acres of wetland in a picturesque central Pennsylvania valley. The tour was attended by Erie staff, Regional Office staff, and included Director Turner, Regional Director Lambertson, State College FWE staff and Peter Duncan, Executive Director of the Pennsylvania Game Commission.

Following is a list of wetland restoration sites completed by Erie staff in 1992:

Site Name	County	Acreage	Dike Length
Tom Dick	Bedford	30	3500-4000
Louis Kuhns	Erie	2	400
Clay Vonbuskirk	Perry	1	200
Dan Clark	Juniata	8	1500+
Embreeville	Chester	13	1500+
Forrest Wessner	Lehigh	5	1500+
Ken Mertz	Montour	3	800
Joe Kline	York	3	500
Koboski	Mercer	12	1000
Blocher	Crawford	1	100
Chaney	Crawford	2	200
Merlin	Crawford	5	800
Toraczkozy	Crawford	5	800



Embreeville, PA, low-level dike
wetland restoration site.
DB 12/92

Embreeville, PA wetland restoration downstream outlet creates additional wetland acreage.



Embreeville, PA. Precast concrete WCS
located on wetland restoration site.
DB 12/92



Dan Clark, Mifflintown, PA, beginning dike construction on Pennsylvania Wildlife Conservation Officer property.
DB 6/92



Dr. Tom Dick site. A 2000-ft. dike wetland restoration located in a breathtaking valley of Bedford, PA.
DB 10/92



"Mini island" Dr. Tom Dick site.
DB 10/92

The "mini island" located within the large dike area on the Dr. Tom Dick site is pictured above. When the wetland restoration site is full of water in the Spring of 1993, the small wedged island will remain above the water level in the impoundment. A variety of wetland plants are expected to colonize this area.



Group of guests with Director John Turner, FWS, at Tom Dick site, Bedford, PA.
DB 9/92



Ken Mertz site. A small mini moist soil unit consisting of three units and two potholes.
DB 12/92



Chaney site, Crawford County, PA. A low level dike restoration providing an excellent shallow wetland.
DB 11/92



Koboski site, Mercer County, PA. Robert Battin completes another day's work. The dozer is Erie's John Deere 750B.

DB 7/92



Koboski site, Mercer County, PA. A completed shallow wetland restoration before seeding. Additional wetland restoration will be completed in 1993 on the Koboski site.

DB 7/92

F. HABITAT MANAGEMENT

1. General

Generally, heavy rainfall and late frosts were harsh on the apples, grapes, and nuts. Hardly any fruits were produced. On the bright side, warm-season grassland recovered remarkably from the past year's drought.

2. Wetlands

Erie refuge comprises of over 2,500 acres of wetlands, 312 acres of which are manageable impoundments and moist soil units. The remaining acres are natural creeks, streams and beaver dams and flowages. The water management program on the station is one of the largest, complex, and most active programs in the region. Manipulation of water levels has been adhered to as much as personnel time allows. Vegetation response to the management actions has been excellent. Erie Refuge is one of the few refuges that has no or very little pest problems. Consider them pests or not, beavers have been a major problem in our water control structures. At times, limited staff on the refuge allows our conservation counterpart to outcompete us tailless, biped creatures. Some refuge impoundment water control structures are unmanageable due to this problem. Plans to increase trapping harvests may help with the problem.

An evaluation this summer of our impoundments and moist soil units by Leigh Fredrickson and Murray Laubhan (Gaylord Laboratory) resulted in tremendously helpful recommendations. Their recommendations and comments were very well received and plans for implementations will begin in 1993. Gradual and partial drawdowns in some impoundments with variations of water fluctuation within and between years will begin early Spring of 1993. Vegetation and wildlife responses will be monitored and recorded carefully.

Cooper's Marsh, Unit 3:

Water elevation in Cooper's met the projected target levels. A close watch was kept on this unit due to the persistent complaints from a neighboring landowner and the Union Cemetery Association. Vegetation composition was excellent. Consequently, wildlife use was good as well: Canada goose, mallard, wood duck, hooded merganser, blue-winged teal, great blue heron, green-backed heron, and the elusive **pileated woodpecker** are most of the species that frequent this marsh. Furthermore, a red-tailed hawk nests on a pine tree at the edge of eastern side of the pool.



Cooper's Marsh--very nice and active as well as controversial.

SL 9/92

Office Entrance Pool, Unit 4.

This unit was used extensively by Canada geese, in particular during the brooding period. Although small, Unit 4 also feeds Pools C and D. Good vegetation composition supports a diverse array of wildlife: Canada goose, wood duck, blue-winged teal, ring-necked duck, mallard, great blue heron, red-winged blackbird, the threatened (in Pennsylvania) **American bittern**, and Eastern painted turtle.

Pool D, Unit 6:

This was the second and final year of the complete drawdown of the unit. Due to the high precipitation, this pool was never quite dry. Vegetation and wildlife compositions were adequate. This unit is unique in that it possesses an abundance of invertebrates from the decayed smartweed. This will provide excellent food sources for pre-breeding ducks.



Pool D--Decayed smartweed from the two-year drawdown will provide excellent invertebrates for pre-breeding birds.

SL 9/92

Pool 4, Unit 7:

This pool remained drained, after the water control structure was repaired, until September to allow vegetative response. Vegetation responded very nicely. A couple hundred geese and ducks used the pool immediately after the reflooding. Waterfowl species using this pool included Canada goose, mallard, wood duck, hooded merganser, blue-winged teal, black duck, and American widgeon. Furthermore, this unit provides important habitat for red-tailed hawk and perching areas for migrating osprey.



Pool 4--Immediately after reflooding in September, hundreds of ducks and geese responded to the available food.
SL 9/92

Pool 7N, Unit 8:

Due to beaver problems in the water control structure, this unit was not manageable. Water remained above the maximum elevation. Under the circumstances, vegetation composition was good and a few Canada geese, wood ducks, buffleheads, mallards, ring-necked ducks, and blue-winged teal were observed in the unit. Several wood duck nesting boxes are located in and around the pool. This pool seems to provide good cover for waterfowl brooding.

Pool 7S, Unit 9:

Water levels have been managed at the maximum level. Vegetation composition and waterfowl use were very limited. Hundreds of Canada geese used this unit during molting season. Beavers continue to be a problem in this pool as well. To promote aquatic vegetation growth, this unit will be drained in early Spring of 1993. Dewatering will continue for two years.



Pool 7S will be dewatered for two years 1993 and 1994, to encourage aquatic vegetation growth.

SL 9/92

Lone Maple, Unit 11:

This unit was dewatered in 1989 and 1990 in an attempt to stimulate vegetation growth. Unfortunately, the only plant that responded was reed canary. There was no submergent vegetation. The 1993 Marsh and Water Management Plan calls for mowing and discing in the fall to retard reed canary monoculture. Reflooding in the winter should provide good invertebrate sources in the spring for pre-nesting female ducks.



Lone Maple--Monoculture reed canary provides very little resources for waterfowl and wildlife.
SL 9/92

Pool 9, Unit 12:

This unit was dewatered from September to February to allow contract repair on the water control structure. Nine nesting islands were constructed in Pool 9. Vegetation composition was excellent and so was waterfowl use. This is Erie's largest and most productive impoundment. Hundreds of waterfowl use this pool during both migration periods. Waterfowl and wildlife species were: Canada goose, mallard, black duck, wood duck, blue-winged teal, green-winged teal, bufflehead, ring-necked duck, pied-billed grebe, American coot, great blue heron, bald eagle, green-backed heron, belted kingfisher, osprey, and an occasional great egret.



Pool 9--Erie's most productive and active pool.
SL 9/92

Pool H, Unit 13:

Water levels in this impoundment were kept at maximum elevation due to beaver activity in the water control structure. A beaver plug in the water control structure was cleaned-out in March. This pool will remain dewatered until the structure and dike are repaired. Funding for repairing the water control structures and dike was approved and work will begin in the spring and tentatively finished in the fall of 1993.



Pool H--The erosion at the edge of the dike by the WCS is scheduled to be repaired in the summer of 1993.

TM 8/92

Pool K, Unit 14:

Targets for Pool K were met in 1992. This unit was drained late June in anticipation of repairing the handicap fishing pier. The damaged pier was removed and boards were put back late in September to accommodate fall migrants. Vegetation and wildlife responses were excellent. Restoration of the handicap fishing pier is funded for 1993. Management actions in this pool depend upon the restoration work.

Meyers Pond, Unit 15:

Meyers was maintained at the target levels until beaver problems in the water control structure and on the dike required refuge staff to dewater the pool in July. Again, due to high rainfall, the pool was never completely drained. This unit will remain dewatered until the damaged structure and dike are restored, which is tentatively scheduled to be finished by the fall of 1993.

Moist Soil Units, Units 17 & 18:

Approximately 0.5-1.5 feet of water was present throughout the year. No management actions were taken in 1992. Water run-off from the adjacent creek, which should feed the units, has been flowing outside these units. Vegetation composition is adequate, however, very little wildlife was observed in the units. A few greater yellowlegs and spotted sandpipers were frequently seen in the units during both migration periods.

Management plans for all moist soil units are pending the enhancement of the units and installation of water gauges. This work began in late winter and will continue in the spring of 1993.



Moist Soil Units, Cell #2--Aquatic vegetation responded very nicely after one full growing season.
SL 9/92



Moist Soil Unit, Cell #4--After one growing season.

SL 9/92

DU M.A.R.S.H PROJECTS:

A challenge grant was matched with Ducks Unlimited for $20,000 to restore four (4) wetland sites. Work on the projects will begin early spring of 1993 and will continue to the fall of 1994. Three of the proposed sites are on the Seneca Division and one is on the Sugar Lake Division. The sites on Seneca Division will be the first manageable wetlands on this unit. Not much work has been done on that Division and these M.A.R.S.H. projects will be an excellent start.

3. Forests

There are two select cut timber sale contracts operating on the refuge. Both contracts are predominantly eastern hemlock cuts that were extended from prior years. Amendments were executed for both contracts to extend the termination dates from March 31, 1991 to March 31, 1993. Inclement weather, operation restrictions, (i.e., authorized periods of operation) and a depressed market for Eastern hemlock were factors that precluded complete harvest of identified timber under the original contract period. Our objective for conducting the timber sales is to reduce

mature monotypic softwood evergreen stands, enhancing habitat for the American woodcock and other resident wildlife requiring earlier stages of forest regeneration.

The contract that is operating in Compartment 2, Areas 5 and 6, is approximately 90% complete. This contract consists of approximately 230,900 gross board feet of which approximately 150,000 is Eastern hemlock. Black cherry, Sugar maple, Red Maple and Beech were the other species designated for cutting. A remaining active timber sale contract also occurs in Compartment 2 and is solely an Eastern hemlock cut.

Gary Shafer, Bureau of Forestry, visited the refuge on April 8 to review Compartment 3 of the Forest Management Plan. Gary learned the Compartment contained a sensitive old growth forest and a unique habitat forest stand that he would not recommend harvesting. A letter is attached to the Approved Forest Management Plan.

Greg Sepik, Regional Woodcock Specialist, visited the refuge on June 18 and 19 to discuss habitat management potential for upland sections of the refuge. Greg was impressed with the habitat management accomplishments and concurred with our opinion that forest vegetation regeneration is excellent on most sites. However, of major concern is that early successional stages of forest are being lost faster than created. A challenge grant with The Ruffed Grouse Society was approved. This will enable us to hire a Biological Technician to develop further long range prescriptions and to set up a Geographical Information System. Upon completion of the prescriptions we will be able to more efficiently administer commercial harvesting.

On October 28, 1992 the USDA Forest Service personnel conducted a gypsy moth egg mass survey of the Sugar Lake and Seneca Divisions. The purpose of this survey was to learn gypsy moth population densities and to assess the potential for defoliation and the need for treatment in 1993.

The results of the survey are presented in the following table:

GYPSY MOTH EGG MASS SURVEY

Plot Number	EM/Acre	Division
1	80	Sugar Lake
2	200	"
3	0	"
4	80	"
5	160	"
6	0	"
7	40	"
8	0	"
9	360	"
10	280	"
11	240	"
12	0	Seneca
13	120	"
14	120	"
15	120	"
16	840	"
17	1120	"
18	560	"

In brief, egg mass densities in the Sugar Lake Division ranged from 0-360 and averaged 131 egg masses per acre while egg mass densities in the Seneca Division ranged from 0-1120 and averaged 411 egg masses per acre. No noticeable defoliation is expected at the Sugar Lake Division in 1993. Only small areas of light-to-moderate defoliation (1-60 percent) are likely to occur in the Seneca Division.

Volunteer Howard Byham monitored the Beech tree fertilization project started in 1987. The fertilized trees improved in nut production quality again this year. Nuts from the fertilized trees were healthy and did not have larvae in the nuts. The nuts of the unfertilized trees located nearby were infected with small larvae. It appears that fertilization would improve Beech tree nut production, however, an ambitious project cannot be undertaken because of fund limitations.

4. **Croplands**

Through 13 cooperative farmers the refuge manages approximately 700 acres of agricultural land. This provides a diversity of habitat and provides the refuge with a diversity of management options by keeping land open instead of reverting to mature forest stands. The agreements on the refuge consist of a five-year crop rotation with two years in corn, one year in oats, establishment year of hay, and finally two years of hay. This crop rotation appears to inhibit insect cycles and reduces the amount of herbicide required. Only herbicides specified by the refuge are authorized for use and insecticides are prohibited.

The program has been managed using a crop sharing system based on a standard field split of 80% cooperator and 20% refuge share. Generally, we elect to leave our portion unharvested for wildlife use. Our primary cropland objective is to improve grasslands to enhance waterfowl nesting opportunities. Historically, we have experienced low nesting success in cropland grass/hay fields. The small fields combined with disturbance from mechanized equipment during the harvesting operation are factors contributing to poor nesting success. Continued efforts are being made to convert portions of the farming program to exchange shares for services. Ideally, we would like to use this technique to create undisturbed fields.

As identified in the 1986 Farming Evaluation, 1000 acres of land was identified as good cropland to be managed through the cooperative farming program. We are moving toward this goal. Recently, we have advertised a 40-acre parcel to be added to the program in 1993. Additional fields have been identified totaling approximately 55 acres, which we anticipate having planted with a warm season grass mixture through cooperative farmers by exchanging shares for service.

5. **Grasslands**

The station's grassland program was established in the early 1980s, primarily with the intentions of providing nesting cover for waterfowl. Currently, these warm-season fields are used by a variety of wildlife species. Not only are waterfowl nesting in the fields, but other song birds, such as the sparrow, bobolink, and meadowlark are also using the fields. In addition, it also serves as good peenting grounds for woodcock, hunting areas for raptors and nesting habitat for rabbits. **The 1992 nest drag flushed an upland sandpiper, a threatened species** in Pennsylvania and a management concern species in the Northeast. In place of the traditional cable-and-chain drag, Erie uses a "tangle"

of howser rope acquired from the U.S. Coast Guard. This method works just as well as the cable-and-chain drag and is much easier.



Howser rope replaces the cable-and-chain for nest searches.

SL 4/92

High rainfall in the spring and summer provided a great opportunity for recovery from the past couple of years' drought. Germination and growth were excellent.

Two additional fields were planted on 14 and 15 May 1992. The field East of Lone Maple is 3.3 acres and field East of Pool 4 is 6.0 acres. Both fields were planted with a mixture of switchgrass, big blue stem, and Indiangrass from 1987. Germination response was unexpectedly good!

Currently, Erie has 22 warm-season grass fields totalling 170 acres. Most of the fields are in need of prescribed burning. Burn rotations are once every 3-5 years with some discretionary calls. This is to control cool-season grass and weed encroachment. Ten (10) fields were identified for prescription burning in the spring of 1993. The burning, mowing and comments on each field are listed below.

FIELD	LAST BURNED	LAST MOWED	NEXT BURN
NG-1: HQ Garage	1983	6/7/86	1993

Comments: Needs immediate prescribed burning. Grass is too dense in some areas and sparse in others. Foxtails, goldenrods, and other cool season are dominating. Nest search in 1992 revealed no nesting waterfowl.

NG-2: Pool B Road NW	4/14/86	6/1986	1993

Comments: Needs burning. Residual grass is very thin, not enough for nest covers. This is a good field for waterfowl nesting because the barrier shrub between water and field is not too thick, therefore, reducing predation probability. Nest search in 1992 flushed zero ducks.

NG-3: West of Cooper's	4/14/86	----	

Comments: Good field. 1992 nest search flushed out one mallard with 9 eggs. The eggs may have been depredated because shells were not found around or on the nest. Ten to 12 sparrows were using the field as well as red-winged blackbirds.

NG-4: East of Pool D	1986	----	1993

Comments: Field is too thin. Reverting to weedy cool-season grass. Will definitely be prescribed burned in 1993. Nest search did not reveal any nesting ducks.

NG-5: Meyer's Pond	5/11/83	6/86	1993

Comments: Field is very sparse. Needs burning. Nest search in 1992 showed no waterfowl nesting.

NG-6: North of Reitz	5/11/83	1988

Comments: This field is also thin. Lots of cool season grass encroachment. However, burning is not as much a priority as the other fields, perhaps in 1994. No waterfowl were flushed in the 1992 nest drag.

FIELD	LAST BURNED	LAST MOWED	NEXT BURN
NG-7: East of Cooper's	4/14/86	6/7/86	1993

Comments: Will be burned in 1993. Nest drag showed no nesting ducks.

NG-8: South of Pool B Rd.	4/18/86		1993

Comments: This field is connected to NG-2 and is in the same condition.

NG-9: East of Meyers	5/11/83	5/11/83	1993

Comments: This field is next to NG-5 and is in the same condition.

NG-10: South of Reitz	5/85

Comments: Good field with thick residue. Probably will need burning in 1994. Nest search revealed two mallard and one **black duck** nests. Check on nests two weeks after discovery date showed that all eggs were hatched.



Black duck's nest and eggs in NG-10.
SL 6/29/92

FIELD	LAST BURNED	LAST MOWED	NEXT BURN
NG-11: Northeast Pool D	4/18/86		1993

Comments: This field is in the same condition as NG-4.

NG-12: North of SR 27. Has not been burned since planted in 1983. 1993

Comments: Reverting to shrubs. Definitely will be burned in the Spring of 1993.

NG-13: South of Pool 9 5/6/87 1993

Comments: Adjacent to NG-5 and NG-9 and is in the same conditions.

NG-14: Allen Road 4/27/87

Comments: This field is much too far from the water and the old growth forest barrier between the field is too large for successful waterfowl nesting. Warm-season grass exists very sparsely.

NG-15: Below Q-11 4/27/87

Comments: This field is a strip of warm-season grass among a larger field of hay. Management activities on this field are at a standstill due to nesting bald eagles a few feet away.

NG-16: South of Pool 4 1993

Comments: NG-16 is much too thick. Needs immediate burning.

NG-17: New and Shaffer Rd. 4/27/89

Comments: Planted in 1990, germination and growth in this field did not take off until this year. With the high rainfall, this field had an excellent response.



Excellent response from the high rainfall this year by DNC field by New and Shaffer Roads. (NG-17)
SL 8/92

FIELD	LAST BURNED	LAST MOWED	NEXT BURN

NG-18: South of Pool B Rd. 4/27/89

Comments: Good field. 1992 nest search flushed a mallard with 11 eggs. An upland sandpiper and a few sparrows were also flushed.



Mallard nest in NG-18.
SL 6/92

FIELD	LAST BURNED	LAST MOWED	NEXT BURN
NG-19: W. of Reitz	5/6/92		

Comments: Burned in 1992, this field germination response was excellent. Nest drag before the burn did not reveal any duck nests.



NG-19--Before and during prescribed burn on 5/6/92.

SL 5/6/92



NG-19--a few months after prescribed burn--excellent response!

SL 8/92

FIELD	LAST BURNED	LAST MOWED	NEXT BURN

NG-20: Lone Maple

Comments: Planted in May 1992, germination was good.



Lone Maple - One of the new DNC fields.
SL 9/92

Believe it or not, the field shown above is a good first season germination. The field was plowed and planted without herbicide treatment.

FIELD	LAST BURNED	LAST MOWED	NEXT BURN
NG-21: Adjacent Pool 4	---	---	---

Comments: Same as NG-20.

7. Grazing

No authorized grazing occurred on the refuge in 1992. Mr. Leon Burdick who participates in the refuge cooperative farming program has a valid Special Use Permit to graze cattle on refuge lands. However, in 1992 Mr. Burdick

elected not to use this privilege. **Mr. Burdick retained grazing rights for 10 years upon selling his property to the United States in 1990.** He is permitted to graze 35 cattle on approximately 25 acres of pasture, at $2.00/AUM. This area is located in the Seneca Division of the Refuge.

9. **Fire Management**

One small wildfire occurred on the refuge during the past year. The fire was apparently started by an unknown person on the north side of the intersection of New and Shaffer Roads in a small fallow farm field. The wind was south and approximately 1/10th of an acre burned before it was extinguished by the Randolph Volunteer Fire Department. It was a small field fire that consumed tame hay mixed with goldenrod. No damage was done to the habitat.

Refuge staff completed a prescribed burn on one 12-acre warm season grass field. Another four-acre warm season grass field was also scheduled to be burned, however, unsuitable weather conditions this year did not allow us to meet specific conditions to conduct a prescribed burn. The one field that was burned is located southwest of Reitz Pond with an established warm season grass mixture. The field is predominantly a mixture of Big Bluestem and Switchgrass that was in the third growing season. Our objective for conducting the prescribed burn was to remove dead herbaceous plant litter and inhibit cool season plant growth. Before the burn, a nest drag search was conducted to locate any waterfowl nest. No nests were located and the burn was conducted May 6. A slow creeping fire prevailed through the field consuming most residual dead vegetation and cool season plants. Approximately two weeks after the burn, 10-10-10 fertilizer was applied to the field. By mid-June excellent regrowth and recovery was evident in the field. See 5. Grasslands NG #19 photo.

10. **Pest Control**

Manager Mountain and Maintenance Mechanic Battin renewed their respective Pennsylvania applicators registration. Both are certified through September, 1993. Approximately 1/5 of an acre of phragmites discovered in the Sugar Lake Division in 1991 was treated in July with Pond Master, manufactured by Monsanto. The active ingredient being 41% of glyphosate. This product seems effective in controlling the spread and growth of phragmites. We plan to retreat the area again in 1993.

Other chemicals used on the refuge occurred through the cooperative farming program. Following are chemicals, quantities used, and approximate acreage treated respective

to the farming program. For the most part target species were broadleaf weeds in corn and oats.

2,4 D	118.0 qts	185 acres
Beacon	11.2 lbs.	173 acres
Bicep	81.2 qts.	36 acres
Roundup	82.0 qts.	82 acres
Accent	3.3 lbs.	82 acres
Dual	56.0 qts.	23 acres
MCP Amine	14.6 qts.	58.5 acres

On November 17 Charles W. Meyer of Halliburton NUS, contracting for EPA, visited the refuge for a final inspection of contract work conducted in 1991. The work was conducted by Petroclean Environmental Service. Petroclean excavated two sites on the refuge in 1991 to learn if contaminated soil existed from buried drums of chemicals following their use in the late 1960 era. The findings from the excavation were scrap pieces of a crushed drum, which were stored in a sealed 55-gallon drum at the refuge pending further laboratory tests and concurrence from EPA. The laboratory tests found the crushed pieces to contain no free product and no evidence of contaminated soil at either excavation site. During Mr. Meyers' visit he confirmed the laboratory results that no evidence of contaminated soil occurred at both excavation sites and that the scrap pieces contained no free product. At this point, Mr. Meyer informed Assistant Manager Piccirilli the refuge was authorized to dispose of the scrap pieces and the case was closed.

One pesticide use proposal for Accent was submitted to the Regional Office for review and approval on April 21, 1992. This is a substitute for Atrazine, which was predominantly used on corn by participants in the cooperative farming program. Because of Atrazine's potential to appear in ground water it has been removed from the Refuge Manager's pesticide approval level and requires further review and approval levels.

G. WILDLIFE

1. Wildlife Diversity

The variety of habitat on Erie refuge supports a diversity of wildlife species. Although the original and primary objective of the refuge is waterfowl production, it has not and probably will not meet the 1964 Master Plan's primary objective. For better or "more better"--Erie is a **BIODIVERSITY** refuge. The station may not have the quantity of waterfowl to match some refuges, but as far as quality,

we will challenge. Erie is one of ten refuges in Region 5 that are accommodating nesting bald eagles. Woodcock habitat management is currently a major project on the station and is very successful. The Challenge Grant with The Ruffed Grouse Society for woodcock habitat management and a GIS database will expand and enhance this program to one of the largest in the region.

Like many other refuges, record keeping on wildlife accounts has not been the station's stronghold. A preliminary wildlife inventory was conducted during the entire 1992 year. A revised Wildlife Inventory Plan was sent to the Central Biologist for approval in January. This plan should prove to be a useful and consistent tool in documenting the successfulness of the management efforts on the station. Results of the preliminary inventory procedures are reported throughout the Wildlife Section of this Narrative. It should be noted that these are preliminary data, serving only as an index of population trends in the specific habitat units on the refuge. These data would prove to be most meaningful when correlated with management activities and evaluation of the units.

2. Endangered and/or Threatened Species

On January 8 and 9 refuge personnel conducted a mid-winter National Wildlife Federation Eagle Survey. A continuous vehicle route method was used throughout the refuge. Two mature bald eagles were identified south of Route 27 in Pool 9. Pool 9 is a large impoundment approximately 135 acres located between Route 27 and Route 173. This unit was dewatered from August of 1991 through February 1992 and is the most productive pool on the refuge for waterfowl and wildlife. Essentially, starting at Route 27 and moving south this pool stretches 2 miles, almost reaching Route 173 where the Lake Creek bottoms start. In previous years an active nest was located approximately 200 yards north of Route 27. More recently in 1990, 1991, and 1992 bald eagles were observed nesting in the Lake Creek bottoms.

On January 24 one eagle was observed at the Lake Creek site. On February 21 a pair of eagles were observed at the nest site restoring our anticipation that another nesting attempt will be made at this nest site. The nest site remained active through April. Observations made by refuge staff and Pennsylvania Game Commission eagle observer confirmed a successful hatch of two eggs. Nest observations through May showed one eaglet alive and well. **The eaglet in the Sugar Lake bottoms fledged July 12, 1992.** Observations of eagles by the public in the Seneca Division have peaked interest that there may be nesting eagles there, too. Refuge staff and the Pennsylvania Eagle Observer spent additional time at

Seneca during May and June trying to confirm these observations. They were unsuccessful in identifying nest sites at Seneca.

3. **Waterfowl**

Waterfowl information is based on the procedures of the revised 1992 Wildlife Inventory Plan.

1992 Weekly Waterfowl Survey

Species	Numbers(in pairs)*	
	Spring Survey	Fall Survey
Canada goose	291	676
Wood duck	98	183
Mallard	31	176
Ring-necked duck	28	0
Green-winged teal	15	16
Blue-winged teal	12	14
Hooded merganser	7	0
American widgeon	5	9
Bufflehead	3	0
Gadwall	2	0
Black duck	2	60
Golden-eyes	1	0
Tundra swan	1	3
Northern Pintail	0	1

*Spring survey numbers are averages of 5 surveys.
Fall Survey numbers are averages of 3 surveys.



Bufflehead--a frequent site during
the spring weekly waterfowl survey.
SL 6/92

1992 Breeding Pair Survey

Species	Numbers (in pairs)*
Canada goose	291
Wood duck	98
Mallard	31
Blue-winged teal	21
Hooded merganser	7
Black duck	2

*Numbers are averages of 5 surveys.

1992 Brood Survey

Species	Numbers (in pairs)*
Canada goose	28
Wood duck	23
Mallard	12
Hooded Merganser	1

*Numbers are averages of 2 surveys.

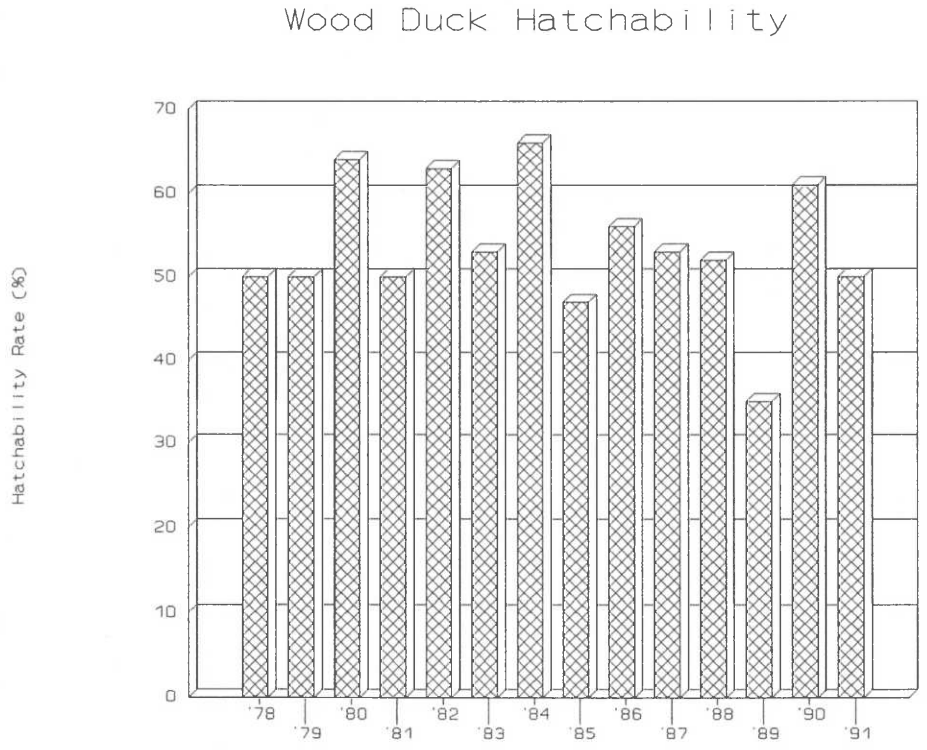
Wood Ducks:

Wood ducks are the station's most productive waterfowl species. The nesting box program has been very successful. Hatchability rates have always been 50 to 70 percent. Due to wear and tear most boxes need to be repaired and replaced. Of the 200 boxes, most are Duck Unlimited metal cones. These will be replaced with wooden boxes and predator guards will be installed in 1993.

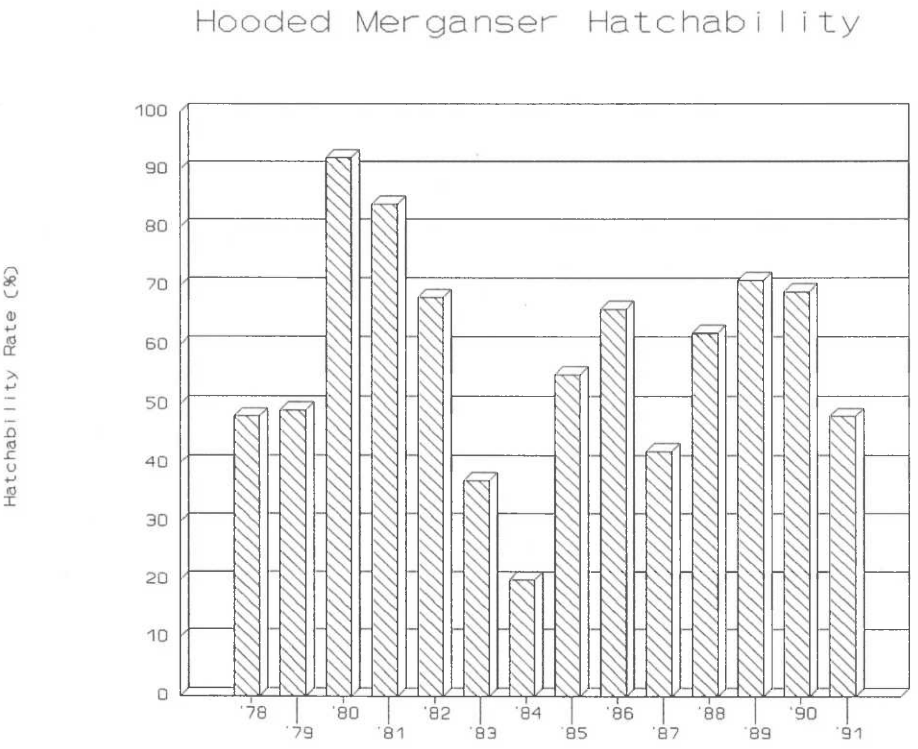
1991 Wood Duck Nest Box Survey

Production:	Wood Duck	Hooded Merganser	Unknown
Eggs Laid	849	417	----
Hatchlings	428	202	----
Hatchability	48%	50%	----
Box Utilization:			
	70	39	6
Predation:			
Avian	7	7	
Snake	0	2	
Unknown	5	3	

Following is a table showing Wood Duck hatchability:



Following is a table showing Hooded Merganser hatchability:



Warm-season grassland nest search: Each field of the 20 DNC fields was dragged three times in 1992. This was the most intense search since the establishment of the program. Instead of the traditional cable and chain for the drag, Erie uses Coast Guard's howser rope. We found this is easier to handle than the cable and chain, but works just as well. Six duck nests were discovered.

1992 Warm-season Grassland Nest Search

Field Name and Number	# of Nests	Species
West of Cooper's NG-3	1	Mallard
South of Reitz NG-10	2	Mallard
South of Reitz NG-10	1	Black duck
South of Pool B NG-18	1	Mallard
East of Pool C NG-4	1	Mallard
East of Meyers NG-9	1	Wild Turkey*

*Please note that this is NOT a waterfowl species.

1992 Estimated Waterfowl Productions

Canada goose	400
Mallard	100
Black duck	9
Blue-winged teal	10
Wood duck	420*
Hooded merganser	210*

Estimated total production: 1149

*These numbers were estimates based on the 1991 wood duck nest box survey.

4. Marsh and Water Birds

The heron rookery on the Seneca Division is at its lagging edge. A volunteer stumbled upon the old rookery in the summer of 1992. He found two nests are still active but did not see any birds on them. It is speculated that the colony has dispersed, perhaps to bigger and better homes with a couple of old folks left experiencing the "empty nest" syndrome.

Other wading and marsh birds that frequent the refuge are the American coot, pied-billed grebe, and green-backed heron. The latter two species nest on the refuge.



The pair of American coot hung around in Pool N during the spring and fall migration.

SL 10/92

5. Shorebirds, Gulls, Terns and Allied Species

Shorebirds and allied species are rarely observed on the refuge, except for a couple of species that nest here. A flock of short-billed dowitchers was observed in April feeding on the mudflats of Lake Creek. An **upland sandpiper** was flushed-out of the warm-season DNC field during the first waterfowl nest search, and regretfully, was never seen again. Several (3-5) greater yellowlegs were observed in the moist soil units and the dewatered impoundments during both migration periods. Killdeer, spotted sandpiper, and American woodcock nest on the refuge. All three species were often seen or heard.



It's a wonder how there can be as many killdeers on the refuge when they nest so precariously--like this one in the middle of a dirt road.
SL 5/92

American woodcock:

Started in 1989, woodcock habitat management is one of the largest programs on the refuge. Early successional forest regeneration is excellent. The program is still expanding and enhancing. A Challenge Grant with The Ruffed Grouse Society was matched at the end of the year for $38,000. This is for habitat management, a biological technician, and GIS software for Iroquois and Erie Refuges. The bio-tech will develop a long-term forest management plan, including stand-age class and covertype maps for the refuge using GIS database.



Slashes left on site deter deer browse.
SL 7/92

As part of the revised Wildlife Inventory Plan, male singing ground survey routes were established and a preliminary survey was conducted in the spring of 1992. Two routes were surveyed. The results showed that an average of six birds were heard or seen on each route. The 1992 Wildlife Inventory Plan calls for eight routes through the entire refuge. More survey routes will yield better information.

Since 1968, the woodcock population in Pennsylvania has declined 68%, while the eastern United States experienced a 38% drop. Pennsylvania's breeding population in 1992 was the lowest that has ever been recorded. The state's singing ground survey in 1970 recorded 2.49 males/route. This number dropped to 0.85 males/route in 1992. In 1983, concerned with the rapid decline, The Pennsylvania Game Commission shortened the hunting season to 14 days, as opposed to the 45-day season in most states in the flyway. Furthermore, the Commission has reduced bag limits as well. Since 1971, harvest has declined 86%. Pennsylvania's 1991 hunt killed 50,000 woodcock.

Changing land uses, increase in surface mining, decrease in farm abandonment, aging forest and increased urbanization are just some contributions to the decline in woodcock population. One other important attribute that was noted by Region 5's Woodcock Specialist is the increase in the deer population in the state. He also noticed that many areas within the woodcock range have experienced the same land-use changes, but these areas do not experience the same magnitude of decline in woodcock population. He says that woodcock numbers are unlikely to increase and probably will continue to decline unless deer numbers take a significant decrease. That is another extremely controversial issue in its entirety!

6. Raptors

Red-tailed hawks, cooper's hawk, sharp-shinned hawk, and bald eagles (see Endangered & Threatened Species) nest on the refuge and were observed frequently. Rough-legged hawk, osprey and turkey vultures were often seen during migration periods.

7. Other Migratory Birds

Volunteers Howard Byham and Gary Sliter built 39 new bluebird houses during January and February.

On February 22, Byham and Sliter attended a Bluebird Workshop sponsored by the Pennsylvania Game Commission held at the McKeever Environmental Center. Participants included Bluebird Club members and individual bluebirders from northwestern Pennsylvania and northeastern Ohio. Everyone attending shared ideas and the workshop was an interesting, informative learning experience. Based on previous field experience and knowledge gained at the workshop, Volunteers Byham and Sliter made changes in their operation hoping to increase bluebird production.

Byham and Sliter moved boxes away from thick brush and timber areas to keep house wrens from occupying the boxes. House wrens are a main predator of bluebirds. They relocated boxes, pairing up 28 houses at 20-21 feet apart. Pairing boxes was tried so there would be one nest for bluebirds and the other nest for competing birds.

Byham and Sliter also placed a 2"x24" piece of plastic pipe over the post below the bluebird house. The plastic pipe proved to be an excellent predator guard. The plastic pipes are slippery and very few predators could climb them. Before installing the plastic pipes Byham used grease on the posts to control predators. The plastic pipe is cleaner and no fumes are generated like you found with the grease, so there should be less danger to the bluebirds. Plastic pipe predator guards were tried on 30 houses and not one bluebird was lost in these boxes because of predators.

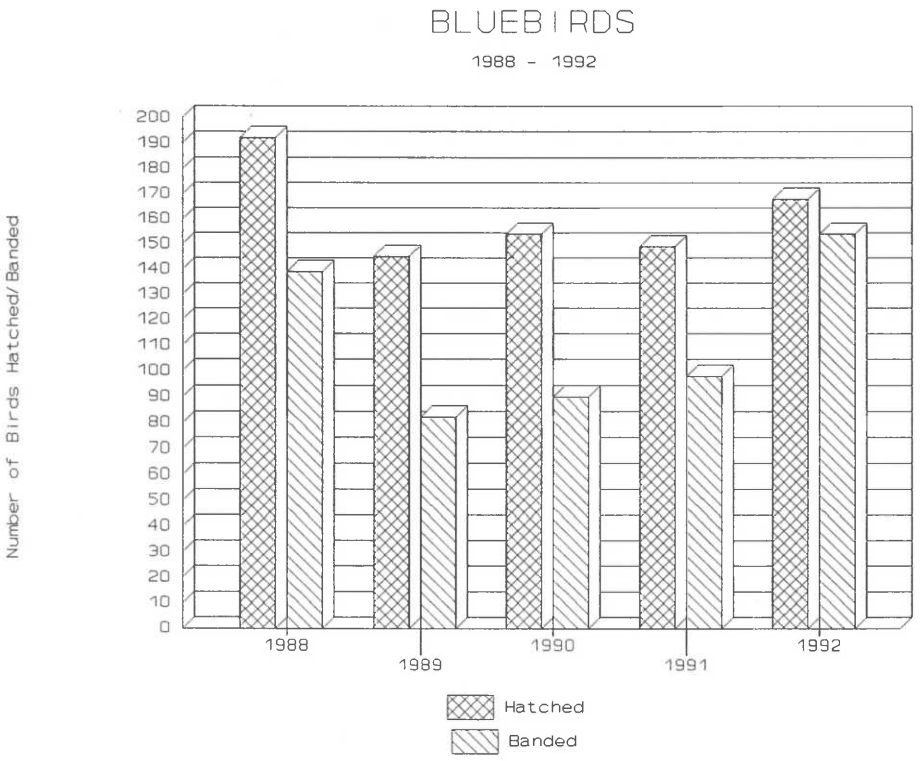
When the nestlings hatched this year, Byham and Sliter checked the nest for dampness. If dampness was found, the nest material was replaced with clean dry nesting material. The reason for changing nest materials is that warm nestlings in a damp nest give off an odor that attracts blowflies. Blowfly larvae appear on the nestlings in two or three days and sucks the blood out of them. Nesting materials were made from lawn clippings. Clip the lawn when it is three or four inches high. Leave the clippings in the sun until they are dry and store in a plastic bag. When you have rain or other damp conditions, take an empty plastic bag with you. Dump the old damp nest into it. Clean the box to make sure all the larvae are gone. Place your new dry nest material about two inches deep in the clean box shaping a nest. Check the nestlings for larvae and place them back in the box. This procedure saved the lives of many bluebirds. This year was very humid and wet so it was a good year to experiment with changing nesting materials.

By late March, Byham and Sliter had relocated 95 boxes and reduced the trail from the original 120. Twenty-five box locations were near brush and no longer provided good bluebird habitat. There was a noticeable decrease in house wrens using the boxes once they were moved. Male bluebirds were everywhere by April 1 and females came one week later. We found the first nest with one egg in Box 11 on April 14. Five nestlings hatched from that same box on May 4. After May 4, many nests were built and many eggs laid. Volunteers Byham and Sliter were extremely busy because of the excess amounts of rain causing damp conditions in the boxes. Much time was spent changing nesting materials, removing blowfly larvae in an attempt to keep the birds dry and healthy.

The 1992 bluebird season started on April 14 and ended on August 7 with 168 nestlings hatched. **A new record was set for banding bluebirds with 154 birds receiving bands.** Since the first 30 plastic pipe predator guards were successful, Volunteers Byham and Sliter plan to install 65 guards in 1993, which will protect all the houses on the refuge.

Despite the rainy season this year, it was an excellent year for bluebirds. The public remains very interested in our bluebird program. Staff and volunteers continued to present educational programs about the bluebird. Many individuals, schools and community groups have built boxes and made their own bluebird trail. This is the kind of effort that makes the outlook for bluebird production good for the future.

Following is a table showing numbers of bluebirds hatched and banded for a five-year period:



8. Game Mammals

Pennsylvania black bear population is experiencing a rapid increase. Observations of bear on the refuge were reported a couple of times, but refuge staff have not been able to confirm the sightings. The state's three-day bear hunting season resulted in 1,584 harvested in 1992.

Deer hunting is a large part of every Pennsylvanian's life, whether it is the farmers concerned with crop damage or a hunter concerned about not enough deer to hunt. This issue continues to be a controversial topic between the refuge, state officials and private citizens. Refuge staff, Pennsylvania Game Commission, and local farmers are able to agree that the deer population in the county is high. On the contrary, the sportsmen feel that there are not enough deer! The index from the deer spotlight census (keeping in mind that it is only the first year of the survey) and previous year's browse line study shows that there may be an over population of deer on the refuge. However, we cannot conclude anything until further studies are conducted.

1992 Deer Spotlight Survey Results

Age	Sugar Lake Div. # of Deer	Seneca Div. # of Deer*
Buck	1.6	2.3
Doe	13.0	51.3
Fawn	5.67	18
Unclassified	62.3	21.67
TOTAL	42	134
#DEER/ACRE	1/11.37 ACRE	1/1.60 ACRE

*Numbers of deer are averages of four spotlight surveys on each Division.

It should be noted that Pennsylvania's deer quota (goal) is **25 deer/square mile** (approximately 1 deer/25 acres). The Sugar Lake Division deer population more than doubles that of the state's goal and the Seneca Division population is almost 16 times that of the goal. Furthermore, a study conducted in 1990 by The Pennsylvania State University Fish and Wildlife Research Center showed that 67-100% of stems in

their study sites were browsed. The refuge's cooperative and local farmers constantly complain about crop damage. An adjacent cooperative farmer shoots at least a couple of hundred deer a year (320 deer in 1991) for crop damage on his property.

The Pennsylvania Game Commission initiated a Deer Damage Area program for all farmers. This program allows farmers to join if they feel that they have intense crop damage, but has to be approved by the Commission. Landowners enrolled in the program are encouraged to seek the cooperation and participation of adjoining property owners. Cooperative farmers have approached the refuge for cooperation.

The Game Commission's recommendations to the refuge was to open small tracts of refuge lands, which abuts the farmers land. This would result in little hunts all over the refuge, and as can be imagined, law enforcement would be--heckish! So, we declined the offer until a better plan is developed. A meeting with the Pennsylvania Game Commission, Penn State Research Unit faculty, refuge staff, and FWS regional biologists in March 1993 should produce an agreeable resolution on the hunting program for the refuge.

10. Other Resident Wildlife

The ruffed grouse are often heard drumming in the spring. A pair hangs out in the shrubs in front of the refuge's headquarters year round. There have been no efforts to document ruffed grouse numbers.

11. Fisheries Resources

A contract for construction of a new handicapped accessible fishing pier has been prepared cooperatively with refuge staff, Engineering and Contracting General Services. We plan to advertise the contract during May, allowing construction to start in early June; by that limiting the affects on the spring and fall migration of waterfowl. The pier will be located on Pool K and replaces a pier that was removed in October because of unsafe conditions. A Special Use Permit was issued to a local contractor for $50. He removed the pier for the lumber. The construction of the pier will be closely coordinated with Gary Swihart, Project Leader, Fisheries Assistance, to integrate fish attractors and fishery improvement projects into construction. At this time, we also plan to conduct creel census surveys and population samples of many public fishing areas and population samples in protected areas. This information will provide baseline data enabling us to improve recreational fishing opportunities and to analyze the food source for piscivorous birds.

12. Wildlife Propagation and Stocking

Dr. Eugene Morton of the National Zoological Park-Smithsonian Institution in Washington, DC, released 92 black ducks (40 on Seneca Division and 52 on the Sugar Lake Division) on July 24, 1992, for a total of 316 birds since 1989. These ducks are "leftovers" from his research study at the institute.

Speculations on the success of the reintroduction remains questionable. Black ducks were observed at the release site several months after the release date, but their survival rate is not known. It is important to note that the spring waterfowl survey showed only two black ducks seen and that the fall survey (four months after the release) shows 60 black ducks. Furthermore, a black duck with nine eggs was flushed out of its nest during the nest search. This nest was in a warm-season DNC field that is very close to the release site on the Sugar Lake Division. The eggs apparently hatched.

Following is a table showing history of black duck release on the refuge:

Black Duck Release	
Year Released	**Number released**
1989	85
1990	68
1991	71
1992	92
TOTAL	316

Sichuan Pheasant Release:

The Pennsylvania Game Commission will begin stocking Sichuan pheasants (a Chinese subspecies of the ring-necked pheasant) in the Spring of 1993. This will be the first season of the three-year introduction program. The proposed stocking sites (includes 99,800 acres in Crawford County) are around refuge land, therefore the birds will undoubtedly cross-over to refuge land. According to the experts, Erie contains prime habitat for this species.

15. Animal Control

Only one turtle trapper obtained a permit during 1992 to hook/trap snapping turtles on the refuge. He reported catching no turtles. For the record, he placed baited hooks in the small wetland north of the Townville Road just East of Hanks Road.

Nuisance beaver control was absolutely necessary this summer despite an active winter beaver trapping program. Beaver activity at Pool 7N and 7S, Meyers Pond, Pool H, Reitz Pond, and the Office Entrance Pool was creating intolerable conditions with dikes/WCS and the entrance road. Jim Murphy, a PA Game Commission licensed nuisance trapper was called in to help the refuge staff trap the problem beaver. Murphy's fee was $25 per live beaver. The beaver were relocated nearby to State Game Lands. Jim caught twelve beaver and the refuge maintenance staff removed two additional beaver.

The refuge is going to review the trapping units in 1993 and provide more liberal harvest quotas in 1993-94. The PA Game Commission recently raised the beaver harvest per trapper to ten beaver. In previous years, the trapping quota was six per trapper.

16. Marking and Banding

Thirty-six (36) warblers were color banded on refuge and adjacent land at the Seneca Division by David Spector of the Department of Zoological Research, National Zoological Park. Twenty (20) yellow warblers (Dendroica petechia) and six (6) common yellowthroats (Geothlypis trichas) were captured and banded on the Seneca Division as part of a study on geographic variations in songs learned, produced, and used by the males of these species.

Bluebird Banding:

One hundred fifty-four (154) banded. See Section G.7. Other Migratory Birds.

Waterfowl Banding:

The banding quotas (200 wood ducks, 200 mallards) were not met this year. No other species except the wood duck was banded. Capturing and banding 200 mallards is near impossible on this station. Nevertheless, we will definitely keep reaching for our goal.

Following is a table showing results of waterfowl banding:

1992 Waterfowl Banding	
Wood Duck	
AHY-M	63
HY-M	56
AHY-F	31
HY-F	38
TOTAL	**188**



Volunteers Vicki Mountain and Trish McKellop banding woodies.

SL 9/92

17. Disease Prevention and Control

A strangely-behaved muskrat was discovered by our beaver trapper in June. The poor creature was swimming around in circles as if chasing after its tail. It was very tame and unusually cooperative with the trapper when he picked it up by hand. It was taken to a local veterinarian to be euthanized, then sent to the National Wildlife Health Research Center in Madison to be tested for disease, etc. The muskrat was diagnosed with Yersinia enterocolitica infection of the mesenteric lymph node, and had granulomatous pneumonia and peritonitis caused by the Baylisascaris sp. parasite migrating through the lung and mesentery. Furthermore, a tapeworm was found in the liver cyst, but it was well encapsulated and was not thought to have been a primary cause of illness. There was no threat to human health.

H. PUBLIC USE

1. General

Because of congressional redistricting U.S. Representative Tom Ridge's territory will include only the Seneca Division of the refuge. U.S. Representative William Clinger's territory will be the Sugar Lake Division of the refuge. Harris Wofford, a new U.S. Senator, and Senator Arlen Specter, represent the entire refuge.

Early in the year, Manager Mountain and ORP Marvin visited Ann DiTullio, U.S. Representative Tom Ridge's Executive Director, Erie. She introduced Mary Fiolek, U.S. Senator Harris Wofford's Executive Director. Manager Mountain and ORP Marvin discussed current refuge activities with them.

During the summer, Manager Mountain and ORP Marvin were host to congressional aids at the refuge. Senator Wofford was represented by Mary Fiolek, and Congressman Tom Ridge was represented by Ann DiTullio of Erie, PA and Jody Bruckner, Meadville office. Senator Specter's representative was unable to make the trip, but Congressman Ridge's office staff provided liaison with that office in her absence. Congressional aids toured the refuge and looked at different work projects.



Howard, Mary, Jody, Ann
Watching Howard band bluebirds was
a highlight of trip.
JM 7/10/92

Manager Mountain and ORP Marvin visited the office of U.S. Representative William F. Clinger, Jr. Richard Peltz, District Administrator, discussed adding Eastern Crawford County, which includes the Sugar Lake Division of the refuge, to Clinger's District. In September, Peltz visited the refuge to become acquainted with refuge management and to see the portion of the refuge that is in Clinger's territory so he could brief the Congressman.

The refuge staff met throughout the year with the Crawford County Commissioners, Meadville Area Chamber of Commerce Director, Crawford County Tourist Association Director, and Township Supervisors to keep them informed about refuge management and programs.

ORP Marvin was detailed to Public Affairs in the Regional Office. She reviewed the Region 5 Endangered Species Guide for School Presentations and suggested ways to make the document more workable for field stations. She also contacted other agencies producing environmental education materials to obtain permission to include their materials in the Region 5 guide.

ORP Marvin attended the Lower Great Lakes TQM meeting July 15 and 16 as a representative for PAO. Wednesday,

July 15 was spent in TQM training and Thursday was spent relating TQM to Lower Great Lakes goals and establishing ground rules for future meetings.

ORP Marvin was selected to head a Regional Dedication Strike Team to plan, design, and perform tasks for professional Region 5 dedications. ORP Marvin's first assignment came when she was detailed to Ohio River Islands NWR May 3-7, 18-20 and 26-28, to help the refuge staff in planning the Ohio River Islands dedication. She consulted with Project Leader Jerry Wilson to come up with a plan for the event and prepared a timeline checklist as a guide to be sure that specific jobs were completed on schedule. Barbara Donlon, PAO, Region 5, coordinated public affairs responsibilities with ORP Marvin and Project Leader Wilson. Marvin made staff assignments for the Regional Dedication Strike Team and managed the on-site work of the team. Dedication Strike Team personnel: Steve Alvarez, Jim Bell, Fred Caslick, Dorothy Gerhart, Tom McFadden, Maggie O'Connell, Stacey Rosenberg and Joyce Sliter, came from refuges throughout the region.



The dedication team . . .
JS 5/27/92



worked . . .
JS 5/27/92



long and hard . . .
JS 5/27/92



to assure . . .
JM 5/28/92



ceremony went . . .
JM 5/28/92



. . . smoothly and professionally.
JM 5/28/92

In August, ORP Marvin was detailed to Great Bay NWR to begin preparations for the Great Bay NWR dedication ceremony. Marvin, Barbara Donlon, PAO, and Project Leader Halpin worked out the details for the dedication with Newington Town officials. ORP Marvin prepared a timeline checklist as a guide for the event. Marvin returned to Great Bay October 7-9 and helped Project Leader Halpin purchase supplies and arrange the setup for the dedication. She made staff assignments for the Regional Dedication Strike Team and managed the on-site work of the team. Dedication Strike Team personnel were Dorothy Gerhart, Kim Johnson, Janet Kennedy and Tom McFadden.



Team's work completed and awaiting dedication.
JM 10/9/92



Another wonderful and successful dedication ceremony.
JM 10/9/92

ORP Marvin and Barbara Donlon, PAO, visited the Tom Dick wetlands restoration site (Bedford, PA) on August 19 to make preparation for Director Turner's tour on September 2. The site for Director Turner's speech was identified and plans were made for podium, seating, and decorations. Parking sites were identified and cleanup of the sites was discussed. Cleanup of the area prior to Director Turner's tour was completed by Erie's maintenance staff. Preparations were also made for a "down home" country meal to follow the tour.



Director Turner was pleased with the wetlands restoration project.

MP 9/2/92

ORP Marvin and Donlon, PAO, visited Eastern Shore of Virginia NWR September 23 and 24 to help the staff with preparations for their visitor center dedication. Marvin and Donlon met with Project Leader Sherman Stairs and ORP Alvarez to plan for the event. ORP Marvin completed a timeline checklist for the dedication, ordered exhibits, and arranged for the dedication team. She provided guidance and support to ORP Steve Alvarez to help him carry out tasks on the checklist prepared specifically for the Eastern Shore of Virginia dedication. Ann Bell, Maggie O'Connell, and Teresa Cherry were members of the Dedication Team.

ORP Marvin was selected as a member of the Office of Training and Education Inventory/Needs Assessment Survey User Acceptance Team. She critiqued a survey and answered questions regarding an environmental education database that OTE is developing.

A Scope of Collections Statement to define holdings, present and future, of museum property contributing directly to the mission of the refuge was completed.

Information on wetlands was distributed to students, teachers and workshop participants. Refuge programs and information kiosks focused on the values of wetlands and the North American Waterfowl Management Plan. Fifty educators received the "Wetlands we need'em . . . Wetlands are important," posters for use with their classes.

All our presentations included the "Take Pride in America" message. All our letters to the public and articles to the news media also included the message. Over 1200 "Take Pride in America" leaflets, and 1000 "Take Pride in America" book covers, buttons and stickers were distributed to students, educators and visitors.

Newspapers, magazines, radio and television stations used refuge news releases. Copies of refuge news releases were sent to the Regional Office to be included in the Public Affairs circulating news bulletin. Copies of releases were sent to U.S. Representative Tom Ridge's Meadville and Erie offices, U.S. Representative William Clinger's Warren office, Senators Specter and Wofford's Erie offices.

Visitors purchased 353 "Duck Stamps" during the 1991-92 sales period. Duck Stamps "Conservation's Stamp of Success" and the Duck Stamp Contest Designs exhibits conveyed messages encouraging visitors to purchase duck stamps. Videos and the "Duck Stamp Story" leaflet helped to promote the sale of duck stamps.

Following is a table showing "Duck Stamp: sales for a five-year period:

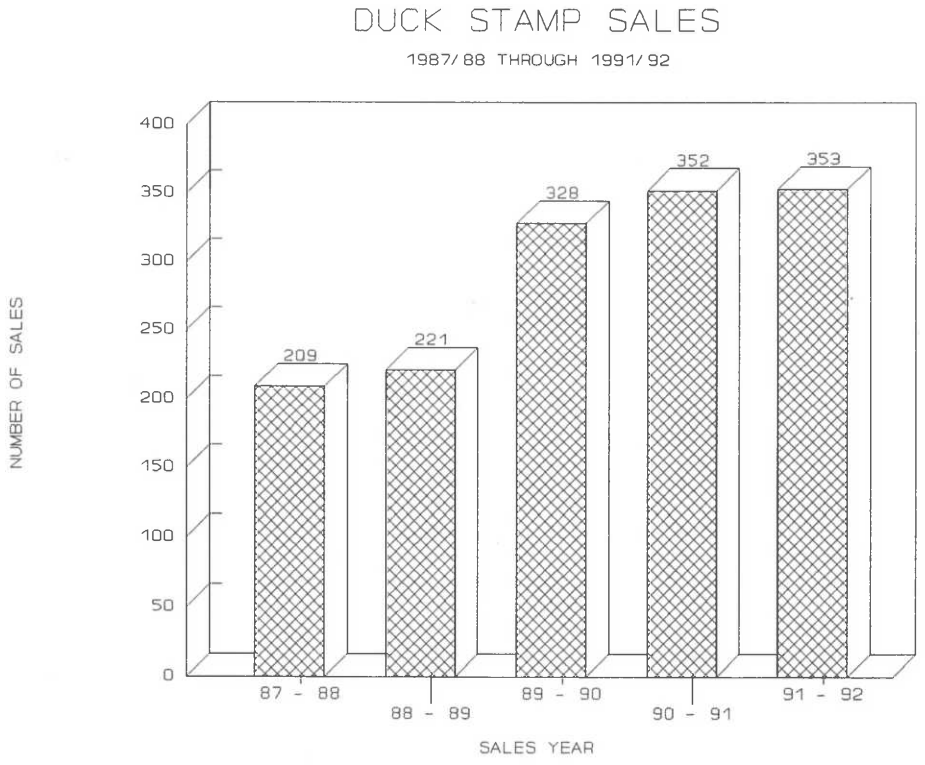


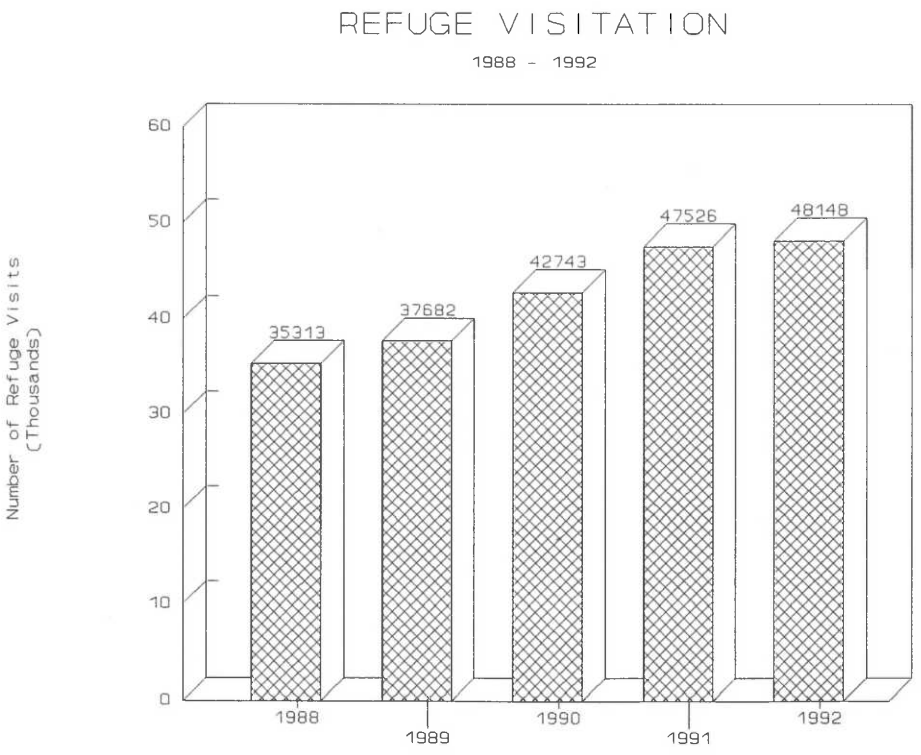


Exhibit aroused visitor interest about duck stamps.

JM 9/19/92

During 1992, 48,148 people visited the refuge to participate in recreational and interpretive activities. The largest number of visitors to the refuge was during November when 8,013 people participated in refuge activities. In March, only 608 people visited the refuge, the smallest number of visitors in any one month.

Following is a table showing an increase in visitation over a five-year period:



2. Outdoors Classrooms-Students

ORP Marvin conducted nine outdoor classroom sessions. Class sizes ranged from 15 students to 35. Topics for outdoor classrooms included: endangered species, refuge management, bluebird management, and wetlands management. Students were from all grade levels: university, high school, elementary and the gifted program.

Biologist Lor conducted two classes, one on refuge management for science students from Baldwin High School, and the other on ornithology for students from Allegheny College. Classes learned about waterfowl management, duck banding and practiced bird identification.

ORP Marvin and Assistant Manager Piccirilli conducted an outdoor class for 70 students from Kline Elementary in the City of Erie. Marvin discussed migratory bird management and Piccirilli discussed fish management.

Teachers led four outdoor classroom sessions with class size ranging from 15 to 40 students. Topics included ecology, wetlands and endangered species.

ORP Marvin participated in an extra day of learning during "Discover America" at the Maplewood Elementary School. The program celebrated the 500th Anniversary of the discovery of America by Christopher Columbus and more than 2500 students and parents attended. "Take Pride in America and Discover Nature Items Found on Erie NWR" was the theme of the refuge educational station. Students were asked to feel in a box and try to identify items found on Erie Refuge, such as a goose egg, feather, acorn, bark, fungi, etc. An educational discussion about each item followed the identification. Students were rewarded for their discoveries with "Take Pride in America" pins. Seven hundred fifty (750) Mark Trail coloring books were distributed to the younger children. Teachers received "Take Pride in America" posters and book covers for use in their classrooms. Parents received "Take Pride in America" stickers for their vehicles. Before the event each class in the school, plus the staff, made educational displays for each state in the union and learned about their state's history, geography and state symbols.



Students found goose egg and fungi most interesting.

DM 10/24/92

ORP Marvin conducted a class for boy scouts concerning flyways and poison plants to help fill badge requirements.

3. **Outdoors Classrooms-Teachers**

Seven teachers representing four different schools located in Intermediate Unit 5 completed the environmental education workshop, "Teaching Environmental Education," held April 18, 25 and May 2. Teachers received one in-service credit for the 15-hour course. Packets of materials used for this course were updated because of the evaluations received from the previous year's course.

Twenty two classroom teachers were assisted with educational programs. Audiovisual materials and educational packets were used by these teachers with approximately 4,250 students. Two girl scout leaders were helped with materials to prepare scouts for badge requirements. Environmental education materials were furnished to Leila Munirova, Pedagogical University, USSR, Moscow. She received the environmental education materials and said they were a help to her and her teachers.

ORP Marvin and three teachers selected by Marvin, critiqued the Piping Plover Lesson Plans developed by Linda Morse, New England Field Office.

ORP Marvin conducted a Keystone Aquatic Resources Workshop (KARE) for 25 teachers. Teachers learned to identify aquatic organisms and assessed the relative environmental quality of a managed impoundment and a beaver pond based on indicators of pH, water temperature and diversity of organisms. Some nice largemouth bass were temporarily collected. Teachers received one in-service credit for this course.



Largemouth bass prefer refuge ponds to streams, explained Carl Richardson, Pennsylvania Fish and Boat Commission KARE Coordinator

JM 6/26/92

ORP Marvin served as an environmental education consultant for a group planning an energy, environment, economics workshop for educators. The group planning the workshop included people from Northwest PA Energy Center, Erie County Planning Department, Miller Research Center, National Fuel, DER, and Crawford County Solid Waste. ORP Marvin helped them with planning, advertising, setting up the workshop for teacher credit, planning class size, and educational setting.

ORP Marvin conducted a workshop for teachers and other educators on Endangered Species. Sixty educators from Pennsylvania, Maryland, Virginia and New York attended. Participants received background information on endangered species, pointers on presenting endangered species materials, handouts of classroom activities and fact sheets, and resource information on videos, books, displays and experts. Teachers received one in-service credit for this course.



Endangered Species information was requested . . .
DD 11/15/92.



. . . more often than any other topic by teachers.
DD 11/15/92

4. <u>Interpretive Foot Trails</u>

Thirty-five (35) volunteers from Edinboro University of Pennsylvania Delta Chi and Theta Xi fraternities, and Disabled Student Services continued work to make the Seneca nature trail handicapped accessible. They completed another 150-foot section of the trail. Approximately two more work sessions are needed to complete the trail. Assistant Manager Piccirilli and Biologist Lor helped the volunteers.



More fun than hitting the books.
SL 4/25/92

Volunteer Joan Howlett led a group on a wildlife hike on the Seneca trail. They heard the song of a wood peewee and the call notes of a scarlet tanager and sighted a black-throated green warbler. The group also identified several species of ferns: sensitive, cinnamon, Christmas, woodfern, New York, interrupted and maidenhair.



Looking for wildlife on the Tsuga Nature Trail is a popular activity with family groups.
JM 7/20/92

Numbered sign posts were placed on the Tsuga Nature Trail to correspond with the new Tsuga Nature Trail Waterfowl and Wildlife Management self-guiding leaflet. (See Trail Leaflet in Section L. Information Packet.) A group of students from the Hamot Hospital Adolescent Drug and Alcohol rehabilitation program was first to use the trail since it was made self-guiding. ORP Marvin gave an "Orientation to the Refuge" talk to the group and then they walked the trail. Members of the Baptist Youth Group were the next group to participate in a leader-led walk on the newly interpreted trail.

A trail head sign showing the configuration of the Deer Run Trail was placed on the Pool K dike.



Volunteer Matt Blevins routed sign.
JM 3/6/92

Several girl scout groups participated in leader-led walks to view refuge wildlife.

6. Interpretive Exhibits/Demonstrations

Volunteer Barb Drbal staffed an exhibit and discussed Endangered Species at the Penn Lakes Girl Scout 80th Anniversary Celebration. Over 2,000 scouts viewed the exhibit and heard the discussion.

Volunteers Howlett and Thomas staffed the refuge exhibit at Zoo Conservation Day. Children visiting were invited to "Draw a Wild Thing--a flower, bird, butterfly, fox, tree, rabbit, fish, frog . . ." for a wild crazy quilt that was displayed in the refuge visitor center throughout the summer. Approximately 2,500 students and parents attended the event.



Snakes, frogs and trees were favorite wild things.
JM 6/6/92

ORP Marvin and SCA Donald erected the "Discover Erie National Wildlife Refuge" exhibit at the Crawford County Fair. Design and artwork for the exhibit was prepared by SCA Donald. Fair officials reported attendance to be 150,000+. The Crawford County Fair is Pennsylvania's largest agricultural fair.



Fairgoers commented, "We didn't know you could do all those activities on the refuge."
JM 8/23/92

ORP Marvin staffed the refuge exhibit at the Northwestern Rural Electric Co-op Association Expo and sold duck stamps. Visitors viewed the Duck Stamp exhibit and asked questions about the refuge. Many questions were related to the early goose season. Approximately 3,000 people attended the Expo.

The Duck Stamps: "Conservation's Stamp of Success" exhibit was displayed at the Pymatuning Waterfowl Expo. Weekend activities included the competition for the 1993 Pennsylvania Duck Stamp, the State goose and duck calling championships, decoy carving and taxidermy contests, and wildlife exhibits. ORP Marvin and Office Assistant Sliter staffed the refuge exhibit, talked with visitors about refuge programs, and sold duck stamps.



"Duck stamps buy wildlife refuges,"
OA Sliter explained.
JM 9/19/92



ORP Marvin invited the WVCC listening audience to come purchase a duck stamp and visit refuge.
JS 9/19/92

Three kiosks with professionally prepared displays covering the following topics:

Fish and Wildlife Service;
Erie-Refuge for Eagles;
The American Bald Eagle-An Endangered Species;
Wetlands for Wildlife and People;
Wood Duck;
Waterfowl for the Future;
Erie Waterfowl

are available to visitors on a self-serve basis. Panels are changed depending on the theme, related refuge management and seasons of the year.

Displays in the visitor center lobby were varied depending on the season. Visitors enjoyed the "touch and feel" items found in the visitor center, however, they expressed a desire to see some permanent exhibits added. Funding has prevented the refuge staff from initiating the visitor center exhibit plan.



" A ruby throated hummingbird made this nest," said Volunteer Howlett.
JM 1/12/92

7. Other Interpretive Programs

Volunteer Joan Howlett presented a slide talk titled, "Nesting Hooded Warblers in Crawford County." She discussed a research project sponsored by the Smithsonian Institution to study breeding behavior of hooded warblers, which was initiated in Crawford County in the summer of 1991. Joan is a member of the research team working on the project. She related her adventures following the warblers from the time the first males arrived in May to claim territories until the last of the nestlings were fledged in August. The 60-seat visitor center was filled to capacity.

ORP Marvin showed the movie, "Seasons of the White-tailed Deer." The audience viewed the life history of these graceful animals, running, feeding and faring against winter odds. Successful conservation management was woven into the deer story. She also showed the movie, "Two Little Owls." Two young great horned owls starred in this story of their life from hatching to fledging making a delightful as well as scientific documentary on owls. Thirty-one people attended the program.

The Cochranton Elementary School Improvement Council celebrated Earth Month by awarding prizes for the outstanding fifth and sixth grade science projects displayed at a Science Fair. Top award winner for the fifth grade was Matt Sacco; sixth grade was Paul Gevin. They received $50 savings bonds. ORP Marvin judged projects in the animal category.

Refuge brochures and Wetlands, Wildlife and You, were furnished for the 80th Anniversary celebration of Keystone Tall Tree Girl Scout Council. Approximately 500 Girl Scouts attended the event. Throughout the year ORP Marvin presented programs on the "National Wildlife Refuge System" for girl scout troops.

SCA Donald was host to a "Day for Kids" twice during the summer. Activities for the first program included "Meet a Tree," "Rubbings," and a "Nature Bingo Walk." Thirteen youngsters participated. Activities for the second program included "Noah's Ark," "Webbing," "The Sleeping Troll," and "Habitat Lap-sit." Thirteen youngsters participated in the second day's events.

Family groups and adults attended four programs presented by SCA Donald. The first program was the movie, "Turkeys in the Wild" and 20 visitors attended. The second program was a slide show, "We Care About Eagles," and 17 visitors attended. The third program was on bluebirds. She showed

the film, "Bluebirds--Bringing Them Back," which gives a "bird's-eye view" into the nesting boxes of bluebirds, and tells the story of what people are doing to increase their shrinking numbers. Donald also discussed the refuge bluebird program. Thirty-eight visitors attended. The fourth program was titled, "Wealth in Wetlands." Seventeen visitors came to the program to learn why our rapidly vanishing wetlands are so valuable and what people are doing to save them.

ORP Marvin represented the refuge at the Randolph Volunteer Fire Department annual meeting. The refuge has a cooperative agreement with the fire company to help with firefighting on the refuge.

ORP Marvin and OA Sliter attended the retirement dinner for PA Forest Inspector Harry Drury. Refuge personnel operated a weather station in cooperation with the PA Department of Environmental Resources, Forestry Division. Harry supervised the program for ten years.

ORP Marvin represented the refuge at the Crawford Conservation District Annual Meeting. Mike Cooney of Rose's Dan Dee Farms received the Conservation Farmer of the Year Award and John Spinelli received the Conservation Teacher of the Year Award.

ORP Marvin, Biologist Lor, Assistant Refuge Manager Piccirilli, and Volunteers Byham and Blevins attended four Crawford County Ag-Interest Council meetings. Programs for the meetings included: "Forestry Management," "Gypsy Moth Control in Crawford County," "Planting Materials for Wetlands," and "Protecting the Environment Through Proper Pesticide Use and Integrated Pest Management." During the round robin discussion, refuge staff members announced upcoming public programs and updated the group on management activities.

Manager Mountain attended the Black Ash Sportsman Club meetings. He presented programs on the refuge gypsy moth policy and other refuge management topics throughout the year.

ORP Marvin and OA Sliter were guests at the annual Hens Unlimited (Ducks Unlimited) banquet.

ORP Marvin presented the refuge message to other on site and off site groups. Some topics for these presentations were: "Careers in the U.S. Fish and Wildlife Service," " Volunteer Opportunities at Erie," "Values of Wetlands," "Refuge Wildlife," and "Visitor Opportunities."

8. Hunting

The Sugar Lake Division of the refuge has been open to controlled hunting since 1966. A revised Hunting Plan that included the Seneca Division in the controlled hunting area was approved in January, 1987. Three hunting units were designated on the Sugar Lake Division and two hunting units were designed on the Seneca Division of the refuge. These hunting units are distinguished according to species available for hunting and periods for hunting are specified. (See Hunting Leaflet in Section L. Information Packet.) The 1987 Plan opened the refuge to turkey hunting during the spring season and opened additional areas to raccoon, fox, skunk and opossum hunting. The revised Hunting Plan requires hunters to wear in a conspicuous manner on head, chest and back a minimum of 400 square inches of solid-colored hunter orange clothing or material during the gun deer season.

Spring turkey hunting seasons opened May 2 and ended May 30. Two gobblers were reported taken on the refuge, one on the Sugar Lake Division and the other on the Seneca Division. "Closed" signs were posted from SR 173 south to Sugar Lake to protect the eagle nesting in that area of the refuge from turkey hunters.

An early Canada goose season from September 1-10, with a daily bag limit of three Canada geese, was followed by the regular Canada goose hunting season of October 12-December 19, with a one goose daily bag limit. The early duck hunting season opened October 12 and closed October 17. Duck hunting season reopened November 9 and closed December 2.

Ruffed grouse and squirrel season opened October 17 and closed November 28. It reopened December 26 and will close January 23, 1993. Grouse numbers remained low with a flushing rate of less than one bird per hour.

Cottontail rabbit and pheasant hunting season opened October 31 and closed November 28. The season reopened December 26 and will close January 23, 1993. The refuge is not stocked with ring-necked pheasant. Hunting pressure is heaviest on the Seneca Division near the PA Game Commission Pheasant Farm where pheasants often get out of pens and wander into the refuge.

Hugh Palmer, PA Game Commission, notified Manager Mountain there would not be any stocking of Sichuan pheasants on the refuge in 1993 or during future years.

Raccoon and fox hunting season opened October 14 and will close February 21, 1993. The results of the 1992-93 raccoon and fox hunting season will be reported in the 1993 Narrative.

Following is a table showing number of permits issued and raccoon and fox harvest for five years:

RACCOON AND FOX HARVEST HUNTING

SEASON	1987-88	1988-89	1989-90	1990-91	1991-92
PERMITS	29	10	17	5	11
RACCOON	15	25	32	6	15
FOX	8	10	9	1	0

Archery season (any deer) opened October 3, closed October 30, reopened December 26 and will close January 9, 1993. Archery deer season to harvest antlered deer only was open November 2-7. Archery hunting pressure on the refuge was light.

Antlered deer hunting season opened November 30 and closed December 12. Ninety vehicles were counted opening day on the Sugar Lake Division of the refuge, which averaged out to 315 hunters. One hundred twenty vehicles were counted opening day on the Seneca Division of the refuge, which averaged out to 420 hunters.

Antlerless deer hunting season was held December 14-16. Thirty-four vehicles were counted opening day of antlerless deer hunting season on the Sugar Lake Division of the refuge, which averaged out to 119 hunters. Seventy-nine vehicles were counted opening day of antlerless deer hunting season on the Seneca Division, which averaged out to 277 hunters. Flintlock muzzleloader deer hunting season opened December 26 and will close January 9, 1993.

Pennsylvania had a deer damage hunt that opened December 26 and will close on January 23, 1993 on area farms. Two of the farms are near the Sugar Lake Division.

Pennsylvania issued a bonus tag for deer hunting again this year. Properly licensed hunters could take a bonus antlerless deer during the antlerless deer seasons and during flintlock muzzleloader season.

Following is a table showing the number of deer harvested each season for five years:

White-Tailed Deer Harvest					
Season	**1988**	**1989**	**1990**	**1991**	**1992**
Archery	5	3	2	1	3
Antlered (Firearm)	19	21	17	12	11
Antlerless (Firearm)	11	29	25	19	27
Muzzleloader	5	2	1	0	0
TOTALS	40	55	45	32	41

9. Fishing

Ice fishermen tried their luck throughout the month of January at Pool K. However, conditions were not ideal because of freezing and thawing of the pond. Sub-zero temperatures in early February allowed for some additional ice fishing.

Six hundred seventy-five (675) rainbow trout were stocked in Woodcock Creek by the Lamar National Fish Hatchery. Opening day of trout season, Saturday, April 18, was rainy. Approximately 100 anglers lined the banks at the Woodcock fishing area. There were about 60 fewer anglers than 1991, probably because the creeks were high and it rained most of the opening day. Fishermen who braved the weather reported taking some good size trout from Woodcock Creek.

Two National Fishing Week poster contests were sponsored by the refuge. Students were asked to draw a color interpretation of the National Fishing Week theme. Because President Bush, and the whole first family, were the honorary chairfamily of this year's festivities the theme was "Join the First Family . . . Take a Friend Fishing."

Cochranton and Maplewood sixth graders participated in the contest. **Following are the Cochranton School winners:**

First Place: Kylene Dalton - fishing rod

Second Place: Linda Neely - fishing reel

Third Place: Paul Sanner - fish stringer

Following are the Maplewood School Winners:

First Place: Kristen McCaskey - fishing rod

Second Place: Travis Stevenson - fishing reel

Third Place: Laura Sallustio and Darlene Wetsell- fish stringers

The posters were judged by Howard Byham of the Black Ash Sportsman's Club. Winning posters were on display at the refuge visitor center during National Fishing Week, June 1-7.



"I'm going fishing after school," said winner Kylene Dalton.
BS 5/8/92

Erie Refuge participated in Pennsylvania's "Fish-for-Free Weekend," June 6 and 7. On these two days everyone was welcome to fish, no license needed in the designated fishing areas on the refuge. Two hundred visitors took advantage of this opportunity.

ORP Marvin distributed National Fishing Week Activity books to 50 children to encourage them to go fishing. News releases announcing "Fish-for-Free" weekend, poster contest winners and the activity book distribution went to 30 members of the news media.



Pool K fishing pier was declared unsafe by RO Engineering and later removed as salvage material.
MP 10/92

Contractors were contacted regarding estimates to drive piles to replace the handicapped access fishing pier, which was removed for safety reasons. Estimates from contractors were in the $15,000 to $20,000 range. Materials for floor, rails, supports, etc., were purchased with existing funds. Funds were requested for piles and driving of piles to complete the pier. Visitors inquired regularly about when

they can expect to see the handicapped access fishing pier reopened. Regional Office Engineer Gary Prime visited to collect data required to prepare contract specifications for contract work on the handicapped accessible fishing pier.

Erie Refuge maintenance staff rebuilt the Reitz Pond fishing area parking lot. The larger parking area enables visitors to get their vehicles off the roadway. The rock base cuts down on soil eroding into the pond and it provides a firm foundation for bank fishing.



Fishermen were happy with the improvements at Reitz Pond.
JM 11/19/92

10. Trapping

The refuge Trapping Plan, approved in July, 1987, and amended in May, 1990, designated 17 trapping units. Ten trapping units are located on the Sugar Lake Division of the refuge and seven trapping units are located on the Seneca Division of the refuge.

Refuge trapping units continued to be distributed according to the bid system. One unit is awarded to each bidder and the bidder has exclusive rights to harvest furbearers on the assigned unit for the season.

On October 6, bids from 12 trappers were opened. In 1991, 14 trappers bid on the units, so there was less interest this year than last. Twelve trapping units were awarded. No bids were received for Trapping Units E and Q. Trapping Units I and J remained closed to protect eagle nesting habitat. The lowest bid awarded was $26 and the highest bid awarded was $178.50. Total revenues amounted to $884.64.

Trapping season for foxes, opossums, raccoons, skunks, and weasels opened October 14 and will close February 21, 1993. Mink and muskrat trapping season opened November 26 and will close January 10, 1993. Beaver trapping season opened December 19 and will close January 24, 1993.

Following is a table comparing the harvest of furbearers by trappers for a five-year period:

FURBEARER HARVEST - TRAPPING

SEASON	1987-88	1988-89	1989-90	1990-91	1991-92
FOX	18	8	10	0	3
OPOSSUM	86	31	18	16	40
RACCOON	200	79	74	73	130
MINK	21	11	31	17	18
MUSKRAT	685	435	418	377	438
BEAVER	61	48	60	34	75
SKUNK	0	2	1	0	2

11. Wildlife Observation

The Observation Blind continued to be a favorite spot for bird watchers and photographers with the three pools located near the headquarters' entrance road running a close second. Bluebirds, great blue herons, wood ducks and hooded mergansers were a few of the species near the headquarters that provided visitors with good photographic opportunities.

Spotlighting deer from a vehicle at night continued to be a popular pastime in northwestern Pennsylvania and the refuge permits this activity from township roads. State law does not allow this activity after 11:00 p.m. nor during the regular firearms antlered or antlerless deer seasons. This activity usually begins in September when entire families pile into vehicles and cruise the roads looking for white-tails. Some families keep a tally of the number of deer seen each outing.

12. Other Wildlife-Oriented Recreation

Cross-country skiers took advantage of two snowy weekends to ski refuge trails. Skiing conditions were excellent on these weekends, but were poor the rest of the year because of light snow cover. The snow was never deep enough for visitors to use snowshoes.

14. Picnicking

Three picnic tables are located in a maple grove at the beginning of the headquarters' entrance road. These tables were used by school groups who were involved in outdoor classrooms and by bird watchers and photographers visiting the refuge.

17. Law Enforcement

While on patrol during the 1991 deer gun season, Refuge Officer Nicely noticed a slow moving pickup truck approaching him on a refuge owned road. He observed the occupants inside the truck and suspected "road hunting" was taking place. Nicely stopped the vehicle and found a loaded M-77 Ruger rifle on the seat. The incident was turned over to the Pennsylvania Game Commission because this is a State specific violation. The individual who was cited contested the violation. Officer Nicely appeared in Magisterial Court and in Appellate Court January and February of 1992. Both court decisions favored the Pennsylvania Game Commission. The Judge ruled Officer Nicely did have reasonable suspicion and could stop the occupants of the vehicle.

Pennsylvania Game Commission Wildlife Conservation Officer (WCO) Allegro contacted the refuge regarding a complaint about a person "taking" Canada goose eggs from a nest at the Seneca Division. The person involved in the alleged incident turned out to be a former refuge volunteer. After investigating the incident, Officer Nicely could not positively prove any wrongdoing by the individual due to the lack of evidence. The individual did admit "inspecting" the nest for eggs. Nicely explained to the individual about the importance of not disturbing nesting birds or their nests.

While patrolling for late waterfowl hunting during the 1992 season, Officer Nicely noticed an individual in full camo attire carrying a compound bow enter a cornfield two minutes after legal hunting hours. Nicely waited approximately 33 minutes. Then he approached the archer and questioned him. The archer stated he was legally bowhunting and that Nicely's watch was off by 30 minutes. Officer Nicely turned the violation over to the Pennsylvania Game Commission because it was a State specific violation. The suspect contested the violation and Officer Nicely appeared in Magisterial Court on January 23, 1992. The Magistrate said he didn't believe that a Federal Officer whose sole purpose at the time of the incident was to enforce migratory bird hunting, especially late shooting, would have a watch that was 30 minutes off. The suspect was found guilty and did not appeal.

On June 17, Officer Nicely responded to a call where a woman had locked her baby in her car with her keys inside the car. The temperature was in the mid-70s, which made the child very uncomfortable. The mother was distraught. Nicely attempted to enter the vehicle using vehicle entry tools, but could not gain access. A locksmith was called. The child became more uncomfortable as the minutes went by due to the extreme heat inside the vehicle. The mother became more upset. Officer Nicely informed her he would break a window if she did not want to wait for the locksmith. Luckily for the baby and the car, the locksmith showed up. The mother retrieved the child who was sweating profusely. Officer Nicely informed her she should take the baby to a doctor immediately as a precaution. The refuge is updating the vehicle entry tools.

Ohio River Islands NWR requested Officer Nicely's assistance on September 5 to help Refuge Operations Specialist Mitch Ellis patrol Phylis and Georgetown Islands. Officers Ellis and Nicely patrolled by boat talking to boaters and handing out refuge leaflets.

On October 14, Officer Nicely planned a law enforcement meeting that included Special Agents Hart, Anderson,

Pennsylvania Game Commission WCOs McKellop and Allegro, and Refuge Manager Mountain. They discussed law enforcement situations, problems, and cooperative efforts on the refuge. Nicely gave a tour of the refuge and discussed the "hotspots" or problem areas that needed to be addressed. This meeting will become an annual event.

The refuge staff, U.S. FWS Special Agents, and the Pennsylvania Game Commission WCOs began tackling the ever present problem of deer poaching. Officer Nicely with the help of Engineering Equipment Operator Stover created one of the strangest but most effective deer decoys ever concocted.



Nicknamed "Timex"--it takes a licking and keeps on ticking.

DN 12/15/92

Before using the decoy the Assistant District Attorney was contacted and informed of the plans to use it. The Assistant District Attorney assured us that the use of the decoy especially during the daylight hours in no way was entrapment.

The decoy was used two separate times, once during buck season and once during doe season. It was placed in plain sight 50 and 100 yards from the roadway. Officers documented all activities with the use of video tape. "Business" was quite brisk during the nine total hours the decoy was used. The decoy was shot 15 times. Three cases were made and several warnings were issued. Several hunters attempted to stalk the deer and take it legally. They were very surprised when they realized it was a decoy. They were very supportive and glad to see that the refuge was tackling the problem of road hunting. One woman attempted to steal the decoy. She was quickly stopped.

The main goal of setting up this deer decoy was to deter "road hunting" on the refuge, not solely to apprehend violators. The response to the decoy was overwhelming. It was the talk of the area and news of its use spread fast. Road hunting will still go on at Erie, but now and then hunters will wonder, "Is it real?", "Am I being watched?"

1992 Refuge Violations

Refuge Officers

No.		CFR
7	Violated Refuge Special Hunt Regs	32.2(f)
1	Unsigned Duck Stamp	718(b)
1	Bow hunting in a closed area	32.2(f)
1	Illegal parking	27.31(h
3	Hunting crow during closed season	32.2(f)
1	Refuge Special Regs. overnight camping	26.34
1	Possession of fireworks	27.41
2	Hunting groundhog during closed season	32.2(f)
1	Taking animal without authorization	27.21
1	Entering a closed area	26.34
19		

1992 Refuge Violations

State Officers

No.	
5	Late spotlighting
2	Littering
3	Using vehicle to hunt
1	Attempting to take second deer
1	Waterfowl hunting in closed area
1	Illegal parking
3	Illegal size fish and creel limits
4	No fishing license
20	

TOTAL VIOLATIONS: 39

Officer Nicely sent a request to Special Agent Hart to increase the forfeiture of collateral for specific violations that recur on the refuge including key violations of the Endangered Species Act.

Vandals damaged the gate on the road leading to Pool 9 twice. A truck was used to do the damage in the first incident, but we couldn't tell what type of vehicle was used in the second incident.



Why damage your vehicle just to damage a gate?

JM 3/6/92

Officer Nicely applied for an Originating Agency Identifier (ORI) number for the refuge. This number is issued to every agency qualified to have access to the FBI National Crime Information Center (NCIC). After five months of redtape and telephone calls, the refuge received its ORI number, which allows us to access the NCIC System, and allows refuge officers to check vehicle registrations through Crawford County Control.

The refuge updated two vehicles for use in law enforcement activities. The 1992 Chevy S-10 pickup and the 1991 Chevy extended cab pickup have hidden grill lights, sirens and public address systems, and Syntar-X 9000 digital readout two-way radios. The 1991 Chevy extended cab pickup has a shotgun mount.

The refuge purchased two new 870-P 12-ga. Remington shotguns, bringing us up to a total of three.

Engineering Equipment Operator Nicely attended the Annual Law Enforcement Refresher at Eastern Shore of VA NWR April 6-7 and Manager Mountain attended April 13-18. Officers received training with the newly acquired Smith & Wesson .40 caliber semi-automatic pistol.

Firearms Instructor Police Chief Bill Brown instructed Manager Mountain and Officer Nicely in requalifying at the Vernon Township pistol range in November.

Officer Nicely attended the Pennsylvania Game Commission Regional Deputy meeting. Officer Nicely attended Crime Clinic held May 13 at Riverside Inn, Cambridge Springs.

I. EQUIPMENT AND FACILITIES

1. New Construction

Two small wetland restorations were completed this year on the refuge. Both sites are located in the Sugar Lake Division. Each site encompasses approximately two acres of wetland habitat.

The refuge's second moist soil unit (MSU) was started this year north of Shaffer Road below the Manager's quarters. Two small sections were partially completed before wet weather precluded any additional work on this project this year. The site will consist of three units of approximately one-half acre each. The entire project will consist of approximately four acres when additional units are completed.

Engineering Equipment Operators Nicely and Stover, and Assistant Manager Piccirilli cleared brush and debris along the shoreline of Reitz Pond public fishing area. The parking area also was enlarged to accommodate safe off road parking. Brigantine's JD 350 dozer was used to complete most of the work.

Seven new 14-foot gates were installed at various access roads on the refuge to stop vehicle trespass and deter deer poaching.



Typical gate to restrict vehicle access.
MP 12/92

Twenty-three "Best Locks" were ordered to integrate into our security system. The first of these locks were placed on the seven new 14-foot road gates installed this year. The old Master Lock supply was down to a few extra locks, and "Best Lock" security system was chosen to replace the Master Lock series. Both Assistant Manager Piccirilli and Engineering Equipment Operator Nicely used the "Best Lock" system with the Corps and National Park Service assignments. Manager Mountain discovered "Best Locks" at Patuxent Research Center. For better or worse, we bought into the system with a conservative purchase of padlocks.

Engineering Equipment Operators Stover and Nicely graveled the access road (doubles as nature trail) to the Pool 9 banding site, the Pool 7 parking lot and the headquarters' entrance road.

Maintenance Mechanic Battin bladed the headquarters service road and maintenance yard entrance road with the new John Deere 4055 4x4 farm tractor.

A 1946 Caterpillar road grader was transferred from Great Swamp NWR to Erie NWR in mid-December. The road grader was first assigned to Bombay Hook NWR in 1968. Engineering Equipment Operator Stover trained on this model during his

military service. This vintage military warrior is up and running and it's first assignment will be to grade the entrance road to the Headquarters in the spring of 1993. Caterpillar will hold a press day to cover this historic milestone for one of its more reliable early model graders. The high tech feature is a complete mechanical operation with a simple engine lacking all the computer gadgetry of today's latest models. A baby boomer model, the 1946 road grader is alive and will be serving on Erie NWR.

2. **Rehabilitation**

A. Maintenance Shop

1. YCC restained exterior wood.

B. Quarters 11

1. YCC installed a new split rail fence.
2. Repaired and replaced basement windows.
3. Regraveled driveway.

C. Quarters 9

1. YCC painted garage.
2. Installed new trusses, downspouts, and shingles on two-stall garage.
3. Installed a new water well filtration system.



Quarters #9--new garage roof.
MP 12/92

D. Quarters 7

1. YCC painted split rail.
2. Installed new shingles, rain gutters, and downspouts on garage.
3. R-38 insulation was added to the ceiling. Vents also were installed in the roof.



Quarters #7--new garage roof.
MP 12/92

E. Headquarters

1. YCC landscaped around office building.
2. Installed acoustical panels, power supply, and electric raceways for ORP and Biologist spaces.
3. Graveled and graded entrance road to headquarters.

4. **Equipment Utilization and Replacement**

The 350-C widetrack dozer/backhoe was borrowed from Brigantine NWR to use in the New York wetlands and stored at Erie NWR over the winter months. The main shaft and bearings were out requiring some major maintenance. This versatile lightweight dozer can operate in conditions that would otherwise be impossible for a heavier dozer.

Two new vehicles were added to our vehicle fleet as replacement units for the 1985 Reliant and Chevy S-10 pickup.



The 1992 Ford Aerostar Van was a welcome replacement for the old Reliant station wagon.
MP 12/6/92



The new 1992 Chevy crewcab S-10 replaces the 1985 Chevy S-10. The crewcab is a nice addition to the new vehicle.

MP 12/6/92

A new Swintec, Model 7003, electronic typewriter was received in March, 1992.

A new John Deere two-cylinder water cooled riding mower was purchased to maintain office and maintenance shop grounds.

5. **Communications Systems**

Two Motorola Model Syntor X-9000 035W-110 watt low band option radios were purchased this year. One unit was installed in the 1992 Chevy S-10 crewcab pickup. The other unit was installed in the 1991 3/4 ton Chevy pickup with a crewcab. These vehicles also serve as the primary law enforcement vehicles on the station. The vehicles are fully equipped and are excellent service-owned vehicles.

6. **Computer Systems**

Bids were received this year for a new computer system that can accomplish desktop publishing. The successful bidder was Connecting Point d/b/a Erie Computer Company, 4509 West Ridge Road, Erie PA. Items received were: Spercom 486/DX33

CPU, Enhanced Keyboard, Colorado Internal 120TBU Tape Backup, Tripp-Lite 500va Uninterruptible Power Supply, Built-in Math Co-processor, Optical Hand Scanner, 3-Button Serial Mouse, MS-DOS V.5.0, Windows V.3.1, and The Typist Graphics Plus software.

7. **Energy Conservation**

R-38 insulation was added to the ceiling in Quarters #7. Additional insulation is planned for 1993. Vents also were installed in the roof.

J. OTHER ITEMS

1. **Cooperative Programs**

Pennsylvania Conservation Officer John McKellop held three beaver tagging sessions in the visitor center. One hundred twenty (120) beaver were tagged.

Pennsylvania Waterways Conservation Officer Bill Mantzell held First Aid and CPR training in the refuge visitor center for his deputies.

Pennsylvania Game Commission held a Deputy meeting to discuss enforcement during the early goose season. Officer Nicely attended along with 40 people from the Game Commission.

The refuge operated a weather station in cooperation with the Pennsylvania Department of Environmental Resources, Forestry Division, during the fire danger season. Their personnel telephoned daily for stick readings. This information was used to learn the "Fire Danger Rating." Refuge staff used the data collected for the Pennsylvania Department of environmental Resources in the refuge prescribed burning program.

Maintenance Mechanic Battin was on temporary duty at Great Swamp NWR February 7-15 and Engineering Equipment Operator Nicely was on temporary duty at Great Swamp NWR February 16-26. Battin and Nicely operated and maintained Great Swamp's Hydro-ax. Sites cleared with the Hydro-ax are a part of the woodcock management program.

Manager Mountain completed two special Mid-Level assignments in Washington, DC. The assignments were with Congressman Tom Ridge (R-21st) August 3-14, and a follow-up assignment with Legislative Services, Owen Ambur, September 21-October 2. An assignment working for Refuges/WO to rewrite

7 RM.11 of the Refuge Manual ran concurrently with the Legislative Services' assignment.

4. **Credits**

Refuge Manager Mountain, Sections A, B, C-1,3, D-2, E-5,6,8,9, G-16, I-1,2,4,5,7, K, proofreading and editing.

Refuge Operations Specialist Piccirilli, Sections E-6,9, F-3,4,7,9,10, G-2,11, I-1,2,4, proofreading and editing.

Outdoor Recreation Planner Marvin, Sections E-1,2,3,4,8, H, J,1, proofreading and editing.

Wildlife Biologist Lor, Sections F-1,2,5, G-1,3,4,5,6,8,10,12,16,17, proofreading and editing.

Office Assistant Sliter, Sections B-(Graph), E-1,5, I-5,6, J-4, preparation using WordPerfect 5.1 and Grammatik, editing, proofreading and assembly.

Engineering Equipment Operator Nicely, Section H-17.

Volunteer Byham, Sections F-3, G-7.

APPENDIX 1

TRAVEL LOG FY92

5252020001	NICELY, DAVID J.	LIMITED-OPEN	52520-1230-5050
5252020005	BATTIN, ROBERT E.	LIMITED-OPEN	52520-1230-5050
5252020010	SLITER, JOYCE E.	CONTRACTING TRNG - WDC	52520-1261 11/3 - 11/9/91
5252020012	MARVIN, JANET A.	PAEE CONF	52520-1261 11/7 - 11/10/91
5252020022	MOUNTAIN, TOM L.	REGION 5 WETLANDS MTG	52520-1230-5058 11/4 - 11/5/91
5252020023	NICELY, DAVID J.	REGION 5 WETLANDS MTG	52520-1230-5058 11/4 - 11/5/91
5252020031	MOUNTAIN, TOM L.	GOOSE STUDY HARRISBURG	52520-1261 11/19 - 11/20/91
5252020032	PICCIRILLI, MIKE	GOOSE STUDY HARRISBURG	52520-1261 11/19 - 11/20/91
5252020052	MOUNTAIN, TOM L.	AG CONF PENN STATE	52520-1261 2/7 - 2/8/92
5252020053	PICCIRILLI, MIKE	AG CONF PENN STATE	52520-1261 2/7 - 2/8/92
5252020063	PICCIRILLI, MIKE	SUSTAIN AG EASTERN NECK	52520-1261 1/26 - 1/30/92
5252020066	MARVIN, JANET A.	NAI REGION II CHNICOTEAGUE	52520-1261 3/18 - 3/21/92
5252020079	NICELY, DAVID J.	HABITAT RES GREAT SWAMP	52520-1262-5025 1/24 - 2/2/92
5252020083	MARVIN, JANET A.	REGION 5 EE DETAIL	52520-1261-5027
5252020090	BATTIN, ROBERT E.	HABITAT RES GREAT SWAMP	52520-1262-5025 2/7 - 2/15/92
5252020096	MOUNTAIN, TOM L.	MID-LEVEL WASH DC	91100-1660-009M 3/9 - 3/20/92
5252020097	LOR, SOCHEATA K.	BIO WORKSHOP EASTERN SHORE	52520-1261-5027 2/24 - 2/28/92

5252020098	MARVIN, JANET A.	PROJ LEARNING TREE WORKSHOP	52520-1261 3/13 - 3/15/92
5252020099	NICELY, DAVID J.	HABITAT RES GREAT SWAMP	52520-1262-5025 2/16 - 2/26/92
5252020121	BATTIN, ROBERT E.	PRIVATE LANDS SITE ID	52520-1230-5050 3/4 - 3/6/92
5252020122	NICELY, DAVID J.	PRIVATE LANDS SITE ID	52520-1230-5050 3/4 - 3/6/92
5252020124	NICELY, DAVID J.	WETLANDS TECH MONTEZUMA	52520-1230-5058 3/30 - 4/3/92
5252020125	BATTIN, ROBERT E.	WETLANDS TECH MONTEZUMA	52520-1230-5058 3/30 - 4/3/92
5252020132	NICELY, DAVID J.	LE REFRESHER EASTERN SHORE	52520-1261-5026 4/5 - 4/11/92
5252020131	MOUNTAIN, TOM L.	LE REFRESHER EASTERN SHORE	52520-1261-5026 4/12 - 4/18/92
5252020138	BATTIN, ROBERT E.	"PARTNERS" CHESTER CO	52520-1230-5058 3/16 - 3/23/92
5252020141	NICELY, DAVID J.	REGION 5 MAINT COMM	52520-1261-5026 4/26 - 4/28/92
5252020144	NICELY, DAVID J.	"PARTNERS" CHESTER CO	52520-1230-5058 3/16 - 3/17/92
5252020157	NICELY, DAVID J.	"PARTNERS" LEHIGH CO	52520-1230-5058 4/13 - 4/16/92
5252020161	MARVIN, JANET A.	OHIO RVR ISL DED COMM	52520-1261-5027 5/4 - 5/9/92
5252020162	BATTIN, ROBERT E.	"PARTNERS" CHESTER & LEHIGH CO	52520-1230-5058 4/13 - 4/21/92
5252020174	PICCIRILLI, MIKE	REGION 5 RW DETAIL	52520-1261-5027 6/1 - 6/5/92
5252020175	LOR, SOCHEATA K.	PETIT MANAN SEABIRD CEN	52520-1261-5027 5/24 - 6/7/92
5252020189	SLITER, JOYCE E.	OHIO RVR ISL DEDICATION	52520-1261-5027 5/26 - 5/29/92
5252020194	BATTIN, ROBERT E.	"PARTNERS" LEHIGH CO	52520-1230-5058 5/3 - 5/8/92

5252020195	MARVIN, JANET A.	OHIO RVR ISL DED COMM	52520-1261-5027 5/18 - 5/20/92
5252020196	NICELY, DAVID J.	"PARTNERS" LEHIGH CO	52520-1230-5058 5/9 - 5/12/92
5252020201	MARVIN, JANET A.	OHIO RVR ISL DEDICATION	52520-1261-5027 5/26 - 5/29/92
5252020207	NICELY, DAVID J.	"PARTNERS" LEHIGH CO	52520-1230-5058 5/18 - 5/19/92
5252020209	STOVER, DONALD E.	WETLANDS NEW YORK	52520-1230-5050 5/27 - 5/29/92
5252020212	BATTIN, ROBERT E.	"PARTNERS" DANVILLE PA	52520-1230-5058 5/28 - 5/30/92
5252020218	BATTIN, ROBERT E.	"PARTNERS" DANVILLE PA	52520-1230-5058 6/2 - 6/4/92
5252020219	SLITER, JOYCE E.	REGION 5 CGS DETAIL	52520-1261-5027 6/21 - 6/26/92
5252020231	MOUNTAIN, TOM L.	MID-LEVEL RIDGE'S OFFICE	52520-1261-5027 8/2 - 8/15/92
5252020232	NICELY, DAVID J.	WETLANDS NEW YORK	52520-1230-5050 6/1 - 6/15/92
5252020233	STOVER, DONALD E.	"PARTNERS" JUNIATA CO	52520-1230-5058 6/23 - 7/2/92
5252020234	NICELY, DAVID J.	"PARTNERS" JUNIATA CO	52520-1230-5058 6/23 - 6/26/92
5252020235	MARVIN, JANET A.	GREAT LAKES MEETING	52520-1261-5027 7/15 - 7/16/92
5252020236	PICCIRILLI, MIKE	SAFETY TRNG MASS	52520-1261-5027 8/3 - 8/7/92
5252020243	STOVER, DONALD E.	"PARTNERS" JUNIATA CO	52420-1230-5058 7/6/ - 7/14/92
5252020245	MOUNTAIN, TOM L.	MID-LEVEL LEG SERV	52520-1261-5027 9/20 - 9/30/92
5252020250	STOVER, DONALD E.	"PARTNERS" LIMITED-OPEN	52520-1230-5058
5252020255	MOUNTAIN, TOM L.	GREAT MEADOWS BUDGET MTG	52520-1261-5027 7/21 - 7/23/92

5252020256	NICELY, DAVID J.	"PARTNERS" JUNIATA CO	52520-1230-5058 7/13 - 7/19/92
5252020273	MARVIN, JANET A.	GREAT BAY NWR DEDICATION	52520-1261-5027 8/11 - 8/13/92
5252020274	MOUNTAIN, TOM L.	REGION 5 BUDGET MTG	52520-1261-5027 8/18 - 8/21/92
5252020276	BATTIN, ROBERT E.	WETLANDS NEW YORK	52520-1230-5050 7/13 - 7/24/92
5252020282	MARVIN, JANET A.	BOMBAY HOOK OUTREACH	52520-1261-5027 8/31 - 9/3/92
5252020298	PICCIRILLI, MIKE	GREAT SWAMP SAFETY INSP	52530-1261 8/31 - 9/1/92
5252020307	MARVIN, JANET A.	ALTOONA DED COMM	52520-1261-5027 8/19 - 8/20/92
5252026308	NICELY, DAVID J.	"PARTNERS" BEDFORD CO	52520-1230-5058 8/1 - 8/17/92
5252026316	MOUNTAIN, TOM L.	BEDFORD TOM DICK SITE	52520-1262 9/1 - 9/2/92
5252026317	PICCIRILLI, MIKE	GREAT SWAMP & BEDFORD	52520-1262 9/1 - 9/2/92
5252026322	STOVER, DONALD E.	"PARTNERS" BEDFORD CO	52520-1230-5058 8/7 - 8/27/92
5252026337	NICELY, DAVID J.	WETLANDS NEW YORK	52520-1230-5050 9/5 - 9/21/92
5252026338	STOVER, DONALD E.	"PARTNERS" ALLENTOWN & BEDFORD	52520-1230-5058 9/12 - 9/20/92
5252026339	BATTIN, ROBERT E.	"PARTNERS" LEHIGH CO	52520-1230-5058 8/31 - 9/3/92
5252026340	BATTIN, ROBERT E.	"PARTNERS" BEDFORD & LEHIGH CO	52520-1230-5058 8/16 - 8/28/92
5252026342	NICELY, DAVID J.	"PARTNERS" BEDFORD	52520-1230-5058 9/1 - 9/2/92
5252026346	MARVIN, JANET A.	EASTERN SHORE DED COMM	52520-1261-5027 9/23 - 9/24/92

5252026346	NICELY, DAVID J.	OHIO RVR ISL LE DETAIL	52580-8421-505S 9/5/92
5252020349	NICELY, DAVID J.	"PARTNERS" LEHIGH CO	52520-1230-5058 9/22 - 9/24/92
5252020350	BATTIN, ROBERT E.	"PARTNERS" LEHIGH CO	52520-1230-5058 9/22 - 9/24/92
5252020351	STOVER, DONALD E.	"PARTNERS" BEDFORD CO	52520-1230-5058 9/24 - 9/30/92

K. FEEDBACK

Partnerships for Habitat Improvement--Erie NWR's Challenge Grant Cost-Share Program was very successful this year with a variety of successful grant proposals.

Although the grants are at modest funding levels, we are proud of each and hope to continue to expand the program at Erie NWR. The following is a list of Challenge Grant Cost-Share Programs at Erie NWR.

1. The Ruffed Grouse Society (RGS). This is together with Iroquois NWR. Computer hardware and GIS software will be purchased for each station. A temporary biological technician will be shared between Erie NWR and Iroquois NWR to develop or update forest covertype maps at Erie NWR and Iroquois with emphasis on woodcock management, etc. This is a good example where neighboring refuges can work together to cost-share Challenge Grant proposals to help with similar habitat management needs at each field station.

2. Ducks Unlimited (DU). Ducks Unlimited is providing cost-sharing for the development of five moist soil units on Erie NWR.

3. Wilderness Graphics. Challenge Grant for the Visitor Center development, Beaver Ponds Benefit Waterfowl Exhibit.

4. Presque Isle Audubon Society--Interpretation, Education and Recreation Assistance. Presque Isle Audubon Chapter agreed to allot time and money in order to improve the interpretive, educational and recreational experience for Erie NWR visitors.

Besides improving habitats, the public's knowledge of fish and wildlife resources, the Challenge Cost-Share Program strengthens communication between U.S. Fish and Wildlife Service, Erie NWR staff, individuals, and conservation groups. The partnership approach to getting work done at Erie NWR is expanding our ability to restore and enhance habitats as well as the visitors' knowledge and understanding of our natural heritage. The program also develops a grass root support constituency that can champion our cause to our national leaders.

U.S. FISH AND WILDLIFE SERVICE

Erie is one of more than 430 refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The National Wildlife Refuge System is a network of lands and waters managed specifically for the protection of wildlife and wildlife habitat and represents the most comprehensive wildlife resource management program in the world. Units of the system stretch across the United States from northern Alaska to the Florida Keys, and include small islands in the Caribbean and South Pacific. The character of the refuges is as diverse as the nation itself.

The Service also manages National Fish Hatcheries, and provides Federal leadership in habitat protection, fish and wildlife research, technical assistance and the conservation and protection of migratory birds, certain marine mammals and threatened and endangered species.

For further information contact:

Refuge Manager
Erie National Wildlife Refuge
RD 1, Wood Duck Lane
Guys Mills, PA 16327
Telephone: (814) 789-3585

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

RL-52520-1 September 1988

Erie

National Wildlife Refuge



Pennsylvania

Welcome

Erie National Wildlife Refuge, one of over 430 National Wildlife Refuges in the United States, is a haven for migratory birds. The refuge is not on the shores of Lake Erie, but lies in Crawford County, 35 miles south of the city of Erie and Lake Erie. The refuge is a namesake of the Erie Indians, an extinct tribe that resided near the lake.

The refuge consists of two separate land divisions. Sugar Lake Division, the more intensely managed portion, lies 10 miles east of Meadville on the outskirts of Guys Mills village. It contains 5,137 acres lying in a narrow valley which includes Woodcock Creek draining to the north and Lake Creek draining to the south. Beaver ponds, pools, and marshland along the creeks are bounded by forested slopes interspersed with croplands, grasslands, and wet meadows.

The Seneca Division is about 10 miles north of Sugar Lake Division, or four miles southeast of Cambridge Springs. It consists of 3,227 acres situated in a forested valley where Muddy Creek and Dead Creek provide most of the wetland habitat.

Management

Erie Refuge was established in 1959. The land was purchased with funds provided from the sale of Migratory Bird Hunting and Conservation Stamps (Duck Stamps). The major management objective is to provide waterfowl, primarily ducks, with nesting, feeding, brooding, and resting habitat. Secondary objectives are to provide habitat to support a diversity of other wildlife species and to enhance opportunities for wildlife-oriented public recreation and environmental education.

Over 2,500 acres of wetlands, including beaver floodings, marshes, swamps, man-made impoundments, creeks and wet meadows, provide desirable waterfowl habitat. Water control structures on refuge impoundments permit the manipulation of water levels to encourage the growth of waterfowl food and cover plants such as smartweeds and bulrushes. Future plans call for more than doubling the amount of manageable habitat now available.

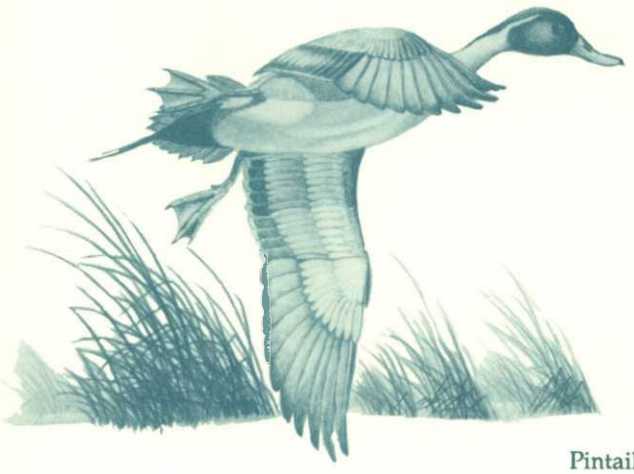
Grasslands are being developed near wetlands to provide dense nesting cover for ground-nesting waterfowl and other birds. Improved nesting cover provides more natural protection from predators and can be just as important to waterfowl production as quality marsh habitat.

A cooperative farming program permits farmers to cultivate crops on refuge lands. Farmers agree to raise certain crops such as oats, grass, clover and corn. In return for using the land, farmers leave the refuge a share of the crops. These refuge shares are usually left in the field as supplemental food for wildlife.

Wildlife

Birds

Waterfowl migrations occur from March to early April and again from September to November. The peak migrating waterfowl population on any given day has been 2,500 ducks and 4,500 Canada geese. Bird enthusiasts may readily see Canada geese, wood ducks, mallards, blue-winged teal, and hooded mergansers. Some less numerous migrants are pintail, green-winged teal, American wigeon, scaup, bufflehead, golden-eye, ring-necked ducks, and black ducks.



Pintail

Wood ducks are the most prolific waterfowl nesters on the refuge. Their annual production is significantly increased by the placement of nesting boxes on refuge wetlands. Hooded mergansers, mallards, blue-winged teal and Canada geese are other common resident nesting waterfowl.

Bald eagles and ospreys visit the refuge in search of food. Red-tailed hawks and American kestrels are common raptors that nest here.



Great Blue Heron

During summer shorebirds such as sandpipers and yellowlegs appear in small flocks, feeding on the mudflats. The most noticeable marsh birds are great blue herons, which nest in rookeries on the refuge.

The diverse habitat types found on Erie Refuge attract 236 species of birds. The refuge provides nesting habitat for 112 bird species. A detailed refuge bird leaflet may be obtained from the refuge office.

Mammals

Some 33 species of mammals are present on the refuge. The most commonly seen are white-tailed deer, beaver, muskrat and woodchucks.

Fish

Common warm water fish occurring in refuge waters include black crappie, yellow perch, largemouth bass, bluegills, sunfish and bullheads. Common cold water species include trout and white suckers, found in Woodcock Creek.

Visitor Opportunities

Visitor Center

Visitors can view displays, obtain information leaflets and talk with personnel at the refuge headquarters/visitor center building Monday through Friday, 8:00 a.m. til 4:30 p.m. Headquarters is located off Rt. 198, 3/4-mile east of Guys Mills and 10 miles east of Meadville.

Outdoor Facilities

Facilities are open daily, sunrise to sunset.

Beaver Run Trail

Two half-mile long paths (a loop and a spur) wind through natural surroundings where visitors can observe a variety of plant and animal life. Located off Hanks Road.

Tsuga Nature Trail

This two-loop trail follows a 1.2 or 1.6 mile route through a variety of habitats. A boardwalk traverses a beaver pond. During winter, cross-country skiing and snowshoeing are permitted. Located near headquarters/visitor center.

Deer Run Trail

Animal tracks in the snow or chips beneath a tree where a woodpecker is working can be seen along this three-mile trail which is open during winter for cross-country skiing and snowshoeing. Located on Boland Road.

Observation Blind

An ideal spot to observe and photograph wildlife. A short path leads to the blind which overlooks Reitz's Pond. Located on Boland/Ritchie Road.

Deer Run Overlook

Eagles can often be observed flying overhead from this high point above the 130-acre Pool 9. Located on Allen Road.

Wooded Drive

This section of gravel township road is especially scenic and a good spot to observe white-tailed deer and other wildlife.

Hunting and Fishing

Specific regulations and maps are available at headquarters/ visitor center.

Environmental Education

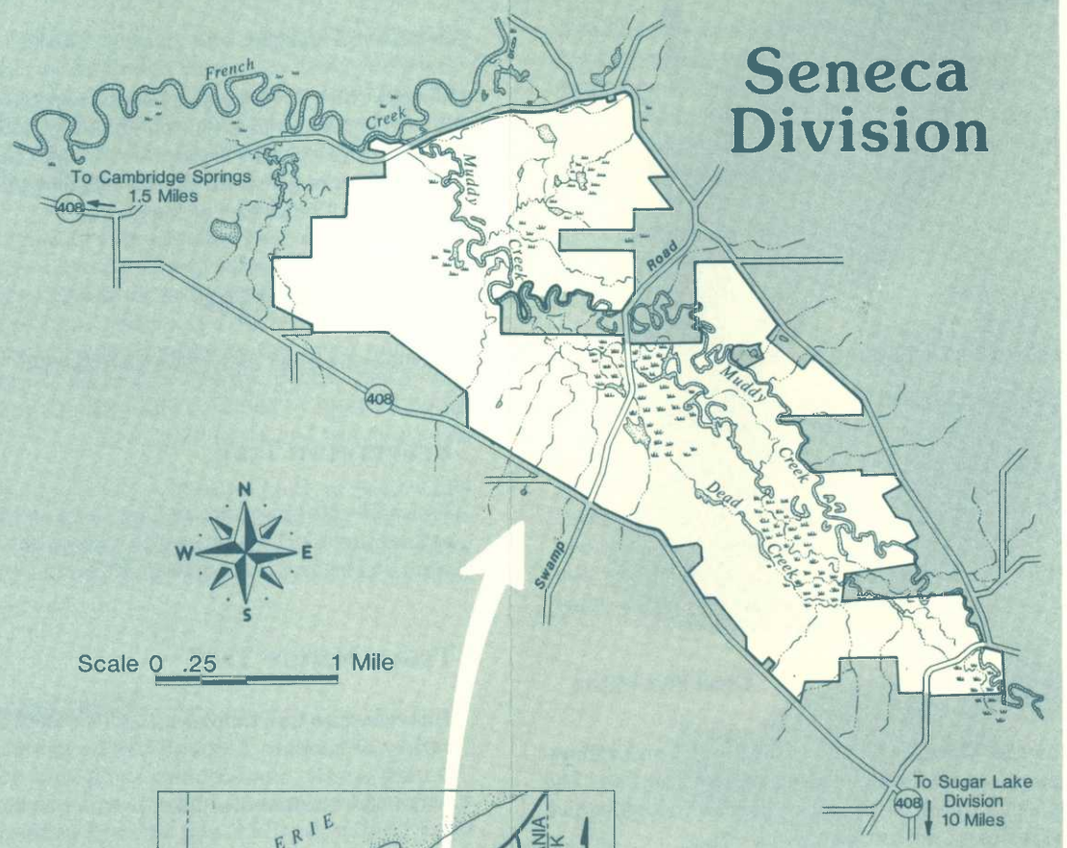
Organized school, civic and professional groups may reserve dates for slide talks, movies, management tours, and outdoor classrooms. Teacher workshops are offered. Write or call for additional information.

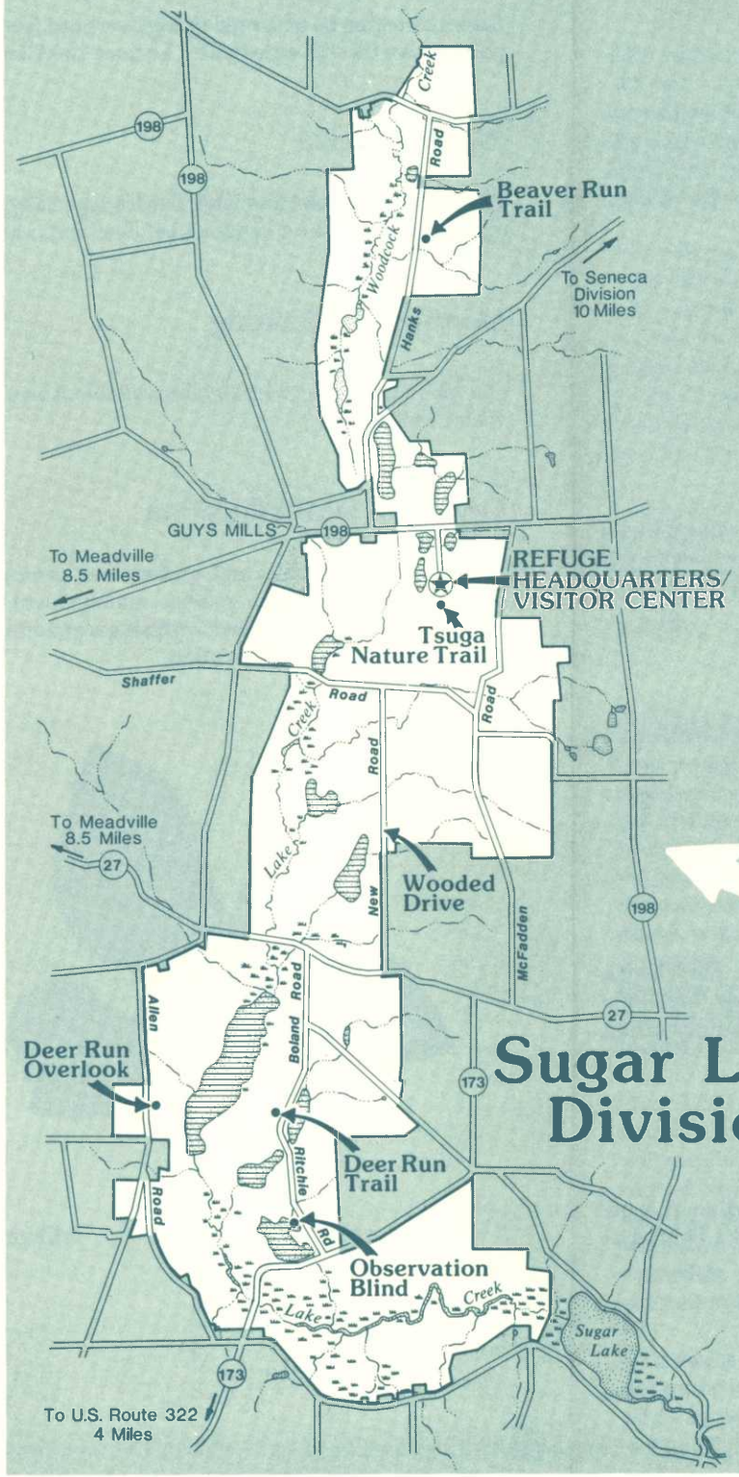


Trillium

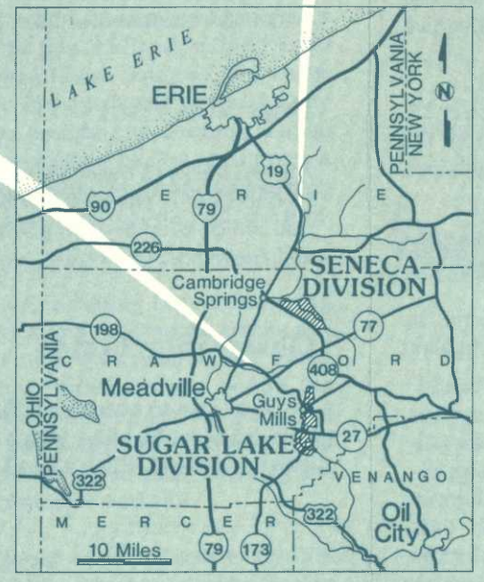
ERIE NATIONAL WILDLIFE REFUGE

Seneca Division





Sugar Lake Division



LOCATION MAP

N
W E
S

Scale 0 .25 1 Mile

LEGEND

- Refuge Boundary
- Refuge Headquarters/ Visitor Center
- Roads
- Ponds and Streams
- Marshland
- Impoundments

BIRDS of ERIE

National Wildlife Refuge



Pennsylvania

ERIE NATIONAL WILDLIFE REFUGE, established in 1959, is located in Crawford County in northwestern Pennsylvania. The refuge consists of two separate land units. The Sugar Lake Unit, containing 4,967 acres, is 10 miles east of Meadville on the outskirts of the village of Guys Mills. The Seneca Unit, containing 3,027 acres, is 10 miles north of the Sugar Lake Unit near Cambridge Springs.

Forests, swamps, beaver ponds, man-made impoundments, grasslands and croplands make up the diverse habitats which have attracted 236 species of birds. An additional 15 species have been observed only one or two times and are listed separately as accidentals.

Waterfowl migrations occur in March to early April and again from September to November. There are more wood ducks nesting on the refuge than any other duck and a good place to watch them during the spring migration is from our observation blind. In the spring goslings and their parents also can be seen as they travel back and forth from Pool C to the Entrance Road Pond.

Spring and summer is the time to look for nesting songbirds. Look for the Henslow's Sparrow, a rare bird in most areas of the United States. This sparrow is secretive and usually sings its "slick" song from a low perch.

Shorebirds, such as sandpipers and yellowlegs, can be seen in small groups feeding on mudflats during the summer and fall. On a winter walk black-capped chickadees, nuthatches, downy woodpeckers and dark-eyed juncos are easy to spot.

This list follows the Sixth American Ornithological Union checklist. Most birds are migratory and their seasonal occurrence and relative abundance are coded as follows:

SEASON

s - Spring	March - May
S - Summer	June - August
F - Fall	September - November
W - Winter	December - February

† - Nesting has occurred on the refuge.

RELATIVE ABUNDANCE

a - abundant	a species which is very numerous.
c - common	certain to be seen or heard in suitable habitat.
u - uncommon	present, but not certain to be seen.
o - occasional	seen only a few times during a season.
r - rare	seen at intervals of 2 to 5 years.

		s	S	F	W
LOONS - GREBES - CORMORANTS					
BITTERNS - HERONS					
____	Common Loon	o		o	
____	Pied-billed Grebe †	u	u	u	r
____	Horned Grebe	o		o	
____	Double-crested Cormorant	r		r	
____	American Bittern	u	u	u	
____	Great Blue Heron †	c	c	c	u
____	Great Egret	r	r	r	
____	Little Blue Heron	r			
____	Green-backed Heron †	u	c	u	
____	Black-crowned Night-Heron	r	r	r	
SWANS - GEESE - DUCKS					
____	Tundra Swan	o		o	o
____	Snow Goose	r		r	r
____	Canada Goose †	c	c	c	c
____	Wood Duck †	c	c	c	o
____	Green-winged Teal	c		c	r
____	American Black Duck †	o	o	o	u
____	Mallard †	c	c	c	c
____	Northern Pintail	o		o	r
____	Blue-winged Teal †	c	u	c	r
____	Northern Shoveler	o		o	r
____	Gadwall	u		u	r
____	Eurasian Wigeon	r			
____	American Wigeon	c	r	c	r
____	Canvasback	o		o	r
____	Redhead	o		o	r
____	Ring-necked Duck	c	r	c	o
____	Greater Scaup	r		r	r
____	Lesser Scaup	o		o	r
____	Common Goldeneye	o		o	o
____	Bufflehead	c		c	o
____	Hooded Merganser †	c	c	c	r
____	Common Merganser	o		o	
____	Red-breasted Merganser	o		o	r
____	Ruddy Duck	o		o	r
VULTURES - HAWKS - FALCONS					
____	Turkey Vulture	u	u	u	
____	Osprey	o		o	
____	Bald Eagle	o	o	o	r
____	Northern Harrier †	o	r	r	r
____	Sharp-shinned Hawk †	o	r	o	o
____	Cooper's Hawk †	o	r	o	r
____	Northern Goshawk	r		r	r
____	Red-shouldered Hawk †	u	u	u	o
____	Broad-winged Hawk †	u	u	u	

	s	S	F	W
____ Red-tailed Hawk †	c	c	c	c
____ Rough-legged Hawk				r
____ American Kestrel †	u	u	u	r
____ Merlin	r		r	r
____ Peregrine Falcon	r		r	r
GROUSE - QUAIL - TURKEY - RAILS				
____ Ring-necked Pheasant †	u	u	u	u
____ Ruffed Grouse †	c	c	c	c
____ Wild Turkey †	o	u	u	u
____ Northern Bobwhite	r	r	r	r
____ Virginia Rail †	u	u	u	
____ Sora †	u	u	u	
____ Common Moorhen	o	o	r	
____ American Coot †	u	u	u	r
PLOVERS - SANDPIPERS				
____ Black-bellied Plover			r	
____ Lesser Golden-Plover			r	
____ Semipalmated Plover	u		u	
____ Killdeer †	c	c	c	r
____ Greater Yellowlegs	u	o	u	
____ Lesser Yellowlegs	u	o	u	
____ Solitary Sandpiper	u	o	u	
____ Willet	r			
____ Spotted Sandpiper †	u	u	u	
____ Upland Sandpiper	r	r		
____ Whimbrel	r		r	
____ Hudsonian Godwit			r	
____ Ruddy Turnstone	r		r	
____ Red Knot	r		r	
____ Sanderling	r		r	
____ Semipalmated Sandpiper	r		u	
____ Least Sandpiper	u		u	
____ White-rumped Sandpiper			r	
____ Baird's Sandpiper			r	
____ Pectoral Sandpiper	u		u	
____ Dunlin	u		u	
____ Stilt Sandpiper		r	r	
____ Buff-breasted Sandpiper			r	
____ Short-billed Dowitcher	u		u	
____ Long-billed Dowitcher			r	
____ Common Snipe †	u	u	u	
____ American Woodcock †	c	u	c	
GULLS - TERNS				
____ Bonaparte's Gull	o		o	o
____ Ring-billed Gull	o		o	
____ Herring Gull	o		o	
____ Common Tern	r		r	

	s	S	F	W
____ Forster's Tern	r		r	
____ Black Tern	r		r	
DOVES - CUCKOOS - OWLS - SWIFTS - HUMMINGBIRDS				
____ Rock Dove †	c	c	c	c
____ Mourning Dove †	c	c	c	c
____ Black-billed Cuckoo †	c	c	c	
____ Yellow-billed Cuckoo	u	u	u	
____ Common Barn-Owl †	r	r	r	r
____ Eastern Screech-Owl †	u	u	u	u
____ Great Horned Owl †	c	c	c	c
____ Snowy Owl				r
____ Barred Owl †	c	c	c	c
____ Long-eared Owl	r	r	r	r
____ Short-eared Owl	r		r	
____ Northern Saw-whet Owl				r
____ Common Nighthawk †		c		
____ Whip-poor-will		r		
____ Chimney Swift †	c	c	c	
____ Ruby-throated Hummingbird †	u	u		
____ Belted Kingfisher †	c	c	c	o
WOODPECKERS - FLYCATCHERS				
____ Red-headed Woodpecker †	u	u	u	
____ Red-bellied Woodpecker	r	r	r	r
____ Yellow-bellied Sapsucker †	u	c	c	
____ Downy Woodpecker †	c	c	c	c
____ Hairy Woodpecker †	u	u	u	u
____ Northern Flicker †	c	c	c	c
____ Pileated Woodpecker †	u	u	u	u
____ Olive-sided Flycatcher	r		r	
____ Eastern Wood-Peewee †	c	c	c	
____ Yellow-bellied Flycatcher	r		r	
____ Acadian Flycatcher †	u	u	u	
____ Alder Flycatcher	o		o	
____ Willow Flycatcher †	c	c	c	
____ Least Flycatcher †	c	u	c	
____ Eastern Phoebe †	c	c	c	
____ Great Crested Flycatcher †	u	c	c	
____ Eastern Kingbird †	c	c	c	
LARKS - SWALLOWS - JAYS and CROWS				
____ Horned Lark	u	o	u	o
____ Purple Martin	u	c	c	
____ Tree Swallow †	a	a	a	
____ Northern Rough-winged Swallow	o	o	o	
____ Bank Swallow †	c	c	c	
____ Cliff Swallow	r	r	r	
____ Barn Swallow †	c	a	a	

		s	S	F	W
____	Blue Jay †	a	a	a	a
____	American Crow †	a	a	a	u
TITMICE - NUTHATCHES - WRENS					
____	Black-capped Chickadee †	a	a	a	a
____	Tufted Titmouse †	u	u	u	u
____	Red-breasted Nuthatch †	u	r	u	u
____	White-breasted Nuthatch †	c	c	c	c
____	Brown Creeper †	u	u	u	u
____	Carolina Wren †	r	r	r	
____	House Wren †	c	a	c	
____	Winter Wren	o		o	o
____	Sedge Wren		r		
____	Marsh Wren		r		
KINGLETS - THRUSHES - THRASHERS WAXWINGS - STARLING					
____	Golden-crowned Kinglet	u		c	u
____	Ruby-crowned Kinglet	u		c	r
____	Blue-gray Gnatcatcher †	u	u	u	
____	Eastern Bluebird †	c	u	u	o
____	Veery †	c	c	c	
____	Gray-cheeked Thrush	c		c	
____	Swainson's Thrush	c		c	
____	Hermit Thrush	c	r	c	
____	Wood Thrush †	c	c	c	
____	American Robin †	a	a	a	o
____	Gray Catbird †	c	c	c	r
____	Northern Mockingbird	r	r	r	
____	Brown Thrasher †	u	u	u	
____	Water Pipit	r		r	
____	Cedar Waxwing	c	a	a	u
____	Northern Shrike				r
____	European Starling †	a	a	a	u
VIREOS - WOOD WARBLERS					
____	White-eyed Vireo	r		r	
____	Solitary Vireo †	u	r	u	
____	Yellow-throated Vireo †	o	r	o	
____	Warbling Vireo †	u	c	u	
____	Philadelphia Vireo	r		r	
____	Red-eyed Vireo †	c	a	a	
____	Blue-winged Warbler †	c	c	c	
____	Tennessee Warbler	a		a	
____	Orange-crowned Warbler			r	
____	Nashville Warbler †	c	r	c	
____	Northern Parula	o		o	
____	Yellow Warbler †	a	a	a	
____	Chestnut-sided Warbler †	c	o	c	
____	Magnolia Warbler †	c	r	c	

		s	S	F	W
___	Cape May Warbler	c		c	
___	Black-throated Blue Warbler	u		u	
___	Yellow-rumped Warbler	a		a	o
___	Black-throated Green Warbler †	c	c	c	
___	Blackburnian Warbler †	c	u	c	
___	Pine Warbler	r	r	r	
___	Prairie Warbler	r			
___	Palm Warbler	u		u	
___	Bay-breasted Warbler	u		u	
___	Blackpoll Warbler	u		u	
___	Cerulean Warbler	r	r	r	
___	Black-and-white Warbler	u	r	u	
___	American Redstart †	c	o	c	
___	Prothonotary Warbler	r		r	
___	Ovenbird †	c	c	c	
___	Northern Waterthrush †	u	c	u	
___	Louisiana Waterthrush †	u	u	u	
___	Kentucky Warbler		r		
___	Connecticut Warbler	r		r	
___	Mourning Warbler †	u	u	u	
___	Common Yellowthroat †	a	a	a	
___	Hooded Warbler †	c	c	c	
___	Wilson's Warbler	u		u	
___	Canada Warbler †	u	o	u	
___	Yellow-breasted Chat †	u	u	o	
TANAGERS - SPARROWS					
___	Scarlet Tanager †	c	c	c	
___	Northern Cardinal †	c	c	c	c
___	Rose-breasted Grosbeak †	c	c	c	
___	Indigo Bunting †	c	c	c	
___	Rufous-sided Towhee †	c	c	c	
___	American Tree Sparrow	c		c	a
___	Chipping Sparrow †	c	c	c	
___	Field Sparrow †	c	c	c	r
___	Vesper Sparrow †	o	o	o	
___	Savannah Sparrow †	o	o	o	
___	Grasshopper Sparrow	u	u	u	
___	Henslow's Sparrow †	u	u	u	
___	Fox Sparrow	o		o	
___	Song Sparrow †	a	a	a	c
___	Lincoln's Sparrow	r		r	
___	Swamp Sparrow †	a	a	a	u
___	White-throated Sparrow	c		c	u
___	White-crowned Sparrow	u		u	
___	Dark-eyed Junco	c		c	a
___	Snow Bunting			o	o

		s	S	F	W
BLACKBIRDS - FINCHES					
___	Bobolink †	u	c	u	
___	Red-winged Blackbird †	a	a	a	r
___	Eastern Meadowlark †	u	c	c	r
___	Rusty Blackbird	u		u	
___	Common Grackle †	a	a	a	o
___	Brown-headed Cowbird †	c	c	c	o
___	Orchard Oriole	o	r	o	
___	Northern Oriole †	c	c	c	
___	Pine Grosbeak				r
___	Purple Finch †	u	u	u	u
___	House Finch †	o	o	o	o
___	Red Crossbill				r
___	White-winged Crossbill				r
___	Common Redpoll				r
___	Pine Siskin	o		o	o
___	American Goldfinch †	a	a	a	c
___	Evening Grosbeak	o		o	c
___	House Sparrow †	a	a	a	a
ACCIDENTALS (only 1 or 2 records)					
___	Red-throated Loon				
___	Least Bittern				
___	Oldsquaw				
___	Black Scoter				
___	Surf Scoter				
___	White-winged Scoter				
___	Golden Eagle				
___	Gyrfalcon				
___	Sandhill Crane				
___	Three-toed Woodpecker				
___	Black-backed Woodpecker				
___	Blue Grosbeak				
___	Dickcissel				
___	Lapland Longspur				
___	Brewer's Blackbird				

For further information, or to report unusual birds, please contact:

Refuge Manager
Erie National Wildlife Refuge
RD 1, Wood Duck Lane
Guys Mills, PA 16327
Telephone: (814) 789-3585

NOTES

Location _____

Date _____ Total _____

Observers _____

Weather _____ Wind _____

Time _____

THE FISH AND WILDLIFE SERVICE

Erie is one of over 400 units encompassing more than 90 million acres in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The Service also manages more than 70 National Fish Hatcheries and major fish and wildlife research laboratories across the country. As the Nation's primary steward of fish and wildlife resources, the Service provides leadership in habitat and wetlands protection, fish and wildlife research and technical assistance, and conservation and protection of migratory birds, anadromous fishes, certain marine mammals, and threatened and endangered species.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Cover: Henslow's Sparrow by Arthur Morris/VIREO

RL 52520-2 January 1986

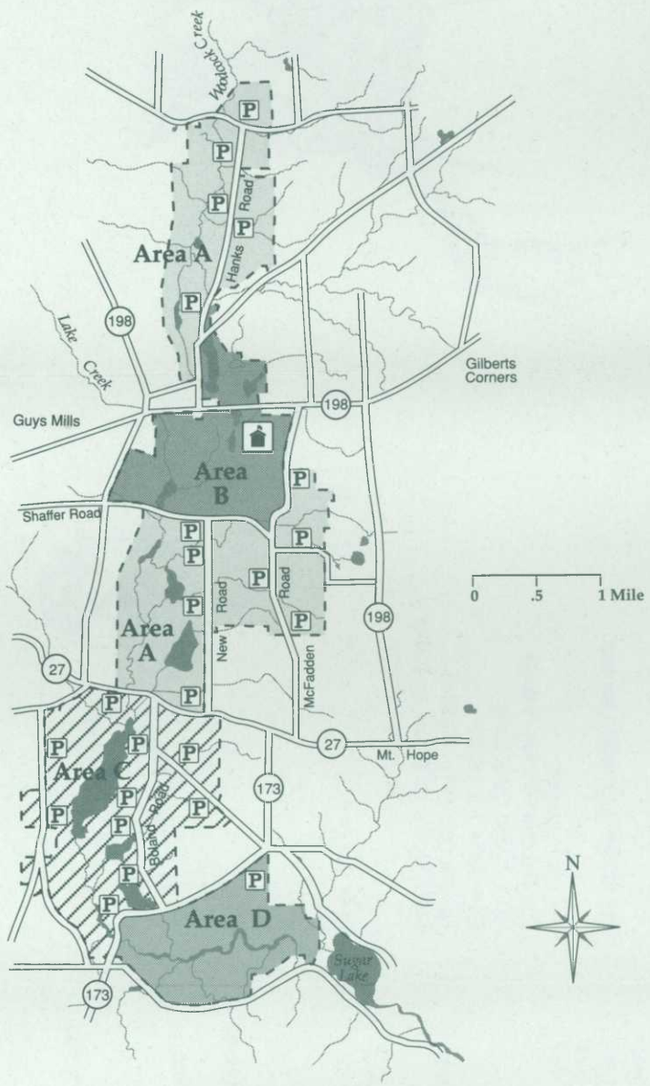
Hunting

Erie
National
Wildlife
Refuge



Pennsylvania

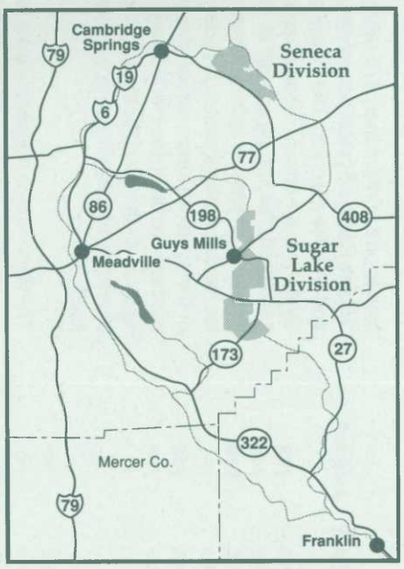
Sugar Lake Division



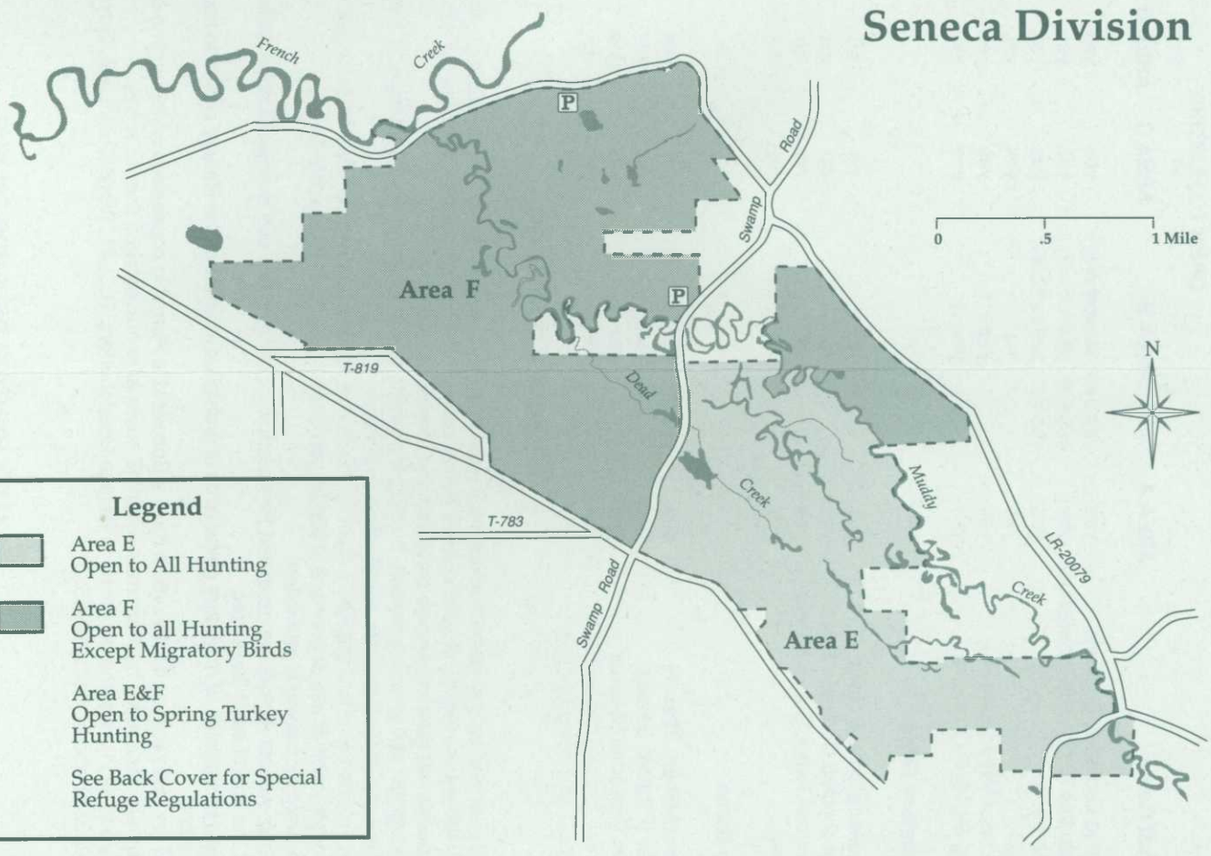
Legend

- Area A — Open to All Hunting
- Area B — Closed to Hunting Except Firearms Deer Season, Late Archery and Flintlock Deer Season, Night Hunting Fox and Raccoon, and Late Upland Game Season
- Area C — Open to Hunting Except Migratory Birds
- Area D — Open to Hunting Except Migratory Birds and Spring Turkey
- Area A,B,&C — Open to Spring Turkey Hunting
- Water Impoundments
- Refuge Headquarters
- P — Parking Areas

See Back Cover for Special Refuge Regulations



Seneca Division



Legend

- Area E — Open to All Hunting
- Area F — Open to all Hunting Except Migratory Birds
- Area E&F — Open to Spring Turkey Hunting

See Back Cover for Special Refuge Regulations

Refuge Hunting Regulations

OPEN TO HUNTING

Small Game	AREA A	AREA B	AREA C	AREA D	AREA E	AREA F
Ruffed Grouse & Squirrels	yes	yes (late season only)	yes	yes	yes	yes
Cottontail Rabbit and Woodchuck	yes	yes (late season only)	yes	yes	yes	yes
Ring-necked Pheasant	yes	yes (late season only)	yes	yes	yes	yes
Quail	yes	no	yes	yes	yes	yes
Raccoon (Night Hunting)	yes	yes	yes	yes	yes	yes
Fox, Skunk & Opossum	yes	yes	yes	yes	yes	yes
Migratory Birds						
Mourning Dove & Rails	yes	no	no	no	yes	no
Woodcock & Common Snipe	yes	no	no	no	yes	no
Canada Goose, Ducks & Coot	yes	no	no	no	yes	no
Crow	yes	no	no	no	yes	no
Big Game						
Deer (Archery Season)	yes	yes (late season only)	yes	yes	yes	yes
Deer (Flintlock Season)	yes	yes	yes	yes	yes	yes
Deer (Firearms Season)	yes	yes	yes	yes	yes	yes
Turkey (Spring Season Only) (No Fall Turkey Hunting)	yes	yes	yes	no	yes	yes

Special Conditions

- All deer and upland game hunters must wear in a conspicuous manner on head, chest, and back, a minimum of 400 square inches of solid-colored hunter orange clothing or material during the gun deer seasons.
- Species not listed above are protected and may not be killed.
- Except for spring turkey season, hunting is permitted on the Refuge from September 1 through the end of February, subject to State and Federal regulations.
- All vehicle travel is prohibited except on roads and parking areas designated for such use.
- Construction or use of permanent blinds, platforms or scaffolds is prohibited.
- Overnight camping is prohibited.
- Boats without motors are permitted for waterfowl hunting. Boats and decoys must be removed from the Refuge at the end of each day's hunt.
- Field possession of migratory game birds is prohibited in areas of the Refuge closed to migratory game bird hunting.
- All fox and raccoon hunters must have a Special Use Permit in possession when hunting on the Refuge.
- Hunters must notify headquarters within 48 hours after harvesting a deer or turkey.
- Report all injuries and accidents to Refuge Headquarters, R.D. #1, Wood Duck Lane, Guys Mills, Pennsylvania 16327 or phone (814) 789-3585.

QUALITY HUNTING DEPENDS ON YOU

PLEASE RESPECT ALL REGULATIONS

U.S. FISH AND WILDLIFE SERVICE

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For further information contact:

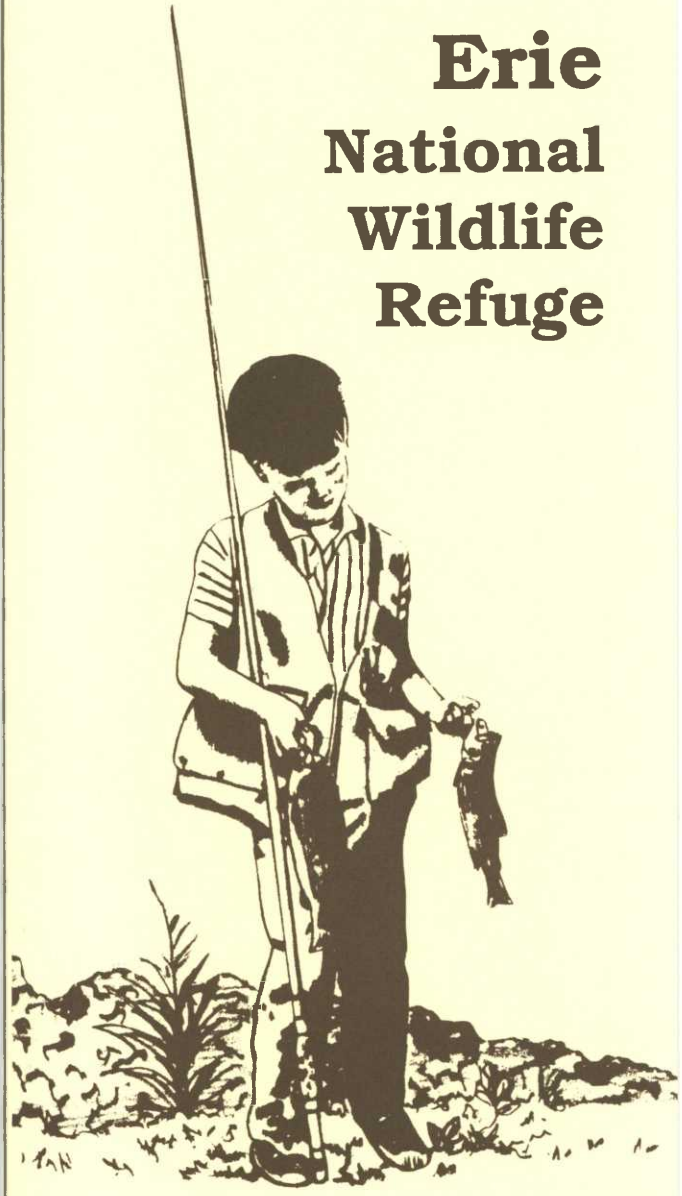
Refuge Manager
Erie National Wildlife Refuge
RD 1, Wood Duck Lane
Guys Mills, PA 16327
Telephone: (814) 789-3585
Office Hours: 8:00 a.m. to 4:30 p.m.
Monday - Friday

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

RL-52520-7 July 1991

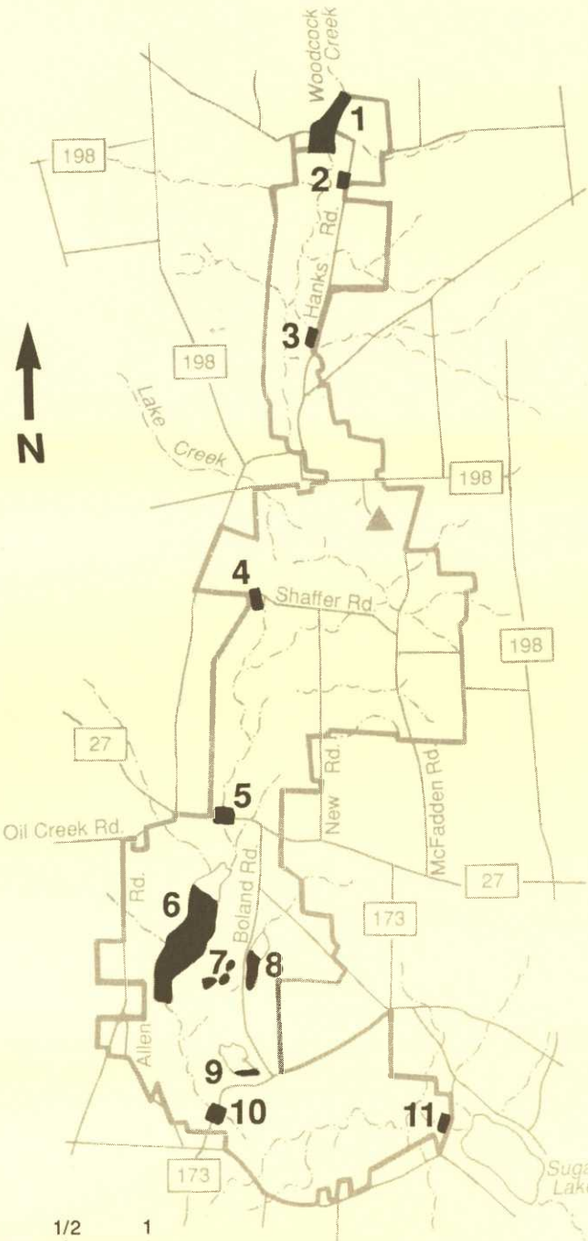
Fishing

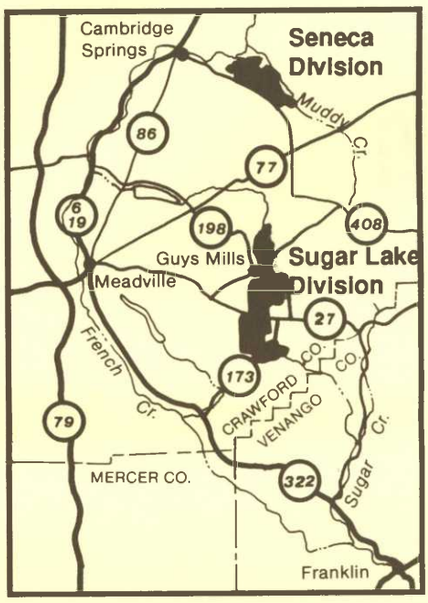
Erie National Wildlife Refuge



Pennsylvania

Sugar Lake Division

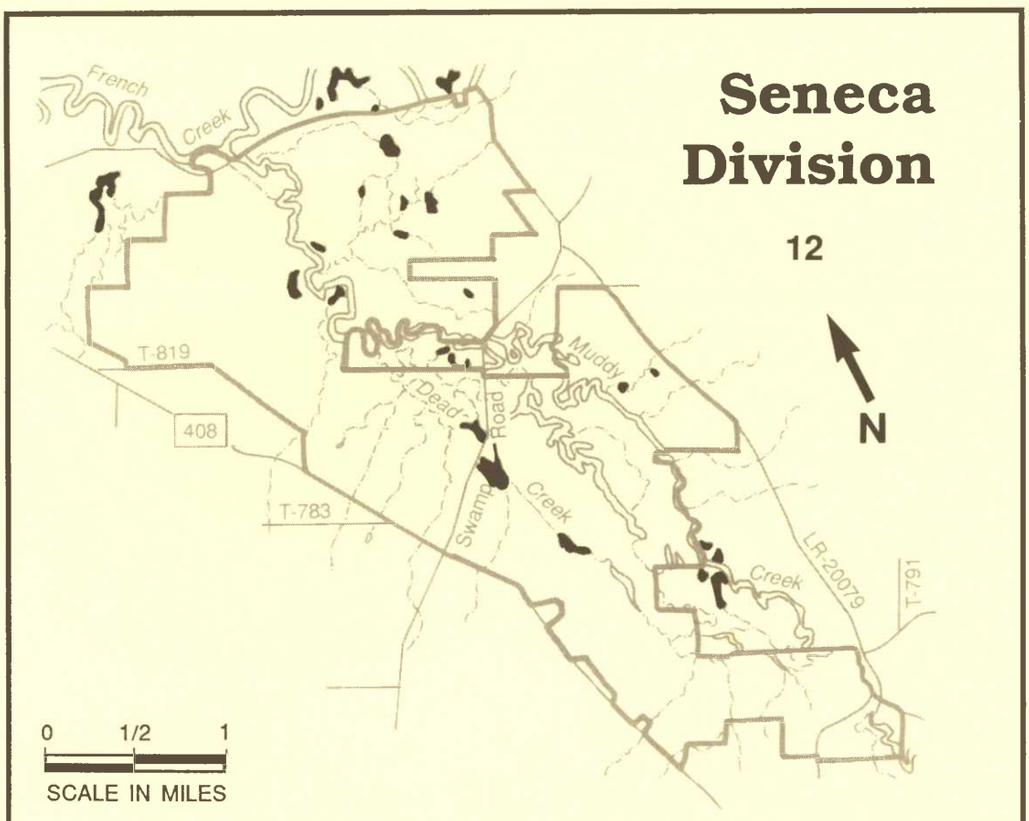




Location Map

Legend

- Refuge Boundary
- Headquarters
- Road
- Stream and body of water
- Creek
- Area where fishing is permitted



Public Fishing Areas

1. Woodcock Creek at north end - from northern refuge boundary, upstream or south past LR-20114 about one-tenth of a mile.
2. Woodcock Overlook Pond - west side of Hanks Road.
3. Woodcock Creek south - downstream from Hanks Road about 150 feet.
4. Pool 4 Outlet - downstream from Shaffer Pond about 150 feet.
5. Lake Creek at Route 27 - from Route 27 road embankment (open September 1 to December 31 only).
6. Pool 9 dike area - bank fishing on the dike and below the dike along Lake Creek for about 400 feet. Boats without motors and ice fishing upstream from the dike about 3000 feet.
7. Meyers Small Ponds - between Meyers Pond and Pool 9 entrance road.
8. Pool K - bank fishing on 300 feet of southwestern shore.
9. Reitz Pond dike and Small Ponds - bank fishing on about 1000 feet of south and southwestern shores and in small ponds east of Reitz.
10. Lake Creek at Route 173 - from road embankment.
11. Lake Creek above Sugar Lake - about 300 feet of creek with boat access from Sugar Lake.
12. Bank fishing all creeks and beaver ponds in Seneca.

Special Conditions

1. Bank fishing is permitted on all public fishing areas.
2. Boats are allowed in Area 11, and boats without motors are permitted in Area 6, from the second Saturday in June to September 15 only.
3. Bank fishing in Areas 6 and 8 is permitted year-round. Areas 6 and 8 are open to ice fishing.
4. Refuge areas are open for fishing sunrise to sunset.
5. The taking of frogs is prohibited.
6. Minnows and turtles may be trapped by special use permit only.



Mission: As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally-owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. Administration.

For further information contact:

Refuge Manager
Erie National Wildlife Refuge
RD 1, Wood Duck Lane
Guys Mills, Pennsylvania 16327
Telephone: (814) 789-3585

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Monday - Friday

Take Pride in Erie
National Wildlife Refuge

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

RL-52520-5 October 1989

U.S. Fish and Wildlife Service

Erie is one of more than 470 refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The National Wildlife Refuge System is a network of lands and waters managed specifically for the protection of wildlife and wildlife habitat and represents the most comprehensive wildlife management program in the world. Units of the system stretch across the United States from northern Alaska to the Florida Keys and include small islands in the Caribbean and South Pacific. The character of the refuges is as diverse as the nation itself.

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RD 1, Wood Duck Lane
Guys Mills, PA 16327-9499
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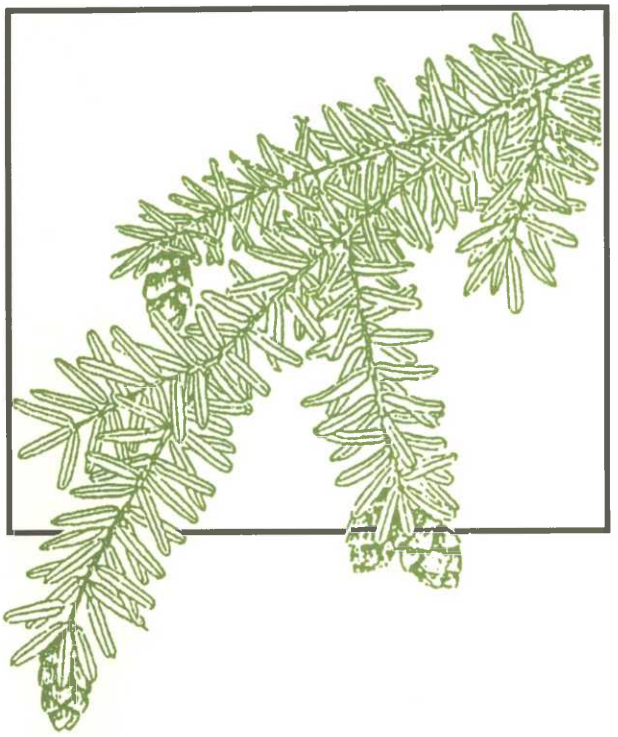
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DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

RL-52520-4 June 1992

Tsuga Nature Trail

Waterfowl and Wildlife Management



Erie
National Wildlife Refuge

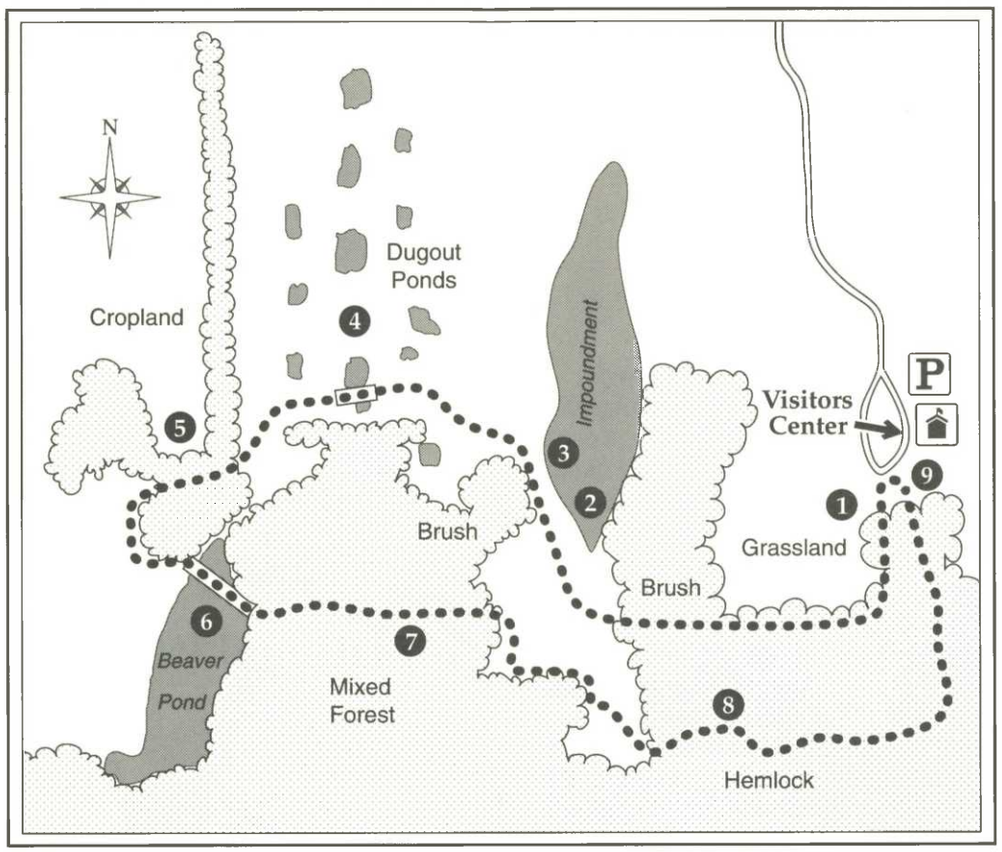
Pennsylvania

Welcome!

We invite you to hike around this two loop trail which follows either a 1.2 or a 1.6 mile route winding through a variety of habitats. Watch for numbered sign posts along the 1.2 mile loop which designate stops described in this leaflet.



Erie National Wildlife Refuge was established in 1959 primarily to preserve and manage the habitats this land provides for waterfowl, as well as other wildlife. Why are refuges managed? Why not just let these areas revert totally to their natural state? While walking the trail, let's explore the management practices evident here and the reasons for them.



1 GRASSLAND Five species of ducks nest on the Refuge. Two of these species - mallards and blue-winged teal - nest in upland grasslands near ponds or marshes. In order to provide an improved dense nesting cover, warm-season native prairie grasses are planted in this field instead of the more traditional European cool-season grasses such as timothy or rye grass.

Native prairie grasses such as switch grass, big bluestem, little bluestem and Indian grass grow in tall dense bunches that provide openings near the ground for nests and, at the same time, make good overhead cover from egg predation by crows. Also, native grasses do not usually flatten down from snow. This is important because ducks begin nesting in the early spring when cover from new growth is sparse.

Still another advantage of native prairie grasses is that, once established, they are easier and more economical to maintain than the commonly planted European grasses. They should not need fertilizing, liming or replanting. Burning every few years controls the growth of undesirable plants and helps maintain a good stand of native grasses which thrive after a burn because of their adaptation to natural prairie fires.

Grasslands are important to wildlife other than ducks, too. They are used by nesting songbirds such as savannah sparrows, meadowlarks, bobolinks and red-winged blackbirds. They provide food and cover for deer, rabbits and pheasants. Grasslands are the home of meadow voles which in turn are important food for hawks and owls.

2 IMPOUNDMENTS One of the main reasons for the drastic decline of waterfowl in the twentieth century has been man's destruction of wetland habitats needed for breeding or resting and feeding during migration periods. Erie National Wildlife Refuge contains over 2,000 acres of wetlands that provide ideal habitat for the major group of ducks referred to as dabblers. Dabblers such as mallards, wood ducks and blue-winged teal feed on aquatic vegetation and insects along shorelines.



In addition to natural wetlands, several hundred acres of man-made ponds or impoundments have been constructed on the Refuge. This pond is a small impoundment. The dike in front of you holds back the water. The water control structure allows Refuge staff to manipulate the water level.

The water level is controlled to encourage the growth of waterfowl food and cover plants such as smartweeds, pondweeds, bulrushes and sedges. In the fall and early spring, when thousands of migrat-

ing ducks stop over at the Refuge, the water level is raised. It is lowered over the summer months to allow for increased growth of the emergent vegetation. Mud flats created during summer low water levels attract migrating wading birds such as herons, egrets and sandpipers. In the larger impoundments, small artificial islands have been constructed. These islands provide additional shoreline with vegetation for feeding and resting waterfowl. Also, Canada geese find the islands attractive for nesting.

3 NESTING BOXES The wood duck is the most common of the resident nesting ducks on the Refuge. Wood ducks and hooded mergansers, which also breed here, are cavity nesters that naturally nest in holes in trees. The nesting boxes that you see located around this impoundment supplement natural tree cavities. Both wood ducks and hooded mergansers use them. Both species also demonstrate a strong homing back to their previous nest areas after wintering further south. Often they return to the exact same cavity or box.

The wood duck was nearly extinct by the early 1900s due to hunting and habitat loss. A combination of closed hunting seasons, establishment of refuges and a massive nestbox program by wildlife agencies has resulted in a spectacular comeback.



Nesting boxes are designed to discourage predation. The predators that pose the greatest threat to nesting wood ducks and hooded mergansers are raccoons, fox squirrels, snakes and starlings. By making boxes with a 4" x 3" horizontally oval entrance, raccoons are prevented from entering. Placing boxes in the water on metal posts with inverted metal cones (predator guards) helps deter fox squirrels and snakes as well as raccoons.

4 DUGOUT PONDS In addition to the impoundments that have dikes and water control structures, Refuge employees constructed small shallow ponds like you see here. Where there was a suitable water source such as a small stream or natural spring, the earth was simply scooped or dug out by a bulldozer and allowed to fill with water. Not long after construction, emergent vegetation grew and aquatic insects and crustaceans made the dugout their home. Thus, this is an economical way to provide additional feeding and resting habitat for the resident dabbling ducks and their broods. Mallards, in particular, often frequent dugout ponds.

5 COOPERATIVE FARMING This field is part of over 700 acres of Refuge land under cultivation by neighboring farmers on a share-crop basis. In return for using the land, the farmers leave the Refuge a share of their crops. Cooperating farmers are required to follow a five-year crop rotation system. The basic rotation on the Refuge is two years of corn, followed by a year of oats, first and second year hay and then back to corn. Occasionally the farmers will plant other crops such as buckwheat, winter wheat or clover in consultation with the Refuge manager.



After the farmers harvest their share of the crops, the Refuge's share is left standing in the fields. Canada geese and many of the dabbling ducks eat corn and cultivated grains as a supplement to aquatic vegetation. The unharvested crops provide cover as well as food for them during their southward migration in the fall. Over the winter, when food is scarce, deer, raccoons, turkeys, squirrels, pheasants and songbirds all feed on the remaining corn.

6 BEAVER Beavers created this pond by damming up the stream that runs through here. The large dome-shaped mound of sticks and mud about a hundred yards from the bridge is their lodge. The dam is beyond the lodge.

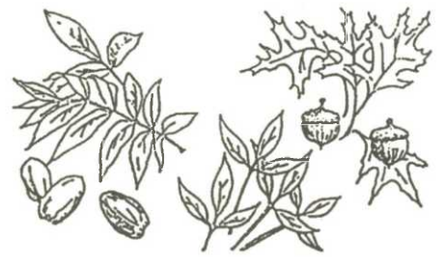
Beavers create many acres of wetland habitat on the Refuge. Their floodings change a portion of wooded lowland into an open pond. Water that covers the bases of trees prevents oxygen from reaching the roots and kills them within a few years. These dead trees or snags provide nesting sites for cavity-nesting birds and serve as perches for hawks and eagles. Because beaver ponds contain snags and are usually bordered by trees and shrubs, they are prime breeding habitats for wood ducks and hooded mergansers as well as homes for muskrats, turtles, fish, frogs and other aquatic wildlife.



Beavers are important wetland managers on the Refuge but they are also responsible for many problems associated with the overall management of the Refuge. They sometimes flood roads and fields that are being farmed. They plug up conduits under roads and water control structures on impoundments. Consequently, beavers have to be controlled. Some beavers are relocated to a different watershed. Without natural predators except man, beavers tend to multiply. The Refuge staff continually monitors their population.

7 WOODLAND The mixed forest you have been walking through is relatively young, having been timbered off shortly before the Refuge acquired this land. Since then there has not been active timber management in order to allow the regeneration of mature trees. Seedlings and saplings have grown out of a brush stage into what foresters call a pole timber stage.

The pole timber stage provides the first opportunity for management in the way of selective thinning. If done properly, selective timbering can increase the variety of habitats for woodland wildlife. Thinning allows more space for the remaining trees to grow. It opens the forest floor to sunlight resulting in the growth of more plants and shrubs in the understory. Brush piles, which provide wildlife cover, can be built from the woody debris left after the harvest.



If a forest is to be managed for wildlife, careful consideration needs to be given to what is important to retain. It is best to have a variety of tree species that will provide food and/or shelter. Trees such as oak, hickory, walnut, beech and black cherry all produce mast (nuts or fruits) that is eaten by turkeys, grouse, raccoons, squirrels, deer and wood ducks. Large old trees that have numerous limbs for roosting and large trunks with cavities that animals such as raccoons and squirrels can use for dens are important.

Deadwood is also important for wildlife. A fallen tree becomes infested with insects. Skunks, opossums, raccoons and woodpeckers then feed on the insects. Rotten or hollow logs can shelter a variety of animals from salamanders, snakes and mice to chipmunks, fox and bears. Grouse nest under partially raised logs. Standing dead trees provide birds with cavities for nesting and shelter, insects for food and perches for foraging.

8 HEMLOCK This trail was named for *Tsuga canadensis*, the eastern hemlock and state tree of Pennsylvania. You are passing through a mature stand of hemlocks along this part of the trail. Hemlocks can be identified by their soft flat needles that are whitened underneath and attached to twigs by slender stalks. Stands of evergreens provide wildlife with year-round escape cover and shelter from cold and high winds. The seeds from the cones of hemlocks are eaten by ruffed grouse. In the winter hemlock twigs are browsed by deer, red squirrels and rabbits. In the spring songbirds such as the black-throated green and Blackburnian warblers nest in hemlocks.

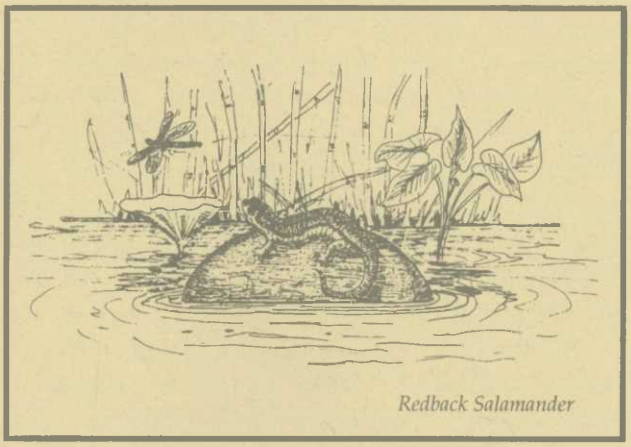
9 TRAIL'S END The Erie National Wildlife Refuge staff hopes that you have enjoyed your walk. Each year millions of acres of habitat that provide necessary food, water, cover and space for America's wildlife populations are being destroyed by development and pollution. The National Wildlife Refuge System helps to preserve and enhance vital wildlife habitat. The thoughtful management practices you have witnessed here on Tsuga Nature Trail enhance the habitat for a wide diversity of species.



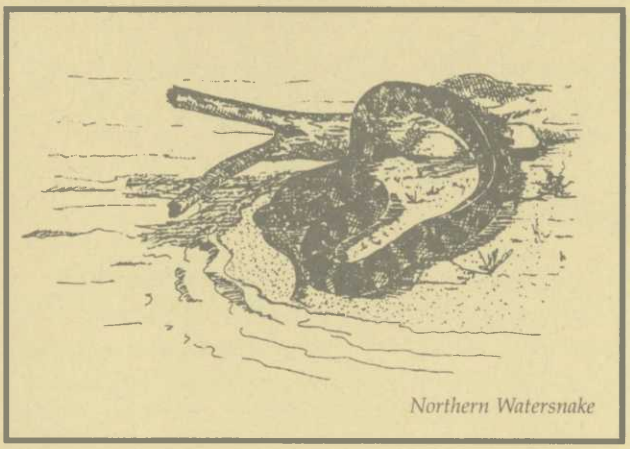
"Life is a unity; the biosphere is a complex network of interrelations among all the host of living things. Man, in gaining the godlike quality of awareness, has also acquired a godlike responsibility. The questions of the nature of his relationship with the birds and the beasts, with the trees of the forest and the fish of the seas, become ethical questions: questions of what is good and right not only for man himself, but for the living world as a whole."

Marston Bates

Amphibians and Reptiles



Redback Salamander



Northern Watersnake

Erie

National Wildlife Refuge

Pennsylvania

Erie National Wildlife Refuge, established in 1959, is located in Crawford County in northwestern Pennsylvania. The refuge consists of two separate land units. The Sugar Lake Division, containing 5,205 acres, is 10 miles east of Meadville on the outskirts of the village of Guys Mills. The Seneca Division, containing 3,463 acres, is 10 miles north of the Sugar Lake Division, near Cambridge Springs.

Wetlands including swamps, beaver ponds, man-made impoundments, marshlands, wet meadows and creeks are interspersed by wooded slopes, croplands and grasslands in the refuge. This diversity of habitats provides homes for a wide assortment of amphibians and reptiles. Many of them are easily overlooked because they are secretive and/or nocturnal. Frogs, which can be identified from their voices, are most obvious on spring nights when the refuge wetlands echo with their breeding songs. Salamanders, on the other hand, make no sounds and can often only be found hiding under stones, logs or leaves. Although usually shy and elusive, snakes may be seen on cool sunny days absorbing the warmth of the sun. Painted turtles are, also, commonly seen basking in the sun on logs or stumps in ponds. Other turtles may wander onto roads during the summer months. All of these animals, whether we see them or not, play active roles in the complex community life that the refuge supports.

The following list was compiled from refuge staff observations, consultation with experts, student internships and literature research. Common and scientific names follow Collins, Joseph T., *et al., Standard Common and Current Scientific Names for North American Amphibians and Reptiles,* 1978.

Amphibians

The first vertebrates to emerge onto land, amphibians have never adapted to a totally terrestrial existence. Their eggs must be laid in water or in moist places since they lack shells that prevent desiccation. Most young pass through an aquatic larval or tadpole stage after which they usually metamorphose into air breathing adults which have moist glandular skin and two pair of legs with clawless toes. Amphibians include salamanders, toads and frogs.

Salamanders

Eastern Hellbender
(Cryptobranchus a. alleganiensis)
A huge grotesque salamander that has a broad flattened head and folds of loose skin along its sides. Totally aquatic in running waters of rivers and large streams. Eats crayfish.

Mudpuppy
(Necturus m. maculosus)
This large completely aquatic salamander retains three bushy red gills on each side of neck throughout life. Habitats include lakes, ponds, rivers and streams.

Spotted Salamander
(Ambystoma maculatum)
A purplish-black salamander marked with two rows of large round yellow spots extending from head to tail tip. An underground burrower in moist woods.

Red-spotted Newt
(Notophthalmus v. viridescens)
Aquatic larva transforms into terrestrial bright red-orange immature Red Eft. After 1-3 years the eft returns to water and changes into red-spotted aquatic adult. Found in moist woods and nearby quiet shallow water.

Northern Dusky Salamander
(Desmognathus f. fuscus)
Often is grayish or brownish with darker spots or blotches but can be quite variable in coloration and pattern. Terrestrial on the moist banks of woodland streams.

Mountain Dusky Salamander
(Desmognathus ochrophaeus)
Typically has a light stripe down back and tail with a row of dark chevron-like spots down its center. Found in damp areas under stones, logs or leaves usually near a stream.

Northern Two-lined Salamander
(Eurycea b. bislineata)
Named for two dark lines, one on each side, running from eye to tail. Belly is yellow. Found under stones and debris at woodland stream borders. Wanders away from water.

Longtail Salamander
(Eurycea l. longicauda)
A yellow to orange salamander marked with black "herringbone" pattern along sides of long tail. Terrestrial under logs and stones in woods near streams and in caves.

Northern Spring Salamander
(Gyrinophilus p. porphyriticus)
Pinkish or salmon colored clouded with brown, this is our largest lungless salamander. Found in cool springs and streams and in wet depressions beneath logs and stones.

Four-toed Salamander
(Hemidactylium scutatum)
Named for the fact it only has four toes on each hind foot, this small salamander has a reddish-brown back and white belly with black spots. Found near boggy woodland ponds.

Redback Salamander
(Plethodon cinereus)
Exhibits two color phases - one with reddish stripe down back and the other with plain gray or black back. Both have bellies sprinkled with "salt and pepper." Terrestrial in moist woods.

Slimy Salamander
(Plethodon g. glutinosus)
A large black salamander sprinkled with silvery white dots. Terrestrial in moist wooded ravines and hillsides. Skin gland secretions cling to your hands like glue.

Northern Red Salamander
(Pseudotriton r. ruber)
A red or reddish-orange salamander with its upper surface dotted with black spots. Prefers clear cold running water of springs or streams with sand or gravel bottoms.

Toads and Frogs

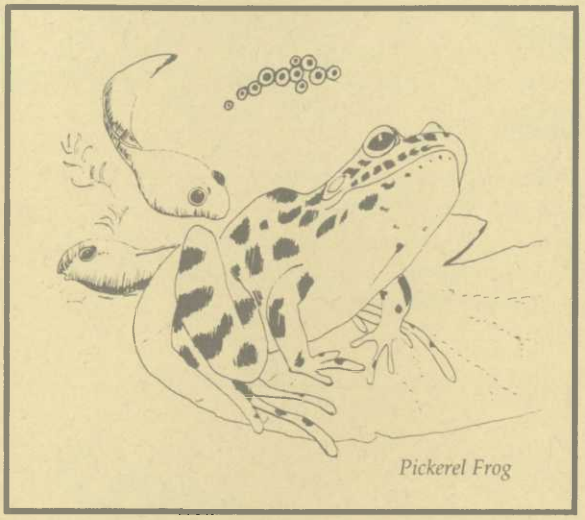
Eastern American Toad
(Bufo a. americanus)
This is the widespread and abundant "hoptoad" that has one or two warts in each dark spot. Found in most habitats with some moisture and shallow pools available for breeding.

Northern Spring Peeper
(Hyla c. crucifer)
Known for its spring breeding song, this small treefrog has a dark X-shaped mark on back. Abundant in areas of brushy secondary growth or cutover woodlands near ponds or swamps.

Gray Treefrog
(Hyla versicolor)
Depending on environment or activity, this treefrog changes color from gray to green to brown, but always has yellow-orange on undersurfaces of hind legs. Found in thickets and woodlands near shallow water.

Bullfrog
(Rana catesbeiana)
Greenish often mottled with gray or brown, this is our largest frog. Aquatic, preferring large bodies of water, such as ponds, lakes, or bogs. Known for its bass "jug-a-rum" call.

Green Frog
(Rana clamitans melanota)
The color of this common frog varies from green to brown with darker spots or blotches; however, head and back are usually bright green. Found wherever there is shallow fresh water.


Pickerel Frog

Pickerel Frog
(Rana palustris)
Marked with two rows of squarish dark spots on brownish back and bright orange on undersides of hind legs. Prefers cool clear water of ravine and meadow streams. Wanders away from water in summer.

Northern Leopard Frog
(Rana pipiens)
Marked with irregular rows of roundish dark spots on greenish or brownish back. Found in shallow fresh water habitats but wanders far afield in summer.

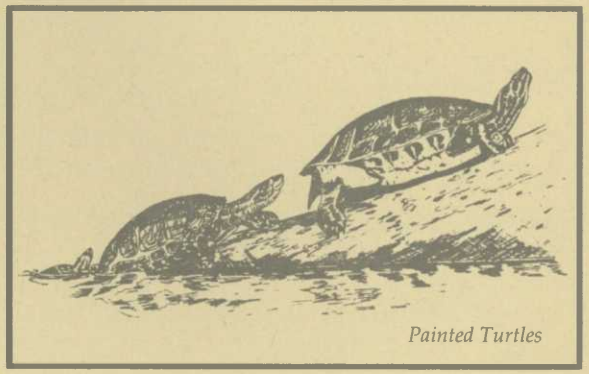
Wood Frog
(Rana sylvatica)
A pinkish to brownish frog with a "robber's mask" or dark patch extending backward from each eye. Found in moist wooded areas.

Reptiles

Reptiles are distinguished from amphibians by several adaptations that permit them to live and breed in dry places. Their eggs are shelled and can be laid on dry land. Their skin is dry and scaly, offering greater protection. They have well developed lungs from birth and either no limbs or four limbs with claws. Reptiles include turtles, lizards and snakes.

Turtles

Common Snapping Turtle
(Chelydra s. serpentina)
A large turtle with a long saw-toothed tail and a short temper. At home in freshwater lakes and ponds where it is omnivorous.



Painted Turtles

Midland Painted Turtle
(Chrysemys picta marginata)
Look for a smooth black shell with red designs around its lower outer edge and yellow stripes on head and throat. Prefers shallow water of ponds and marshes. Commonly seen sunning on logs.

Spotted Turtle
(Clemmys guttata)
Recognized by round yellow spots on upper shell and head. Found in shallow streams and margins of ponds, lakes and marshes.

Wood Turtle
(Clemmys insculpta)
A large turtle with a rough sculptured shell and orange on neck and legs. Semi-aquatic; at home in the water, but may be found wandering in woods, meadows or on the road.

Eastern Spiny Softshell
(Trionyx s. spiniferus)
Distinguished by a pointed head and a flat pancake-like leathery shell with spiny edges. Occurs in rivers and quiet water where sand and mud bars are available.

Snakes

Northern **Ringneck Snake**
(Diadophis punctatus edwardsi)
A plain dark snake with a yellow collar and belly, this secretive species is often found under stones and rotting logs in woods. Salamanders are an important food.

Black Rat Snake
(Elaphe o. obsoleta)
A large, thick-bodied snake that is shiny black above and has a blotched or checkered belly. An excellent tree climber, it is often found on field edges or woods. Kills its prey by constriction.

Eastern Milk Snake
(Lampropeltis t. triangulum)
Marked with brown or red-brown blotches above and black and white checks on belly. Found in a wide variety of habitats. Frequently enters barns in search of rodents.

Northern Water Snake
(Nerodia s. sipedon)
Displays dark blotches on sides and back and usually has dark half-moon markings on belly. Aquatic; common in all freshwater habitats where it feeds on fish, frogs and salamanders.

Eastern Smooth Green Snake
(Opheodrys v. vernalis)
A gentle little snake that is plain green above and whitish below. Often called "grass snake" for its terrestrial habits in meadows and fields. Feeds on insects and spiders.

Queen Snake
(Regina septemvittata)
A slender brown aquatic snake that has a yellow stripe along lower sides of body and a yellow belly with brown stripes. Found in small stony creeks and rivers where it eats crayfish.

Northern Brown Snake
(Storeria d. dekayi)
A little brown snake with a light central back stripe bordered by small black spots. Inhabits swamps, marshes, moist woods, open fields and gardens. Feeds on earthworms and slugs.

Northern Redbelly Snake
(Storeria o. occipitomaculata)
A bright red belly is the best identifying mark for this dark-backed snake. Found in open woods and sphagnum bogs. Feeds on earthworms and insect larvae.

Shorthead Garter Snake
(Thamnophis brachystoma)
Marked with three longitudinal yellowish stripes similar to Eastern Garter Snake but its very small head is distinctive. Low herbaceous cover in meadows and old fields is preferred. Diet is mostly earthworms.

Northern Ribbon Snake
(Thamnophis sauritus septentrionalis)
A dark-bodied slender snake with three bright yellow longitudinal stripes. Semi-aquatic; rarely found far from shallow water where it swims on the surface.

Eastern Garter Snake
(Thamnophis s. sirtalis)
Color is variable but often exhibits three yellowish longitudinal stripes with a double row of black spots between stripes. Common in many habitats.

U.S. Fish and Wildlife Service

Erie is one of more than 470 refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The National Wildlife Refuge System is a network of lands and waters managed specifically for the protection of wildlife and wildlife habitat and represents the most comprehensive wildlife management program in the world. Units of the system stretch across the United States from northern Alaska to the Florida Keys and include small islands in the Caribbean and South Pacific. The character of the refuges is as diverse as the nation itself.

The Service also manages National Fish Hatcheries, and provides Federal leadership in habitat protection, fish and wildlife research, technical assistance and the conservation and protection of migratory birds, certain marine mammals and threatened and endangered species.

For further information, contact:

Refuge Manager
Erie National Wildlife Refuge
RD 1, Wood Duck Lane
Guys Mills, Pennsylvania 16327
Telephone: (814) 789-3585

Office Hours: 8:00 a.m. to 4:30 p.m.
Monday - Friday

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

RL-51590-7 June 1991

K. FEEDBACK

Partnerships for Habitat Improvement--Erie NWR's Challenge Grant Cost-Share Program was very successful this year with a variety of successful grant proposals.

Although the grants are at modest funding levels, we are proud of each and hope to continue to expand the program at Erie NWR. The following is a list of Challenge Grant Cost-Share Programs at Erie NWR.

1. The Ruffed Grouse Society (RGS). This is together with Iroquois NWR. Computer hardware and GIS software will be purchased for each station. A temporary biological technician will be shared between Erie NWR and Iroquois NWR to develop or update forest covertype maps at Erie NWR and Iroquois with emphasis on woodcock management, etc. This is a good example where neighboring refuges can work together to cost-share Challenge Grant proposals to help with similar habitat management needs at each field station.

2. Ducks Unlimited (DU). Ducks Unlimited is providing cost-sharing for the development of five moist soil units on Erie NWR.

3. Wilderness Graphics. Challenge Grant for the Visitor Center development, Beaver Ponds Benefit Waterfowl Exhibit.

4. Presque Isle Audubon Society--Interpretation, Education and Recreation Assistance. Presque Isle Audubon Chapter agreed to allot time and money in order to improve the interpretive, educational and recreational experience for Erie NWR visitors.

Besides improving habitats, the public's knowledge of fish and wildlife resources, the Challenge Cost-Share Program strengthens communication between U.S. Fish and Wildlife Service, Erie NWR staff, individuals, and conservation groups. The partnership approach to getting work done at Erie NWR is expanding our ability to restore and enhance habitats as well as the visitors' knowledge and understanding of our natural heritage. The program also develops a grass root support constituency that can champion our cause to our national leaders.