MONTEZUMA NATIONAL WILDLIFE REFUGE

Seneca Falls, New York

ANNUAL NARRATIVE REPORT

Calendar Year 1985

U.S. Department Of The Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

REVIEW AND APPROVALS

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Judy E. Howell 2/26/86
Refuge Manager Date

Refuge Supervisor Review 3-18-86
Date

Regional Office Approval 3/15/86
Date

INTRODUCTION

Montezuma National Wildlife Refuge is located at the north end of Cayuga Lake in the Finger Lakes Region of New York State. The refuge contains 6,432 acres and is situated in Seneca County. The refuge is 35 miles west of Syracuse, 40 miles north of Ithaca, and 45 miles east of Rochester. Montezuma Refuge was established in 1937 for the protection of migratory waterfowl and other waterbirds.

Proposed objectives for the refuge are as follows:

1. Maintain and, when possible, enhance resting, feeding, and nesting habitat for migratory waterfowl and other migratory waterbirds.

2. Provide habitats for resting and feeding, as well as potential nesting sites, for bald eagles and ospreys (a state-designated endangered species).

3. Within constraints imposed by the two objectives above, efforts shall be made to provide adequate habitat diversification to permit the presence of self-sustaining populations of other life forms that are typical of similar zones in central New York State.

4. Provide opportunities for public wildlife education and enjoyment when these opportunities are compatible with the above objectives and the reasons for the area's establishment.

Primary habitat types are as follows:

Land Types	Acres
Wetland Types:	
Seasonably Flooded Basins or Flats	130
Fresh Meadows	823
Shallow Fresh Marshes	1,142
Deep Fresh Marshes	1,713
Open Fresh Marshes	1,528
Other Wetlands:	
Rivers and Streams	42
Upland Types:	
Grasslands - introduced	560
Forestlands - non-commercial	270
Brush	169
Administrative Lands (Bldgs, roads, etc.)	55
Total Refuge Acres	6,432

The refuge is a major contributor to Atlantic Flyway waterfowl management objectives. Fall peaks of Canada geese approximate 50,000 birds; in spring, this number frequently exceeds 100,000. Approximately 15,000 snow geese (blue phase 4:1) use the refuge in spring. Late fall use by mallards has annually approached or exceeded 100,000 birds. Use by black ducks in the fall often reaches 25,000. Approximately 1,600 ducks and geese are produced annually.

Use of refuge habitats by other water-related, avian species is significant. In part due to the release of 26 bald eagles during the refuge's eagle hacking program in 1976-81, approximately ten bald eagles use the refuge during spring, fall or summer. Two active osprey nests (very rare in the interior of New York State) are present. An established black-crowned night heron rookery exists; a 50-nest great blue heron rookery continues to grow.

Wildlife education opportunities abound for refuge visitors. Numbers of annual visitors vary between 215,000 and 260,000 persons. In addition to a Visitor Contact Station, visitors may drive the 4.5 mile auto tour route or walk dike trails or the Esker Brook Nature Trail. Some 5,000 area school students are annual recipients of formal on-site and off-site wildlife education programs by trained teachers, volunteers or refuge staff. Approximately 200 teachers are involved each year in refuge-affiliated workshops.

INTRODUCTION

PAGE

TABLE OF CONTENTS i

G. WILDLIFE

H. PUBLIC USE

I. EQUIPMENT AND FACILITIES

I. EQUIPMENT AND FACILITIES (Con't.)

J. OTHER ITEMS

K. FEEDBACK

A. HIGHLIGHTS

Cutting of Purple Loosestrife at substrate level with the Hockney Cutter was begun. Introduction of concentrated pathogens of the endemic fungus Drechslera spp. was carried out in May. Biologists from Wisconsin DNR and Ducks Unlimited Canada visited the refuge to observe loosestrife control work.

An operating permit of five years' duration was awarded during August to the Seneca Meadows Landfill. The permit, which is considered a model not only for the state, but nationally, was greatly influenced by refuge/FWS involvement.

Sampling of aquatic invertebrates in Black Brook by refuge staff, up and downstream of the landfill, demonstrated marked improvements in water quality over earlier work in 1980 and 1981.

3,700 feet of the May's Point Dike were resloped, riprapped, and the roadway was surfaced. By having skilled refuge maintenance persons do much of the work and contract out only for fill and rock, we saved the $25,000 necessary to buy our desperately needed backhoe/bucket loader.

A major, pending potential problem was resolved late in the year when Mr. Hyman Klionsky sold the land adjacent to Black Brook, where he was seeking a state permit for developing an industrial waste site.

An "Open House" for 10 area postmasters and postmistresses was held at the refuge on December 4. The purpose was to explain and express appreciation to them for their support of the Duck Stamp Program and to show the films "The Duck Stamp Story" and "America's Wetlands".

On July 5, 1985, an Auburn, New York youth was arrested and charged with the murder of Auburn teenager Julie Monson, whose remains were found on the refuge on April 6, 1983. Trial will begin in Cayuga County Superior Court in February, 1986.

Vern Dewey, who served for 33 1/2 years, first as refuge clerk and later as biological technician, retired on April 30, 1985. A farewell party was given for Vern and Virginia at the Springside Inn in Auburn, New York.

Under a MOU with the U.S. Geological Survey, and with USFWS funds, a permanent, automatic stream-gaging station was installed on Black Brook just upstream of the refuge.

B. CLIMATIC CONDITIONS

Weather data are obtained from our weather station located at refuge headquarters and also at nearby Locks One and Twenty-five of the New York State Barge Canal System. Yearly average rainfall here is approximately 34 inches, compared to 30.41 in 1985. Average snowfall is 69 inches, compared to 92.75 in 1985. Total precipitation for 1985 was 38.56 inches.

On the whole, the year's weather was unremarkable. April was unusually dry, with only .76 inches of precipitation compared to the normal 2.1 inches. May was also dry (2.1 inches compared to the normal 3.4), and it took longer than expected to bring the impoundments to summer levels. This, however, did not result in any serious problems.

1985 PRECIPITATION

Month	Snowfall (inches)	Rain (inches)	Total Precipitation (inches)	Temperature F° Max	Min	34-Year Average Snowfall	43-Year Average Precipitation
January	42.5	.60	2.86	46	-1	17.13	2.02
February	28.0	.48	2.65	60	-3	16.64	2.30
March	9.0	3.46	4.38	72	16	10.11	2.80
April		.76	.76	88	24	2.91	2.07
May		2.18	2.18	90	34		3.35
June		4.47	4.47	88	46		3.17
July		2.65	2.65	93	52		3.23
August		1.16	1.16	94	54		3.22
September		5.27	5.27	92	44		2.88
October		3.17	3.17	74	26	2.01	3.25
November	3.0	5.35	6.37	68	28	4.96	3.42
December	10.25	.86	2.64	52	9	15.63	2.08
TOTALS	92.75	30.41	38.56	94	-3	69.39	33.79

D. PLANNING

2. Management Plans

The following plans were submitted, approved, or underwent major revision during 1985:

Oil and Hazardous Materials Pollution Contingency Plan - submitted 9/19/84; approved 3/20/85.

Migratory Bird Disease Contingency Plan - submitted 2/23/81; approved 1/19/82; revised 11/27/85.

Public Use Management Plan - submitted 12/9/85.

A draft Comprehensive Water Management Plan was submitted in early spring. The plan was the result of a lengthy effort by refuge staff, regional office personnel and representatives from several state and federal agencies. The draft envisioned capital improvements of up to $7,000,000, and is now undergoing substantial revision.

3. Public Participation

On January 31, Refuge Manager Hocutt and Assistant Manager Secord met with Maintenance Engineer David Conroy of the New York State Barge Canal. They discussed the relationship of canal operation and the refuge activities proposed by the draft Water Management Plan. They agreed that the Superintendent of Waterways Maintenance or his representative(s) should join the planning team as technical advisors.

On March 21, Hocutt, Assistant Manager Benvenuti, Regional Wildlife Biologist Haas, and Regional Ascertainment Biologist Quist attended a joint meeting of the Tyre Town Board and the Tyre Planning Board. They presented an overview of the Water Management Plan.

On March 22, Hocutt, Haas, and Quist hosted a meeting with officials of the New York State Department of Environmental Conservation. Their candid discussions compared the management philosophies and objectives of the two agencies, and the possibility of one or both of the agencies purchasing lands in the northern Montezuma Wetlands Complex. The DEC was represented by: Art Johnson (Albany Wetlands Coordinator), Ned Holmes (R8 Fish and Wildlife Administrator), Larry Myers (R8 Principal Wildlife Biologist), and Dave Woodruff (R8 Senior Wildlife Biologist).

On March 25, Hocutt presented an overview of the draft Water Management Plan and other refuge activities to 112 people at the Cornell University Laboratory of Ornithology in Ithaca.

On May 22, Hocutt addressed the Town of Tyre Planning Board and members of the Town Board of Supervisors. The purpose was to update the various officials about the state of negotiations of permit conditions for the new pending five-year operating permit for the Seneca Meadows Landfill (SML). In addition to advising them of current NYSDEC, SML, and USFWS positions, Hocutt sought the board's input and agreed to convey their thoughts to NYSDEC.

4. Compliance With Environmental and Cultural Resource Mandates

The cobblestone barn on tract 46 continues to deteriorate. In 1981, the regional engineer determined that "The structure poses a threat to the safety and health of the general public and service employees...the cost (of renovation) would far exceed any benefit that could be derived from the project, including historical.".

In February, 1985, after years of going in circles, the state historic preservation officer accepted the need to demolish the barn and presented us with a draft Memorandum Of Agreement. The agreement was unacceptable to the regional solicitor, and after revisions and further discussions, the regional office sent a final MOA to the New York State Commission of Historic Preservation in May. The advisory council finally signed the document on December 13.

The agreement requires us to obtain an architectural record (estimated cost $5,000) and then offer the building to historical organizations for relocation. Only if this fails will we raze the building. Unfortunately, due to the delay, we lost the FY 85 money we had set aside for the project.

5. Research and Investigations

There were no active approved research or management studies during 1985. There were, however, several informal projects undertaken to evaluate the potential for future research.

Timber stress in Unit 17 continues to interest Dr. Richard Malecki of the Cooperative Wildlife Research Unit at Cornell University. Dr. Malecki became interested several years ago when it became apparent that sustained flooding was adversely affecting the trees. Since that time, he has continued to make periodic core borings and visual inspections of the area.

Dr. Lee Marsh, Chairman of the Biology Department, State University of New York at Oswego, continued to maintain 6 small plots to study cattail regeneration. He cuts some plots in November and some in March to investigate whether cutting dead stalks inhibits regeneration. Dr. Marsh feels that the dead stalks provide a critical oxygen conduit to the rhizomes during winter and early spring. So far, results agree with this hypo-

The Cobblestone Barn - an agreement reached with the New York State Commission of Historical Preservation may result in its removal during 1986. Both ends show severe deterioration; the sides are not much better (12/85; PEB).

thesis; the November-cut plots are essentially devoid of new stalks and the March-cut plots have significantly less regeneration than control plots.

Purple Loosestrife control is a topic that could generate research of national significance. No formal research has been conducted in this area since Thomas Rawinski published his 1982 thesis The Ecology and Management of Purple Loosestrife (Lythrum Salicaria l.) in Central New York. Several universities have expressed interest in further research, but have not been able to find funding or interested students.

Assistant Manager Anne Marocchini continues to maintain a series of plots to assess the effect of various cutting regimes on Purple Loosestrife. Plots cut at water surface in early summer averaged a 29% decrease in stem count the following year. Plots cut near the bottom in early summer averaged a 59% decrease in stem count. This year she added plots cut in late summer to see if the time of the cutting makes a significant difference.

Manager Hocutt, Assistant Manager Marocchini, and Tractor Operator Gingrich sampled aquatic organisms in Black Brook in June of 1985. Black Brook, the refuge's principal water source, bisects the Seneca Meadows Landfill. Aquatic animal samples were taken upstream and downstream of the landfill to determine if the diversity and quantity of invertebrates were influenced by the landfill. They found that there was indeed a difference. The upstream samples contained a greater number of individuals and greater diversity than did the downstream samples. However, in relative terms, compared to similar sampling and analysis done at the same locations in 1980 and 1981 by Hocutt and Lundgren, substantial improvements in overall stream quality was recorded. Vegetation cover typing was also done for areas upstream and downstream of the landfill. Differences in plant communities were evident between the areas. They observed that the downstream site changed from predominantly bur-reed in 1980 to reed canary grass this year. This, too, was considered a major improvement, since monotypic bur-reed is indicative of gross input of nutrients.

In December, after consultations with deer specialists from NYSDEC, refuge staff constructed a 25 meter by 25 meter exclosure on the west side of Unit 17. Further meetings and field work are scheduled for February, 1986 to establish protocols for browse studies.

Black Brook downstream of the landfill during the late-summer dry period. In 1979, this entire stretch was 100% burreed, and the water was foul, greasy, and possessed of a strong metallic odor. Spring and fall "flushing" of this docile-appearing stream often creates flooding over the top (some six feet) of the berms (85-3; AMM).

Black Brook above the Seneca Meadows Landfill, looking downstream from Burgess Road. This view has vegetation that is more typical of small streams in this region (85-4; AMM).

E. ADMINISTRATION

PERMANENT PERSONNEL

*1. Vernon A. Dewey.....Biological Technician, GS07, PFT
(Retired 4/30/85)
*2. Anne H. Secord.....Refuge Manager, GS05, PFT
(Transferred to Ecological Services, Cortland, 5/11/85)
3. Judith A. McMahon.....Fiscal Assistant,GS06, PFT
4. Paul E. Benvenuti.....Refuge Manager, GS11, PFT
5. Steven L. Flanders.....Maintenance Mechanic, WG10, PFT
6. R. Larry Davis.....Outdoor Recreation Planner, GS09, PFT
7. Grady E. Hocutt.....Refuge Manager, GS12, PFT
8. Melvin J. Norsen.....Maintenance Mechanic, WG09, PFT
*9. Lois E. Hegerty.....Clerk/Typist, GS03, PPT
(Resigned 7/20/85)
10. Nancy J. Estes.....Clerk/Typist, GS03, PPT
(EOD 8/4/85 from DOD)
11. Anne M. Marocchini.....Refuge Manager, GS05, PFT
(Transferred from Chincoteague NWR [Co-op Student]
4/14/85)
12. John R. Phillips.....Refuge Manager, GS07, PFT
(Transferred from Wertheim NWR, 6/23/85)

TEMPORARY PERSONNEL

13. Tracy A. Gingrich.....Tractor Operator, WG04
(5/1/84 - 4/28/85; 4/29/85 - 1/4/86)
14. (Nora) Susan Adie.....Recreation Assistant, GS04
(11/13/84 - 11/12/85; 11/13/85 - 11/12/86)

*Not Pictured.

1. Personnel

This was a year marked by several staff changes. Except for the Biological Technician position, which remained vacant until the end of the year, we were able to fill vacancies promptly. A summary of staffing allocations for the last five years is displayed below:

	PERMANENT		TEMPORARY	TOTAL
FY	Full-Time	Part-Time		FTE
1985	9	1	2	11.44
1984	8	1	2	11.00
1983	8		2	10.00
1982	8		1	9.00
1981	8		2	10.00

Vernon Dewey, Biological Technician, retired on April 30 after 33 years with the FWS. Section J.3 discusses his career in more detail.

On May 12, Trainee Refuge Manager Anne Secord transferred to the Cortland (New York) Ecological Services Office. During her one-year tenure at Montezuma, Anne contributed much to the Comprehensive Water Management Plan and to loosestrife studies.

Anne Marocchini replaced Ms. Secord on April 14. She was formerly a Biological Student Trainee at Chincoteague NWR and Forsythe NWR. The one-month overlap in their appointments allowed an orderly transfer of duties.

On June 26, John Phillips joined the staff as an advanced Trainee Refuge Manager. Phillips had previously worked at Morton NWR, and before that, at Jones Hole NFH.

Lois Hegerty, Clerk-Typist, resigned her position on July 20. Ms. Hegerty had worked at Montezuma since April 1, 1984. She could not resist an opportunity to move to Florida.

On August 4, Ms. Hegerty's position was filled by Nancy Estes, who was formerly employed by the Seneca Army Depot.

2. Youth Programs

The Youth Conservation Corps camp began on July 1 and terminated on August 23, 1985. The camp consisted of eleven enrollees and a Youth Leader. Enrollees were supervised by one Group Leader, GS-5 (Ken Jones) and one Group Aid, GS-4 (Sue Salisbury).

One hundred and one applications were received for the twelve positions. Recruitment for the enrollees came from five area school districts (Waterloo, Clyde-Savannah, Seneca Falls, Port Byron, and Union Springs).

YCC enrollees completed a variety of significant projects during the summer camp. Major projects included renovation of one bridge and a boardwalk on the Esker Brook Trail, construction of two kiosks, construction of a new storage platform, and boundary clearing. The old standby but necessary tasks of brush clearing, custodial maintenance, staining, etc., were also accomplished.

Throughout the summer, over 600 hours were devoted to Environmental Education activities and programs. Some of the activities were:

- Refuge/FWS/USDI Orientation (Davis)
- Wetlands Program (Hocutt)
- Waterfowl Banding (Hocutt, Jones, Marocchini)
- Land Use Simulation Activity (Davis)
- Trip To Nearby Bog (Jones, Salisbury, Davis)
- Purple Loosestrife Program (Marocchini)
- Beaver Study (Gingrich)
- Waterfowl I.D. (Flanders)
- Endangered Species Program (Davis)
- Collecting For Aquatic Aquarium (Jones, Salisbury, Enrollees)

With pliers in hand and toothpick in mouth, Manager Hocutt demonstrates waterfowl banding to YCC enrollees (85-6; RLD).

The last three days of the camp were spent in the Blue Mountain Lake region of the Adirondacks. While camping in the mountains, discussions on the ecology of the Adirondacks, acid rain, etc. were presented. A four-hour visit to the Adirondack Museum topped off these discussions.

Roughing it and stuffing it! YCC enrollees enjoy a meal while camping in the Adirondack Mountains (85-7; RLD).

There were no accidents reported during the summer camp. This is the result of the emphasis placed on safety by Ken Jones and Sue Salisbury, and the members of the refuge staff. No significant payroll problems were encountered.

3. Other Manpower Programs

Tammy Bellis joined the staff as a laborer on October 1. Her position is funded by the Job Training Partnership Act and is administered by the Seneca County Employment and Training Program. Although there may be "no such thing as a free lunch", this program comes close. The participants remain county employees. Therefore, the county provides all wages ($3.35 per hour) and benefits, and handles all the paperwork. The only serious drawback is that participants are limited to 13 weeks.

4. Volunteers Programs

The refuge volunteer program continues to develop in a manner exemplary of Service standards. Through the efforts of dedicated individuals, the refuge has been in a much better position to provide quality I & R programs for refuge visitors. Volun-

teers have also contributed to several of the biological programs, i.e., bird census, banding, etc.

Since volunteers receive no compensation other than the satisfaction of work, it was decided to honor these individuals with a covered dish supper. Sixteen volunteers (past and current) were presented with certificates of appreciation from Manager Hocutt. The affair was held at the Red Jacket Yacht Club on Cayuga Lake on October 5.

Refuge volunteers for CY 85 are as follows:

Karen Kelley (1/85 - 12/85)
Francis Kelley (1/85 - 12/85)
Kevin Colton (1/85 - 12/85)
Geoffrey Rule (3/85 - 12/85)
Charlotte Hedler (5/85 - 12/85)
Robert Hedler (5/85 - 12/85)
Polly Keating (8/85 - 12/85)
*Dr. Larry VanDruff (7/85)
*Gilbert Merrill (5/85)
*Mike Allen (6/85)
*Robert Trost (4/85)
*Helen Lapham (10/85)
*Dr. Ron Scrudato (5/85)
*Dr. Steven Kress (5/85)

*These individuals donated time and talent for either evening interpretive programs or day-long environmental education workshops.

5. Funding

Originally the funding for FY 85 looked pretty tight. Though we initially had $501,000 in O & M funds, nearly $240,000 was committed to ARMMS contracts and equipment, and $263,000 to salaries. The solution was to do a portion of the May's Point Rehabilitation Project with refuge staff (Section I.2). This reduced the contract cost from $167,000 to $62,000. Even after purchasing a backhoe-loader and paying the staff wages associated with the project, we were able to save $66,000 to apply to a variety of backlogged projects.

We made it through the spring budget cuts relatively unscathed, losing only $3,200 in fire equipment funding and $16,000 of O & M transferred to YCC.

The rewards of becoming a volunteer are evident in this photograph. Manager Hocutt provides an airboat tour of the Main Pool to Karen and Francis Kelley (85-8; RLD).

Appreciation placques were given to a few of the past and present volunteers at a recent covered dish supper. Left to right, Reynold Martz, Susan Adie, Geoffrey Rule, Karen Kelley, Francis Kelley, Winnie Benvenuti, and Tracy Gingrich (85-9; RLD).

The resulting FY 85 budget was:

1260	$444,890	(O & M)
1260	61,000	(May's Point Job Order)
1520	26,000	(YCC)
1994	2,700	(Quarters Rehab)
6860	2,000	(Expense for Sales)
	$536,700	TOTAL FUNDS

The above summary does not include the $18,414 job order for Tschache Pool restoration. Though not part of our AWP, funds were expended by RO for a variety of mostly refuge-related engineering services.

The outlook for FY 86 is not good. There are no significant ARMMS projects to charge salaries to. The situation becomes very clear when one considers that the projected cost of salaries, utilities, and service contracts is $321,000.

The FY 86 budget now stands at:

1260	$311,600	(O&M)
1260	50,000	(Loosestrife Management Job Order)
8610	2,700	(Quarters Rehab)
6860	2,000	(Expense for Sales)
	$366,300	TOTAL FUNDS

There is a $343,000 construction job order that is not part of our Annual Work Plan. The funds were originally allocated for replacing water control structures. As of the start of CY 86, these funds were still intact. The RO plans to spend about $150,000 on a power excavator. How the balance will be spent is yet to be determined.

6. Safety

Fortunately, during 1985 there were no serious or lost-time accidents at Montezuma. Heavy emphasis was placed on YCC safety, and monthly staff safety meetings were held. Safety topics included fire extinguisher use, proper lifting techniques, 6-hour defensive driving course, a 55-hour advanced first aid course, winter driving, and jump-starting vehicles. This year's Safety Committee was formed and met quarterly to discuss

safety problems, outline topics for staff safety meetings, and conduct station safety inspections.

On November 5, a field team from NUS Corporation of Edison, New Jersey, visited the refuge in an attempt to locate three 5-gallon cans of 2,4,5-T buried in 1967. NUS is contracted by the Environmental Protection Agency to locate such hazardous wastes. Using magnetic sensors, they located a possible site, but their procedures did not allow excavation. The metal objects could be anything. We have not yet received the results of the soil and water samples. If hazardous wastes exist, the EPA will arrange for their removal.

At the May's Point public fishing area, a blacktop apron was added to the end of the gravel access road to provide safe entry onto Highway 89, and YCC personnel rebuilt the wooden foot bridge used by anglers.

7. Technical Assistance

Hocutt met in January with Phil Griswold, District Technician, Seneca County Soil and Water Conservation District (SWCD) and Consulting Engineer Jan Kem to discuss the start of the District's Esker Brook channelization project just upstream of the refuge. Several recommendations were presented and discussed by FWS for reducing sediment deposition during the construction phase and for the life of the project.

Several telephone and personal discussions were held with Donald Upsom, Executive Assistant to Congressman Frank Horton, regarding FWS concerns about bioaccumulation, contaminant adsorption, sediment transport, and related problems associated with a proposed industrial waste site upstream of the refuge on Black Brook.

Hocutt served on the graduate advisory committee for Ms. Chris Belling, a student at the College of Environmental Science and Forestry at the State University of New York at Syracuse. He also participated as a member of her thesis defense committee.

Hocutt worked closely with NYSDEC R8 and Albany personnel in discussions and investigations regarding acquisition of the so-called Northern Montezuma Wetlands Complex, a sprawling 7,600 acre site north of the refuge. The efforts culminated in a meeting at the VCS and a helicopter tour of the area on March 22, 1985, which included FWS personnel Walter Quist and George Haas, along with several R8 and Albany NYSDEC personnel. Much of the area is threatened by drainage and conversion to muck-land farming.

Hocutt spent much time in discussions with U.S. Geological Survey experts in Ithaca, Albany, Twin Cities (Minnesota), Denver, and Washington, D.C., in search of an acceptable Sediment Sampler for use as a required device in Black Brook by the Seneca Meadows Landfill (SML). Finally, input from

USGS's Federal Inter-Agency Sedimentation Project in Twin Cities led us to recommend the USGS-BMH-80 Sampler to NYSDEC R8 engineers. The BMH-80 was incorporated into the 5-year SML Operating Permit, thus ending a 3-year hiatus about samplers.

As part of a FWS agreement with NYSDEC and the operators of the Seneca Meadows Landfill, refuge staffers Marocchini, Gingrich, and Hocutt performed a biological survey during June and July of relative invertebrate abundance in Black Brook upstream and downstream of the landfill. Findings are discussed in Section D.5, Research and Investigations.

In August, Hocutt, Benvenuti, and Marocchini provided a discussion and air boat tour of purple loosestrife treatment areas on the Main Pool for three biologists from the Wisconsin Department of Natural Resources.

At the request of Paul Hamilton, supervisor of the Ecological Services Office in Cortland, New York, Hocutt participated in reviews and inspections and provided comments pertaining to a Wetlands (404) application by the Savannah Evergreen Preserve Ltd. (Pyramid Companies/Maderia Associates). Pyramid, one of the northeast's largest developers of shopping malls, has acquired almost 2,900 acres, and has made offers on over 2,000 more in what has been labeled the Northern Montezuma Wetlands Complex. Pyramid intends to manage the area as a large hunting club and retreat for business associates. Disparate concepts about development exist among NYSDEC, USFWS, and the U.S. Corps of Engineers.

At the request of James Forbes (WA/NY) and James Beardsley of the Cayuga County Economic Development Council, Hocutt and Benvenuti met with various individuals regarding the proposal by the county to again pick a site for the long-delayed Cayuga County Airport. After losing FAA approval (and the site itself) due to extremely high bird strike hazards at controversial Site 6, the county is attempting to "go by the book" in evaluating the "new" site. Benvenuti accompanied designated bird census-taker Ann Robson to the site to assist her in standardizing her techniques to meet FAA and FWS concerns.

Hocutt spent two days in October with Robert Clay, Research Biologist with Ducks Unlimited Canada (Winnepeg, Manitoba). His visit was to view and discuss treatment of purple loosestrife. DUC is very concerned about loosestrife in southern Ontario and western Quebec provinces.

At the request of NYSDEC, the refuge again served as a distribution point for Canvasback Permits for the special experimental season in late December and early January on Cayuga Lake and the Niagara River. Over 150 permits were issued by the refuge's staff.

The National Geographic Society selected Montezuma as one of the places to be covered in next year's book, America's Hideaways.

Consequently, ORP Larry Davis spent several hours with photographer Steve Brown. The Society decided to focus the narrative on the refuge's Environmental Education Program. On October 23, Society writer Erik Larsen visited with Hocutt in the morning, and attended a specially-arranged four-hour EE session in the VCS and in Unit 17 with 32 Gifted and Talented (GAT) 3rd/4th graders from Skaneateles School District. GAT Coordinator Carol Ann Smith assisted Hocutt with the session. Major portions of the session were taped.

8. Other

In June, a permit was issued to the New York State Department of Transportation for temporarily storing and stringing 1,000 feet of 12-inch discharge pipe. The pipe was used to discharge sediment from the vicinity of Lock Number One to an off-refuge spoil site.

A permit was issued to Mobil Oil Company to allow removal of brush and limbs encroaching on their pipeline right-of-way.

F. HABITAT MANAGEMENT

1. General

With approximately 80% of the 6,432 acres of Montezuma being marshland, the primary habitat management objective is to provide feeding and resting areas for migratory waterfowl and other water birds. A secondary objective is to provide nesting areas for a variety of bird species, and to create seasonal mudflats for migratory shore birds. To meet the stated objectives, moderate water levels were maintained during migration. Water levels remained stable during the waterfowl nesting season, and over 9.5 miles of dikes were mowed during mid-summer in an effort to provide suitable nesting habitat. The dikes represent the majority of the refuge nesting cover.

2. Wetlands

Water management of two pools of over 1,200 acres each is a delicate balance of compromises. This is due to the size of the pools in relationship to the ability to regulate water levels, the eutrophication conditions inherent in 50-year old, shallow impoundments, and the establishment of purple loosestrife during the early 1950's. These limiting factors have produced difficulties with water level management that have frustrated efforts to use more innovative management techniques.

The on-going process of rebuilding and reinforcing deteriorating dikes continued during 1985 with the remaining 2/3 of May's Point Dike being resloped and stabilized. To do this, the pool was drawn down from mid-August to mid-October.

A preliminary Comprehensive Water Control Plan was drafted during CY 85. It calls for major repairs to existing dikes, new water control structures, meandering ditches, and construction of new impoundments.

The U.S. Geological Survey completed construction of the Black Brook gaging station during December. Staff gages were installed on White Brook and Esker Brook. Hocutt wrote a formal letter of commendation to the USGS District Chief regarding Technician Don Sherwood's efforts and the excellent cooperation of staff at the Ithaca sub-office. Without the intervention of Dick Novitski and Sherwood's efforts, there would have been no station. USGS actually built the station after all contractor bids far exceeded allocated funds. Under the cooperative agreement, the FWS agreed to pay USGS $18,500 for the construction of the gauges and $5,500 per year for their operation and maintenance.

Main Pool

This pool covers approximately 1,200 acres and has been a traditional purple loosestrife stronghold. Water levels were kept at levels sufficient to retard loosestrife germination, but not so deep as to unduly stress cattails. Approximately 12 acres were mowed with the Hockney cutter (Section F.10).

Cattail rejuventation in the center of Main Pool continues on a slow but steady comeback since the drawdown of 1983. Pond lily was extremely dense along the east side of the pool.

Tschache Pool

This pool covers 1,300 acres at the northernmost end of the refuge and is supplied by Black Brook and White Brook.

Water levels were held at or near objective levels throughout the year. With the passing of time, additional dead snags continue to fall in the pool. The snags that remain are used as nesting and perching sites by ospreys, bald eagles, and great blue herons. The Tschache Pool road was closed to the public for most of the summer to prevent undue disturbance of the great blue heron colony and the osprey nest near the pump station.

Carp continue to be abundant in the pool, and some cattail dieback due to carp "rooting" is occurring.

North Spring Pool

This pool is 118 acres in size and drains into Tschache Pool. Because of the high sulfur and tannic acid levels of this dead timber marsh, there is very little emergent vegetation found here. Purple loosestrife is confined to stumps, fallen decaying logs, hummocks and along the dikes. Several of the stumps and hummocks were used as nesting sites by Canada geese, mallards, and teal. An abundance of duckweed during the autumn months provided a good source of food for migrating waterfowl. Water levels were stable throughout 1985.

South Spring Pool

This 37-acre pool is located directly south of the North Spring Pool and is supplied by several springs. Water from this pool can be diverted into Main Pool or to North Spring Pool. As is true with North Spring Pool, loosestrife is confined to disturbed or exposed areas, such as dikes and rotting tree stumps. Purple loosestrife is less prevalent in South Spring Pool than in North Spring Pool.

May's Point Pool

This 200-acre pool was drained for dike repairs during September. As a result, there was increased use by shorebirds, great blue herons, and egrets. Green-winged and blue-winged teal were also abundant in persistent puddles. Since the draw-down occurred late in the year, purple loosestrife germination was not a serious problem. Due in part to the 1984 and 1985 drawdowns, carp infestation does not appear to be a problem in this pool.

3. Forests

Approximately 1,800 acres of the refuge are non-commercial woodland, most of which is classified as forested wetland. Dominant tree species include red maple, black ash, green ash, slippery elm, and swamp white oak. No forest management occurred in 1985.

Unit 17, a 600-acre tract of hardwood bottomland at the southernmost portion of the refuge, was seasonally flooded until 1978. There is significant mammalian activity in this tract, as well as at other water-forest interfaces. During 1985, a 25-meter square deer exclosure fence was erected to help determine whether regeneration is retarded due to browsing by deer or due to other environmental factors. Plans for creating a meadering ditch through this unit have been discussed as an alternative to flooding. The impaired condition exhibited by most of the hardwoods in this unit is believed by researchers at Cornell Univeristy to be a manifestation of stress induced by the past seasonal flooding regimen of 1968 - 1977.

5. Grasslands

Approximately 330-acres of refuge are classified as grassland, and since 1982, have been divided into several grassland management units (GMUs). The objective of grassland management is to provide increased nesting habitat for waterfowl and ground nesting birds.

Present grassland types are primarily remnant of tame pastures and hayfields. The tall grasses and perennial forbs are representative of early old-field successional stages. Encroachment of woody plants and noxious weeds is minimal at the present time.

During 1985, two GMU's were mowed in accordance with the current rotational schedule. GMU I was mowed during January, and GMU II was mowed in August to avoid the nesting season. Clipping heights were maintained at 15 cm (6 inches) using rotary and sickle bar mowing attachments.

Unfortunately, nest searches have suggested limited use of these grassland units to date. Similar results also appear off refuge, and may be due to early hunting seasons in central New York that could be resulting in a disproportionate harvest of local nesters.

6. Other Habitats

In addition to the habitats already discussed, there are more than 600 acres classified as rivers, streams, brush and small isolated grassland areas. This land was not subjected to any habitat manipulation. Several acres of land adjacent to administrative, recreational, and maintenance areas are managed in accordance with their respective uses.

9. Fire Management

No prescribed fires were initiated during CY85. The potential for prescribed burns at Montezuma is severely limited due to the peat soils and the fact that two major highways traverse the refuge, thus making smoke management a real problem.

A cooperative agreement for wildfire and prescribed fires was negotiated with the Magee-Tyre Volunteer Fire Department, Inc. A blanket purchase order was also established with the department for reimbursement of costs associated with structural fires and alarm system responses. They were paid $50.00 for responding to one false alarm during 1985.

This year, $1,000 was spent on the purchase of fire equipment. A hose for our 10-inch Gator pump and a portable oxygen unit were acquired.

10. Pest Control

With the purchase of a Hockney Aquatic Weed Harvester in 1984, we relied more heavily on mechanical control in conjunction with the stress of flooding. Early results were favorable. Nearly 12 acres of loosestrife were mowed at a rate of approximately .4 acres per hour. Most of the cutting was done in late summer. If cutting can be done earlier in the year, we may be able to achieve a rate of 1 acre per hour. Plans for 1986 include the use of the herbicide Rodeo in areas where mechanical control is not possible.

Dr. Robert Seem, head of the Plant Epidemiology Department of the Geneva Agricultural Experimental Station (USDA, Cornell University) visited the refuge in May. He has a major interest in developing a biological control program for loosestrife by utilizing pathogens endemic to the area. In August, 1984, Dr. Seem collected loosestrife affected by lesions on leaves, stems, and internodes. Cultures were grown at their facility during the

Purple Loosestrife - Photo Point #1
(All three photos are series #85-10)

Top Left - After two years of stress from elevated water levels (8-82; VAD).

Top Right - After 1983 construction drawdown and drought prevented use of water stress (6-84; VAD).

Bottom - After holding water levels high during 1984. Expansion has ceased, and the stand is receding in some areas (8-85; AMM).

winter. A fungus, Drechslera spp., was identified as the pathogen responsible for the lesions. Two other fungi (Alterneria spp. and Fusarium spp.) were found, but were rejected as causal agents, since both are saprovores. Drechslera spp. is commonly associated with monocots such as cereal grains. Dr. Seem and Hocutt inoculated (by atomizer spray) five loosestrife clumps with the endemic pathogen and bagged the plants for 36 hours. The plants were observed for a 15-day period to evaluate the treatment. The results were inconclusive, due in part to the cold temperatures and low humidity (both deter spore formation). Dr. Seem plans to cultivate loosestrife under controlled conditions in the laboratory.

On August 6, Dr. James Budzynski, Non-Crop Director for Monsanto Corporation in Delaware, visited the refuge along with Dr. Robert Seem. A lengthy discussion was held about the history of purple loosestrife at Montezuma, past treatments, effects, and other related topics. Hocutt and Marocchini took Dr. Budzynski in the airboat for a field investigation. Budzynski will provide a draft of Monsanto's recommendations for treatment at Montezuma with the chemical Rodeo, and will suggest methods by which the company will propose to materially aid FWS in research and management treatment here.

12. Wilderness and Special Areas

There are two Research Natural Areas on the refuge. Maple Knoll, an 8-acre tract located southwest of Tschache Pool, is the only beech-maple stand on the refuge. The other RNA, Swamp Woods, is a tract of about 100 acres of black ash, red maple and some American elm located southwest of the Main Pool.

G. WILDLIFE

1. Wildlife Diversity

The Refuge is a relatively stable biotic community; species diversity varies little from year to year. Species which are uncommon or rarely seen but which were sighted during 1985 included: whimbrel, caspian tern, oldsquaw, Wilson's phalarope, and coyote. In April, two turkeys were sighted near the tour route exit. Turkeys are present but uncommon in this part of New York. The two turkeys vanished as mysteriously as they had appeared.

2. Endangered and/or Threatened Species

Seven bald eagles (3 immature, 1 subadult, and 3 adult birds) were observed on the refuge in 1985. None of the eagles sighted on the refuge stayed for more than a few days at a time.

Two pairs of osprey nested on snags in Tschache Pool. One pair (presumably the same ones that had nested successfully for four years) had been incubating for a few weeks before their nest was blown down in a June storm. This pair built another nest approximately 150 yards away, but their efforts were in vain. The other pair was also unsuccessful in producing young. They were probably inexperienced subadults, and may have been offspring of the original pair.

3. Waterfowl

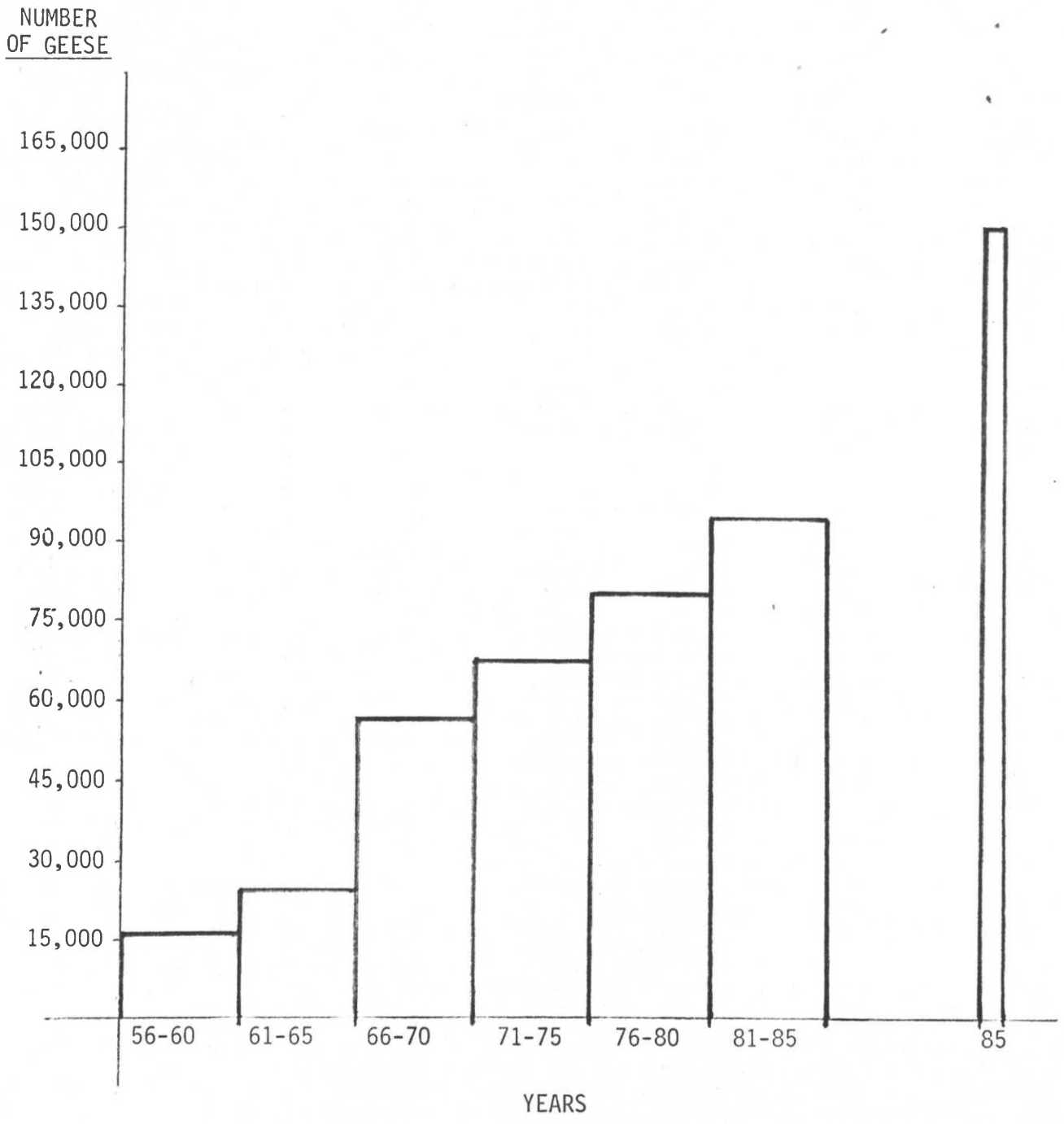
The spring Canada goose population on the refuge peaked at 150,000 in March. This is the highest spring peak ever recorded at Montezuma. The fall Canada goose population peaked at 59,000, which is also the highest recorded here. Lesser snow geese (primarily blue phase) averaged 12,000 throughout the spring.

Overwintering of Canada geese in the Cayuga Lake Basin continued unabated. According to aerial and ground counts by the New York State Department of Environmental Conservation during the period January through March, 1985, approximately 60,000 geese overwintered. After return migration began in March, a DEC flight in mid-month tallied 248,500 geese within a rectangular, north/south oriented corridor of approximately 20 miles long and 4 miles wide. The refuge is almost exactly in the center of the zone.

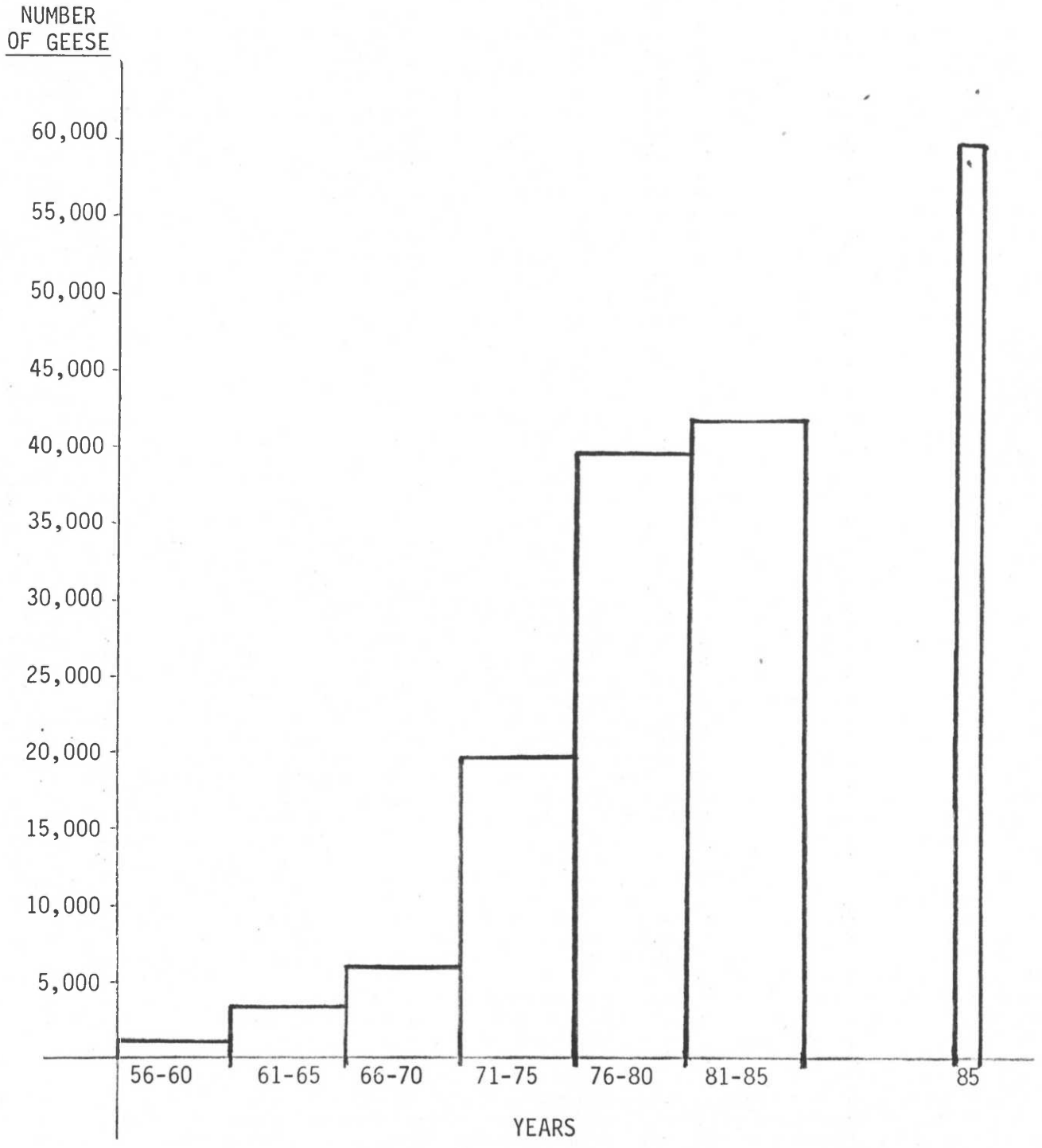
Many of the "lake" geese spent portions of winter days sitting on the ice on refuge pools. Approximately 20,000 were present during the first two weeks of January and on several occasions in February. On March 10, DEC counted approximately 45,000 sitting on the ice on refuge pools.

FIVE YEAR MEANS FOR SPRING PEAK CANADA GOOSE POPULATIONS

(APRIL-JUNE) AT MONTEZUMA NWR BETWEEN 1956-1985



FIVE-YEAR MEANS FOR FALL PEAK CANADA GOOSE POPULATIONS
(SEPTEMBER-OCTOBER) AT MONTEZUMA NWR BETWEEN 1965-1985



The spring peak for ducks was 11,000, a decrease from the last two years. The fall duck populations, comprised mostly of mallards and American black ducks, peaked at 80,000 in December of 1985. This was substantially below the 1984 fall peak of almost 200,000 birds. Despite the decrease in the duck populations in the last few years, duck numbers on the refuge have increased since the early 70's.

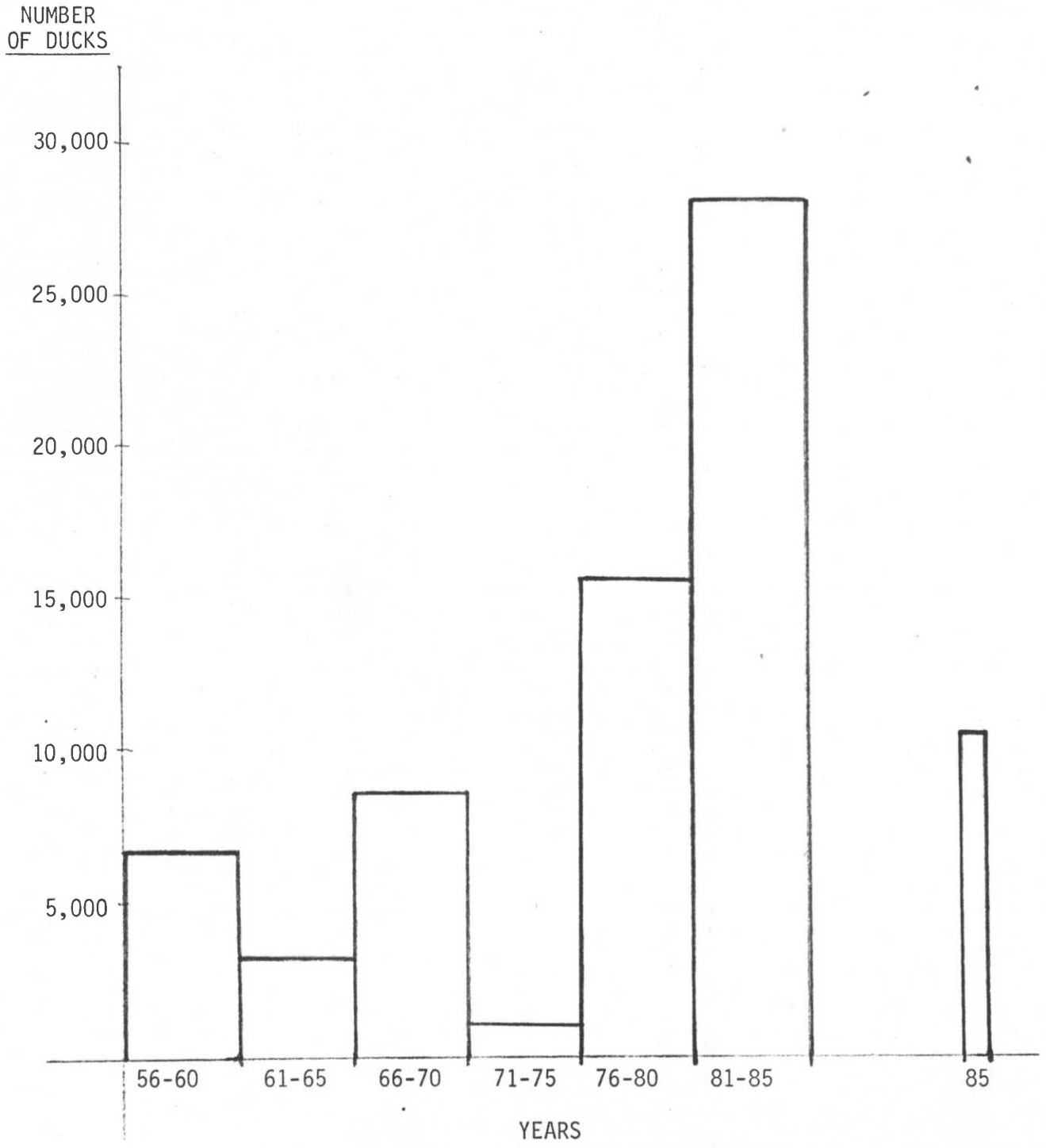
Canada goose production was up from the last two years to 260 goslings. Duck production has tripled over the last three years, with 1,327 birds being produced in 1985. This is contrary to the overall decrease in duck production on the refuge in the 80's.

A source of continued concern is the systematic, long-term, downward trend in mallard and (obviously) American black duck production on the 6,400-acre refuge and on almost 8,000 acres of nearby state GMA's. In 1985, only 18 broods of mallards and 1 brood of blacks were actually counted on the refuge; 3 broods of mallards and no American black duck broods were counted on the two state areas. While estimated production was certainly somewhat greater, it is clear from production figures and severely decreased use by breeding pairs, that the reservoir of potential nesters is systematically being reduced. This phenomenon has been observed for species other than American black ducks throughout the northeastern states. Many observers in central New York State feel that the traditionally early season opening has systematically caused disproportionate mortality among local breeding females.

The wood duck nest box program has been very successful at Montezuma. It has aided us in attaining a fairly accurate estimate of wood duck production. Maintenance Mechanic Flanders has closely monitored the boxes since 1978. Data are collected in winter for the previous season. Therefore, information on the 1985 season will not be collected until late in January of 1986. In 1984, there was a 5% increase in production. During this season, 809 eggs hatched, and 76% of the 104 boxes were used. Dump nesting has not yet become a significant factor in the five years since major relocations were made in all of the refuge's nesting boxes.

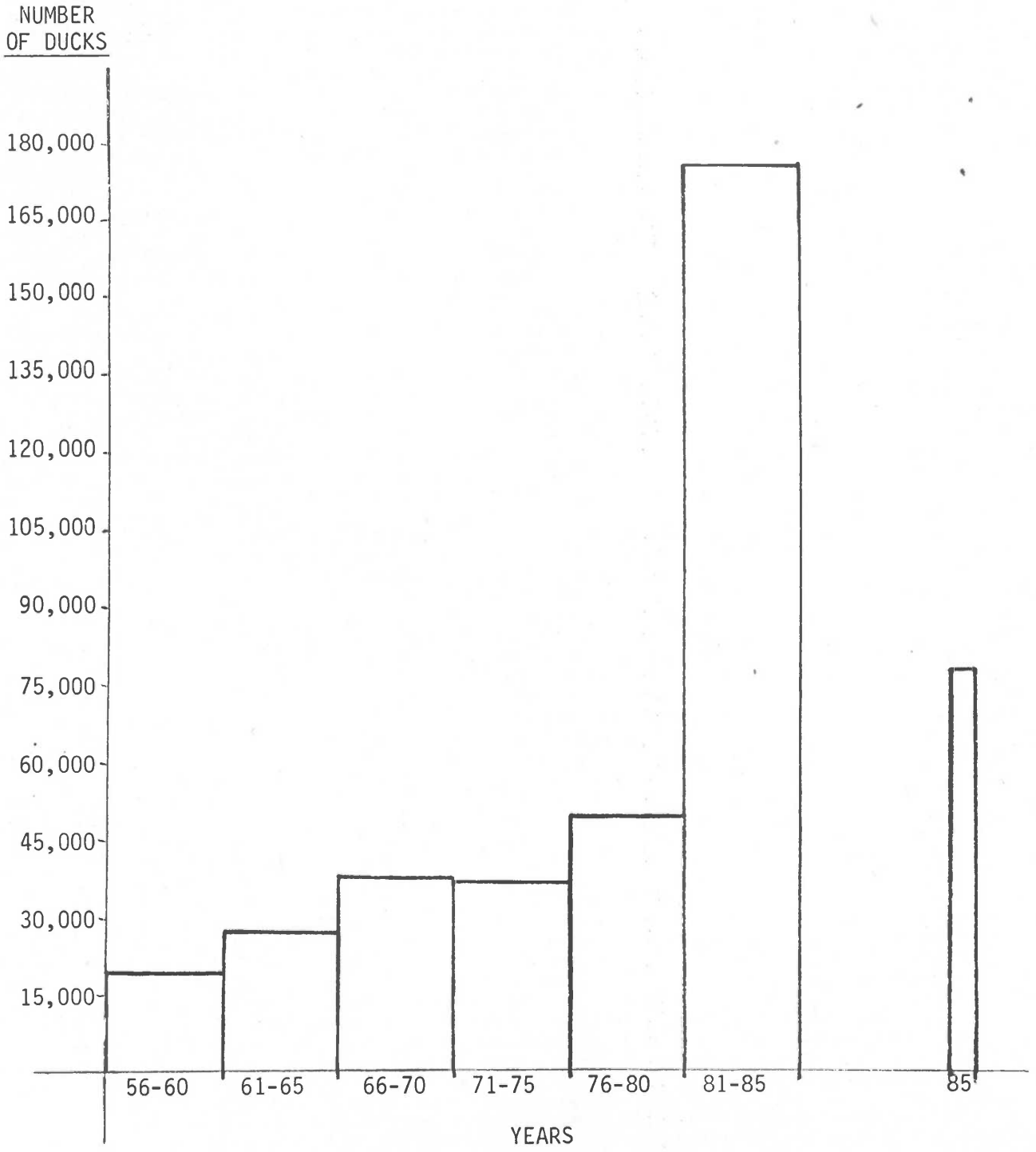
FIVE-YEAR MEANS FOR SPRING PEAK DUCK POPULATIONS

(APRIL-JUNE) AT MONTEZUMA NWR BETWEEN 1956-1985



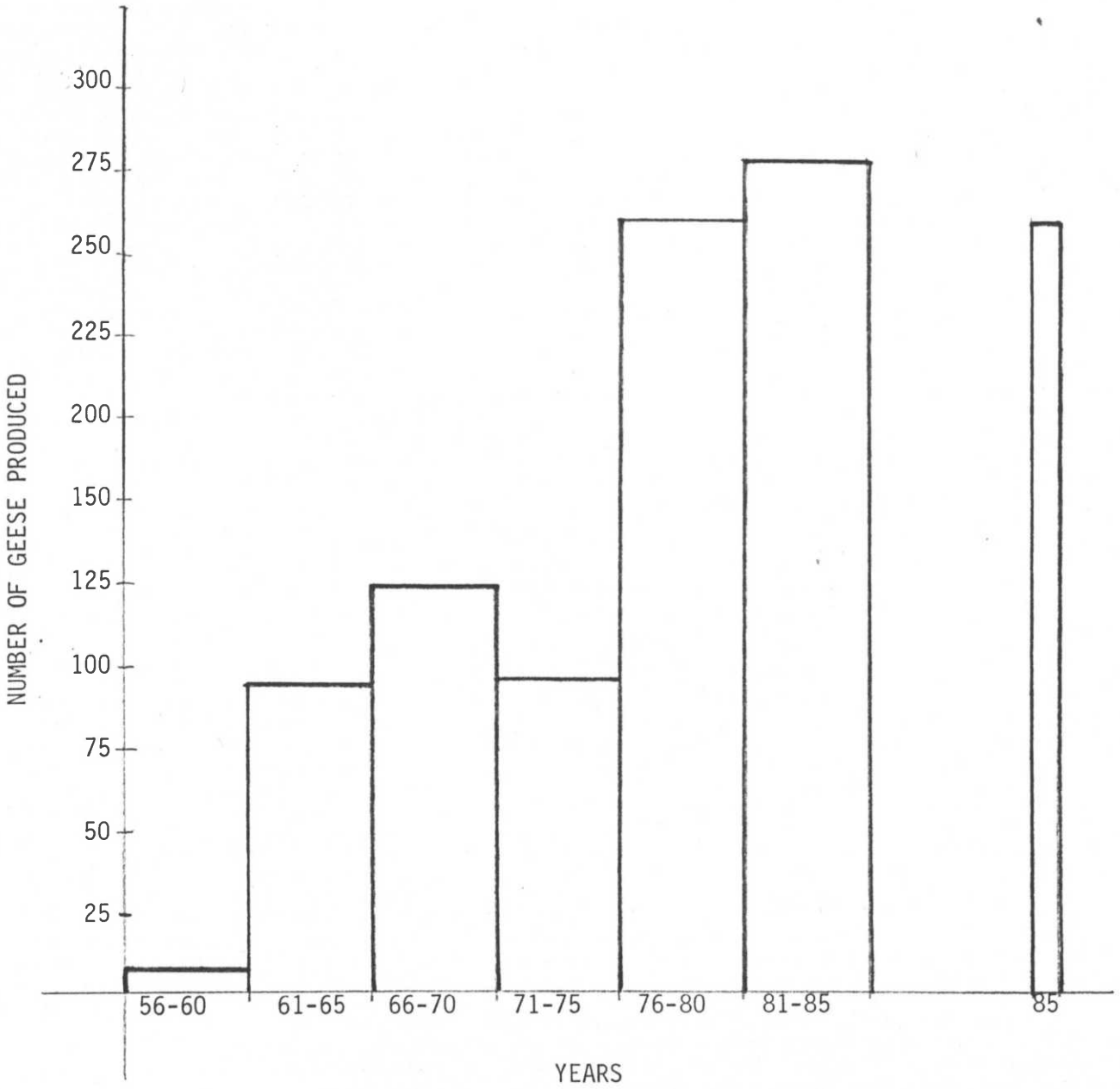
FIVE-YEAR MEANS FOR FALL PEAK DUCK POPULATIONS

(SEPTEMBER-OCTOBER) AT MONTEZUMA NWR BETWEEN 1956-1985

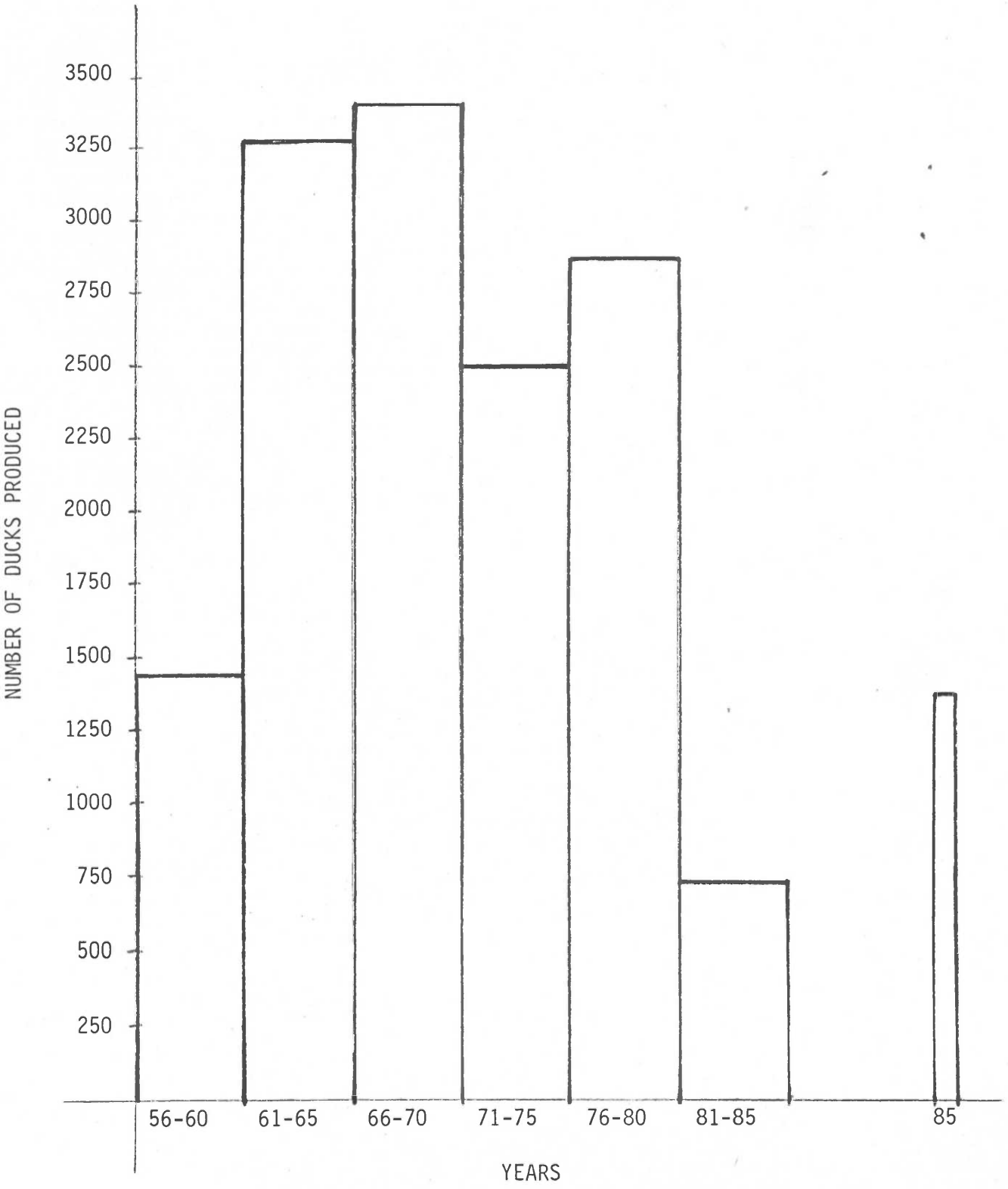


FIVE-YEAR MEANS FOR CANADA GOOSE PRODUCTION

AT MONTEZUMA NWR BETWEEN 1956-1985



FIVE-YEAR MEANS FOR DUCK PRODUCTION AT
MONTEZUMA NWR BETWEEN 1956-1985



4. Marsh and Water Birds

Since 1982, great blue herons have been nesting on Tschache Pool. Herons built fifty nests, and 121 young were fledged in 1985. This is quite an increase from the two nests built in 1982. There is some concern for the nesting habitat available for the great blue heron. While the number of great blue herons nesting in Tschache Pool increases, the available nesting space (snags) decreases. The snags are the remains of hardwood forest that was flooded in the 40's. Over the years, the snags have rotted and fallen. Due to the fact that heron rookeries shift from time to time, it is unlikely that artificial structures will be installed.

Black-crowned night herons again nested in purple loosestrife in the Main Pool. An estimated 115 young were produced.

5. Shorebirds, Gulls, Terns, and Allied Species

May's Point Pool was drawn down in August for dike repairs. This provided excellent shorebird habitat. Among the rarer species observed were Wilson's and red-necked phalaropes, sanderlings, and ruddy turnstones. Some species seen in great numbers were killdeers, both yellowlegs, least sandpipers, and semipalmated sandpipers.

Black terns produced more young this year (approximately 18) than last year (6 young), but this still is trivial compared to the 1500 to 2000 terns reported in the mid-50's.

Common terns also nested on the refuge. Two nests were found in Tschache Pool.

6. Raptors

Raptor populations showed no noticeable change in 1985. Red-tailed hawks were a common sight around the refuge, and there were frequent sightings of kestrels, northern harriers, Cooper's hawks, and great horned owls.

Eight to ten turkey vultures regularly perched on the old eagle hacking sight during the summer.

7. Other Migratory Birds

The bluebird nest box program at Montezuma started in 1981, and since then, a total of forty-nine eastern bluebirds have fledged from the nest boxes. In 1985, seven eastern bluebirds fledged from two nest boxes, a decrease from last year.

8. Game Animals

The enumeration of white-tailed deer on Montezuma is often a nebulous task. The deer are transitory, constantly moving on and off the refuge. Even deer that might otherwise be considered "resident" leave the refuge daily to forage on surrounding farmland. A population of 300-400 deer probably use the refuge on an intermittent basis during the year.

10. Other Resident Wildlife

The harvest for the 1984-85 trapping season totalled 1,354 muskrats, 13 oppossums, 1 mink, and 23 raccoons. The nearly impossible trapping conditions early in the winter accounted for the low harvest of muskrats. Because of poor ice conditions, the trappers could not effectively trap in January and February, so the season was extended to early April. From the trappers viewpoint, the problem was compounded by falling fur prices. The revenue was a predictably low $2,638.

11. Fishery Resources

One commercial fishing permit was issued for carp removal. Although the same permittee has held the permit for the past several years, this year he forfeited the $100 deposit without actually fishing. Spring and summer discharges from our water control structures were so slight that not enough carp were attracted to make it worth his effort.

15. Animal Control

Rodent control cartridges were used on 22 woodchuck burrows during 1985. Woodchuck and muskrat burrows have, in the past, caused structural damage to our dikes, so it is necessary to control their activities in selected areas.

16. Marking and Banding

Montezuma had a successful banding season using the Montezuma Trap. The refuge quota of 200 mallards was well exceeded, but the quota of 50 black ducks was not met. Black ducks were not on the refuge in great numbers until the end of October, which was well after the preseason banding period. Montezuma does not have a wood duck quota. However, wood ducks and excess mallards were banded at the request of NYSDEC to aid them with their quotas. A total of 709 ducks were banded during 25 hours of trap operation at the single trapping site.

The final results were:

	HYM	AHYM	HYF	AHYF	TOTAL
Mallard	66	114	136	151	467
American Black Duck	10	4	15	7	36
Wood Duck	85	55	39	25	204
Hybrids (Mallard-Black Duck)	2	-	-	-	2

Assistant Manager Paul Benvenuti (R) and Volunteer Kevin Colton doing what we did 709 times in the fall of 1985. Kevin has been one of the refuge's most faithful volunteers (and unofficial photographer) since 1979. He operates a commercial photographic studio in Geneva, New York (85-11; SLF).

Assistant Manager Anne Marocchini at the wind-up of an evening's banding. Note details on the trap: (1) three exit doors in the rear of the holding compartments; and (2) the "wing curtain" of wire at each entrance which allows access to the ducks <u>without</u> interference by Canada Geese (85-12; KSC).

H. PUBLIC USE

1. General

The Interpretation and Recreation (I&R) Program at Montezuma continued to provide quality programs for refuge visitors. Weekend and holiday operation of the Visitor Contact Station was continued by volunteers and temporaries. Expansion of the Esker Brook Trail was accomplished. The introduction of mini-workshops and presentation of a wide variety of evening adult education programs were among the services offered during CY 1985.

During 1985, the refuge received 218,000 visits, of which the bulk originated from the Finger Lakes Region (and the Rochester/ Syracuse area). Throughout the past seven to eight years, visitation has fluctuated between 200,000 and 250,000. This year's visitation continues to indicate that Montezuma is certainly a major attraction in the Finger Lakes Region of New York State. More than any other factor, total visitation in any given year is determined by the chronology and intensity of migration as these relate to weather conditions on weekends.

Visitation, by month, was as follows:

January 1,500	July 19,700
February 5,710	August 24,000
March 14,825	September 20,000
April 26,935	October 34,500
May 18,200	November 21,500
June 20,650	December 13,200

Beginning in 1980, refuge personnel began an effort to have the New York State Thruway Authority place directional signs at Exit 41 on the Thruway. This effort finally came to fruition this past fall, when the refuge received word that the signs were being installed. Cooperation with the New York State Department of Tranportation resulted in the placement of "trailblazer" signs at strategic locations along state routes 414 and 318. The placement of the new signs will greatly assist the Thruway motorist in gaining access to the refuge and at last relieve the confusing and time-consuming problem of trying to direct visitors to the refuge.

2. Outdoor Classrooms - Students

Requests continued to come in from area schools wishing to utilize Montezuma's Environmental Education resources. Among the resources available to area teachers are an extensive film library, mounted specimens, the VCS/Auditorium, the Auto Tour Route, and three designated Environmental Education sites (Unit 17 Boardwalk, South Spring Pool, and Esker Brook Nature Trail). Throughout 1985, 2,134 students spent 5,335 activity hours on the refuge. Forty-five programs regarding Montezuma Refuge and

the refuge system were presented in the VCS. Programs were presented by Adie, Hocutt, Davis, Phillips, and volunteers Karen and Francis Kelley.

Young folks receiving a lesson on endangered species from ORP Davis (85-13; SJF).

Area schools continued to request off-refuge programs during the winter months. These programs provided the I & R staff an opportunity to introduce students (K-9) to the National Wildlife Refuge System, and prepare many of the classes for follow-up visits in the spring. The programs presented included: "Wetlands: Their Value and Preservation"; "Animal Survival Techniques"; "Endangered Species"; and "What is a Refuge?". Fifty-six presentations were made to 1,119 students in six school districts, representing 1,438 activity hours. Recreation Assistant Adie and Assistant Manager Benvenuti presented the programs.

Continuing with Montezuma's commitment to education, Recreation Assistant Adie presents one of many programs to area school children (85-14; RLD).

The following counties and school districts were represented during 1985 in on and/or off-refuge Environmental Education activities:

Cayuga County	-	(Auburn, Port Byron, Union Springs, Cayuga, Weedsport)
Essex County	-	(Saranac Lake)
Monroe County	-	(Rochester)
Onondaga County	-	(Syracuse, Skaneateles, Manlius)
Seneca County	-	(Seneca Falls, Waterloo, Romulus)
Schoharie County	-	(Cobleskill)
Wayne County	-	(Clyde-Savannah, Lyons, North Rose-Wolcott, Sodus)
Yates County	-	(Penn Yan)
Rensselaer County	-	(Troy)

When possible, the refuge accommodated requests from area colleges for various programs relating to resource management. These included:

Cayuga County Community College, Seminar in Natural Resources Conservation Class (Adie) - 25.

The College of Environmental Science and Forestry of the State University of New York. Five-hour seminar for a graduate-level Wildlife Management Class (Hocutt) - 18.

SUNY/Binghamton. Two-hour Seminar For Animal Behavior Class (Hocutt) - 26.

The College of Environmental Science and Forestry, SUNY/ Syracuse. One-hour Presentation to Introductory Wildlife Management Class (Volunteer Francis Kelley) - 30.

SUNY/Cortland. Two-hour Seminar For Interpretation/ Recreation Class (Davis) - 12.

3. Outdoor Classrooms - Teachers

Three, day-long, in-depth Environmental Education teacher workshops were given in 1985. Dr. Ron Scrudato, who assisted Manager Hocutt throughout the Seneca Meadows Landfill situation, volunteered to teach a water resources workshop. Thirteen teachers attended the 6-hour session which covered many aspects of hydrology and included geology, chemistry, water availability, and misuse. After a 2-hour lecture in the VCS, workshop participants visited Esker Brook and South Spring Pool for lessons in water sampling techniques and activity suggestions for student participation.

Volunteers Charlotte and Bob Hedler presented a half-day workshop dealing with wildflowers. Through the use of slides, their lecture introduced 20 teachers to the beauty of Montezuma's flora. Before venturing outside with the group, the Hedlers shared techniques in wildflower photography and identification. The remainder of the day concentrated on field identification along Esker Brook.

Dr. Ron Scrudato preparing to demonstrate the technique of measuring water flow during the Water Resources Workshop (85-15; RLD).

Professor Gib Merrill, from Elmira College, a long-time refuge friend and volunteer, taught a 6-hour workshop on "Natural History - Tools And Techniques For Education". As a result of his years of experience in the field, any new sound, sight, or smell is an open invitation for scientific investigation. Gib began the day with a presentation of the basics of tree identification. He then produced live specimens of several reptiles, and discussed the benefits and myths of each. Outside, participants explored South Spring Pool and Esker Brook.

In an attempt to reach additional teachers, five "mini-workshops" were planned during 1985. In June, ORP Davis and Volunteers Charlotte and Bob Hedler led a guided walk for 25 people on the Esker Brook Nature Trail. The purpose of this workshop was to expose teachers to NYS geological features and the flora and fauna of the area.

In July, R.A. Adie led 35 people in a field exercise which concentrated on the "Ecology of Cattail Communities".

Forty-nine people attended a second workshop in July, led by Refuge Manager Hocutt, which dealt with the ecology of Unit 17, one of the refuge's EE sites.

A Pond Ecology workshop in October attracted 19 teachers, who were concurrently introduced to our educational facilities at South Spring Pool and sub-headquarters.

Outfitted with field glasses and walking cane, Professor Merrill searches for anything and everything during a spring workshop (85-16; RLD).

In October, Maintenance Mechanic Flanders presented the NYS Waterfowl I.D. class to 10 teachers.

These workshops reached 7 new school districts, and represented 552 activity hours.

The refuge film library continued to be in great demand during the reporting period. One hundred and twenty-five films were mailed to 45 teachers in the refuge service area. The refuge library consists of 40 wildlife films, and is a planned adjunct to teacher workshops, refuge adult education efforts, and pre/post visit instruction and reinforcement.

4. Interpretive Foot Trails

The three-mile Esker Brook Trail, which is the only formally-designated, year-round foot trail on the refuge, received a great amount of attention during the summer. YCC enrollees spent several weeks completing various work projects. Of major importance was the re-opening of a one-mile stretch of the trail. The section was closed several years ago due to safety factors. The trail was rerouted around the two unsafe areas, and the necessary work of trimming, branching, etc. was completed. In addition to this work, an observation pier, a boardwalk, and one bridge were constructed.

The maintenance of a foot trail is certainly an on-going project, and as long as the YCC program exists, the refuge will continue to utilize their efforts. Thus far, these efforts have established a trail which is enjoyed by young and old.

5. Interpretive Tour Route

The major attraction for refuge visitors is the self-guiding auto tour route. To aid visitors driving the tour route, interpretive markers are placed at strategic locations. An interpretive guide is available, which accompanies the markers. This past Halloween, "trick or treaters" left their calling card on one of the markers. Fortunately, the sign material (permalloy) was durable enough to withstand a good scrubbing with paint thinner.

For CY 1985, the tour route received approximately 81,000 visits. Refuge visitors are encouraged to stop at pullovers and take short walks along the dike. This provides visitors a much better opportunity to enjoy the wildlife found on the Main Pool. Through news releases and personal contacts, the refuge encourages travelers to plan their visit either early in the morning or late in the afternoon during peak migrations. Weekdays are also recommended over weekends. In addition to driving the auto tour route, bicycles are permitted. During winter months, cross-country skiing and snowshoeing are encouraged along refuge dikes.

6. Interpretive Exhibits/Display/Demonstrations

Off-refuge exhibits continued to be in demand from area schools and organizations during CY 85. Window-type displays, field day exhibits, appearances at malls, etc., were some of the services offered during the year. In addition to setting up unmanned school displays, the following displays/exhibits were provided by the refuge:

A window display was placed at the Security Trust Company in Auburn, New York. This was done at the request of the Owasco Valley Audubon Society. The display's theme was "Environmental Education at Montezuma Refuge".

A display on wildlife and wildlands was provided for Seward Elementary School in Auburn, New York. The event, which was part of their annual Field Days, was viewed by 300+ children, who kept ORP Davis busy answering their questions.

During September, the refuge provided a large, staffed display for the Cayuga County Federation of Conservation Clubs at their annual Conservation Field Days in Auburn. 400 persons viewed the exhibit; several duck stamps were sold.

Also during September, a display was placed at the Pyramid Mall in Ithaca, New York, for National Hunting and Fishing Day. Volunteers Karen and Francis Kelley and Adie manned the exhibit. Approximately 4,500 persons viewed the exhibit.

7. Other Interpretive Programs

For CY 85, Montezuma continued to receive many requests for programs from civic groups, senior citizens, scouting organizations, churches, and birding and sportsmen's organizations. Programs were presented by refuge personnel Adie, Hocutt, Davis, Benvenuti, Flanders, and volunteers Karen and Francis Kelley. The following interpretive programs were presented:

Rochester Retired Mens Club - 18
Rochester Psychiatric Institute - 22
Rochester Development Center - 12
Chattanooga Audubon Society - 20
Retired Teacher's Association, Waterloo, NY - 60
Phelps Lions Club, Phelps, NY - 12
Seneca Falls Kiwanis Club - 30
Monarch Training Program, Auburn, NY - 12
Auburn YMCA - 55
Sprucewood Nature Center - 40
Ontario Conservation Club - 50
New York State Waterfowl I.D. Course - 95
Magee/Tyre Volunteer Fire Department - 15
Central New York Ski Club - 30
St. Paul's Church, Waterloo, NY - 40
Utica/Rome Senior Citizens' Club - 30
Seneca Falls Kiwanis Club - 25
Cato, NY 4-H Group - 16
Area Postmasters (Seneca, Cayuga, Wayne and Ontario Counties) - 10

The refuge's effort to provide quality adult education programs continued into 1985. Programs and speakers were as follows:

April 17 - Dr. Robert Trost, NY State Cooperative Wildlife Research Unit, Cornell University, spoke on "Current Research on Canada Geese in the Atlantic Flyway" (49 persons).

May 2 - Dr. Steven Kress, Cornell University, spoke on "The Puffin Project" (42 persons).

June 12 - Mike Allen, Senior Wildlife Technician, NYS DEC, spoke on "The Bald Eagle Reintroduction Program in New York State" (42 persons).

July 17 - Dr. Larry Van Druff, ESF/SUNY, spoke on "Urban Wildlife" (12 persons).

November 20 - Helen Lapham, Ithaca, New York, spoke on "Banding of Passerines and House Finches on Block Island" (21 persons).

Throughout the reporting period, numerous reporters and photographers visited the refuge. Interviews on topics such as banding, purple loosestrife, great blue herons, rookeries, YCC camp, the NWR System, etc., were granted. Twenty-three news releases regarding public use, Environmental Education activities, and biological management programs were sent on a regular basis to area newspapers.

In late April, 30 scouts from Scout Troop 72 from Waterloo, New York, visited the refuge for a presentation on blue birds. Tracy Gingrich provided a one-hour program about blue birds, and then accompanied the scouts to Clark's Ridge, where he directed them in placing 15 boxes.

And some say scouting is just pine derbies and pot holders. Once in a while a group comes along which stands out above the rest. Scout Troop 72 posing for a group photograph after completion of a blue bird project (85-17; NSA).

At the request of Tony Ingraham, Regional Naturalist for the Finger Lakes State Parks and Recreation Administration, Sue Adie presented eight programs at various state parks throughout the summer of 1985. These programs reached approximately 280 campers.

Maintenance Mechanic Flanders and volunteer Kevin Colton taught one hunter safety training course. Twenty-five persons completed the course. Flanders and Colton also taught three New York State Waterfowl I.D. courses to 95 persons.

8. Hunting

WATERFOWL

Once again, waterfowl hunters had a very successful year at Montezuma Refuge. This year, 421 hunters spent approximately 3,500 activity hours on Tschache Pool. During the hunting season, 455 ducks, along with 113 geese, were taken for a total of 568 birds. This represents a success ratio of 1.4, the second highest in refuge history. A five-year breakdown illustrates the success of this hunt.

	1981	1982	1983	1984	1985
Number of Hunters	334	390	400	438	421
Total Birds	307	486	409	723	568
Success Ratio	.92	1.24	1.02	1.65	1.4
Number of Shots	2103	*	2316	3803	3434
Avg. Shots/Hunter	6.3	*	5.8	8.7	8.2
Avg. Shots/Bird	6.9	*	5.7	5.3	6.5

*Figure not available.

Considering that this year's hunt was reduced by 10 days, which resulted in 3 or 4 fewer refuge hunt days, indications are that 1985 probably would have otherwise equalled, or perhaps surpassed, banner year 1984.

It is also of interest to note that the traditional 15-shell limit was increased to 25 in 1985. This resulted from the "national edict" for standardization. The overall quality of the hunt is best described by the fact that success remains consistant throughout the season in the face of three-day "burn-outs" of nearby public areas. Refuge waterfowl hunters have expressed complete satisfaction with and support for the refuge hunt.

The Young Waterfowlers Training Program Field Day was held on October 6 at the refuge Check Station. Twenty young adults participated in this year's program. The program was coordinated by ORP Davis and Manager Hocutt, and provided instructions in hunter safety and ethics, decoys, bird identification, retrievers, waterfowl biology, etc. On Sunday, October 20, the YWTP Hunt was held. Eleven youths participated in the hunt. The take for the hunt was six birds, which is perhaps a record low! Sponsors for this year's YWTP were the Lake Plains Waterfowl Association (Rochester, N.Y.), Wildfowlers of Central New

York (Syracuse, N.Y.), and the Federation of Sportsmen's Clubs from Cayuga and Tompkins Counties.

Participants, sponsors, and parents for this year's Young Waterfowlers Training Program (85-18; RLD).

At the request of New York State DEC, the refuge again issued Canvasback Permits to waterfowl hunters. All hunters wishing to hunt canvasbacks on Cayuga Lake during the Special Canvasback Season must possess a permit. 168 permits were issued by the refuge. In addition to the permits, 20 Canvasback Wing Study Packets were issued.

BIG GAME

Montezuma's archery hunt for deer began on November 1 and ended on December 10. This year, a total of 66 deer - 42 bucks and 24 does - were taken by archery hunters. The 1985 harvest was lower than in 1984. This was due to two dominant factors: first, on November 2, the rains came and did not let up for two full weeks; and secondly, NYSDEC chose not to issue doe permits for Unit 86. These two situations certainly contributed to fewer hunters. This year's total of 1,754 hunters was 300 less than 1984. During the hunt, archers spent approximately 7,000 activity hours on the refuge.

SMALL GAME

The small game hunt, which runs from mid-December through February, is a token program which results in very few people

during the harsh winter months. The majority of hunters in Central New York seek waterfowl, big game (deer) and/or upland birds. Fewer than 200 individuals participated. Species hunted were squirrel, cottontail rabbit, and fox. Five permits were issued, by lottery, to individuals with trained raccoon hounds, for night hunting of raccoons.

9. Fishing

As in past years, fishing continued to be the number one consumptive recreational activity at Montezuma. This year, approximately 20,000 individuals fished from refuge fishing sites into state-owned waters. This represents approximately 60,000 activity hours. Since fishing has become such a popular activity at the refuge, a great amount of time was spent by the YCC crew in upgrading several fishing sites. Some of the projects were trail grading, construction of one bridge, asphalting, etc. Installation of the asphalt apron at the steep May's Point Access Area, coupled with vigilant cutting of road-side vegetation, has greatly improved public safety at this site.

10. Trapping

Please see section G-10 under Wildlife for a discussion of trapping. Our muskrat trapping program is intended to be a habitat management technique and an economic use.

11. Wildlife Observation

Wildlife observation continues to account for the bulk of activity at Montezuma. Approximately 30,000 vehicles travelled the Auto Tour Route during 1985. Visitors are permitted (and encouraged) to park at designated areas and walk the tour route. This provides a better opportunity to view the large numbers of waterfowl during migrations. In addition to the ever-popular Esker Brook Nature Trail, another seven miles of dike were seasonally open for foot travel and observation. Amateur and Professional photographers utilized these areas for photographic opportunities. Two towers and one observation deck are also available for wildlife observation. Emphasis is placed on early morning and late afternoon for best viewing.

17. Law Enforcement

A few cases, all minor in nature, were pursued either through the state courts or were handled by forfeiture of collateral. Most of these related to the managed waterfowl hunt, the fishing program, or pre-season entry (for pre-season scouting of deer) into closed areas. Several warning letters were also issued.

In keeping with our committment to a vigorous preventive enforcement effort, the following techniques received increased emphasis in 1985:

1. Issued government driver's licenses to four regular, weekend volunteers; directed increased numbers of "flag show" drive-throughs of visitor use areas by affected PFT/TPT staff and volunteers.

2. Increased staff time spent in analysis (and remediation) of effectiveness, clarity, placement, synergy, etc., of informational, directional, and regulatory signs.

3. Increased over-all staff time for "flag shows" and random checks for deer and waterfowl season openers.

4. Expanded the number and scope of news releases, VCS, and Check Station I & E, and other special programs designed to enhance the level of visitor responsibility while on the refuge.

I. EQUIPMENT AND FACILITIES

1. New Construction

No major new construction was undertaken this year. The refuge staff completed the following small projects:

Two small ponds with nesting islands were constructed near the Visitor Contact Station (VCS).

The banding site was turned into an island by constructing a channel surrounding the site. The spoil was leveled, graded, and seeded to provide a drier, more usuable banding site. The moat practically eliminated disturbance of banding operations by raccoons.

The appearance and function of the VCS were improved by constructing a display and information counter. The counter was made of high quality birch plywood with a ceramic tile top.

2. Rehabilitation

The main project for the year was to complete the rehabilitation of the May's Point dike; 3,000 feet had been rehabilitated in 1984. As mentioned in Section E.5, electing to do a substantial portion of the work with refuge staff was the main reason we were in good financial shape during FY 1985.

The project included filling (2,000 cubic yards) and shaping 3,680 feet of dike to a 3:1 slope and then protecting the dike with riprap (2,700 tons). The entire 8,000 feet of dike road was surfaced with 6 inches of crushed bank-run gravel (3,200 tons).

The project was originally proposed to be done by contract at an estimated cost of $167,000. We decided to use contractors only to deliver material and place the riprap. The action brought the actual contract cost down to $62,000. Refuge staff did all preparation work, sloping, grading, seeding, etc., for a total cost of $49,000. This included all salaries and equipment rentals, and also permitted us to finally purchase a John Deere Backhoe-Loader. The remaining $66,000 was used to put to rest a variety of backlogged projects.

Other rehabilitation projects are listed below:

Contractors installed a 4-ton air conditioning unit in the refuge office. The blower-coil unit is located in the attic area, with a condensate drain and safety condensate pan under it. The condensing unit is located outside on the ground. Duct lines are overhead in the attic, and are connected to ceiling defusers. The contract cost was $4,900.

Antiquated equipment is still producing habitat improvements, but how much longer will a 38-year old dragline and a 23-year old dump truck last? (85-19; JRP).

One of two small display/breeding pair ponds created near the Visitor Contact Station (85-20; RLD).

Steve Flanders of our staff operates the grader during the May's Point Rehabilitation Project. By virtue of efforts by Steve and others, job ordered funds were restructured and much normal "contractor work" was done in-house. The photo below shows how the funds were used (85-21; PEB).

Thanks to sterling work by Steve Flanders and others on the maintenance staff, sufficient funds were saved to allow us to purchase this long-overdue (seven years) backhoe/loader. If the 1963 dump truck can be replaced in 1986, our equipment capability should finally be at a level commensurate with our work load (85-22; SLF).

Contractors constructed a 50 by 13 foot asphalt apron where the May's Point fishing area exits onto former Highway 89. This reduces spinning tires and provides a safer exit. This project cost $1,600.

Contractors replaced the old (and very heavy) wooden overhead doors at the sub-headquarters garage with three steel doors for $1,700.

Refuge staff remodeled the bathroom in the residence. The ceramic tile was cleaned and regrouted, and the trim and ceiling were repainted. Staff also installed a new toilet, vanity, medicine cabinet, lights, wallpaper, and flooring. We intend to continue room-by-room rehabilitation of the quarters for the next several years as funds are made available.

A malfunctioning oil furnace resulted in freezing damage to the fur house water system. Refuge staff replaced the furnace with propane heaters and installed a new pump and waterlines.

Refuge staff and YCC resloped and placed 48-tons of riprap in the Connecting Spillway to curtail a persistent erosion problem.

Rehabilitation projects related to energy conservation are discussed in Section I.7.

3. Major Maintenance

The following major maintenance activities were undertaken by refuge staff:

The last 3,500 feet of the auto tour route was improved by resurfacing with 635 tons of crushed bank-run gravel.

The mid-portion (2,000 feet) of Tschache Pool dike was improved with 234 tons of bank-run gravel.

The sub-headquarters parking lot received a top dressing of 35 tons of stone dust.

Periodic road grading was performed on 9.5 miles of graveled dike roads.

Grassland Management Units I, and II were mowed, as were 20 miles of dike slopes.

The inside walls and floors of the public restrooms were painted.

4. Equipment Utilization and Replacement

Our new John Deere Bulldozer (1984) was returned three times to the Rochester dealer for repairs and to install drive pins in

to the Rochester dealer for repairs and to install drive pins in the final drive unit. Two of the returns were due to leaks which were associated with the original repair. These repairs tied up the machine for about one and a half months.

Dual tires and rims were installed on the John Deere 4040 Tractor. This greatly improved flotation and stability during mowing operations.

Along with regular vehicle maintenance and safety inspections, staff made the following major vehicle repairs:

1963 Dodge Dump Truck - starter replaced and carburetor rebuilt.

1977 Dodge 4x4 - repaired leaking headgasket; replaced carburetor, battery, and voltage regulator.

1980 Dodge 4x4 - replaced hydraulic plow pump, muffler, and tailpipe.

1982 Dodge 4x2 - replaced clutch plates, pressure plates, and throw-out bearings and front shock absorbers.

1980 Luv(A) 4x2 - replaced exhaust system.

1980 Luv(B) 4x2 - replaced lower ball joints, muffler, tailpipe, and front shock absorbers.

1979 Volare Wagon - replaced the 3-speed transmission with an automatic transmission and shifter connections. The standard transmission had exhibited very poor acceleration, causing dangerous conditions when trying to enter the busy highways that cross the refuge. The automatic is much better. Also replaced were the front ball joints and brake pads.

1985 Jeep Cherokee 4x4 - rustproofed and installed a brushguard and radio system.

The following is a list of new or replacement equipment purchased in 1985:

Bush Hog 3-point hitch, 5-foot rotary ditch bank mower with a 9-foot lateral reach.

1985 Jeep Cherokee 4x4 (purchased from the Division of Law Enforcement).

Simplicity 7116 Lawn Mower.

John Deere 48-inch Lawn Sweeper.

John Deere 310B Backhoe-Loader.

60-gallon Sentinel Water Heater to replace the rusted-out one

Office furnishings:

When the headquarters building was built in 1981, the main area was designed under the "open office concept", known around here as the "mutual disruption concept". There were insufficient BLHP funds to purchase proper furniture or partitions. This year, we finally found enough money to purchase desks, file cabinets, bookcases, chairs, and partitions for three individual work stations, one duplex workstation, a computer work station, and a copy center. The total cost of the project was $5,500. The improved appearance and efficiency are worth much more.

6. Computer Systems

We continue to reap substantial benefits from our Digital Rainbow 100 Computer. It is very useful in revision of management plans. The service should attempt to avoid needless plan format changes that will require the total retyping of these documents.

We received Multi-plan Software this year. Assistant Manager Benvenuti used it to create a simple expenditure tracking spreadsheet. He also developed a more complex spreadsheet for recording waterfowl inventory data and calculating refuge populations. The inventory taker need only enter the actual number of birds observed. The spreadsheet then multiplies data by the appropriate correction factors for each species and unit, and, at the end of the month, calculates peak and mean populations for ready transfer to the Monthly Waterfowl Populations Report Form (3-243). The spreadsheet also calculates quarterly for each species: use days, peak, and mean. Not only does the spreadsheet provide a convenient means of calculating and storing the estimated population, but it also preserves the actual inventory data and correction factors for future analysis.

Benvenuti also prepared a simple data base for maintaining our film lending library. We make approximately 150 film loans each year.

7. Energy Conservation

The following projects were undertaken to improve energy conservation. We hope that next year we will be able to report significant savings:

Installed storm windows on the residence basement windows.

Replaced deteriorated doors on the outside stairwell of the residence basement with tight-fitting steel doors.

Removed the old and malfunctioning 100,000 BTU oil furnace from the Fur House. The lab room was then fitted with a 25,000 BTU upvent propane heater, and the storage room with

a 35,000 BTU direct vent propane heater.

A $2,200 order was placed for double-glazed replacement windows for the refuge residence. They have not yet been received.

8. Other

In the above subsections, several references are made to "refuge staff", "us", and "we". This was necessary for the sake of brevity. The "us" and "we" are in reality Maintenance Mechanic (Vehicles) Steven Flanders, Maintenance Mechanic (Buildings) Melvin Norsen, and Tractor Operator Tracy Gingrich.

It is not unusual to have a refuge staff that is talented and dedicated, but it is uncommon to have such a wide variety of experience and talent combined in just two employees. Steve Flanders can handle virtually any mechanical work on vehicles or heavy equipment. The only times we send vehicles off-station for repairs is when it is new equipment under warranty, or when highly-specialized equipment is needed. Steve can also handle just about any earth-moving or road-building project that is within the size limitations of our equipment.

Mel Norsen is to buildings what Flanders is to vehicles. Mel can handle everything from top quality cabinetry to the construction of entire buildings. He also serves as inspector and the engineer's on-site representative for major construction projects, and is responsible for water level management.

Tracy Gingrich's Master's Degree in Wildife Biology did not give him the same breadth of experience and maintenance talents. There is always a need for an extra pair of hands, however, especially when coupled with a mind that is quick and eager to learn.

The rest of "us", those that sit in desks or wander through woods, wish to commend these three.

J. OTHER ITEMS

2. Other Economic Uses

One commercial fishing permit was issued for the removal of carp. The rate was set at $.03 per pound plus a $100.00 administrative fee. Due to an almost non-existent run-off in Spring 1985 and subsequent limited rainfall, the usual carp "run" did not occur. No fish were taken under the permit in 1985.

3. Items of Interest

Vern Dewey retired on April 30, 1985, after 33 1/2 years of service. Vern began his career as a refuge clerk at Montezuma on September 19, 1951. At his own expense and on his own time, he completed several college courses in biology and other subjects. In 1967, Vern changed job titles and duties and became a Biological Technician. Vern's father was the first Federal Game Management Agent in upstate New York. Consequently, Vern performed law enforcement duties here for many years in a quiet and highly competent fashion. Vern was one of the pioneers of nightlighting ducks by airboat. He twice went on Canadian banding assignments, where the technique was perfected even more. Almost all of the refuge's nesting islands and potholes were put in by Vern with the aid of a 1948 dragline and a 1947 D4. Throughout his career, he remained active in the refuge's waterfowl banding program, and also banded thousands of passerines and other birds under his own permit. Few people realized that Vern is a talented, diversified artist. We were suprised in 1981, when we moved into the new office, to find several professional-quality wildlife drawings that Vern had done in the 50's and 60's. By virtue of his marriage to the former Virginia Pastushan, who is of Ukrainian lineage, Vern mastered the difficult and highly original art of eggshell painting, which is part of the rich tradition of Eastern Orthodox faiths. Vern contributed much to this Refuge, the USFWS, and to the resource. We would all be far better stewards of the resource if we could adopt the feelings of compassion and pride that Vern brought to his tasks.

After a full year of work, a new, five-year operating permit was awarded in August to the Seneca Meadows Landfill (SML). FWS interest and involvement in this EPA-designated Superfund II site (143,000 tons of toxic and hazardous waste input between 1956-1979) was especially active during the first seven months of 1985. Dr. Ron Scrudato, a geologist and Director of the Research Center, State University of New York at Oswego, spent a total of ten days as a consultant to FWS. Hocutt involved major portions of 28 days in meetings, review, comment, and field investigations. The effort was given special urgency as Syracuse and Onondaga County began the first year of a four-year contract to haul 200,000 tons per year to the Seneca County site.

Manager Hocutt presenting a Certificate of Service to Biological Technician Vernon Dewey at his retirement party in Auburn, New York (85-23; KC).

Instead of the traditional gold watch routine, the refuge staff decided to present something a bit more personal. What you see is the result of a well thought out effort (85-24; RLD).

The new permit is a radical departure from the status quo of so-called "sanitary landfill" permitting. There are a total of 77 permit conditions. One guarantees USFWS access to Black Brook and the landfill itself for the purpose of biological investigation. Black Brook, and, consequently the refuge downstream, are each protected for a period of 30-35 years - 12-13 years of expected "life" and 20 years after closure. Of the requirements listed below, items a., e., f., g., and h. were direct results of 6 1/2 years of FWS involvement in this complex issue:

a. Operator of site responsible for 20 years after closure.
b. Completion of a 1.5 million dollar ("1985 dollars") escrow account before closure.
c. Contribution of $104,000 (1985 - based on rate of input) per year to the escrow.
d. Quarterly sampling of water quality in Black Brook.
e. Quarterly sampling of sediment in Black Brook (annual total cost of all sampling/analysis in "1985 dollars" = $44,000).
f. Prohibition of discharge of any leachate into the brook.
g. Instal stage and flow gages; develop hydrological model.
h. Full inclusion of closed "South Side" (Superfund II site) under terms of permit.

FWS owes a debt of gratitude to NYSDEC R8 Regional Director Eric Seiffer, Solid Waste Engineering Chief Frank Shattuck, and NYSDEC Commissioner Henry Williams. Their understanding and concern for FWS concerns made the agreements possible. Dr. Ron Scrudato donated 3 days for every day FWS paid him; FWS has seldom had a more effective or eloquent advocate. We fervently hope that the only mention of SML on these hallowed pages in future years is to report that all is progressing satisfactorily.

1985 saw resolution of the issue of a proposed 44-acre industrial waste site to be operated by Seneca Waste Management, Inc. (SWM). The site, immediately adjacent to SML's "hot" South Site, was finally sold to SML, Inc., after NYSDEC made it very clear that the application would not even be accepted until SWM completed a full hydrological investigation of the site. Use of the site in the future by SML will require full exploration; an industrial waste site will not be entertained. Hocutt and Scrudato spent much time in 1985 in consultations with NYSDEC and with aides to Congressman Frank Horton regarding the sensitive SWM issue.

Hocutt worked with Dr. Scrudato and doctoral student Greg Yogis, SUNY-Oswego, on the development of an inexpensive, lightweight stream sampler which would collect suspended sediments without reliance on conventional filtration and/

or centrifugation techniques. A joint paper "An In-Situ Integrated Suspended Sediment Stream Sampler (IS^3)" resulted from the device; the paper has been submitted to two scientific journals.

The first "Fishery Management for Refuge Managers" course was held at Montezuma NWR during September 23-26. It was taught by personnel from the National Fisheries Center (Leetown), the Cooperative Fisheries Research Unit of Pennsylvania State University, and refuge staff from Washington, D.C. Thirteen persons completed the course.

Dr. Dean Arnold, of the Pennsylvania State University Cooperative Fishery Research Unit at State College, operates the Shocking Boat for three participants of the Refuge Manager's Fishery Management Course which the refuge hosted in September (85-25; RLD).

The refuge, along with Dr. Rich Malecki of the Cornell University CWRU, became embroiled in an "Is or Is Not Purple Loosestrife a Menace?" story which was done by the New England Bureau of the Associated Press. The no-win nature of the article had the unfortunate effect of pitting waterfowl managers against "classical botanists" - one of whom described his tolerance of loosestrife as springing from his philosophy as an "...EEO botanist". The wire story received fairly wide distribution in the northern tier of states. We learned that folks in the north central states, the northern Great Plains, and portions of southern Canada are more concerned than "us" easterners.

September 9 was a special day in that Mr. Herbert Axell, Land Use Director for the Royal Society for the Protection

of Birds, headquartered in Great Britain, visited the refuge. Mr. Axell, his charming wife, and their hosts in Ithaca were accompanied by Manager Hocutt. Mr. Axell was in Ithaca to lecture at the Laboratory of Ornithology at Cornell University. He left two days later for China, where the RSPB is assisting that government in setting up a sanctuary on a large river system. He was especially intrigued by viewing monotypic stands of loosestrife. He also photographed the refuge's three-compartmented duck trap, and intends to try it in the RSPB's "ringing" efforts.

1985 saw completion of the long-sought, automatic stream gaging station on Black Brook just upstream of the refuge. Data collected at the U.S. Geological Survey station will be used to implement provisions of the nearly-complete Comprehensive Water Management Plan. It is also designed to interface with stream data and the hydrological model of Black Brook which is being developed as an Operating Permit condition at the upstream Seneca Meadows Landfill. Again, a major debt of gratitude is owed to Ithaca Sub-Station Chief Dick Novitski and Hydrologic Technician Don Sherwood. When all of the contractors' bids came in far over FWS's $19,000 funding level, Dick moved swiftly to allow USGS to actually build the station. Don spent long, cold, late-fall days planning, supervising, and actually constructing the facility. This was typical USGS cooperation. Throughout the long landfill issue, Dick, Bill Kappel, and other USGS people provided, at no charge, many thousands of dollars of technical assistance to us.

On July 5, 1985, the New York State Police arrested Thomas Bianco of Auburn, New York, and charged him with the murder of Ms. Julie Monson, the Auburn teenager who's body was found on the refuge in April, 1983, after she had disappeared in late September, 1981. The trial will begin in Auburn in mid-February, 1986. Most of the delay has been attributable to the emotional overtones of the tragedy and the projected six-week duration of the trial. The New York State Superior Court judge who will hear the case is from Binghamton, New York; he is the fourth judge to be assigned since July 1985.

Training in 1985 included:

Adie -	"OBIS", Rush, New York, 5/18/85 - 5/19/85 (26 hrs)
	"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.
Bellis -	"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Benvenuti -

"Air Photo Interpretation and Land Use", Cornell University, Ithaca, New York 4/1/85 - 4/2/85 (16 hours).

"Law Enforcement Refresher Training". Bombay Hook NWR, 5/6/85 - 5/10/85 (40 hours).

"Fisheries Biology For Refuge Managers", Montezuma NWR, 9/23/85 - 9/26/85 (32 hours).

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Davis -

"Basic Fire Training", Wallops Island, VA (NASA), 2/4/85 - 2/8/85 (40 hours).

"Advanced First Aid and Emergency Care Training", Montezuma NWR, 1/8/85 - 3/7/85, (55 hours).

"Law Enforcement Refresher Training", Bombay Hook NWR, 6/3/85 - 6/7/85 (40 hours).

"Fisheries Biology For Refuge Managers", Montezuma NWR, 9/23/85 - 9/26/85 (32 hours).

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Estes -

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Flanders -

"Advanced First Aid and Emergency Care", Montezuma NWR, 1/8/85 - 3/7/85, (55 hours).

"Basic Fire Training", Wallops Island, VA (NASA), 2/4/85 - 2/8/85 (40 hours).

"Law Enforcement Refresher Training", Bombay Hook NWR, 6/3/85 - 6/7/85 (40 hours).

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Gingrich -

"Advanced First Aid and Emergency Care", Montezuma NWR, 1/8/85 - 3/7/85, (55 hours).

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Hocutt -

"Basic Fire Training", Wallops Island, VA (NASA), 2/4/85 - 2/8/85 (40 hours).

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Marocchini -

"Fisheries Biology For Refuge Managers", Montezuma NWR, 9/23/85 - 9/26/85 (32 hours).

"Advanced First Aid and Emergency Care", Montezuma NWR, 9/24/85 - 12/17/85 (55 hours).

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

McMahon -

"Advanced First Aid and Emergency Care", Montezuma NWR, 1/8/85 - 3/7/85, (55 hours).

"Computer Orientation", Computer Solutions, Syracuse, New York, 3/14/85 (10 hours).

"DBase II Computer Training", Computer Solutions, Syracuse, New York, 3/20/85 - 3/22/85, (17 hours).

"Seminar For Administrative Assistants", OPM, New York, New York, 6/25/85 - 6/27/85, (24 hours).

"Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Norsen - "Six-Hour Defensive Driver Training Course", Montezuma NWR, 12/30/85.

"Advanced First Aid and Emergency Care", Montezuma NWR, 1/8/85 - 3/7/85, (55 hours).

Phillips - "Advanced First Aid and Emergency Care", Montezuma NWR, 9/24/85 - 12/17/85, (55 hours).

Defensive Driver Training Course", Montezuma NWR, 12/30/85.

Secord - Attended a two-day meeting held in the Regional Office re: Water Management Plan for Montezuma NWR, 1/17/85 - 1/18/85.

"Advanced First Aid and Emergency Care", Montezuma NWR, 1/8/85 - 3/7/85, (55 hours).

Courses taught:

Benvenuti instructed the "Advanced First Aid and Emergency Care" training courses to refuge employees.

Flanders instructed the "Tractor Training" held at Eastern Shore NWR, 4/9/85 - 4/26/85.

Details

McMahon travelled to Mackay Island (10/28/85 - 11/1/85) to train the refuge clerk. Training included fiscal, property, personnel management, and the updating of their filing system.

Davis conducted a Public Use Field Review at Iroquois NWR (4/29/85 - 5/1/85) and Erie NWR (5/1/85 - 5/3/85).

4. Credits

Typing - Estes
Climatic Conditions - Norsen
Planning - Benvenuti, Hocutt
Administration - Benvenuti, Hocutt, Phillips, McMahon, Davis
Habitat Management - Phillips
Wildlife - Marocchini
Public Use - Davis, Adie
Equipment and Facilities - Benvenuti, Norsen, Flanders
Other Items - Hocutt, McMahon
Feedback - Hocutt
Editing - Hocutt

K. FEEDBACK

1. As a spin-off of Region One's excellent idea of mailing the film "The Duck Stamp Story" to area post offices, we invited some area postmasters and postmistresses to the refuge on December 4, 1985. Postal administrators from ten neighboring communities attended the "open house" at the VCS to view the films "America's Wetlands" and "The Duck Stamp Story". We conveyed the gratitude of USFWS for 50 years of support by the U.S. Postal Service of wetlands conservation in the U.S. Refreshments were provided. Numerous requests for a more convenient rescheduling came in from administrators of several smaller (1-3 staff persons) post offices.

   Enthusiasm was absolutely overwhelming. Statements ranged from "...no idea what was really behind the 'hassle' every year of handling duck stamps..." to "...won't ever complain again...". They urged, and we agreed, to schedule three evening sessions (three counties) in April which would involve the same films and discussions and a short tour. Each of the sessions will be under the auspices of the Postmaster/Postmistress Association of the respective county; they assure 30 - 50 postal employees at <u>each</u> session.

   We heartily recommend this outreach technique as one way to reach an important group of community leaders and, at the same time, to develop far greater enthusiasm for duck stamp sales. Certainly, <u>our</u> enthusiasm level was also heightened.

2. This year, we held joint YCC and refuge staff safety meetings. We were impressed with how much more seriously the kids took safety after sitting among their daily "role models" and hearing and discussing that safety is extremely serious business. In 1986, we plan to hold three such joint meetings and to structure them even more carefully to address the perennial safety problems of summer that often affect YCC (and us). Certainly, many of you out there have done this for years; for those who have not, we recommend the concept.

3. We believe it would be helpful in management planning and implementation if the Refuge Manual section on Management Plans could be restructured and rewritten. The existing format was an excellent starting point, but should be viewed as an evolutionary stage. Our experience in working on multiple plans under the existing instructions is that far too much overlap and potential confusion exists between so-called Part I ("Background Information") and Part II ("Objectives and Management Strategies"). The redundancy in format in Parts I and II spills over (if one reads the RM literally) into Part III ("Management Programs"). Our staff would like to see a requirement that every refuge complete a <u>single</u>, comprehensive, well-written Part I (Introduction) section and a <u>single</u> generic Part II (Objectives/Management Strategies). Each of these should be based upon a

format that is as explicitly prescribed as the one that covers the Annual Narrative Report. This approach would then permit each "chapter" (specific plan) to deal directly and concisely with the subject matter without the distractions of redundancy and repeated references to previously covered materials. Such a comprehensive and organized "Station Plan" would also lend itself to quick revision by word processor without multiple internal changes for each "Part". The arrangements would almost certainly encourage far greater utilization of the document at the field and regional office level. Its value as a briefing document for Congressmen and other non-FWS officials would be greatly enhanced.

4. We increasingly feel that it would be very helpful if the format of the Annual Narrative Report required the appending of the RMIS Annual Output Reports to each year's Narrative. This additional, single source of information would greatly reduce the waste of staff time (field/RO/CO) that is associated with going to multiple written or electronic files to retrieve specific bits of data. The Narrative Report would truly become a single briefing document for elected officials and a ready, encyclopedic reference source for FWS personnel at all levels.

Montezuma National Wildlife Refuge

For further information contact:

Refuge Manager
Montezuma National Wildlife Refuge
R.D. #1, Box 1411
Seneca Falls, New York 13148
Telephone: (315) 568-5987

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical 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 has a major responsibility for American Indian reservation communities and for people who live in island territories under U. S. administration.

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

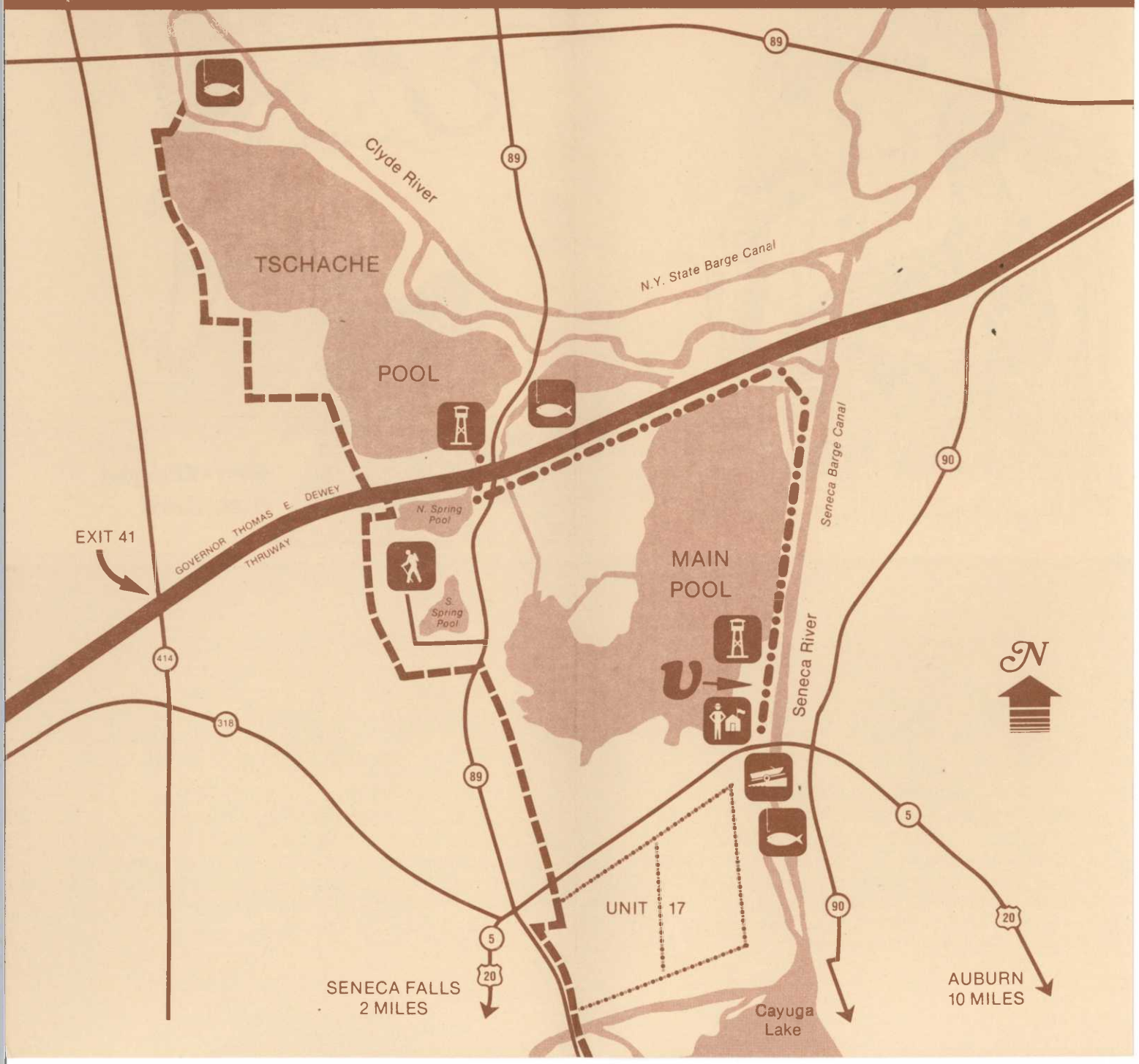
MAY 1984

MONTEZUMA

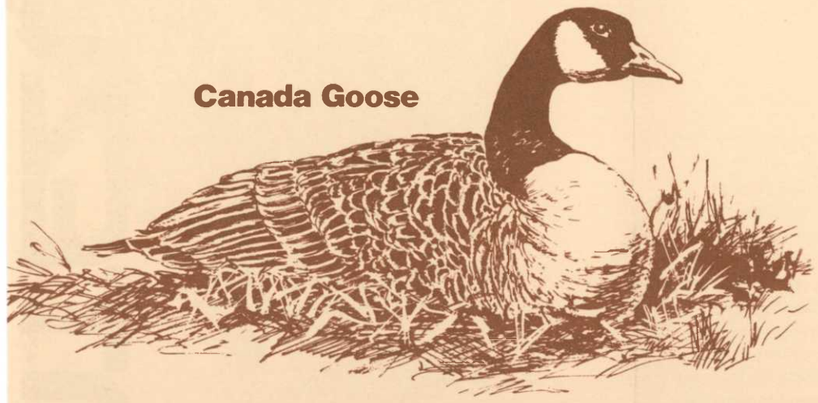
National Wildlife Refuge

MONTEZUMA
National Wildlife Refuge

BOUNDARY
AUTO TOUR
OFFICE
VISITOR AREA
TOWER
HIKING
FISHING
BOAT RAMP



MONTEZUMA
National Wildlife Refuge


Canada Goose


Red-Tailed Hawk


Muskrat


Mallard


Great Blue Heron


Red-Winged Blackbird

INTRODUCTION

Montezuma National Wildlife Refuge is located at the north end of Cayuga Lake, in the Finger Lakes Region of New York.

Before 1900 the Montezuma Marsh extended north from Cayuga Lake for 12 miles and was up to 8 miles wide. It was one of the most productive marshes in North America. As with many marshes its importance went unrecognized and by 1911 all but 100 acres had been drained.

In 1937 the 6,432-acre refuge was established with development aimed at restoring a part of the marsh. The success of this restoration is apparent each fall and spring when waterfowl fill the sky.

WILDLIFE

Montezuma's varied habitats provide food and cover for numerous birds, mammals, and fish. A total of 282 species of birds have been seen. Canada geese, mallards, wood ducks, teal, and other birds nest on the refuge. The largest concentrations of waterfowl occur during migration. Peak populations have reached 140,000 Canada geese in April and 150,000 ducks in October.

Besides waterfowl, there are many species of herons, shorebirds, terns, and songbirds at Montezuma. White-tailed deer are common and easily seen at dawn and dusk. Woodchucks are abundant along dikes.

By 1980, bald eagles in New York had declined to one breeding pair. A program to re-establish a nesting population by releasing young birds in the wild was begun at Montezuma in 1976. Since that time, eagle populations have been recovering slowly.

Refuge marshes are excellent muskrat habitat. Muskrats use water plants for food and to construct their houses. Waterfowl need a mix of open water and vegetation for food and cover. Too many muskrats result in not enough cover, too few allow the plants to choke out the open water. Muskrats are managed to maintain marsh vegetation in a desirable condition for waterfowl.

PUBLIC USE

Montezuma is open daily from sunrise to sunset. Visitors can enjoy a visitor contact station, self-guided auto tour route, two observation towers, and nature trail. The refuge also provides area teachers and students with an outdoor classroom for environmental education.

Warm water fish are abundant in the canals and rivers surrounding the refuge. Popular species are the brown bullhead, northern pike, and walleye. There are three public fishing sites and a boat launch. When conditions warrant, hunting of waterfowl, deer, and upland game is allowed under special regulations.

For additional information, contact:

Refuge Manager
Montezuma National Wildlife Refuge
3395 Rts. 5 & 20 East
Seneca Falls, New York 13148
Telephone: (315) 568-5987

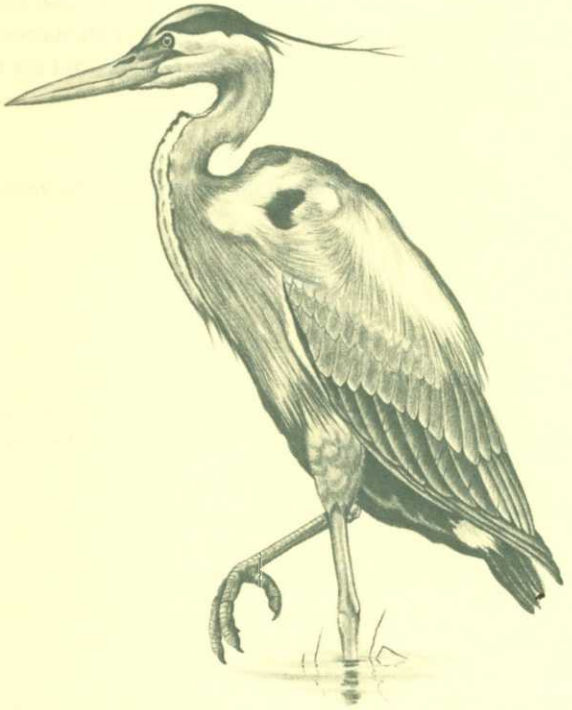
Montezuma is one of more than 400 refuges in the National Wildlife Refuge System, administered by the U.S. Fish and Wildlife Service. The Service also manages National Fish Hatcheries, and provides Federal leadership in habitat protection, fish and wildlife research, technical assistance, and conservation and protection of migratory birds, certain marine mammals, and threatened and endangered species.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

RL 52550-2
JULY 1985

BIRDS of Montezuma

National Wildlife Refuge



New York

MONTEZUMA NATIONAL WILDLIFE REFUGE in Seneca County, New York, was established in 1937 to provide nesting, resting, and feeding areas for ducks, geese, and many other water birds and songbirds. This Refuge contains 6,432 acres of widely diversified habitat, from extensive marshes to upland hardwoods. In addition to meeting habitat requirements for tens of thousands of spring and fall migrant birds, the refuge annually provides wildlife education and recreation to a quarter of a million visitors.

Public uses include a 3.5 mile self-guiding auto tour around the Main Pool, a Visitor Contact Station, a 2-mile hiking trail and ample opportunities to photograph wildlife.

Birding opportunities are best from March through November with peak migrations of waterfowl in mid-April and early October. Warblers are abundant in late May to early June. Summer nesters and broods provide excellent viewing — there is always something to see on a birding tour.

This folder lists 314 species of birds that have been identified on Montezuma Refuge since its establishment in 1937. Please report any sightings of birds that are not included in this list to the Refuge Manager.

Most birds are migratory; their seasonal occurrence is 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 - CORMORANT					
___	Red-throated Loon	r			
___	Common Loon	o		o	
___	Pied-billed Grebe†	c	c	c	
___	Horned Grebe	o		o	
___	Red-necked Grebe	r		r	
___	Double-crested Cormorant	o	c	c	
BITTERNS - HERONS - IBIS					
___	American Bittern†	o	c	c	
___	Least Bittern†	o	o	o	
___	Great Blue Heron†	c	c	c	o
___	Great Egret	o	c	o	
___	Snowy Egret		r		
___	Little Blue Heron		r	r	
___	Cattle Egret	r			
___	Green-backed Heron†	o	c	o	
___	Black-crowned Night-Heron†	o	c	c	
___	Glossy Ibis	r	r		
SWANS - GEESE - DUCKS					
___	Tundra Swan	o		r	o
___	Mute Swan	o		o	
___	Snow Goose	c		o	
___	Brant			o	
___	Canada Goose†	a	c	c	c
___	Wood Duck†	c	c	c	
___	Green-winged Teal†	c	o	c	
___	American Black Duck†	a	c	a	o
___	Mallard†	a	c	a	o
___	Northern Pintail†	c	o	c	
___	Blue-winged Teal†	c	c	c	
___	Northern Shoveler†	c	o	c	
___	Gadwall†	c	c	c	
___	Eurasian Wigeon	r		r	
___	American Wigeon†	c	o	c	
___	Canvasback†	c	o	c	
___	Redhead†	c	o	c	
___	Ring-necked Duck	c	o	c	
___	Greater Scaup	c		c	
___	Lesser Scaup	o		o	
___	Oldsquaw	o		o	
___	Black Scoter	r		r	
___	Surf Scoter	r		r	
___	White-winged Scoter	r		r	
___	Common Goldeneye	c		c	
___	Bufflehead	c		c	
___	Hooded Merganser†	c	o	a	o
___	Common Merganser	a	o	a	c
___	Red-breasted Merganser	o	r	o	
___	Ruddy Duck†	o		o	
VULTURES - HAWKS - FALCONS					
___	Turkey Vulture	c	c	c	c
___	Osprey†	c	c	c	
___	Bald Eagle	o	o	o	o
___	Northern Harrier†	o	o	o	o
___	Sharp-shinned Hawk†	o	o	o	o
___	Cooper's Hawk	o	o	o	o
___	Northern Goshawk	o	o	o	
___	Red-shouldered Hawk	o		o	
___	Broad-winged Hawk	o		o	
___	Red-tailed Hawk†	c	c	c	c
___	Rough-legged Hawk			o	c
___	Golden Eagle		o	o	
___	American Kestrel†	c	c	c	o
___	Merlin	r		r	
___	Peregrine Falcon	r		r	
PHEASANT - GROUSE					
___	Ring-necked Pheasant†	u	u	u	u
___	Ruffed Grouse†	u	u	u	u
RAILS - CRANES					
___	King Rail	r	r	r	
___	Virginia Rail†	c	c	c	r
___	Sora†	c	c	c	
___	Common Moorhen†	c	c	c	
___	American Coot†	c	c	c	
PLOVERS - SANDPIPERS					
___	Black-bellied Plover	o	o	o	
___	Lesser Golden-Plover	r	o	o	
___	Semipalmated Plover	o	c	c	
___	Killdeer†	c	c	c	
___	Greater Yellowlegs	c	c	c	
___	Lesser Yellowlegs	c	c	c	
___	Solitary Sandpiper	r	o	o	
___	Spotted Sandpiper†	c	c	c	
___	Upland Sandpiper		r		
___	Whimbrel	r		r	
___	Hudsonian Godwit		r	o	
___	Ruddy Turnstone	o	o	o	
___	Red Knot	r	r	r	
___	Sanderling	r	r	r	
___	Semipalmated Sandpiper	c	c	c	
___	Western Sandpiper		r	r	
___	Least Sandpiper	c	o	c	
___	White-rumped Sandpiper	o	o	o	
___	Baird's Sandpiper			r	o
___	Pectoral Sandpiper	c	c	c	

	s	S	F	W
___ Dunlin	c		c	
___ Stilt Sandpiper	o	c	c	
___ Ruff		r	r	
___ Short-billed Dowitcher	c	o	c	
___ Long-billed Dowitcher			c	
___ Common Snipe†	o	o	o	
___ American Woodcock†	o	o	o	
___ Wilson's Phalarope	r	r		
___ Red-necked Phalarope	r	o	o	
GULLS - TERNS				
___ Bonaparte's Gull	o	o	o	
___ Ring-billed Gull	c	c	c	o
___ Herring Gull	c	o	c	c
___ Great Black-backed Gull	o	o	o	u
___ Caspian Tern	o		o	
___ Common Tern†	o	o	o	
___ Black Tern†	o	o	o	
DOVES - CUCKOOS - OWLS				
SWIFTS - HUMMINGBIRDS				
___ Rock Dove†	o	o	o	o
___ Mourning Dove†	c	c	c	o
___ Black-billed Cuckoo†	o	o		
___ Yellow-billed Cuckoo†	o	o		
___ Common Barn-Owl	r	r	r	r
___ Eastern Screech-Owl†	c	c	c	
___ Great Horned Owl†	c	c	c	c
___ Snowy Owl				r
___ Barred Owl†	r	r	r	r
___ Short-eared Owl	o	r	o	o
___ Northern Saw-whet Owl	r		r	r
___ Common Nighthawk		r		
___ Whip-poor-will	r			
___ Chimney Swift†	o	o		
___ Ruby-throated Hummingbird†		o		
___ Belted Kingfisher†	c	c	c	o
WOODPECKERS - FLYCATCHERS				
___ Red-bellied Woodpecker†	o	o	o	o
___ Yellow-bellied Sapsucker	o		o	
___ Downy Woodpecker†	c	c	c	c
___ Hairy Woodpecker†	o	o	o	o
___ Northern Flicker†	c	c	c	o
___ Pileated Woodpecker†	o	o	o	o
___ Olive-sided Flycatcher	r		r	
___ Eastern Wood-Pewee†		c		
___ Alder Flycatcher	o	o		
___ Willow Flycatcher	o	c		
___ Least Flycatcher†		c		
___ Eastern Phoebe†	c	c	c	
___ Great Crested Flycatcher†	o	c		
___ Eastern Kingbird†	c	c	o	
LARKS - SWALLOWS - JAYS and CROWS				
___ Horned Lark†	o	o	o	o
___ Purple Martin†	c	c		
___ Tree Swallow†	c	c	c	r
___ Northern Rough-winged Swallow	o	o		
___ Bank Swallow†	c	c		
___ Cliff Swallow†	r	r		
___ Barn Swallow†	c	c	c	
___ Blue Jay†	c	c	c	c
___ American Crow†	c	c	c	o
TITMICE - NUTHATCHES - WRENS				
___ Black-capped Chickadee†	c	c	c	c
___ Tufted Titmouse	o	o	o	
___ Red-breasted Nuthatch†	o		o	r
___ White-breasted Nuthatch†	c	c	c	c
___ Brown Creeper†	o	o	o	o
___ Carolina Wren	r	r	r	
___ House Wren†	c	c		
___ Winter Wren†	c	c	c	
___ Sedge Wren†	r	r		
___ Marsh Wren†	c	c	c	
KINGLETS - THRUSHES - THRASHERS				
___ Golden-crowned Kinglet	c		c	
___ Ruby-crowned Kinglet	c		c	
___ Blue-gray Gnatcatcher	o		o	
___ Eastern Bluebird†	u	u	u	r
___ Veery†	c	c	o	
___ Gray-cheeked Thrush	o		o	
___ Swainson's Thrush	o		o	
___ Hermit Thrush	c		c	
___ Wood Thrush†	c	c	o	
___ American Robin†	c	c	c	o
___ Gray Catbird†	c	c	c	
___ Northern Mockingbird	r	r		
___ Brown Thrasher†	o	o	o	
WAXWINGS - SHRIKES - STARLING				
___ Water Pipit	c		c	
___ Cedar Waxwing†	o	o	o	o
___ Northern Shrike				o
___ Loggerhead Shrike†	r	r		
___ European Starling†	a	a	a	o
VIREOS - WOOD WARBLERS				
___ Solitary Vireo	o		o	
___ Yellow-throated Vireo†	o	o		
___ Warbling Vireo†	c	c	c	
___ Philadelphia Vireo	r		r	

		s	S	F	W
___	Red-eyed Vireo†	c	c	c	
___	Blue-winged Warbler	r			
___	Golden-winged Warbler	o	o		
___	Tennessee Warbler	o		o	
___	Orange-crowned Warbler	r			
___	Nashville Warbler	c		c	
___	Northern Parula	o		o	
___	Yellow Warbler†	c	c	c	
___	Chestnut-sided Warbler	o		o	
___	Magnolia Warbler	c		c	
___	Cape May Warbler	c		c	
___	Black-throated Blue Warbler	c		c	
___	Yellow-rumped Warbler	c		c	
___	Black-throated Green Warbler	c		c	
___	Blackburnian Warbler	c		c	
___	Pine Warbler	o		o	
___	Prairie Warbler	o		o	
___	Palm Warbler	o		o	
___	Bay-breasted Warbler	o		o	
___	Blackpoll Warbler	c		c	
___	Cerulean Warbler†	c	o	c	
___	Black-and-white Warbler	c	o	c	
___	American Redstart†	c	c	c	
___	Prothonotary Warbler†	o	o		
___	Ovenbird†	c	c	c	
___	Northern Waterthrush	o	o	o	
___	Louisiana Waterthrush	o	o	o	
___	Connecticut Warbler	r		r	
___	Mourning Warbler	o	o	o	
___	Common Yellowthroat†	c	c	c	
___	Hooded Warbler	r		r	
___	Wilson's Warbler	o		o	
___	Canada Warbler	c		o	
___	Yellow-breasted Chat	r	r		
TANAGERS - SPARROWS					
___	Scarlet Tanager†	c	o	o	
___	Northern Cardinal†	c	c	c	c
___	Rose-breasted Grosbeak†	c	c	c	
___	Indigo Bunting†	c	c		
___	Rufous-sided Towhee†	c	o	c	
___	American Tree Sparrow			c	c
___	Chipping Sparrow†	c	c	c	
___	Field Sparrow†	c	c	c	o
___	Vesper Sparrow†	o	o	o	
___	Savannah Sparrow†	o	o	o	
___	Grasshopper Sparrow†	o	o	o	
___	Henslow's Sparrow†	o	o	o	
___	Fox Sparrow	c		c	

		s	S	F	W
___	Song Sparrow†	c	c	c	o
___	Lincoln's Sparrow	o		o	
___	Swamp Sparrow†	c	c	c	
___	White-throated Sparrow	c		c	
___	White-crowned Sparrow	c		c	
___	Dark-eyed Junco	o	o	o	
___	Lapland Longspur				o
___	Snow Bunting				o
BLACKBIRDS - FINCHES					
___	Bobolink†	o	o	c	
___	Red-winged Blackbird†	a	a	a	o
___	Eastern Meadowlark†	c	c	c	o
___	Rusty Blackbird	o		o	
___	Common Grackle†	a	a	a	o
___	Brown-headed Cowbird†	c	c	a	o
___	Northern Oriole†	c	c	c	
___	Purple Finch†	c	o	c	o
___	House Finch†	o	o	o	o
___	Common Redpoll				r
___	Pine Siskin				r
___	American Goldfinch†	c	c	c	o
___	Evening Grosbeak	r		r	r
___	House Sparrow†	c	c	c	c

NOTES

Location _____

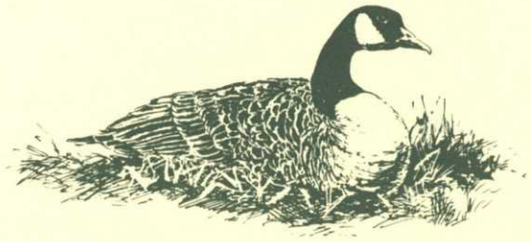
Date _____ Total _____

Observers _____

Weather _____ Wind _____

Time _____

Comments _____



The following is a list of accidental species that have been recorded only once or twice on the Montezuma National Wildlife Refuge.

Western Grebe
Eared Grebe
Leach's Storm Petrel
Wilson's Storm Petrel
American White Pelican
Northern Gannet
Black Swan
Pink-footed Goose
White-fronted Goose
Bar Headed Goose
Egyptian Goose
Cinamon Teal
Shelduck
Fulvous Whistling-Duck
Barrow's Goldeneye
King Eider
Red-crested Pochard
Masked Duck
Gyrfalcon
Turkey
Northern Bobwhite
Tricolored Heron
Yellow-crowned Night-Heron
White Ibis
Greater Flamingo
Greater Sandhill Crane
Yellow Rail
Black Rail
Purple Gallinule
American Avocet
Black-necked Stilt
Northern Lapwing
Piping Plover
Marbled Godwit
Buff-breasted Sandpiper
Red Phalarope
Parasitic Jaeger
Glaucous Gull
Iceland Gull
Little Gull
Least Tern
Arctic Tern
Roseate Tern
Forster's Tern
Gull-billed Tern
Razorbill
Thick-billed Murre
Dovekie
Black Guillemot
White-winged Dove
Long-eared Owl
Scissor-tailed Flycatcher
Western Kingbird
Say's Phoebe
Yellow-bellied Flycatcher
Acadian Flycatcher
Gray Jay
Common Raven
Boreal Chickadee
Sprague's Pipit
Bohemian Waxwing
Yellow-headed Blackbird
Brewer's Blackbird
Boat-tailed Grackle
Blue Grosbeak
Pine Grosbeak
European Goldfinch
White-winged Crossbill
Dickcissel
Sharp-tailed Sparrow
Lark Sparrow
Clay-colored Sparrow

ENVIRONMENTAL EDUCATION

For further information contact:

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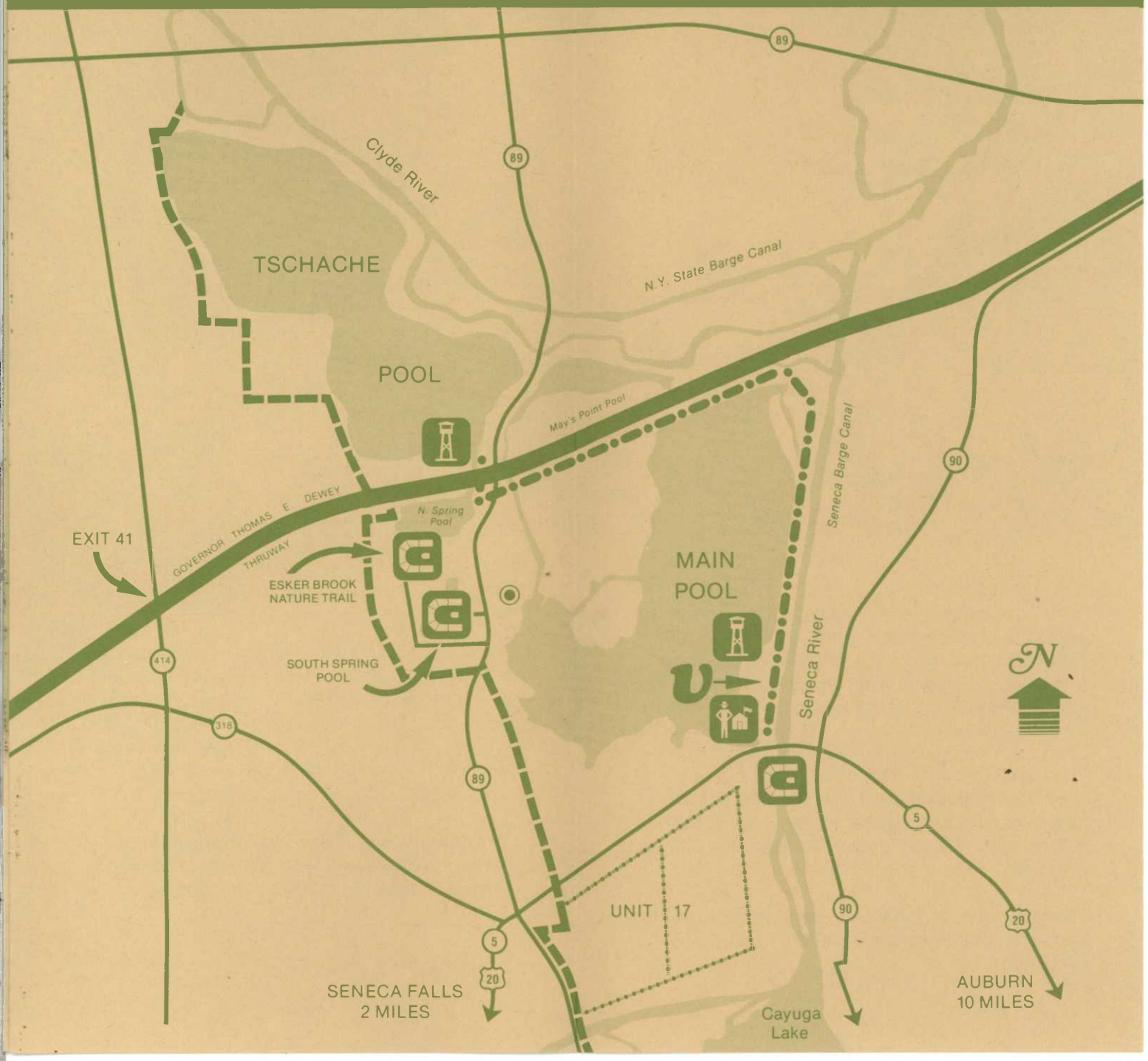
U.S. FISH AND WILDLIFE SERVICE

August 1979

MONTEZUMA NATIONAL WILDLIFE REFUGE

ENVIRONMENTAL EDUCATION

MONTEZUMA
NATIONAL WILDLIFE REFUGE



Bald Eagle

MONTEZUMA
NATIONAL WILDLIFE REFUGE

Great Blue Heron

Muskrat

Mallard

ENVIRONMENTAL EDUCATION

Environmental education embodies a philosophy of teaching. This philosophy utilizes the joy and challenge of the out-of-doors and ecology to make more vivid and more enjoyable the essential skills of reading, writing, arithmetic, social studies, art, and music. The real pay-off is an investment in tomorrow's citizens and the nation's legacy of wildlife and wildlands.

Montezuma has developed several EE facilities. There are three designated EE sites.

Unit 17 is an EE area for upland studies encompassing beaver activities, boardwalks, and a good example of plant succession. South Spring Pool is used for various aquatic studies. Esker Brook Nature Trail is a beautiful walking trail offering studies on geology and stream ecology.

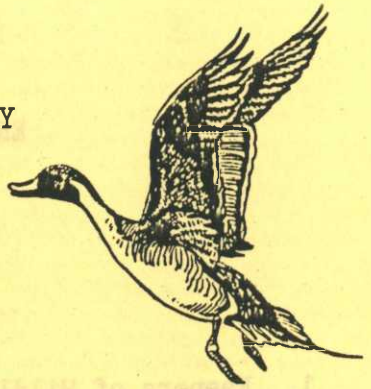
The environmental resource room has a complete collection of mounted wildlife. Films, microscopes, and dip nets are available for on-refuge use. The self-guided auto tour route is a good way to see the refuge.

The visitor area includes a contact station with seasonal displays, observation tower, and restrooms.

Registration is required for use of these facili-facilities.

Each spring and fall Montezuma hosts EE teacher workshops. These enable teachers to use the refuge's EE sites and other facilities. They become comfortable in the out-of-doors and learn ecological concepts. Activities are practiced for use both at Montezuma and the schoolyard.

Montezuma's teacher workshops have proved very enjoyable and informative. Interested teachers should contact the refuge.



ENVIRONMENTAL EDUCATION FILM LENDING LIBRARY

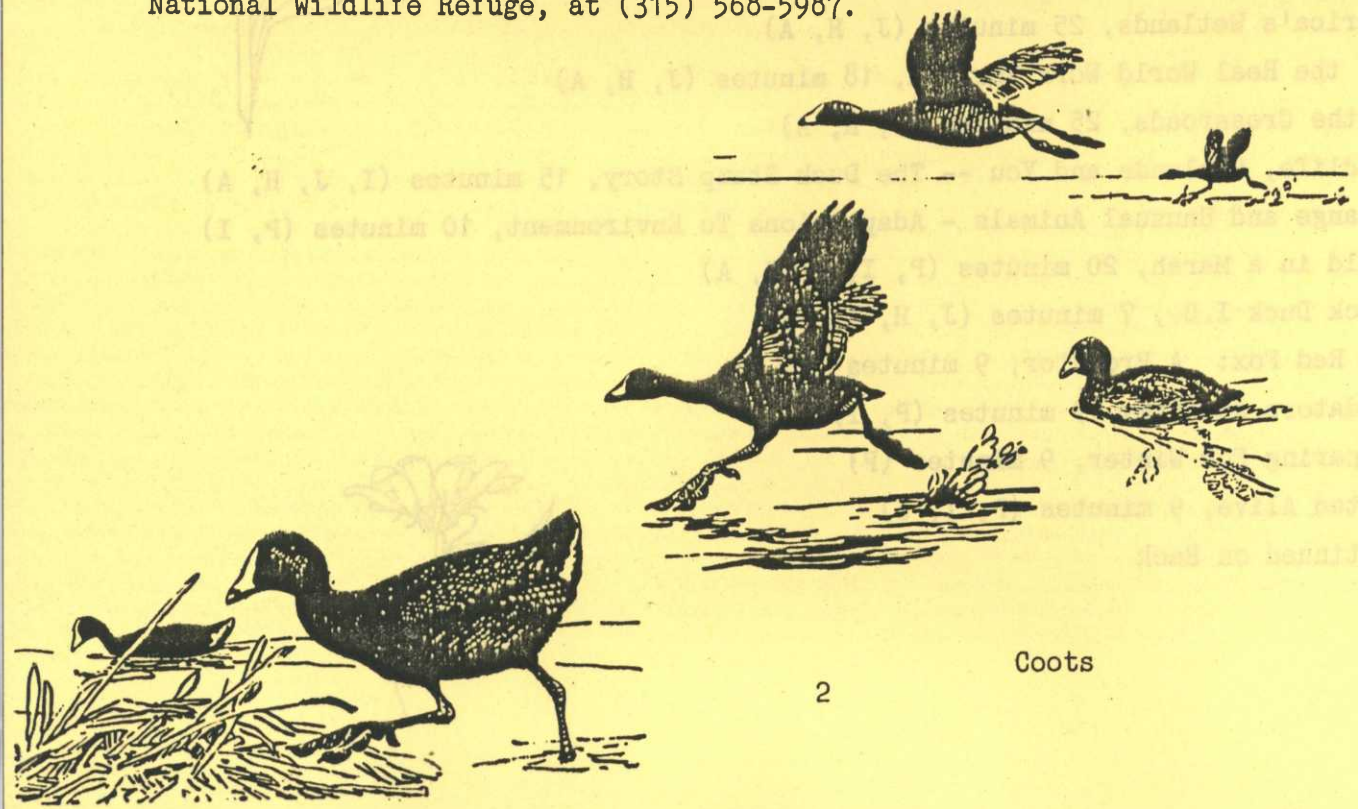
29. Sand County Almanac, 18 minutes (J, H, A)
30. Red Tailed Hawk - Bird of Prey, 10 minutes (P, I, J, H)
31. Raptors: Birds of Prey, 14 minutes (I, J, H)
32. Flight of Birds, 13 minutes (P, I, J, H)
~~33. The Lorax, 25 minutes (I, J, H, A)~~
34. We Care About Oceans (National Wildlife Federation Slide/Tape Program), 9 minutes (I, J, H, A)
35. Wildlife and People: Building Bridges (Slide Program), 15 minutes (H, A)
36. Where The Fish Will Be (Slide Program), 10 minutes (J, H, A)
37. Endangered Species (Slide Program), 12 minutes (J, H, A)
38. Summer At Montezuma (Slide Program), 20 minutes (J, H, A)

AGE GROUP LEVEL:

P - Kindergarten - 4th Grade
I - 5th - 6th Grade
J - 7th - 8th Grade
H - 9th - 12th Grade
A - Adult

*Number 17 is a series ("All About Animals") for the primary grades. Each film is 10 minutes long, and may be shown in any sequence.

NOTE: This is a free service for non-profit organizations. Films will be mailed on Monday of the week requested to an individual who will be responsible for returning them no later than 5 days after receiving them. (Return postage is provided by the refuge). Multiple requests for a film will be handled on a first come, first served basis. Please list first, second, and third date choices for your films. To request a film, contact the Outdoor Recreation Planner, Montezuma National Wildlife Refuge, at (315) 568-5987.



Coots

ENVIRONMENTAL EDUCATION FILM LENDING LIBRARY

MONTEZUMA NATIONAL WILDLIFE REFUGE
3395 ROUTE 5/20 EAST
SENECA FALLS, NEW YORK 13148
(315) 568-5987

1. Keepers of Wildlife, 21 minutes (I, J, H, A)
2. To Strike A Balance, 30 minutes (J, H, A)
3. So Little Time, 29 minutes (J, H, A)
4. Watching Wild Wings, 29 minutes (H, A)
5. Steel Shot -- A Closer Look, 15 minutes (H, A)
6. Age of Alaska, 25 minutes (H, A)
7. Winter Story of Survival, 14 minutes (P, I, J)
8. Patterns of the Wild, 27 minutes (I, J, H, A)
9. Life in a Woodlot, 16 minutes (J, H, A)
10. Still Waters (music only, no narrative), 14 minutes (J, H)
11. Canada Goose (biology), 15 minutes (J, H)
12. This is a Mallard (biology), 33 minutes (J, H)
13. Ecology of Ponds, 7 minutes (P, I, J)
14. Eyes, 14 minutes (I, J, H, A)
15. Wild Animals Adapt, 9 minutes (P. I)
16. Wild Animals Catch Fish, 9 minutes (P, I)
17. "Mammals", "Fish", "Amphibians", "Reptiles", "Birds" *
18. America's Wetlands, 25 minutes (J, H, A)
19. Let the Real World Work For You, 18 minutes (J, H, A)
20. At the Crossroads, 25 minutes (J, H, A)
21. Wildlife, Wetlands and You -- The Duck Stamp Story, 15 minutes (I, J, H, A)
22. Strange and Unusual Animals - Adaptations To Environment, 10 minutes (P, I)
23. World in a Marsh, 20 minutes (P, I, J, H, A)
24. Black Duck I.D., 7 minutes (J, H, A)
25. The Red Fox: A Predator, 9 minutes (P, I)
26. Predators and Prey, 9 minutes (P, I)
27. Preparing For Winter, 9 minutes (P)
28. Wanted Alive, 9 minutes (P, I, J)

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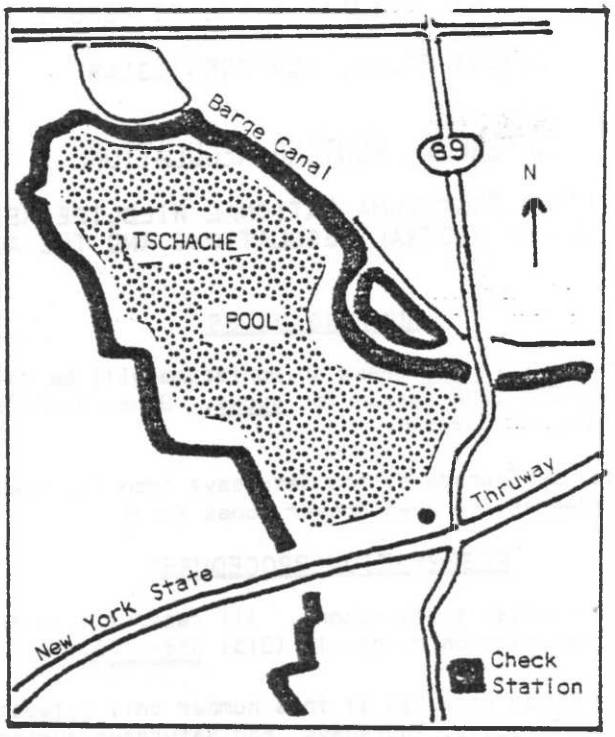

● Tower

▬ Refuge Boundary

DIRECTIONS TO MONTEZUMA REFUGE'S CHECK STATION

Take thruway to Exit 41.

Turn right onto Route 414; continue to first stoplight (or caution light).

Turn left onto Route 318; travel to end (about 4 miles) to Route 5/20.

Turn left onto Route 5/20.

Turn left onto Route 89 (going north).

Travel 1.7 miles to Check Station (Check Station on your right).

REMEMBER . . .

- Waterfowl hunting permitted on reservation basis only. Reservations issued by "phone-in" system only (315-568-4136).
- Hunt days Tuesdays, Thursdays, and Saturdays only.
- Daily check in one-half hour before legal shooting time.
- Hunting ends at 12 noon local time; must check out by 1 p.m. local time.
- Blinds not provided - Portable blinds permitted.
- Steel shot only, not larger than #1 fine shot.
- New York State Waterfowl Identification Course required by all hunters.

For additional INFORMATION only, write: Montezuma National Wildlife Refuge
3395 Route 5/20 East
Seneca Falls, New York 13148

For RESERVATIONS only, call: (315) 568-4136.

MONTEZUMA NATIONAL WILDLIFE REFUGE
3395 ROUTE 5/20 EAST
SENECA FALLS, NEW YORK 13148

WATERFOWL HUNTING REGULATIONS

WATERFOWL HUNTING ON THE MONTEZUMA NATIONAL WILDLIFE REFUGE IS PERMITTED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS AND THE ADDITIONAL RESTRICTIONS LISTED BELOW:

HUNTING DATES

Specific dates for hunting ducks and geese on Montezuma will be the same as the first half of the New York State WESTERN ZONE season for ducks. Goose hunting on the refuge will not open prior to start of the duck season.

Hunting will be on Tuesdays, Thursdays, and Saturdays from the opener until the first half ends or until the pool freezes over--whichever comes first.

RESERVATION PROCEDURES

All reservations will be handled by telephone. All reservations are on a first-come first serve basis. The reservation number is (315) 568-4136.

Telephone reservations will be accepted at this number only between the hours of 8 a.m. and 12 noon local time on Tuesdays, Thursdays, and Saturdays during weeks when refuge hunts are in progress.

Reservations will be accepted for the immediate next refuge hunt day (e.g., call in Thursday between 8 a.m. and 12 noon for hunt on Saturday; call in on Saturday for following Tuesday hunt, etc.).

For the refuge's season opener, reservations will be taken between 8 a.m. and 12 noon by telephone on the day which precedes the hunt. Note that this is the case only for the season's opener; thereafter, the Tuesday/Thursday/Saturday, 8 a.m. to 12 noon schedule for call-ins will be in effect. In every case, the (315) 568-4136 number must be used.

Reservations will be accepted on an individual basis only (no multiple reservations). Persons with reservations may bring one companion.

The successful applicant and his/her companion must sign-in at least one-half hour before legal shooting time. Failure to appear will cause forfeiture of the reservation. Reservations are non-transferable.

To maximize opportunity, an individual hunter will be granted only one (1) reservation per hunt week (Tuesday/Thursday/Saturday) for the first two (2) weeks of the season. This does not apply to the standby system.

Reservations unfilled or unclaimed by one-half hour before legal shooting time will be available on a standby, lottery basis at the Check Station. All regulations applicable to reservation hunters will apply to standby hunters.

ADDITIONAL REGULATIONS

Boats are required (provide own boat); motors prohibited. Hunter selects own site in this free-roam system--camouflaged boats/canoes recommended. Use of well-trained retrievers encouraged.

Each hunter is limited to 25 steel shot shells with not larger than size #1 fine shot. ONLY STEEL SHOT SHELLS CAN BE USED. Steel shot shells not available at the refuge.

Hunting ends each day at 12 noon local time. All hunters, successful or unsuccessful, must check-out at the Check Station on Route 89 by 1 p.m. local time.

Successful completion of the New York State Waterfowl Hunter Identification Course is required to hunt on the refuge. It is the hunter's responsibility to provide proof of completion upon request. Hunters interested in taking the New York State Identification Course should contact their closest New York State Department of Environmental Conservation office for further details.

DEER HUNTING (BOW ONLY)

Deer hunting by BOW ONLY is permitted on the entire refuge, with the exception of water areas and closed areas around headquarters, subheadquarters, and the Esker Brook Nature Trail commencing the first weekday of November and extending through the regular state shotgun season. NO HUNTING SATURDAYS OR SUNDAYS. No hunting is allowed in the Tschache Pool areas during the waterfowl hunting season (see reverse map for specific non-hunting dates). NO PRE-SEASON SCOUTING ALLOWED.

ALL HUNTERS, on each hunt day, must pick up, possess, and return at day's end a valid refuge permit card. Permit cards will be dispensed from self-service check stations located at the refuge headquarters on Routes 5/20 and subheadquarters on Highway 89. Each hunter must provide the following information: (1) name, address, telephone number; (2) possession of DMU permit?; (3) vehicle license number; and (4) deer kill report (success, sex, animals crippled/unretrieved, location of kill or cripple).

New York State regulations apply to the taking of deer of either sex; antlerless deer may be taken during the portion of the refuge hunt that falls within dates of the state-wide archery season. Antlered deer ONLY (unless the archer possesses a New York State DMU Permit) may be taken during the state-wide gun season portion of the refuge hunt. All hunters must "break down" or disassemble their bows by sunset and be off the refuge by dark.

Hunting Dates: 11/1/85 - 11/15/85 (buck or doe)

11/18/85 - 12/10/85 (Buck only; DMU 86 does not have Deer Management Permits this year.)

DESIGNATED RESIDENT SMALL MAMMAL HUNTING
(SHOTGUNS ONLY - NO RIFLES)

Designated small mammal hunting is permitted on the entire refuge, with the exception of water areas and closed areas around headquarters, subheadquarters, and the Esker Brook Nature Trail. Hunting will be allowed from mid-December through mid-February. No permit, check-in, or check-out required. BIRDS MAY NOT BE HUNTED.

Hunting Dates: 12/15/85 - 2/16/86

FOR FURTHER INFORMATION CONCERNING APPLICABLE REGULATIONS, PLEASE CONTACT: MONTEZUMA NATIONAL WILDLIFE REFUGE, 3395 ROUTE 5/20 EAST, SENECA FALLS, NEW YORK 13148; PHONE 315-568-5987.

MONTEZUMA NATIONAL WILDLIFE REFUGE

DEER AND SMALL GAME HUNTING REGULATIONS