

MONTEZUMA NATIONAL WILDLIFE REFUGE

Seneca Falls, New York

ANNUAL NARRATIVE REPORT

Calendar Year 1984

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

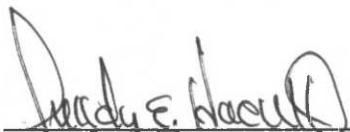
REVIEW AND APPROVALS

MONTEZUMA NATIONAL WILDLIFE REFUGE

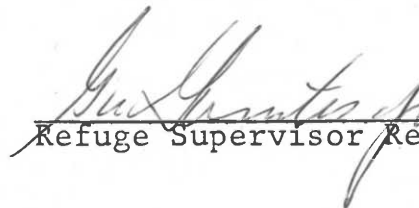
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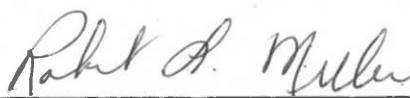
Calendar Year 1984


Refuge Manager

5/8/85
Date


Refuge Supervisor Review

5-13-85
Date


Regional Office Approval

5/17/85
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, by acres, are as follows:

<u>Land Types</u>	<u>Acres</u>
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 exceeded 150,000 during each of the last four years. Use by black ducks in the fall reaches 25,000. Approximately 1,550 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. An active osprey nest (very rare in the interior of New York State) is present. An established black-crowned night-heron rookery exists; a 50-nest great blue heron rookery continues to grow after a 40 year absence.

Wildlife education opportunities abound for refuge visitors. Numbers of annual visitors vary between 230,000 and 260,000 persons. In addition to a well interpreted 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. Over 150 teachers are involved each year in refuge affiliated workshops.



As bad as accelerated marsh entrophication and obsolete facilities can seem, it all falls into better perspective as one views the muckland farms to our north. This spring photo of blowing topsoil (in spite of rye winter cover) was part of the formerly vast Montezuma marshes. If we and the state lose the remaining 10,000 acres, we will have not served the resource or the people well. (Dewey 84-1)

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A. HIGHLIGHTS

Experimental work on purple loosestrife control was begun with Dr. Lee Marsh, Chairman of Biology, SUNY/Oswego, to establish test plots to investigate the cumulative stress effects upon purple loosestrife of cutting at substrate level and moderate high water levels in summer. (Section D.5).

A formal planning group (FWS, other federal and state agencies) was created and met twice to address the refuge's critical water (and, hence, marsh) management problems. (Section J.2).

Over 220,000 mallards (including approximately 20,000 black ducks) were on the refuge during November. This land-use related phenomenon reflects similar impacts upon Canada geese in central New York State during the past decade. (Section G.3).

Aerial surveys by New York State Department of Environmental Conservation tallied over 700,000 Canada geese on March 27 and April 3. These birds were on and within a 15 mile north/south radius of the refuge. (Section G.3).

One mile of the May's Point dike was resloped and faced under a \$58,000 contract. (Section I.2).

The 1984 R5 Equipment Training Session was held at the refuge. A refuge staffer, Steve Flanders, is an instructor and personally handled logistics of this excellent course. (Section J.2).

A series of five adult education programs were begun in 1984. Each of the five attracted from 40 to 80 persons to the refuge VCS/auditorium. (Section H.7).

An Open House/Duck Stamp Celebration was held on July 22. 575 persons participated between 12:00 and 5:00 pm; Congressman Frank Horton addressed a crowd of over 100 at 2:00 pm. (Section H.1).

B. CLIMATIC CONDITIONS

Weather data were 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 31 inches; snowfall averages 64 inches. Total precipitation for 1984 was 37.83 inches (32.63 of rain and 60.73 of snowfall), approximately 8 inches above average. The summer was again hot and humid with temperatures well into the 90's and humidity equal to or higher than the temperature.

Due to a late wet spring, crop planting was greatly delayed. In turn, an early wet fall hindered the harvesting of crops. Many farmers were working 24 hours a day when they had good weather to harvest their crops. June was the driest month of the year with only 1.43 inches of rain. August, September, and November were quite wet, thus rendering crop harvesting almost impossible in many areas. Because of this unusual phenomenon, most migrating Canada geese did not stop in the area due to little or no food available for them off the refuge. In November, ducks were again using the refuge in large numbers, mainly due to cornfields southeast of the refuge on higher ground that had been harvested. As many as 260,000 mallards and black ducks were observed leaving the refuge and travelling 15-20 miles southeast to these fields.

There was sufficient precipitation and runoff to maintain all pools at objective levels throughout the summer. Duckweed (Lemna) and other aquatics seemed to be in adequate supply in all pools throughout the summer and fall with the exception of Mays Point Pool, which was drawn down for dike repairs.

1984 Precipitation

Month	Snowfall (inches)	Rain (inches)	Total Precipitation (inches)	Temperature F°		33-Year Average Snowfall	42-Year Average Precipitation
				Max	Min		
January	17.30	.54	2.03	43	13	16.36	2.00
February	16.25	1.14	2.91	64	3	16.30	2.29
March	14.18	1.43	1.79	56	6	10.14	2.76
April		3.39	3.39	80	25	3.00	2.10
May		5.68	5.68	62	44		3.38
June		1.43	1.43	96	40		3.14
July		2.35	2.35	94	52		3.24
August		6.15	6.15	92	52		3.27
September		3.48	3.48	84	42		2.82
October		1.64	1.64	80	30	2.07	3.25
November	2.00	2.87	3.17	64	22	5.02	3.35
December	11.00	2.53	3.81	60	17	15.80	2.87
TOTALS	60.73	32.63	37.83	96	13	68.69	34.47

D. PLANNING

2. Management Plans

The following plans were submitted or approved (or underwent major revision) during 1984:

Fire Management Plan--submitted 1-25-84; approved 12-7-84

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

3. Public Participation

On March 26, the refuge hosted a joint session of the Boards of Directors, the Executive Directors and Technicians of the Seneca County and Livingston County Soil and Water Conservation Districts. The meeting was held in the VCS/auditorium. During the afternoon, Hocutt gave a talk about over-wintering geese and about the impacts upon Black Brook by the Seneca Meadows Landfill and by agricultural practices. He then led the group of 26 on a tour of the refuge.

Hocutt spent three hours on the evening of May 17 briefing the Town of Tyre (N.Y.) Planning Board and the Town Supervisors about the status of the Seneca Meadows Landfill and the prospects for a new operating permit as these related to the July (1984) expiration of the old three year permit.

Benvenuti and Hocutt met for four hours on the evening of July 23 with the Board of Directors and several members of the Magee-Tyre Volunteer Fire Department. The long-overdue fire agreement between the department and the refuge was presented, discussed at length and signed.

On October 13, Hocutt and Flanders addressed 35 members of the New York State Outdoor Writers Association at their 1984 Convention in Waterloo, New York. Hocutt addressed the writers about the over-wintering phenomenon of Canada geese in central New York State and joint efforts by New York State Department of Environmental Conservation/U.S. Fish and Wildlife Service to (1) learn about the phenomenon and (2) work with affected agricultural interests. Flanders gave a presentation about the New York State Waterfowl Identification Course that he has taught for several years.

5. Research and Investigations

Four informal studies were continued during 1984. Due to the fact that they were pilot in nature, and preliminary, they have not yet been assigned a formal Research Proposal title and number. However, since all four are being proposed this year as formal Research Proposals, they will be discussed in this section. All titles are tentative.

Montezuma NR83 "Cattail Regeneration Study"
The Investigator is Dr. Lee Marsh, Chairman of the Biology Department, SUNY-Oswego.

Dr. Marsh established 6 plots on the refuge to determine whether the cutting of dead cattail stalks inhibits regeneration of the plant the following growing season. His hypothesis is that these dead stalks provide a critical oxygen conduit to the rhizomes during the winter and early spring months.

In November, 1983, all stalks within two plots were counted and cut below the water surface. In another two plots, the same procedure was followed in March, 1984. Two plots were set up as corresponding controls. Hocutt and Secord accompanied him when he returned to the refuge in June to assess the cattail response. The only living (i.e. new growth) cattail stalks in the November cut plots were at the perimeter, probably as a result of edge effect in sampling. Within the March cut plots, some cattail regeneration had occurred, although significantly less than in the control plots.

Montezuma NR83 "Purple Loosestrife Control Study"
Investigators in this study are Grady E. Hocutt (US FWS) and Anne Hiller Secord (US FWS).

This study was initiated to determine the effects of the combined stresses of flooding and underwater cutting on loosestrife survival. A total of five plots were established in water ranging from 40 to 70 cm. deep. Loosestrife plants were cut at the water surface and also at ground level. Also, stem elongation and flowering were studied with respect to various water depths. A summary of this season's results and conclusions are as follows:

1. Plants cut at ground level rarely resprouted, whereas those cut at the water surface continued to grow, with two apical shoots instead of one. Resprouting after cutting (underwater) appears to be a function of nutrient stores and not light penetration.

2. Water depths greater than 60 cm. suppressed stem elongation in loosestrife, but flowering occurred in up to 75 cm. of water. The density of loosestrife plants decreased dramatically in water greater than 60 cm. deep.
3. Both cutting and water level manipulation promise to be effective as loosestrife control (but not eradication) measures. The factor of accumulated stresses is looming more important in dealing with mature plants and well established second year plants. Two to three years of data need to be collected to assess long-term benefits of cutting and water level manipulation.
4. In late November, 1984, plots were established in dead loosestrife. The dead shoots were cut underwater to determine if, as with cattails, they provide a needed oxygen conduit.



Assistant Manager Secord establishing study plots in old loosestrife stand. Note skeletal remains of 1983 plants. (Dewey 84-2)

Montezuma NR79 "Timber Stress In Unit 17 Impoundment"
Investigators in this study are Dr. Richard Malecki of Cornell University and graduate students from that institution.

Limited field work continued on core-borings and survey work in 1984. This is a continuing effort to determine the effects of previous sustained flooding on the health of the trees in Unit 17.

Montezuma NR79 "Black Brook Monitoring Study"
Investigators in this study are Grady E. Hocutt (US FWS), Gary Marsh (New York State Department of Environmental Conservation), other NYS DEC investigators, and selected graduate students from area colleges and universities.

The study is designed to evaluate and compare plant communities and their associated animal populations within Black Brook upstream and downstream of the Seneca Meadows Landfill (SML). Cover typing of 50 meters of the brook from the eastern property line of SML downstream toward NYS Route 414 will occur. Cover typing of Black Brook from the west property line upstream of the landfill toward Burgess Road will be done within the same one-week interval as the downstream portion.

Ten each 0-10 meter square samples of vegetation will be cut at sub-strate level in the Burgess Road segment and the Route 414 segment. The samples will be transported back to the laboratory when the invertebrates (and other organisms) will be removed by handpicking and by use of a light table. The animals will be broken down to at least the level of Orders and in most instances to that of families. They will be counted and data will be tabulated and recorded.

The biology survey of the brook will continue for the indefinite future. Comparisons between floral and faunal communities upstream and downstream of the landfill will be performed annually. Differences between years will be analyzed. These data will be reported to the state and to the operators of SML.

E. ADMINISTRATION

PERMANENT PERSONNEL

1. Vernon A. Dewey.....Biological Technician, GS07, PFT
2. Anne H. Secord.....Refuge Manager, GS05, PFT
(EOD 5/1/84; transferred from U.S. Forest Service,
San Bernardino National Forest, California)
3. Paul E. Benvenuti.....Refuge Manager, GS11, PFT
(EOD 4/1/84; transferred from Chincoteague NWR, Virginia)
4. Judith A. McMahon.....Fiscal Assistant, GS06, 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
(EOD 4/1/84; not in picture)
10. Robert J. Secatore.....Refuge Manager, GS07, PFT
(Transferred 4/30/85 to Parker River NWR, MA; not in
picture).

TEMPORARY PERSONNEL

11. Tracy A. Gingrich.....Tractor Operator, WG04
(5/1/83 - 4/30/84; 5/1/84 - 4/28/85)
12. (Nora) Susan Adie.....Recreation Assistant, GS04
(11/13/83 - 11/12/84; 11/13/84 - 11/12/85)

VOLUNTEERS

Millie Vogel (3/84 - 9/84)
 Rod Vogel (3/84 - 9/84)
 Carole Spears (1/84 - 3/84)
 Karen Kelley (5/84 - 12/84)
 Francis Kelley (5/84 - 12/84)
 Dave Serino (9/84 - 12/84)
 Linda Irwin (9/84 - 12/84)
 Kevin Colton (9/84)

1. Personnel

By June of 1984, the refuge was at 100% of its authorized staff. This allowed us to begin work on a large backlog of tasks. The total FTE allocation for FY85 is 10.19 including temporary employees.

Approval was received to add a permanent part-time (20 hours per week) clerk-typist to the staff beginning in April. Lois Hegerty began work on 4/1/84.

Paul Benvenuti transferred from Chincoteague NWR on 4/1/84 to fill the primary assistant manager position. This position had been vacant since the transfer of William Hegge on 10/21/83.

Anne Hiller Secord transferred from her botanist position for the San Bernardino National Forest on 5/13/84 to fill a trainee refuge manager position.

Robert Secatore made a lateral transfer to Parker River National Wildlife Refuge.

(Nora) Susan Adie's temporary Recreation Assistant appointment was extended for a second year, effective 11/13/84.

Tracy A. Gingrich's temporary Tractor Operator appointment was extended for a second year, effective 4/29/84.

In the spring, Region 5 made an administrative change for all persons in the 301 series--all were changed to the 318 secretary series. Judy McMahon had held the position of Administrative Clerk since 1979 until the administrative change occurred. In the fall a desk audit was requested. Final results were the same grade level and same duties but change in the title. By the end of the calendar year, Judy's title was changed to Fiscal Assistant. A summary of staffing allocations for the last five years is displayed below:

FY	(Number of Employees)			
	Permanent		Temporary	Total
	Full-time	Part-Time		FTE
1984	8	1	2	11
1983	8		2	10
1982	8		1	9
1981	8		2	10
1980	8		2	10

2. Youth Programs

Montezuma's YCC camp began July 2 and terminated August 24, 1984. Two staff (GS5 and GS4) supervised 12 enrollees and one youth leader. Enrollees were recruited from five school districts: Seneca Falls, Waterloo, Port Byron, Union Springs, and Clyde-Savannah. 200 applications were received for the 14 available positions.

YCC had a nice variety of work projects this year, including brush work, purple loosestrife control, building and trail maintenance, and bridge construction. Construction is always the most popular with the enrollees because they can actually see and experience the benefits their work has provided. Brush work, on the other hand, tends to be a more dreaded task primarily because YCC does so much of it and usually in rather warm weather. Purple loosestrife pulling was a new experience for most all of the group this year. The enrollees disliked the actual job, but made the most of it with the sun, the water, and the muck.



Loosestrife pulling isn't fun, but it sure is steady....! (Dewey 84-3)

Environmental awareness is a very important part of Montezuma's YCC program. Rainy day time was often spent viewing and discussing films from the refuge's EE library. Refuge staff gave one to two hour programs on various topics including wetlands, endangered species, plant succession, biological impacts of exotic plants, and the refuge system. 11 of the 13 enrollees returned in late September on a Friday evening to help band 100 ducks. Briefer discussions were held, when relevant, prior to some specific jobs.

Like everyone else, we had problems with the new payroll system, which was initiated just prior to the start of the YCC program. Checks were late, taxes were deducted in error, and hours worked were incorrectly processed. The errors made might be considered minor considering the newness of the system. However, for the majority of the enrollees, YCC was their first job and they became frustrated with the administrative aspect of government. Fortunately, by the end of the summer, all problems were resolved and enrollees were fully compensated for their hard work.

4. Volunteers Programs

Volunteers continued to assist the refuge in public use and biological programs. Without their skills and talents, many of the goals for these programs would not have been accomplished. The refuge is very fortunate to have the service of these dedicated individuals. Volunteers were as follows:

Millie Vogel (3/84 - 9/84)
 Rod Vogel (3/84 - 9/84)
 Carole Spears (1/84 - 3/84)
 Karen Kelley (5/84 - 12/84)
 Francis Kelley (5/84 - 12/84)
 Dave Serino (9/84 - 12/84)
 Linda Irwin (9/84 - 12/84)

5. Funding

The funding for FY84 was adequate and except for \$3,900 transferred from 1260 to 1520, we made it through the year with no budget cuts or supplements.

The FY84 budget was:

1260	\$400,226 (O&M)
1520	20,500 (YCC)
1994	2,000 (Quarters Rehab)
6860	2,000 (Expense for Sales)
	<u>\$424,726</u>

As of this writing, the FY85 budget has been increased \$10,500 over the original \$521,500 budget, but \$26,000 has been restricted to 1520 (YCC). YCC was not a part of the original budget.

The FY85 budget now stands at:

1260	\$501,000 (O&M)
1520	26,000 (YCC)
1994	3,000 (Quarters Rehab)
6860	2,000 (Expense for Sales)
	<u>\$532,000</u>

It would be tactless for us to complain about funding, but before the reader succumbs to too much envy, we should point out that of the \$501,000 in O&M funds, \$242,420 represents the funding of ARMMS projects most of which is committed to contracts and equipment purchases. They mostly represent unfunded or underfunded, high priority BLHP requests. Our anticipated salary costs are \$263,000.

6. Safety

This was a regrettably prolific year for personal injury accidents at Montezuma, with a total of five reported. Three were sustained by refuge personnel and two by YCC enrollees. The most serious and only lost time accident was suffered by Vernon Dewey. He severely strained his back while removing a stoplog and was out of work for six days. Larry Davis was stung by a bee while working at the Visitor Contact Station. Due to a known serious allergy to bee stings, Larry sought immediate treatment and fortunately suffered no lingering affects. The final employee accident occurred when Bob Secatore slipped on an icy sidewalk and injured his wrist. He did require medical treatment.

One of our YCC enrollees sustained a broken foot when a carelessly placed handyman jack fell on the instep of her foot. The fracture was a minor one, but she was required to wear a cast for several weeks. She worked light duty until the doctor returned her to regular duties. The other YCC accident resulted from lunchtime horseplay. An enrollee was hit in the eye by a cracker "innocently" thrown by another YCC Enrollee. Her cornea was slightly scratched and she had a sore eye for several days, but no lasting injury. In light of these two YCC accidents, we plan to place an even greater emphasis on safety with the 1985 enrollees.

After dealing with the often complex and confusing paperwork for these Workman's Compensation cases, our safety officer compiled an outline of procedures to follow in case of an injury accident. The outline and a complete set of forms have been clearly posted on the bulletin board.

We can happily report that there were no vehicle accidents in 1984. Safety meetings were held monthly on such topics as winter driving, hunter safety, and heavy equipment safety. Three of this refuge's employees attended the R5 heavy equipment training session which took place at Montezuma during June.

7. Technical Assistance

Hocutt continued work and meetings with the Seneca County Soil and Water Conservation District (SWCD) regarding their proposal to channelize Esker Brook off of the refuge and to improve 300 yards of "bottleneck" inside the refuge. Paul Hamilton and Doug Ryan (Habitat Resources, Cortland, New York) graciously gave a day at our request and toured the site and met with the refuge manager and SWCD Technician Phil Griswold. The final result was a

denial (obviously!) to enter the refuge and a formal request for specific safeguards off of the refuge to protect the brook.

Hocutt participated in several meetings during January through April of the newly formed Cayuga Basin Canada Goose Flock Study Group. All meetings were held at the VCS/auditorium. Participants were John Proud and Wes Stiles (NYS DEC R7), Larry Myers and Dave Woodruff (NYS DEC R8), Jack Moser (NYS DEC Delmar), Gordon Robinson (Wildlife Management Institute), Rich Malecki and Bob Trost (CWRU, Cornell University), Larry VanDruff (ESF/SUNY-Syracuse), and Hocutt (USFWS). The group defined the known parameters of the overwintering problem and tentatively agreed upon research needs, management goals, federal/state coordination protocol and a joint public information strategy. Proud, Trost and Hocutt jointly completed the "situation paper" and prepared a "lay" version for inclusion in a brochure for farmers, sportsmen and birders. On March 30, the group met with Cayuga County ASCS Director Dennis Chapman, Extension Specialist Judy Wright and others to present the situation. It is likely that this approach will do much to bridge the gap to area farmers.

At the request of the Study Group and NYS DEC, Hocutt and Dewey agreed to perform a ground census of geese on the east and west sides of Cayuga Lake on days when NYS DEC flew their aerial census or when weather grounded their efforts. Five ground counts were necessary. Fortunately(!), our efforts were finished before the April 2 aerial count of 700,000 Canada geese within a 15 mile radius of the refuge.

Again, in 1984, the refuge served as a distribution point for NYS Special Canvasback Season Permits. Ms. Hegerty and Ms. McMahon issued over 80 permits in late December.

Many inquiries from farmers and media were handled during spring about the vast numbers of geese inquiries in the area. A troublesome aspect was that several were directed to Hocutt's home during weekend and evening hours.

On May 17, Hocutt spent a day with Paul Hamilton and Frank Deluise (Habitat Resources, Cortland, New York) regarding USCE Permits to allow the NYS Department of Transportation, Barge Canal Division, to do channel dredging and spoil deposition in the canal channel along the southeastern boundary of the refuge. We agreed that parts of their proposal were acceptable and that a few things required modification.

On June 6, the refuge hosted Provincial Biologist Marc Suprenant and Technician John Sauro from Ducks Unlimited (DU), Quebec, Canada. Their visit was to tour our Unit 17 ("green timber impoundment") and to discuss DU's plans to establish four or five such impoundments along the St. Lawrence River below Montreal.

Hocutt spent the afternoon of September 4 with Ms. Lenore Kuwik, Chief Preservation Officer, New York State Parks and Historic Preservation Department. Ms. Kuwik came over from Albany to confer on methods of disposing of the crumbling cobblestone barn on the refuge. The designated state landmark has no potential for restoration; at the same time, some opposition is anticipated. A strategy was determined and efforts were underway by year's end.

On September 6, Hocutt met at the refuge for three hours with Mr. Hymen Klionsky to outline FWS's concern about his plans to site an industrial waste facility adjacent to the Seneca Meadows Landfill (DiMino Construction Company). Mr. Klionsky was accompanied by his Consulting Engineer, Gary Olin (Bergmann Associates, Rochester) and his Attorney, Scott Turner (Nixon Hargrave Devans and Doyle, Rochester).

On November 14 and 15, Serge and Rene' LaBonte visited the refuge. Serge is manager of the Cap Tourmente National Wildlife Area near Quebec City, Quebec, Canada. His wife is a Naturalist/Interpreter with the provincial government. They were touring nearby NWR's in this country to incorporate new ideas into the management of their very large hunting program for snow geese. In addition to a very informative visit on the 14th, Serge and Rene' were at the check station promptly at 4:30 a.m. on the 15th to help us open up for the last day's hunt of the 1984 season.

Benvenuti and Dewey accompanied and assisted Dr. Alice D'Young and Dr. Robert Nolan of the Buffalo (N.Y.) Veterans Hospital on April 26 as they collected two liters of carp blood. Similarities to human blood in hemoglobin bonding properties cause the annual trek each spring to the refuge.

F. HABITAT MANAGEMENT

1. General

Montezuma's primary habitat management objective is to provide feeding and resting areas for migrating waterfowl and other waterbirds. Secondary objectives include providing nesting habitat for a variety of bird species, and creating seasonal mudflats for migrating shorebirds.

To meet these objectives in 1984, we maintained moderate water levels in the pools during migration and created 100 acres of fall shorebird habitat. Water levels were kept stable during waterfowl nesting, and over 9.5 miles of dikes were mowed in mid-summer to maintain the dikes for future nesting. Grassland areas were also mowed to keep them in suitable condition for nesting habitat. The Tschache Pool road was closed to the public for most of the summer to prevent undue disturbance of the great blue heron rookery.

Two relatively undesirable species once again took hold on parts of the refuge in 1984. Purple loosestrife was abundant in the Main Pool, due largely to last summer's drawdown and subsequent drought. Also, hundreds (or thousands) of tons of carp made it into Tschache Pool due to miscommunication on the part of Barge Canal authorities. On the bright side, we had plenty of herons and a few osprey and bald eagles to dine on the onslaught of carp. On the dark side, the carp certainly had a negative impact on communities and aquatic plants.

2. Wetlands

Wetland management is the essence of habitat management at Montezuma since over half of our 6,432 acres are marsh. An additional 1,500+ acres are classified as wooded swamp. We continue to be plagued by problems brought on by our lack of flexibility to change water levels and lack of a reliable water source. These problems include eutrophication, dike erosion, insufficient control over carp and purple loosestrife, and the threat of waterfowl disease. Management of habitat diversity is severely hindered by our inability to efficiently regulate water.

Fortunately, the deteriorating dikes are being rebuilt and/or reinforced, one by one. In 1984, one third of May's Point dike was resloped and stabilized. The remaining portion is slated for work in 1985. We are also currently preparing a Water Control Plan. This plan is a major undertaking and not just a revision of previous plans. It will undoubtedly call for major repairs of existing dikes, construction of new dikes, new water control structures, and effective use of existing and potential water sources. Projects will be prioritized so that work can be done as the budget allows. Efforts will be made to acquire equipment and operators rather than aggrandizing one or two contractors for very limited results considering expenditures.

Main Pool This pool covers approximately 1,200 acres. The theme of this pool in 1984 was pure and simple - PURPLE LOOSESTRIFE! The flush of loosestrife seedlings that germinated in late summer, 1983 during the partial drawdown and subsequent drought were thriving by late spring of this year. Water levels were kept high in an effort to duplicate the success of the 1978 to 1982 stress flooding of purple loosestrife. In addition, a monitoring program was initiated to determine the survival and vigor of loosestrife growing in various water depths.



Second year purple loosestrife seedlings after 1983 drought. The plant was eliminated from this same site in 1979-82. (Dewey 84-4)

Results from the summer's monitoring included the observation that water depths greater than 60 cm. suppressed plant density. It is likely that plants at these depths were subject to greater water currents, causing uprooting. Root development in these plants was only somewhat less than seedlings growing in more shallow water. Plants that survived at this water depth were also substantially shorter than those growing on more shallow sites. The extreme tenacity of this plant was reinforced when we observed that plants growing in as much as 75 cm. of water successfully flowered and bore fruit.



Uprooted loosestrife seedling showing the classic "whorling" upward effect as adaptation to reach sunlight and downward droop of roots. (Dewey 84-5)

On a positive note, we did have some success eliminating loosestrife by cutting it at ground level, below water. This success led us to purchase a Hockney aquatic weed harvester. We plan to use this in conjunction with flooding and herbicides to reduce the amount of loosestrife on the refuge.

On another positive note, we observed that purple loosestrife in its seedling or in the one to two year age class provided valuable hiding and resting cover for black-crowned night-herons, great blue herons and a variety of ducks. This value is not provided by

dense cattail stands or by older aged loosestrife. Interestingly, this preferential use of sparse, young age classes of loosestrife seemed to hold even when relatively high quality cattail cover was adjacent.



Several of last year's goose nests occurred on muskrat houses made of loosestrife cuttings. Surprisingly, this occurred when cattail was nearby. (Dewey 84-6)

The drawdown of 1983 also enhanced the germination and growth of other plant species. The cattail community in the center of the Main Pool showed a partial comeback, although it appeared somewhat stressed after a summer of high water levels. Certainly, the results of the water level fiasco of late summer, 1983 defeated our plans to slack off pressure in 1984 on more desirable plant communities. There was also a surge of bulrush in the Black Lake area where there has never been much in past decades. Pond lily was also exceptionally dense, particularly along the eastern leg of the tour route. Travel through this by canoe was virtually impossible by early August.

Tschache Pool This pool covers 1,300 acres at the northernmost end of the refuge. It is supplied by two major streams - Black Brook and White Brook.

A communications breakdown on May 4, 1984, between the Syracuse District Office of DOT (Barge Canal) and their lock tenders at May's Point Lock/Dam resulted in a totally unexpected rise of 4.6 feet in water levels during the May 4-6 weekend. Water in the Barge Canal rose to within 6 inches of the crest of our Tschache Pool water control structures. Literally hundreds (or perhaps thousands) of tons of carp entered the pool. Eradication efforts do not look especially favorable. Additionally, many low-lying goose and duck nests on the refuge and along its thirteen mile stretch of canal between the May's Point and Clyde Locks were undoubtedly lost. This was a major loss in production for 1984 since dike slopes represent most of the refuge's nesting cover.

Otherwise, water was kept at objective levels throughout the year. The pumping station on Tschache was operated for eight days from July through September. Dead snags continue to fall in this pool. Those that remain are intensively used as nesting and perching sites by ospreys, bald eagles, and great blue herons. We are waiting for finalization of new Tschache Pool dike proposals before erecting artificial structures. There was more cattail die-back this year, probably as a result of the large numbers of geese that fed in this pool during the spring months and also the activities of hordes of carp "rooting" the edge of the mat. There also seemed to be less water velvet (Azolla sp.) here than in previous years.

North Spring Pool This pool is 118 acres in size and drains into Tschache Pool. There is very little emergent vegetation in this dead timber marsh, primarily due to high sulfur and tannic acid levels. Purple loosestrife at first glance, appears to be fairly prolific here. However, it exhibits an interesting pattern of distribution, growing only on exposed stumps and hummocks and along the dikes. It is not found on the pool bottom. The decaying stumps and hummocks also provided some nesting sites this year, mostly for Canada geese, mallards and teal. Another excellent growth of duckweed (Lemna spp.) was present in August through September and provided a good source of food for waterfowl during fall migration. The water level was held stable throughout the year.

South Spring Pool This 37 acre pool lies directly south of the North Spring Pool. A spring provides a year-round supply of water, which can be diverted into the Main Pool. Water levels were kept relatively stable throughout the year. As in the North Spring Pool, loosestrife grows only on disturbed or exposed areas, such as decaying stumps or along dikes. The amount of loosestrife is somewhat less than in North Spring Pool, probably because there has been minimal water manipulation in this pool in recent years. Carp infestation is significant in both of the Spring Pools.

May's Point Pool This 200 acre pool was drained for dike repairs from mid-September to mid-November. Consequently, there was tremendous use by shorebirds, great blue herons, and egrets. Green-winged and blue-winged teal were also abundant in persistent puddles. Most of the carp were either washed through the spillway or later succumbed on the dry pool bottom. Contrary to our expectations, purple loosestrife did not germinate on the exposed mudflats.

3. Forests

Approximately 1,800 acres of the refuge are non-commercial woodland, most of which is classified as wooded swamp. Dominant tree species include red maple, black ash, swamp white oak and slippery elm. No forest management occurred in 1984. There continues to be significant wildlife use along the ditches in Unit 17, as well as at all water-forest interfaces.

5. Grasslands

The establishment and management of fields of undisturbed grassland cover at Montezuma was initiated to provide increased nesting cover for waterfowl and ground-nesting birds. To achieve this objective, the approximately 330 acres of grasslands on the refuge have been divided into several Grassland Management Units (GMUs). This was possible only after grazing was terminated from 1980-81.

Present vegetative conditions in the grassland fields are representative of early old-field successional stages. Encroachment of woody plants and noxious weeds is minimal at the present time. Vegetation within all fields is dominated by species of tall grasses and perennial forbs remaining from tame pasture and hay field plantings during the past several decades. The resulting cover consists of tall, dense, rank live vegetation with loosely packed litter composed of dead vegetation from previous

growing seasons. This ground litter serves to conceal nesting hens and provides a deterrent to predatory mammalian and avian activity.

During CY84, mowing practices were instituted in GMU 4A and GMU 4C according to the current rotational schedule. Clipping heights were maintained at 15 cm (6 inches) using rotary and sickle bar mowing attachments. Mowing was delayed until August to prevent nest destruction of late-nesting and renesting waterfowl and ground-nesting bird species.

Nest searches have suggested limited use of these grassland units, to date. We suspect that this is in part due to lost predisposition caused by several years of grazing. There also is little doubt that heavy hunting pressure and early season openers in central New York could be cutting into breeding bird potential. All off-refuge areas are showing reduced mallard breeding.

6. Other Habitats

In addition to the habitats already discussed, there are at Montezuma more than 600 acres classified as rivers, streams, brush and small isolated grassland areas. This land is not subjected to any habitat manipulations. 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 CY84. One very small fire (suppressed with two 2.5 pound extinguishers) was discovered in tall grass near a YCC work site. Investigation was inconclusive but suggested smoker carelessness or arson.

A cooperative agreement for wildfire suppression was negotiated with the Magee-Tyre Volunteer Fire Department, Inc. The agreement had been approved by the central office, but not returned to us for signing by the end of the year. A blanket purchase order was established with the same organization for suppressing structural fires and responding to our electronic alarm system. Their services were not required this year.

This year, \$9,701 was expended on purchase of fire equipment. Most of the money went for purchase of a high volume trailer pump and a "slip-on" pumper and tank. The remainder was expended for clothing, shelters, and hand tools. Our fire suppression capability now meets the established standards. Two

major replacement items are needed but were not funded for FY84 or FY85. These are a garden tractor with mower (the most versatile tool for our type of fire breaks) and a dump truck or stake bed truck for towing our John Deere 550 crawler tractor.

The designated fire funds for FY85 were \$3,500 in October but \$3,200 were deleted before January. We will probably need to reprogram some of our other 1260 money to cover the garden tractor purchase.

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 approximately 100 acres of black ash, red maple and some American elm located southwest of the Main Pool.

G. WILDLIFE

1. Wildlife Diversity

As in most relatively stable biotic communities, the wildlife diversity at Montezuma typically does not vary much from year to year. Of note in 1984 were the appearance of several rare or uncommon species, including the great gray owl and Henslow's sparrow observed in the vicinity of the refuge. Also observed were willet, peregrine falcon, snowy owl, greater white-fronted goose, coyote, and least weasel. Woodchucks are common on the refuge but Biotech Dewey's January 4 observation is a record early appearance.

2. Endangered and/or Threatened Species

Nine bald eagles (6 immature and 3 adult birds) were observed on the refuge in 1984. One sub-adult (3 years old) and one adult bird seemed to have a bonding to each other and were observed throughout the summer on the north end of Tschache Pool. The phenomenon was observed by refuge personnel and related to state personnel of the endangered species unit who also concurred. We are in hopes they will return to nest. One immature bald eagle, released from Tupper Lake, New York, this year, was observed near the end of the year.

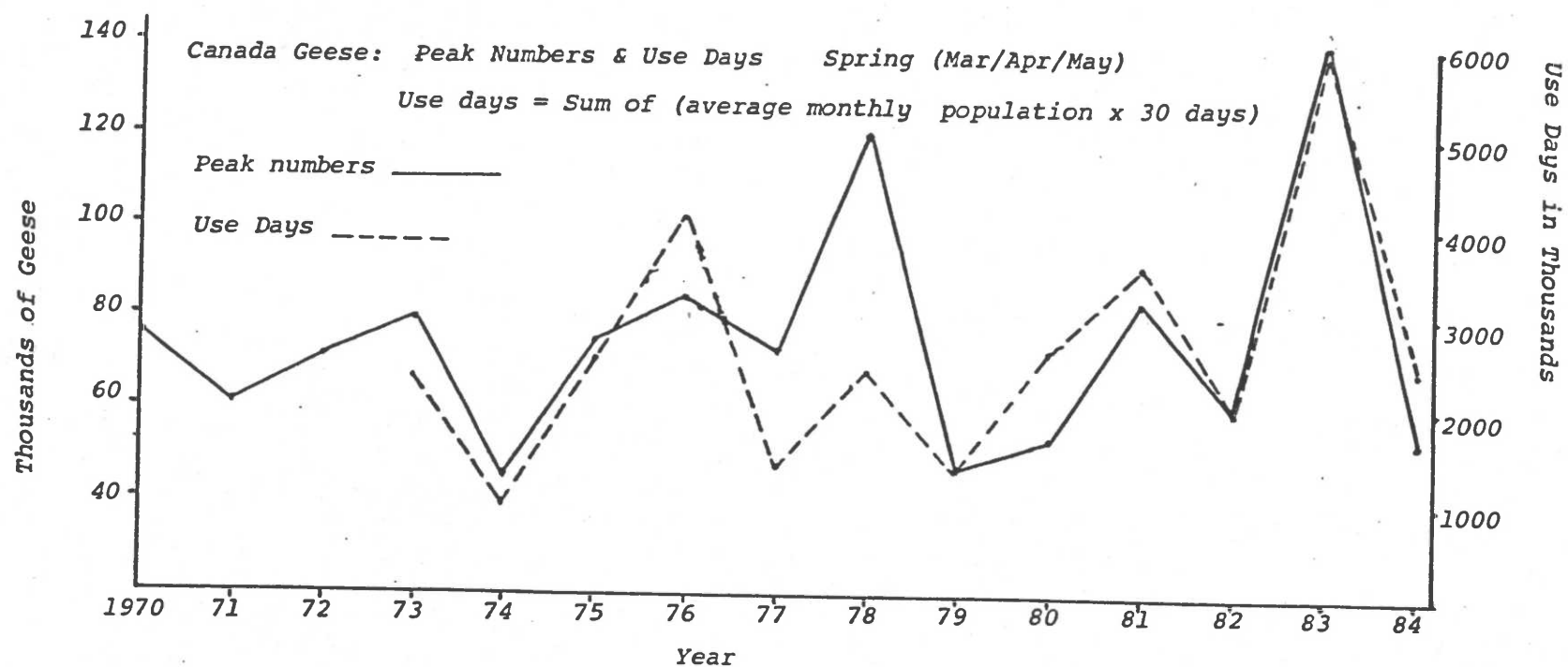
A pair of osprey, a species considered endangered by the state of New York, again nested on a dead snag in Tschache Pool. Three young were fledged from this nest.

One golden eagle was seen (on its southern migration) flying over the refuge in late November.

3. Waterfowl

Early spring was an unusual mosaic of alternate freezing and thawing. Ducks moved on and off of the refuge in response to these events. Geese, however, sat on ice or open water without apparent preference. From 12,000 Canadas in mid-February, numbers increased to a censused high of 55,000 birds in early March (figure 1). This was not, by any means, at all the peak for the period. That could easily have been twice as many. The Canadas are in a new phase of resting on the lake, the river or the refuge--depending on a variety of unknown factors. It's

Figure 1



probable that 100,000 geese or more were on the refuge on a few days; unfortunately, these occurrences did not happen on the three formal census dates. Snow geese peaked at 20,000 on April 11 (figure 2).

Fall use by geese was also enigmatic in many respects. Due to one of the wettest and coldest spring seasons on record, corn planting was greatly delayed. The fall was very wet and harvests were delayed. Except for minimal chopping for ensilage, there were essentially no corn fields picked until after October 15. Canada geese simply did not stop, but overflowed the area. From a peak of 17,000 by late October, the numbers did not reach their fall peak of 26,000 until mid-November (Figure 3).

Duck numbers continued their spectacular rate of increase in the fall. A census on November 16 tallied well over 200,000 mallards leaving the refuge to feed (Figure 4). This increase (from traditional, long term base of 80,000 - 100,000) seems to parallel the somewhat alarming response by Canada geese during the past decade to profound changes in agricultural land use in Cayuga, Seneca and Wayne Counties. On a positive note, over 20,000 black ducks were counted.

The buildup of overwintering birds on Cayuga Lake was correspondingly slow. There is some evidence to suggest that birds moved back north (apparently from the DelMarVA area to the lake (and the refuge) in November and December. A lake census by New York State Department of Environmental Conservation (NYS DEC), Cornell and FWS tallied 37,500 birds on December 14, 1984--a far cry from the December 1983 total of 100,000 geese.

During 1984, tallies of birds were spectacular. Aerial counts by NYS DEC on March 27 and April 3 tallied over 700,000 Canada geese in a sector from 15 miles down Cayuga Lake to 15 miles north of the refuge and bounded on the east by Owasco Lake and the west by Seneca Lake. Numbers of birds throughout the January - March 1983 period stayed fairly constant at 100,000.

During efforts to identify the magnitude and rate of conversion to corn farming, land clearing, larger fields and other alterations of land use, Hocutt went to the New York State Coop Reporting Service for data. Table 1 presents these data for only one county--Cayuga. There are clean cut correlations between increased numbers of overwintering geese and the following factors:

Figure 2

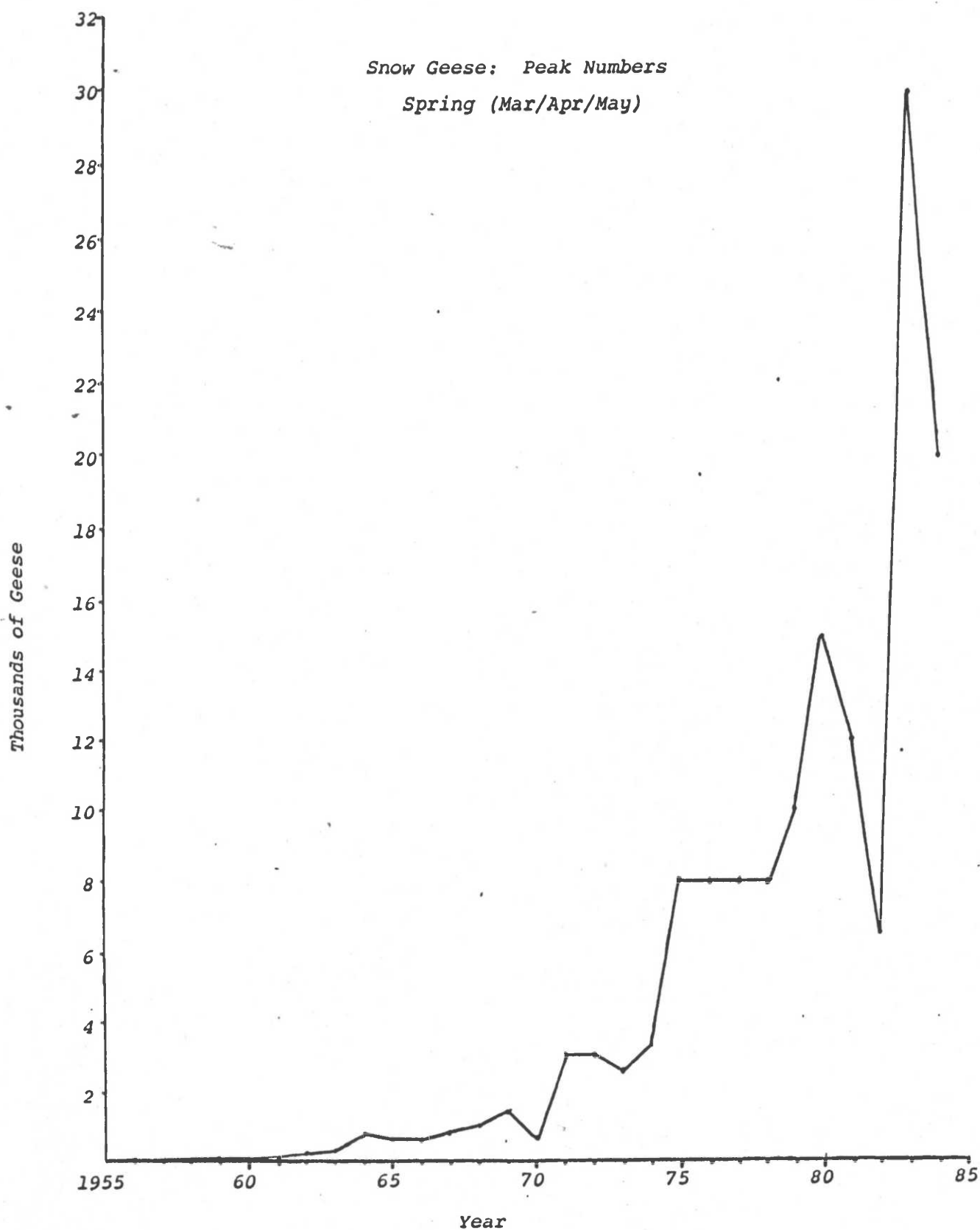


Figure 3

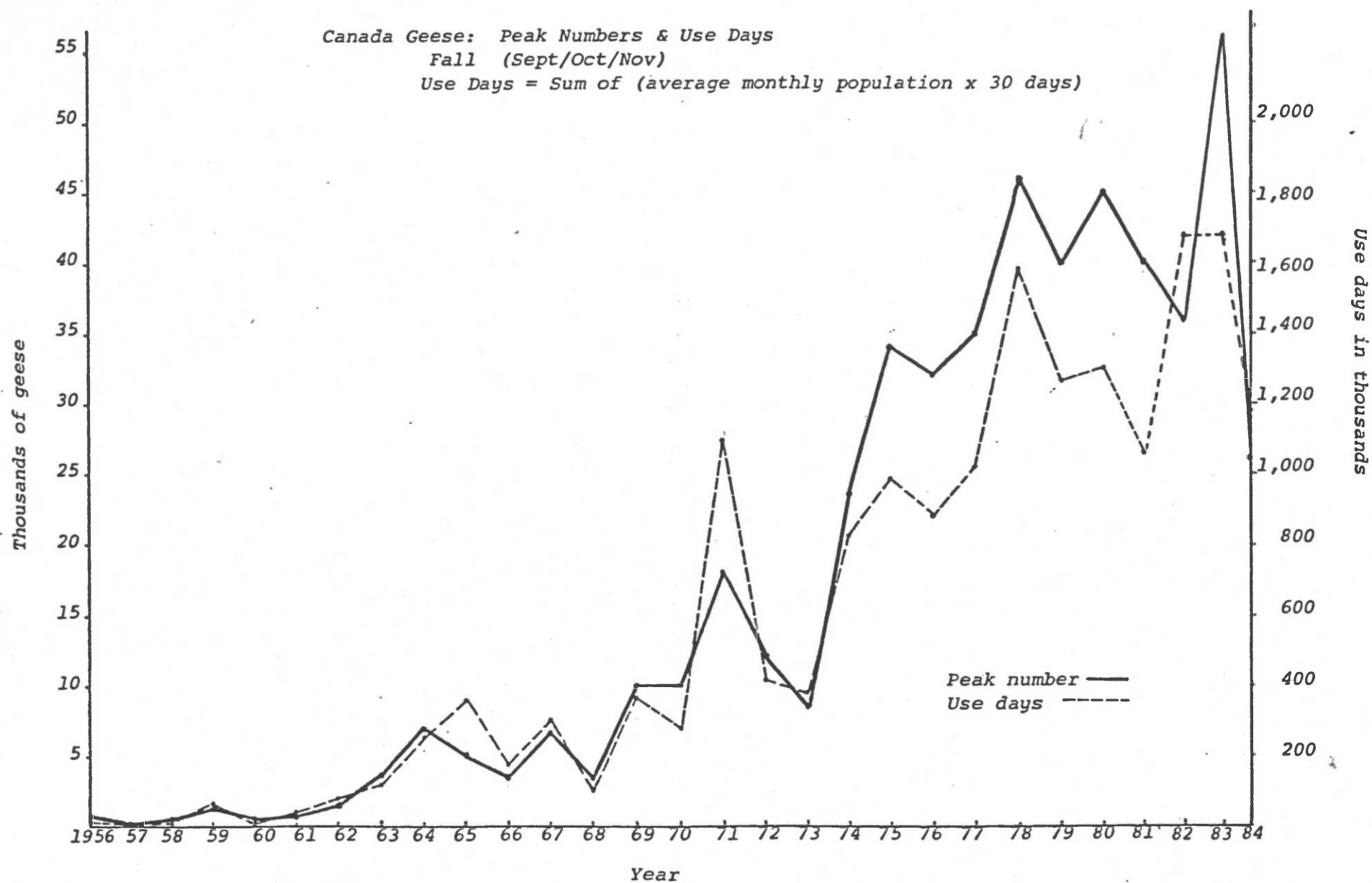


Figure 4

DUCKS: Peak Numbers and Use Days

Fall (Sept/Oct/Nov)

Use days = Sum of (average monthly population x 30 days)

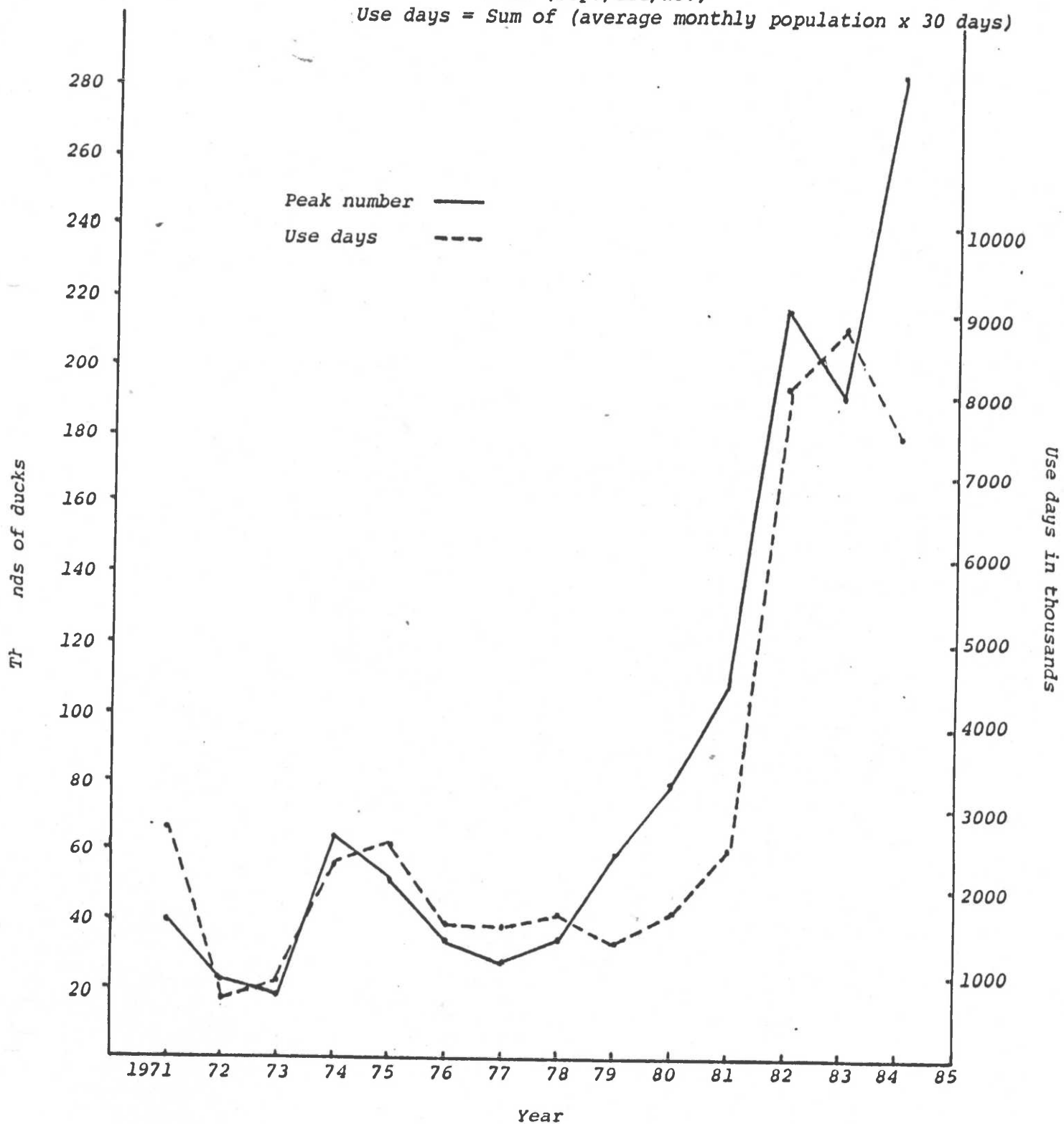


TABLE 1

Relationship Between Types of Corn Planted for Harvest and Over-Wintering
by Canada Geese in Cayuga County, New York

<u>Crop Yr.</u>	<u>Year Goose Yr.</u>	<u>Corn Harvested for Ensilage</u>	<u>Corn Harvested for Grain</u>	<u>Corn Planted Total Acres</u>	<u># of Geese*</u>
1950	1951	13,300	17,100	30,400	25
1955	1956	14,100	23,800	37,900	60
1960	1961	11,900	27,700	39,600	100
1965	1966	18,600	20,000	38,600	15
1970	1971	27,200	17,000	44,200	400
1971	1972	28,400	26,000	54,400	21,000
1972	1973	35,800	18,200	54,000	4,700
1973	1974	19,100	38,500	57,600	500
1974	1975	20,300	47,000	67,300	1,300
1975	1976	20,000	49,200	69,200	2,600
1976	1977	18,700	54,800	73,500	3,600
1977	1978	24,000	64,300	88,300	6,600
1978	1979	22,100	62,500	84,600	7,600
1979	1980	21,100	63,200	84,300	11,000
1980	1981	17,700	70,100	87,800	24,000
1981	1982	19,900	72,300	92,200	27,000
1982	1983	18,500	68,800	87,300	23,000
1983	1984	17,600	53,500	71,100**	45,000
1984	1985	22,000	65,300	87,300	35,000

*Taken from New York State Department of Environmental Conservation's Annual Waterfowl Census (single day, late morning aerial census of birds only on the water; considered by NYS DEC as an index and not a count).

**Reduction due to Payment in Kind (PIK) Program in 1983

- a. A 3x increase in corn since 1955; 2x increase since 1970-1972.
- b. The Russian grain sale and changed emphasis in national farm policies in 1972; corn for ensilage immediately was cut by one-half and corn for grain doubled in one year.
- c. From 1972 on, corn farming (for grain) rapidly increased to fill Cayuga County's approximately 90,000 acres of corn land. Winter wheat has dropped dramatically from over 30,000 acres down to only 12,000 or so acres.
- d. The geese, as shown in Table 1, responded dramatically with a lag of a year or so. The numbers of geese shown in the table are useful only as an index since the DEC flights are between 11:00 am - 12:30 pm and count only the lake--not fields where the geese loaf in mid-day. The high figure in 1972 was an anomaly of an open winter, a late harvest and "catching" literally all of the birds resting on the lake.

4. Marsh and Water Birds

For the third consecutive year, great blue herons nested on the refuge. Prior to 1982, when two pair nested in snags on Tschache Pool, this species had not reproduced at Montezuma since the mid 40's. This year 59 young were produced in 25 nests.



Seven of the 25 great blue heron nests. This event in Tschache Pool is very heartening. (Dewey 85-7)

The black-crowned night-heron colony was again active in Main Pool. Approximately 65 young were produced.

Double-crested cormorants again capitalized on the abundant carp in refuge pools. Although no nesting was in evidence, 12 to 21 birds could be observed throughout the summer and fall.

5. Shorebirds, Gulls, Terns, and Allied Species

Due to a drawdown of the May's Point Pool for dike repairs, shorebirds were observed using this area. Species diversity was very impressive. Killdeer, pectoral sandpipers, semi-palmated plovers, and lesser yellowlegs were most numerous. Some unusual or rare sightings were: red knots, long-billed and short-billed dowitchers, stilt sandpipers, and one willet. Virtually every species of shorebird representative of the area was recorded during the summer and fall. The usual number of 1,500 - 2,000 ring-billed gulls performed their spring "house-cleaning" of winter-killed carp and small bullheads after the ice went out in March.

6. Raptors

A group of 10 to 12 turkey vultures frequently congregated in the vicinity of White Brook Spillway at the north end of the refuge. This isolated spillway attracts large numbers of carp whose carcasses provide a readily accessible source of food for these scavengers. Other raptor activity was about normal for this area.

In the mid-50's, 1,500 to 2,000 black terns nested on the refuge. Their activity gradually decreased to a few pairs using the refuge by the early 70's. This year six young were reared from five active nests.

Common terns have never nested in any great numbers but every year we do have some. This year there were two known active nests which produced four young.

7. Other Migratory Birds

Eastern bluebird use of nesting boxes on the refuge is gradually increasing. This is surprising considering the great numbers of natural cavities available on the area. Five boxes were used producing 25 young. One box was used and abandoned; leaving 3 young unattended. No apparent reason could be determined for this unless the adults were converted to food by sharp-shinned hawks nesting nearby.

On October 2, about 500 migrating American pipits were observed feeding on insects and crustaceans on May's Point Pool mudflats and adjacent dike. Approximately 500 yellow-rumped (myrtle) warblers were observed along the dike of the Tschache Pool on the same day.

8. Game Animals

The population density of the refuge deer herd remains relatively high. Estimated population is between 400 and 500 animals. The two most important factors affecting deer populations are farming practices on adjacent privately owned lands and the severity of the winters. While deer tend to remain well dispersed during moderate winters, harsh winters encourage them to yard-up in the refuge bottomland hardwoods and cattail marshes. In fact, the "number" of deer on the refuge is a meaningless figure unless it is matched with the severity of the winter.

Raccoon and fox populations remain stable at moderate numbers. Rabbit numbers were very low as they have been for the last five years.

10. Other Resident Wildlife

The 1983-84 refuge trapping season marks the seventh consecutive year that the fur management program has used the bid system framework. The total revenue to the refuge was \$3,024. The bids are for designated units and do not represent a share of the harvests. This lower take reflects the drawdown of the Main Pool until November and a statewide decline in muskrats; NYSDEC, in fact, reduced the traditional two month season to only 10 days in our zone. Muskrat harvest was 1,096 animals. The permittees also harvested three opossum and six raccoon. Our estimates indicate that the refuge muskrat population varies seasonally between 4,000 and 7,000.

15. Animal Control

Approximately 50 woodchuck burrows were treated with rodent control cartridges during 1984. Control efforts are generally limited to selected areas along the dikes where woodchucks and muskrats are quite active and, if left unchecked, could result in structural problems.

16. Marking and Banding

The refuge banding quota of 200 mallards and 50 black ducks was met, plus a few extra to aid NYS DEC which was having difficulty catching birds on their local banding sites. However, we failed to get the targeted 50 hatching-year male mallards. Nearly all birds were obtained by the use of the three pen trap.

The total take was as follows:

	HYM	AHYM	HYF	AHYF
Mallards	25	75	90	114
Black Ducks	<u>14</u>	<u>39</u>	<u>21</u>	<u>22</u>
Total	39	114	111	136



One evening's catch; most of the birds
are in the compartment facing the water.
(Dewey 85-8)

H. PUBLIC USE

1. General

1984 was a very exciting year for the Interpretation and Recreation (I&R) Program at Montezuma Refuge. Special events, additions and new programs which occurred throughout CY84 greatly increased the overall quality of the I&R program. The addition of a temporary recreation assistant enabled the refuge to expand and improve upon many interpretive programs. Increased programs for teachers, students (K-12 and college level), and adults were some of the results of this addition.



"A place where youth meets age." Senior citizens and school children visiting Montezuma. (Davis 84-9)

In recognition of the 50th year of the Duck Stamp, Montezuma held a Duck Stamp Celebration/Open House on July 22. U.S. Congressman Frank Horton attended the ceremony and addressed the crowd of about 100 persons. The Boston Regional Office was represented by Suzanne Mayer and Inez Connor. Refreshments for the day were provided by Owasco Audubon Society. An estimated 575 persons participated in the 3 1/2 hours of scheduled events. The 30 minute formal ceremony was taped and replayed on Seneca Falls' WSWF-FM at noon the next day.

During the reporting year, Montezuma was fortunate to receive a substantial donation from the Atlantic Chapter of the Sierra Club. Arising from an out-of-court settlement between the Sierra Club and Philips ECG of Seneca Falls, the refuge received approximately \$6,000 to be used for interpretive materials. The settlement resulted when it was discovered that Philips (a manufacturer of picture tubes) was discharging waste into the Seneca River. Due to the size of the donation, approval had to be given by Director Jantzen. The following items were purchased for the I&R program:

Permanently mounted spotting scope for the Main Pool tower

Three wildlife movies

Interpretive signs for the auto tour route

Maple trees for landscaping purposes

Invitations for the Duck Stamp Celebration

Total visitation to the refuge for CY84 was 254,800. This represents an increase over last year's total visitation of 224,900. Part of the increase was "real"; part reflected closure of the auto tour route in 1983 for six weeks due to dike construction.

Visitation, by month, was as follows:

January	- 6,100	August	- 28,100
February	- 4,200	September	- 27,600
March	- 10,000	October	- 30,300
April	- 41,500	November	- 19,800
May	- 27,000	December	- 11,400
June	- 19,800		
July	- 29,000	Total	- 254,800

2. Outdoor Classrooms - Students

Area school students ranging from pre-school to 12th grade continue to utilize the resources available at Montezuma. These resources include the VCS/Auditorium, Esker Brook Nature Trail, auto tour route, three designated environmental education sites and, of course, films and loaned biological equipment. Our year end counts show that 2,742 students spent 5,588 activity hours on the refuge. 47 programs regarding Montezuma Refuge and the refuge system were

presented in the VCS by staff members--primarily our temporary and volunteers. Most of the teachers (who are veterans of refuge workshops) spent time at one of the designated EE sites with their classes.

During January, February and March, a great deal of time and effort was spent visiting schools and presenting programs to students in grades K-6. 106 presentations were made to 2,335 youngsters; this represents 2,809 activity hours. These off-site visits provide students an opportunity to gain an understanding of the national wildlife refuge system. More importantly, the effort was viewed as an adjunct to mini-workshops to reach teachers unfamiliar with refuge programs.

All of these presentations revolved around the central theme of Endangered Species. The success of our efforts were witnessed in the spring when many teachers brought their classes to the refuge for the first time. Returning (refuge veteran) teachers came with students better prepared for their outdoor classroom experience.



"Ivory, gator and crocodile" examples of endangered species parts used in school program by Recreation Assistant Adie.
(Davis 84-10)

Counties represented in school programs either on- or off-refuge are as follows:

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

As in previous years Montezuma Refuge continues to receive requests from area colleges for various programs relating to resource management. These include:

38 - College of Environmental Science and Forestry of the state University of New York. Four hour seminar for wildlife management class (Hocutt).

24 - Cornell University Bird Club (Secatore)

3. Outdoor Classrooms - Teachers

An environmental education workshop was held for 14 people on May 12. Nine of the participants were teachers representing eight school districts. The others were local people interested in the refuge (one woman was a "home teacher", teaching her children in their home until the 4th grade). Two of the participants have become very important volunteers for us.

The May workshop was based on a teaching unit about bird biology that was developed by Recreation Aid Adie for elementary teachers. Although the entire day was threatened by severe thunderstorms we were able to accomplish three hours of indoor training and three hours of field experience. Refuge Manager Hocutt, ORP Davis, and RA Adie participated in the workshop.



Participants of Bird Biology Workshop.
(Davis 84-11)

Because of interest generated by our advertising for the teacher workshops a "Family Environmental Education Workshop" was planned for October 7. ORP Davis spoke to the whole group on refuge history. Manager Hocutt addressed the adults on the hows and whys of migration. RA Adie and Maintenance Worker Gingrich conducted an outdoor exercise for smaller children to promote an understanding of migration. Refuge Mechanic Flanders taught both groups the basics of waterfowl identification. Afterwards the group ventured out into the refuge to put some of their new found knowledge to work. Forty-six people (adults and children) attended this successful daylong event.



RA Adie and Maintenance Worker Gingrich busy "entertaining" the young folks during refuge Family Workshop. (Flanders 84-12)



"Is it real? Can I touch it?" Maintenance Worker Flanders demonstrates the technique of banding during Family Workshop. (Davis 84-13)

Several mini-workshops for teachers were conducted throughout the year as groups of teachers from various school districts requested help in learning how to blend the resources at Montezuma into their expanding science curriculum. A total of 72 teachers and administrators invested 315 hours in these offerings.

Montezuma's Environmental Education Advisory Board met twice throughout the school year. This group is comprised of teachers and principals interested in quality E.E. programs. The topic for this year centered around an environmental education curriculum which was developed by board member Chet Crosby.

Advisory Board Members for 1984 were:

Bonnie Crosby, 2nd grade teacher, Frank Knight Elementary School, Seneca Falls, New York
 Sandy Warn, 1st Grade Teacher, Waterman Elementary School, Skaneateles, New York
 Tom Klink, 4th Grade Teacher, Owasco Elementary School, Auburn, New York
 Chet Crosby, 6th Grade Teacher, Seneca Falls Intermediate School, Seneca Falls, New York
 Chuck Battaglia, Principal, Skoi-Yase Elementary School, Waterloo, New York
 Millie Cefferatti, 2nd Grade Teacher, Owasco Elementary School, Auburn, New York
 Ruth Whetly, 1st Grade Teacher, Smith Elementary School, Union Springs, New York

4. Interpretive Foot Trails

The Esker Brook Trail continued to receive attention during the reporting period. YCC enrollees spent two weeks making needed improvements to the trail. This work included the replacement of two bridges, spreading of woodchips and trimming back branches and shrubs. This two mile trail continues to be a delightful break for young and old from the confines of the automobile.

5. Interpretive Tour Route

The self-guiding auto tour route begins at the visitor contact station, traverses the Main Pool dike for 3.5 miles, and terminates at the Tschache Pool Tower. This is the major attraction for refuge visitors. An interpretive guide exists to increase the awareness of visitors. New signs (courtesy of Sierra Club/Philips ECG) have been placed along the tour route. These correspond to the guide booklet. In addition to

driving, visitors may walk or ride bicycles along the route. During winter months when the tour route is closed due to ice and snow, cross-country skiing is encouraged along refuge dikes.

6. Interpretive Exhibits/Display/Demonstrations

Montezuma Refuge received many requests from area organizations to set up displays off the refuge. This gave us an excellent opportunity to utilize the three panel Duck Stamp Display that was made available last summer.

ORP Davis and Adie prepared and installed educational, window-type displays at the following locations (usually left up for one month):

Plane's Vineyard, Ovid, New York
 Lincoln First Bank, Seneca Falls, New York
 Mynderse Library, Seneca Falls, New York

On March 2, Davis and Adie travelled to Albany to set up a diorama-type display for the International Fish and Wildlife Exposition. Ron Dodson, National Audubon Society, invited the refuge to participate in this weekend event. Well over 31,000 people actively viewed the exhibit.

At the request of the New York State Board of Regents, Davis and Adie set up a display in the Syracuse War Memorial for the Board's Bicentennial Celebration. The display, while interpretive in nature, concentrated on careers in FWS. Davis and Adie stayed throughout the day to speak to students representing schools from all over New York State. Over 1,000 youths participated in this celebration.

At the request of the Cayuga County Federation of Sportsmen's Clubs a display was set up at the Finger Lakes Mall in Auburn, New York, for the annual Hunting and Fishing Day Celebration. Adie and Davis spent a portion of the weekend greeting people and selling Duck Stamps.

7. Other Interpretive Programs

During CY84, Montezuma continued to receive many requests for programs from civic groups off the refuge. These groups included:

Waterloo Rotary Club, Waterloo, New York - 29
 Auburn Torch Club, Auburn, New York - 27
 Lions Club, Union Springs, New York - 35
 Phi Beta Psi Chapter, Waterloo, New York - 28

Union Springs Senior Citizens, Union Springs,
New York - 52
Cayuga Senior Citizens, Cayuga, New York - 50
Science Museum Garden Club, Rochester, New York - 23
Cayuga County Senior Citizens, Cayuga, New York - 85
Mynderse Library Annual Board Meeting,
Seneca Falls, New York - 32
Interlaken Garden Club, Interlaken, New York - 18
Waterloo Senior Citizens, Waterloo, New York - 27

RA Adie presented programs for these organizations that featured a slide show developed about Montezuma.

On-site programs were presented to Girl and Boy Scouts, senior citizens, and several area bird clubs by Adie, Davis, Secord, former Assistant Manager Bob Secatore, and volunteers Karen and Francis Kelley. These groups totalled 550 people representing 1,375 activity hours.

Maintenance Mechanic Steve Flanders and Volunteer Kevin Colton taught two Hunter Safety Training Programs during the month of September. The courses were taught in two parts with 71 persons attending both courses. Steve also taught three New York State Waterfowl Identification courses at the VCS during the early fall. Ninety-seven persons attended these courses.

An effort was made to provide quality adult education programs. These programs were held on Wednesday evenings in the refuge auditorium. The series was very well received. Programs and speakers were as follows:

February 15 - Susan Cantor, part-time Biological Technician at the Yukon Delta National Wildlife Refuge spoke on "Birds of Alaska" (65 persons).

June 6 - Rick Bonney, Associate Editor of the Living Bird Quarterly, Laboratory of Ornithology, Cornell University, spoke on "Northeastern Birds of Prey" (42 persons).

September 26 - Greg Budney, Assistant Curator, Library of Natural Sounds of the laboratory of Ornithology, Cornell University, presented a program, "Bird vocalizations and Recording Techniques" (42 persons).

October 23 - Mike Hopiak, freelance photographer, Ithaca, New York, shared slides of his work as well as tricks of the trade in wildlife photography (80 persons).

November 28 - Grey Larison, freelance cinematographer, showed his two films on the Bald Eagle Hacking program at Montezuma National Wildlife Refuge (40 persons).

Throughout the year, several TV and radio stations and newspaper reporters visited the refuge. Larry Davis met with the PBS station WXXI-TV from Rochester, New York in March. This station was specifically interested in "hot spots" for birding. Davis also met with ABC affiliate WROK-TV from Rochester, NBC affiliate WSTM-TV from Syracuse, UPI reporter Dave Armond, and several reporters from local newspapers. RA Susan Adie gave a live, interpretive tour of the refuge to a Seneca Falls radio station, WSWF-FM, in their mobile transmitting unit. This live program is aired at noon-time.

Twenty-five news releases concerning public use, environmental education activities, management programs, etc. were sent on a regular basis to most area newspapers.

Three organizations requested and were granted use of the auditorium in the VCS. The New York State Chapter of the Sierra Club held a regional meeting on 4/14/84 in the VCS. The National Audubon Society held their annual Upstate Council Meeting on October 13, 1984. On October 27, the Owasco Valley Audubon Society used the refuge for one of their weekend "Outdoor Education for Youths" programs.

On Saturday, May 19, Scout Troop 72 from Waterloo, New York, came to the refuge for a day of volunteer services. First the whole group had a presentation in the VCS/Auditorium given by Susan Adie. They then spent three hours policing garbage along the auto tour route. A good time was had by all. A lot of garbage was picked up and a picnic lunch followed near the Main Pool with Canada geese honking in the background. This activity helped 39 boys receive credit toward a conservation badge. They also learned that trash is a symptom to a much larger cause. A total of 52 people were part of the activity.

At the request of Tony Ingraham, Regional Naturalist for the Finger Lakes State Parks and Recreation Administration, Adie presented eleven programs at various state parks throughout the summer of 1984. These programs reached 517 people, some of whom were visitors to the region. This same program was presented on four occasions to Camp Gregory (a

resident summer camp) in Aurora, New York. One hundred and twenty elementary age children saw these presentations.

On May 15, Adie presented a program, "Birds of Prey", to 260 Seneca County sixth graders during Conservation Field Days. This year's program, organized by Al Woodard of the 4-H Division of Seneca County Cooperative Extension Service, was held in Sampson State Park on Seneca Lake.

8. Hunting

The refuge managed waterfowl hunt attracted 438 hunters in 1984. It was a very successful year for the hunters who managed to bag 723 birds - 616 ducks and 107 geese. This represented a success ratio of 1.65 birds per hunter day, the best average take during the 20-year history of the hunt. It exceeded by a wide margin the 1.2 birds in 1982, the second best year. This increase in take can perhaps be attributed to better hunting practices by the hunters and larger concentrations of birds. There were more "blue bird" days than "typical" blustery, overcast days which are supposedly preferred by "true" duck hunters.

The annual Young Waterfowlers Training Program was held on Sunday, September 30. Eighteen young adults participated in this year's program. Instructions in waterfowl biology, decoys, retrievers, shot patterns, bird identification, etc. were provided by area sportsmen and refuge staff. Sponsors were 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. The YWTP Hunt day was held on Sunday, October 14. Fifteen young folks participated in the hunt. The take for the hunt was four geese and nine ducks. Hocutt, Secord, and Davis assisted with the program.



"A full house!" Participants and family pose for a "class photo" after Young Waterfowlers Training Program Field Day. (Davis 84-14)



"And what's my highest bid?" Manager Hocutt discussing waterfowl ID during YWTP Field Day. (Davis 84-15)

The refuge deer archery season got underway on November 1 and ended December 11. During the 29 day archery season, 2,053 hunters took 78 deer--38 bucks and 40 does for a success ratio of 4%. This is almost identical to the statewide archery kill. The hunt did nothing to dispel the "trophy hunt" image; we know of a 12-point and two 10-point bucks that were taken.

1984 was the second year for the permit system which requires all hunters to check in upon arrival and check out after their hunt. This self-service system utilizes a two-part daily hunt card. It not only is working well, but enjoys the firm support of statewide archery associations.



"Standing room only (for cars, that is)"
Just one of several full parking areas
on opening day of deer hunt. (Flanders
84-16)

The small game hunt is a small program which results in very few people during the harsh winter months. Fewer than 200 individuals participated. Species hunted were cottontail, squirrel, raccoon, and fox.

9. Fishing

Fishing continues to be the largest consumptive recreational activity on the refuge. 18,700 persons continued to utilize the four fishing sites at Montezuma during 1984. 56,400 activity hours were expended in hopes of brown bullheads, northern pike, crappie, and white bass.

10. Trapping

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

11. Wildlife Observation

Wildlife observation continues to account for the bulk of activity at the refuge. Included in this category were the 26,500 plus vehicles which annually travel the auto tour route. This also includes the visitors who walk the seven miles of dikes. Photographers (professional and amateur) continue to utilize these areas for excellent photographic opportunities. We encourage weekday use as opposed to weekend visits and stress early morning and late afternoon hours as best for viewing wildlife.

17. Law Enforcement

Several warning letters were issued. A few cases (minor in nature) were pursued through state courts or forfeiture of collateral. Strong emphasis was placed upon high visibility of refuge personnel and the eternal search for better ways to inform, sign, and otherwise do preventive law enforcement.

I. EQUIPMENT AND FACILITIES

1. New Construction

No major new construction was begun this year. The BLHP program left us with new visitor and administrative facilities. The next major construction will be new impoundments and water control structures. Since the comprehensive water management plan is still being written, we do not anticipate this construction to begin for two or three years.

Several small projects were undertaken, largely by refuge staff and are listed below:

- a. The refuge fuel facility was improved by adding a concrete apron around the pumps and covering them with a roof.
- b. A concrete wash pad was poured near the maintenance building.
- c. Station number signs, donated by the Sierra Club, were erected along the tour route.
- d. A display depicting the history and importance of duck stamps was constructed.
- e. An access road was constructed to the main pool banding site with 192 tons of crushed bank run gravel.
- f. To provide a safe entry onto highway 89, a 100 foot by 15 foot blacktop apron was added to the end of the auto tour route.

2. Rehabilitation

Rehabilitation projects were more significant than new construction. With \$140,000 in ARMM funding bankrolling most of our efforts, we completed the following projects:

- a. Approximately 3,000 feet of May's Point dike were filled and resloped to a 3:1 grade. To test muskrat resistance one third was riprapped, one third covered with chain link fence, and one third covered with plastic mesh. The results of the testing will be important in planning new dike construction. Contract price for this project was \$58,000.



The new "gas station" is handsome, functional and SAFE! Courtesy of Messrs. Norsen, Flanders and Gingrich. (Dewey 84-17)



100 feet of blacktop has made a real difference in maintenance at the Rt. 89 end of the tour route. (Dewey 84-18)



3,000 feet of May's Point Pool Dike
were resloped and treated to muskrat
prevention facings. This one is
good, old fashioned rip-rap and...
(Dewey 84-19)



...these two are
galvanized fence
wire and nylon
mesh. (Dewey 84-20)

- b. A \$6,200 contract was issued for the restraining of the office, contact station, and maintenance building. The contractor appeared to have a fair amount of experience with these small government contracts. However, the local help hired to do the actual work was most charitably described as "a motley crew of minimal talent". The contract was cancelled when snow began to fall leaving the contact station and the trim on other buildings to be completed in the spring of 1985.
- c. The refuge residence was rehabilitated with interior painting, a new pump and pressure tank, a new overhead garage door, and a functional television antenna.
- d. Rehabilitation of the fur house (lab and storage facility) consisted of new doors and a water system including new pump, tank, waterline and sink.
- e. New overhead doors and side entrance doors were installed in the old shop building.
- f. Lock sets on all old buildings were changed to match the keying program of the BLHP buildings.
- g. New thermostats were installed on the electric heaters in public restrooms.
- h. The deteriorated and leaking water control structure and culvert on the north side of Main Pool were removed and replaced with 40 tons of compressed clay.
- i. A steel catwalk was built for the May's Point water control structure to enhance safety while adjusting stop logs. At the same time the badly deteriorated screw gate shaft was repaired.
- j. New 12" culverts replaced two old collapsed ones on the auto tour route.
- k. The washed out dike on one of the Esker Brook ponds was repaired and two 24" culverts were installed to handle overflow.

3. Major Maintenance

- a. Road grading was done, as needed, for 9.5 miles of road on Tschache, May's Point, and Main Pool dikes.

- b. Dangerous curves on the entrance road were improved by adding 110 tons of fill to improve the shoulders.
- c. The entrance road, headquarters parking lot, and visitor contact station parking lot were surfaced with 288 tons of crusher run stone and stone dust.
- d. The connecting channel at the north end of Main Pool was cleaned to provide greater water circulation.
- e. Grassland management units I, IVa and IVe were mowed, as were 20 miles of dike slopes.

4. Equipment Utilization and Replacement

In early 1983, work was completed on the rebuilding of our old 1951 D-4 dozer. The diesel and gasoline engine was rebuilt, and parts acquired from Iroquois' old D-4 were used to repair the track and undercarriage. A safety inspection later determined that the Roll-Over Protection System (ROPS) was insufficient for the machine, and it was grounded. At the same time, our need for a backhoe increased with a backlog of projects, so this year with a little horsetrading we exchanged our rebuilt dozer for the seasonal use of a Case backhoe from Iroquois. They installed an approved ROPS on the D-4. Upon receiving the backhoe from Iroquois, it was found that it did not have a ROPS in the cab, so an approved ROPS was purchased by Iroquois and installed by our maintenance staff.

In June, our aged 1943 Bucyrus-Erie dragline was rejuvenated to provide another season of work. The drag and lift cables were replaced, engine tuned up, new seat with seat belt installed, bucket clevises and teeth replaced, and a cable snap cage installed around the operators cage.

Along with regular vehicle maintenance and safety inspections, the following were performed on our fleet:

- a. 1980 Dodge - hydraulic plow pump replaced and heavy duty shocks installed.
- b. 1980 Luv - heavy duty shocks installed, rust spots filled and body repainted.
- c. 1979 Volare - carburetor rebuilt and battery replaced.

- d. 1982 Dodge - clutch plate, pressure plate, and throw-out bearing replaced.
- e. 1977 Dodge - front drive shaft, rear brakes, and front axle U-joints replaced, rust spots filled and body repainted, used rear end was installed.
- f. 1984 K car - rustproofed; radio, public address system, and emergency lights installed.
- g. Airboat - left starting magneto replaced.
- h. Tag-along trailer - deck boards replaced and body repainted.

The following is a list of new equipment purchased in 1984:

- a. John Deere 550 wide track bulldozer (FY83 funds)
- b. 1984 Reliant K-car wagon (replaced 1977 Volare)
- c. 200 gallon Wajax slip-on pumper (installed on trailevator trailer with hand fire fighting tools)
- d. 10 inch centrifugal power take off trailer pump
- e. Hockney weed cutter boat for loosestrife control
- f. 6 tooth scarfier for the John Deere 570 A grader
- g. Two 3/8 inch reversing hand power drills
- h. Drafting table
- i. 5 ton port-a-power
- j. 22 inch side discharge push mower
- k. 7.5 foot western snowplow blade (replaced 1972 model)

6. Computer Systems

The refuge's Digital Rainbow 100 computer system arrived in January. After some initial confusion and software exchanges, we managed to begin work by mid-summer.

As expected, much of the initial use has been geared to word processing and tracking our refuge budget. We are just beginning to investigate the potential value of electronic mail.

7. Energy Conservation

Needed modification to BLHP building were completed in 1982 and 1983, and so there is little to report this year. We did install thermostats on the electric heaters in the public restrooms and replaced one gas guzzling Volare with a Reliant wagon. There has not been sufficient time to determine how great the savings will be.

J. OTHER ITEMS

2: Other Economic Uses

One commercial fishing permit was issued for the removal of carp. The permittee removed 43,950 pounds of carp, at a rate of \$.03 per pound. These fish were removed from the barge canal side of our water control structures, and did not effect the populations in the impoundments.

3. Items of Interest

Secatore met on January 17 with representatives of New York State Electric and Gas (NYS E&G) to discuss on-going negotiations to have them take their large Bombardier tracked snow vehicle onto the Tschache Pool to install poles for osprey and eagle study platforms. Arrangements were also in place to provide a smaller, cab-over snow machine to transport media to the site. Unfortunately, NYS E&G decided at almost the last minute to not take their \$850,000 machine onto the ice. We are again looking at air drops of poles by a New York State National Guard unit with helicopter lift capability.

On April 16, Hocutt was presented a Certificate of Appreciation for Meritorious Service by New York State Department of Environmental Conservation (NYS DEC). Commissioner Henry Williams and R8 Regional Director Eric Seiffer made the presentation at a R8 gathering in Avon, New York. The recognition was for work with the landfill, refuge programs and for continued support of NYS DEC programs. Mr. and Mrs. Hocutt attended a luncheon in Rochester with Commissioner Williams, Mr. Seiffer and three DEC employees (and their wives) who were recognized at the ceremony.

The tractor safety session for R5's heavy equipment training was held at Montezuma. Steve Flanders, our Maintenance Mechanic, is one of three instructors regionwide. His efforts as an instructor and in managing the considerable logistical details of this assignment represented a significant and sterling work effort.

Maintenance Mechanic Mel Norsen was again designated by EN as on-site inspector for the contract rehabilitation (\$58,000) of the May's Point dike. As in the past, Mel's experience as a contractor allowed work to flow smoothly and relieved much staff time for other duties.

Hocutt spent July 31 and August 1-2 as team leader* of the Great Meadows National Wildlife Refuge Evaluation Team.

On September 29, Hocutt invited Congressman Frank Horton's Rochester office staff to visit for a morning. Delores Rose, Mary Pat Fitzgerald, Sheila Barker and Karen McCarthy enjoyed a complete tour and also learned about refuge operations and problems. They also participated in a hands-on duck banding seminar that Hocutt conducted for a class from the College of Environmental Science and Forestry, SUNY at Syracuse.

On December 6, Hocutt was presented the 1984 Outstanding Wildlife Professional award by the New York State Chapter of the Wildlife Society at the group's annual convention in Utica, New York.

1984 was a pivotal year for the refuge's complex and often frustrating involvement with the Seneca Meadows Landfill (SML). The landfill, seven miles upstream of the refuge, is bisected by Black Brook, the refuge's major source of water. Their three year operating permit (1981-1984) expired on July 13. The landfill is operating under a Continuation while intensive negotiations are under way to shape conditions for a new five year permit. Meanwhile, U.S. Environmental Protection Agency completed the Phase I Superfund study and ordered the landfill to enter Phase II during July 1985. US EPA has estimated that a minimum of 143,000 tons of hazardous and toxic materials are landfilled in the old south site. This was the FWS contention throughout the long hearings in 1980-81. The new owners, DiMino Construction Company (Rochester, New York) have been extremely cooperative and have completed prodigious amounts of backlogged construction work. NYS DEC now considers SML a "model" operation and uses it for various public relations ventures. At year's end, it became known that Syracuse and Onondaga County would begin using SML on August 1, 1985. FWS work with NYS DEC regarding new permit conditions continued throughout the year with emphasis upon sediment and water testing protocols.

The Seneca Meadows Landfill picture was confused somewhat when Seneca Waste Management, Inc. owned by Mr. Hymen Klionsky of Seneca Falls, determined to renew and activate the dormant site immediately adjacent to SML. Mr. Klionsky's permit for an industrial waste site goes back to 1977, although he has not worked the location. NYS DEC decided in 1984 to treat his application as a new permit. USFWS objected to the permit in the absence of extensive

hydrogeologic exploration of the site which would drain through SML and into Black Brook. Mr. Klionsky plans to landfill foundry sands. Depending upon their source of generation, these materials are often very high in heavy metals, phenols and other organics. FWS held several meetings and discussions with NYS DEC and with Mr. Klionsky and his consultants and attorneys. Along with NYS Senator Paul Keogh, Congressman Frank Horton's office has become very involved in the issue; Hocutt has held numerous discussions with Donald Upsom, the Congressman's Executive Assistant. At year's end, it appeared that the matter was headed for a NYS DEC administrative law public hearing.

If 1984 wasn't already difficult enough, the refuge embarked in October on a comprehensive planning effort to attack the long-delayed (and often denied) problems associated with restoring biological viability to the refuges two, 1,500 acre marshes. The plan is scheduled for completion by June 30, 1985. It will encompass full objective setting for marsh and water management. It will attempt to isolate and resolve conflicts and establish an ordered sequence of mileposts to attain the desired objectives. Refuge staffer Anne Secord heads a core team comprised of Messrs. Gavutis (AWR-C/RO), Westerling (EN/RO), Laffin (AWR/RO), Hocutt and Benvenuti. Bill Kappel (USGS/Ithaca) and Paul Hamilton and Doug Ryan (FWS/Cortland) complete the group. Three series of meetings of the team were held during the October-January period. At year's end, designees to the group were being sought from New York State Department of Transportation (Barge Canal Division), NYS DEC, New York State Thruway Authority and New York State Department of Transportation (Highways Division).



Among the many needs of the Water Management Plan are those of trying to deal with grossly eutrophic conditions (i.e. May's Point sediment). (Dewey 84-21)



Enjoy CCC handiwork; also view the bottom of Tschache Pool as it rests on the bottom of May's Point Pool. (Dewey 84-22)

Training in 1984 included:

- Adie - "Heavy Equipment Training"
Montezuma National Wildlife
Refuge, 6/8/84
- Benvenuti - "FWS-LE Refresher Training"
Erie National Wildlife Refuge,
4/16-20/84
- Davis - "A-76 Conference"
Regional Office, 2/21-24/84

"FWS-LE Refresher Training"
Great Meadows National
Wildlife Refuge, 5/14-18/84
- Flanders - "FWS-LE Refresher Training"
Erie National Wildlife Refuge
4/16-20/84

"Heavy Equipment Training Workshop"
Boise, Idaho, 1/13-15/84
- Gingrich - "Heavy Equipment Training"
Montezuma National Wildlife Refuge,
6/8/84
- McMahon - "PAY/PERS Training"
Regional Office, 3/29-30/84
- Norsen - "Heavy Equipment Training"
Montezuma National Wildlife Refuge
6/8/84
- Secord - "Heavy Equipment Training"
Montezuma National Wildlife Refuge
6/8/84

"Bird Banding Workshop"
Middle Creek, PA, 8/14-16/84

Courses taught:

Steve Flanders taught the "Heavy Equipment Training" course at Montezuma during the period of 6/6-8/84. Thirty-seven people from field stations within Region 5 attended.

3. Credits

Typing - Hegerty
Climatic Conditions - Dewey
Planning - Hocutt, Secord, McMahon
Administration - Benvenuti, Hocutt, Secord, McMahon
Habitat Management - Secord, Gingrich
Wildlife - Benvenuti, Dewey
Public Use - Davis, Adie
Equipment and Facilities - Benvenuti, Flanders, Norsen, Dewey
Other Items - Hocutt
Feedback - Hocutt
Editing - Hocutt

K. FEEDBACK

1. In the minds of some, the "comparable worth" argument is a specious one. Certainly, it is fraught with unknown (and perhaps unknowable) variables. However, within FWS, there is one area in which we could resolve some of the inequities that have led to the "comparable worth" debate. Our "secretaries" (clerk-typists, administrative clerks, fiscal clerks--even labeling them has become an exercise in schizophrenia) work in a support role that demands modernization.

Aside from the "no-win" comparable worth argument, a serious question must be asked about the organizational wisdom of maintaining highly skilled folks for 10, 15 or 20 years at grades GS 4, 5 and occasionally 6. It must be remembered that these people are assisting and advising GS 11, 12 and 13 project leaders about increasingly complex matters involving policies and skills as diverse as budgeting, finance, procurement, property management, personnel, office management, computers, typing and filing, public information, record keeping and so forth.

In most private businesses (and many government agencies), persons possessing these skills would certainly be the monetary and titular equivalent of Administrative Aide (GS-7) or Administrative Assistant (GS-9). Most of us would agree with the need to free managers to manage and to also develop (by a variety of means) administrative support people to handle administrative functions and specialties.

Without in any way denigrating the important roles of laborers and entry-level maintenance workers, one really should study the following table showing entry-level laborer salaries with "typical" salaries for highly skilled "secretaries". It seems likely that this entire matter is more of a management efficiency problem than an "equal worth" one.

			*
GS-01	\$ 4.47	WG-01	\$ 6.61
GS-02	5.03	WG-02	7.04
GS-03	5.49	WG-03	7.46
GS-04	6.16	WG-04	7.93
GS-05	6.90	WG-05	8.35
GS-06	7.69	WG-06	8.82
GS-07	8.54	WG-07	9.26
GS-08	9.46	WG-08	9.71
GS-09	10.45	WG-09	10.16
		WG-10	10.62

*Rochester, New York based rate.

2. We have been encouraged to use the normal distribution curve (NDC) as a "model" for assigning summary level ratings of performance standards. There are reasons to suspect its (1) scientific validity and (2) its motivational (or practical) price tag. Among the problems are these:

a) The two primary violations of probability theory in the use of the NDC theory in behavioral sciences are (1) too small a sample and (2) dissimilar criteria.

1. We violate (1) by using 5-15 people as our "universe"

2. We compound the first error by lumping managers, biologists, maintenance people, public use people and administrative people as if the entire 5-15 folks represent a homogeneous, normally distributed, discrete sample.

b) Neither "universe" nor sample standard deviations have ever been plotted (nor will they ever be probably) for skilled work of a relatively intangible nature which involves a high level of motivation or a relatively high degree of independent judgement. Certainly, behavioral scientists would not agree that these constructs arose from, or combine in the same proportions as, the throw of a die or simple chance distributions.

c) Almost always, use of NDC in behavioral science requires the use of at least 10-12 class intervals to avoid hopeless magnification of sampling error. In essence, we use three(!)-- Levels II, III and IV.

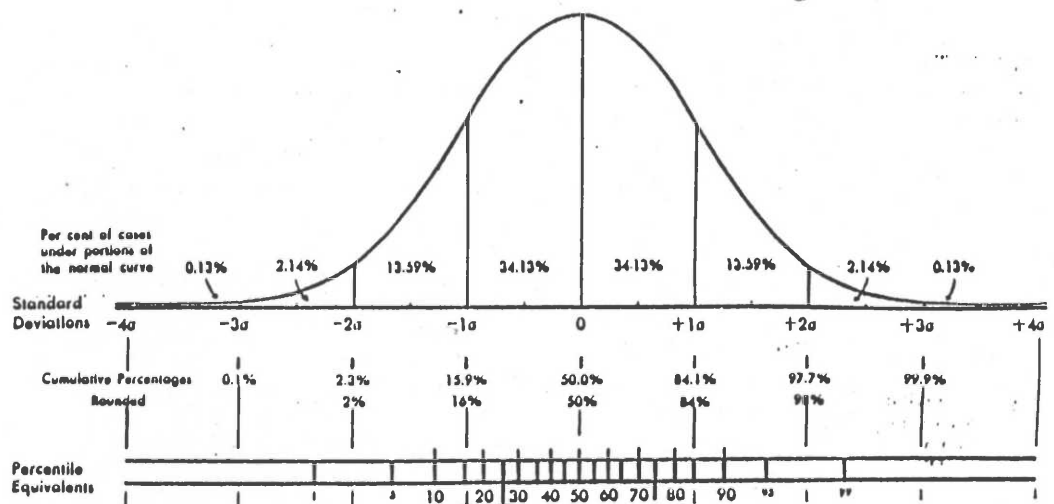
d) The USFWS and the NWRS "universes" are already skewed against use of the NDC since we have highly selected "samples". The NDC is based upon the mean and means (unlike the median) are influenced by extremes. Without any doubt, recruitment and competition (and dedication) pull the NWRS far to the right. It is a statistical impropriety to attempt to artificially put the other "tail" on the curve.

e) Valid behavioral theory requires that we measure performance as best we can and allow the "plots" to fall wherever they will on the NDC. It is statistically and behaviorally

invalid to "pre-assume" the "curve" and to then superimpose plots in such a manner as to "meet" the "curve".

- f) Certainly, we are faced with OPM constraints. Many of these are proper. However, many of the excesses that have sprung up around performance standards could be alleviated by relaxing the insistence that a region or a zone or a refuge must "fit" a NDC. Continued refinement of performance standards is necessary--especially in view of just what encompasses "fully satisfactory" and "exceed fully satisfactory". This should be worked out on a refuge-by-refuge basis between the zone supervisor and the project leader.
- g) Finally, we should not forget exactly what a NDC really is--and that a Level III encompasses one standard deviation above and one standard deviation below the mean. 68% of all of our employees "should" fall there--between the 16th and the 84th percentile!?! The lack of precision in this method should cause all of us (as trained biologists) to search for a yardstick with greater sensitivity and validity.

It should be clear that this great "leveler" creates more damage to the motivational process than almost anything we could devise. The resource would be better served if we devised motivationally sound rating methods--or at least ameliorated the use of one that is stigmatic and could be perceived as punitive.





MONTENZUMA
NATIONAL WILDLIFE REFUGE

**ENVIRONMENTAL
EDUCATION
EDUCATION
EDUCATION
EDUCATION
EDUCATION**

MONTEZUMA NATIONAL WILDLIFE REFUGE



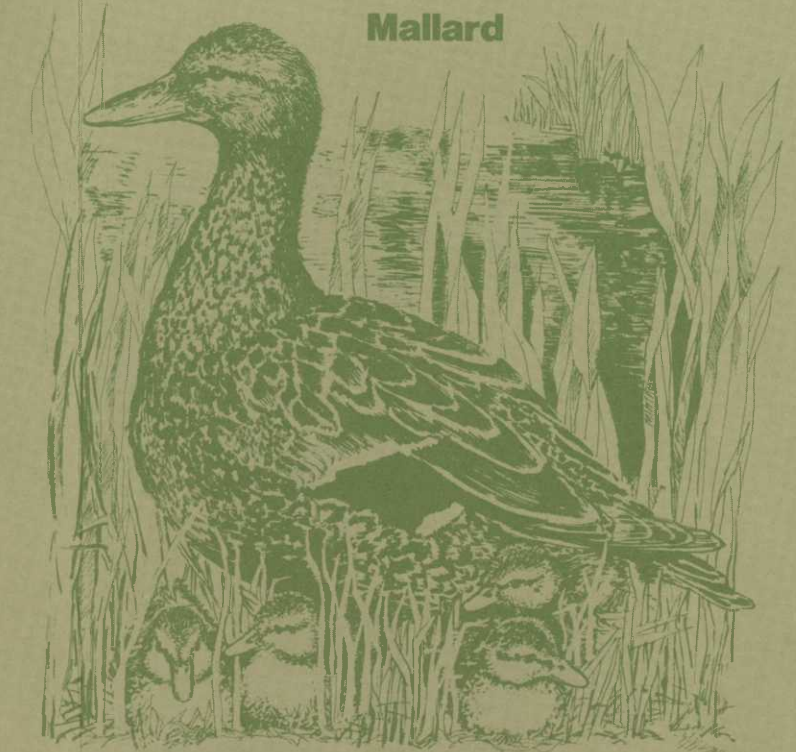
Bald Eagle



Muskrat



Great Blue Heron



Mallard

ENVIRONMENTAL
EDUCATION
EDUCATION
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EDUCATION
EDUCATION
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 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.

SUBHEADQUARTERS



ENVIRONMENTAL EDUCATION EDUCATION EDUCATION EDUCATION EDUCATION

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.

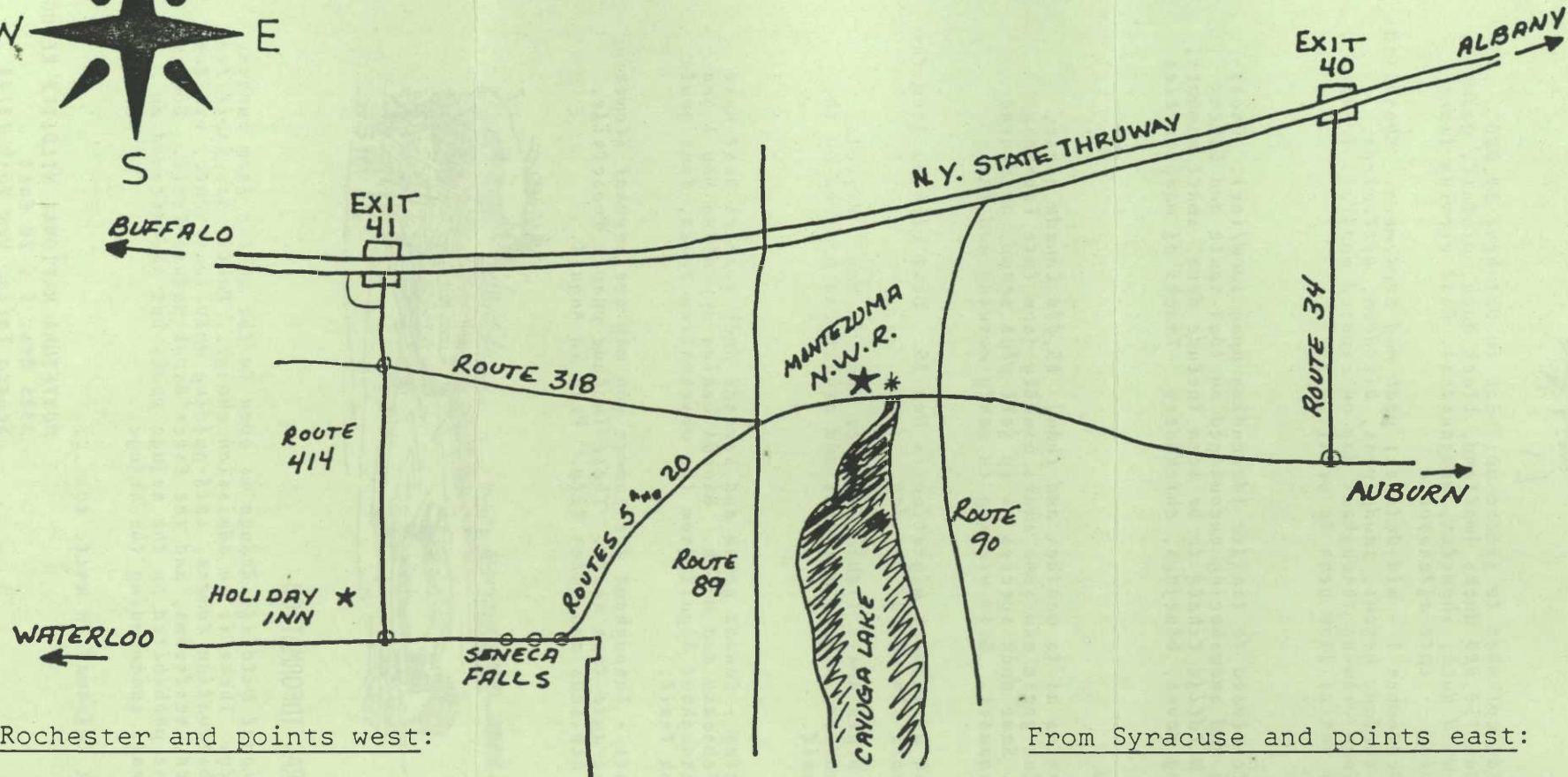
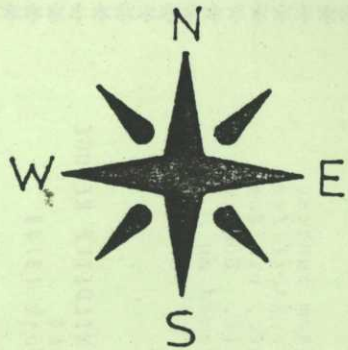


prepared by
DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

August 1979

DIRECTIONS TO MONTEZUMA NATIONAL WILDLIFE REFUGE

3395 Routes 5/20 East
Seneca Falls, New York 13148



From Rochester and points west:

Take Thruway to Exit 41.
Turn right onto Rt. 414, continue to first stop light.
Turn left on Rt 318; travel to end at Rts. 5 & 20.
Turn left on 5 & 20. Refuge is about 1 mile with entrance on your left.

○ traffic light
* refuge entrance

REFUGE TELEPHONE NUMBER:

315-568-5987

From Syracuse and points east:

Take thruway to Exit 40.
Turn right on Rt. 34 and follow this to Auburn.
Turn right on Rt. 20; this will become Rts. 5 & 20. Follow this route through Auburn. The refuge is 10 miles west of Auburn. The entrance is on the right, after Rt. 90.

Calendar of Events

MONTEZUMA
NATIONAL WILDLIFE REFUGE

Seneca Falls, New York



FALL MIGRATION

WATERFOWL - Mid-September to freeze-up; peak in October: 50,000 Canada geese and 150,000 ducks (mallard, black duck, pintail, gadwall, wigeon, teal, wood duck, shoveler, mergansers). Best viewing times are early morning -- late afternoon.

SHOREBIRDS - September 1 - mid-October; peak mid-September. Shorebirds commonly seen include herons, sandpipers, killdeer, yellowlegs, dowitchers. Good viewing throughout day on exposed mudflats (extent of these areas varies from year to year).

WINTER

Auto tour route closed to traffic (depending upon snow/ice). Cross-country skiing and snowshoeing encouraged on tour route and Esker Brook Trail. Wildlife likely to be seen include deer, small mammals, gulls, mourning doves, bluejays, chickadees. Tracks of many species evident.

SPRING MIGRATION

WATERFOWL - Varies as to weather and thaw. 85,000 Canada geese, 30,000 snow/blue geese and some swans usually from late February through April. Same duck species as in fall plus scaup, goldeneye and common merganser. Best viewing in early morning and late afternoon.

Warblers - Peak of warbler migration is May 15. Best viewing from the Esker Brook Trail throughout the day.

Wildflowers - Begin April 1 through June; peak in May. Violets, mayapple, bloodroot, vetch, mustards and others can be seen on the Esker Brook Trail.

SUMMER

Waterfowl Nesting - Canada geese and several duck species nest here beginning in February and March. Broods begin appearing May 1 and can be seen throughout August from the observation tower, tour route and Esker Brook Trail.

Flowering Plants - Throughout the summer you may see several flowering plants from the auto tour route. These include purple loosestrife, winter cress, hibiscus and water lily. Peak in August.



GENERAL INFORMATION!!

Montezuma National Wildlife Refuge is open to the public from sunrise to sunset daily. There is no admission charge. Public use facilities include two observation towers, self-guiding auto tour route, visitor contact station, restrooms, and the Esker Brook Nature Trail. Boating and fishing are prohibited on the refuge pools but are allowed on rivers and canals surrounding the refuge.

For additional information write to:

MONTEZUMA NATIONAL WILDLIFE REFUGE
3395 Rts. 5 & 20 East
Seneca Falls, New York 13148
(315) 568-5987

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 area for ducks, geese, and many water birds and songbirds. This Refuge contains 6,334 acres of widely diversified habitat, from extensive marshes to upland hardwoods. Refuge objectives include providing food, rest, and protection for spring and fall migrations and providing for wildlife-oriented recreation.

Public uses include a five-mile self-guided automobile tour around the Main Pool, a three-mile hiking trail and opportunities to fish, take pictures, and eat a picnic lunch near the Refuge Headquarters.

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 the establishment in 1937. Please report any sightings of birds that are not included in this list to the Refuge Manager.



Most birds are migratory, therefore 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.

LOONS - GREBES - CORMORANTS - HERONS - IBISES

s S F W

___ Common Loon.....o o
___ Red-throated Loonr

___ Red-necked Greber r
___ Horned Grebeo o
___ Pied-billed Grebe†c c c

___ Double-crested Cormorant.....o o o

___ Great Blue Heron.....c c c o
___ Green Heron†o c o
___ Little Blue Heronr r
___ Cattle Egretr r
___ Great Egret.....o c o
___ Snowy Egret.....r
___ Black-crowned Night Heron†o c c
___ Least Bittern†o o o
___ American Bittern†c c c

___ Glossy Ibis.....r r

SWANS - GEESE and DUCKS

___ Mute Swano o o o
___ Whistling Swanc o o r
___ Canada Goose†a c c c
___ Branto
___ Snow Goose.....c o

s S F W

___ Mallard†.....a c a o
___ Black Duck†.....a c a o
___ Gadwall†c o c
___ Pintail†c o c
___ Green-winged Tealc o c
___ Blue-winged Teal†.....c c c
___ European Wigeonr r
___ American Wigeon†c o c
___ Northern Shoveler†c o c
___ Wood Duck†c c c
___ Redhead†c o c
___ Ring-necked Duck.....c o c
___ Canvasback†c o c
___ Greater Scaup.....c c
___ Lesser Scaup.....c o c
___ Common Goldeneye.....c c
___ Bufflehead.....c c
___ Oldsquaw.....o o
___ White-winged Scoterr r
___ Surf Scoterr r
___ Black Scoter.....r r
___ Ruddy Duck†.....c o c
___ Hooded Merganser†c o a c
___ Common Merganser.....c o a c
___ Red-breasted Merganser.....o r o

VULTURES and HAWKS - QUAIL - RAILS and COOTS

___ Turkey Vulture.....c c o
___ Goshawko o o
___ Sharp-shinned Hawko o o o
___ Cooper's Hawko o o o
___ Red-tailed Hawk†c c c c
___ Red-shouldered Hawk.....o o
___ Broad-winged Hawko o
___ Rough-legged Hawk.....o
___ Golden Eagle.....o o
___ Bald Eagle.....o o o o
___ Marsh Hawk†o r o r
___ Ospreyo o o
___ Peregrine Falconr r
___ Merlinr r
___ American Kestrel†.....c c c o

s S F W

— Ruffed Grouse†	c	c	c	c
— Ring-necked Pheasant†	c	c	c	c
— King Rail	r	r	r	
— Virginia Rail	c	c	c	
— Sora†	c	c	c	
— Common Gallinule†	c	c	c	
— American Coot†	c	c	c	

PLOVERS, SNIPES and SANDPIPERS

— Semipalmated Plover	o	c	c	
— American Golden Plover	r	o	o	
— Black-bellied Plover	o	o	o	
— Ruddy Turnstone	o	o	o	
— American Woodcock†	o	o	o	
— Common Snipe†	c	c	c	
— Whimbrel	r	r		
— Upland Sandpiper	r			
— Spotted Sandpiper†	c	c	c	
— Solitary Sandpiper	r	o	o	
— Greater Yellowlegs	c	c	c	
— Lesser Yellowlegs	c	c	c	
— Red Knot	r	r	r	
— Pectoral Sandpiper	c	c	c	
— White-rumped Sandpiper	o	o	o	
— Baird's Sandpiper	r	o		
— Dunlin	c	c		
— Semipalmated Sandpiper	c	c	c	
— Western Sandpiper	r	r	r	
— Sanderling	r	r	r	
— Short-billed Dowitcher	c	o	c	
— Long-billed Dowitcher	c			
— Stilt Sandpiper	o	c	c	
— Hudsonian Godwit	r	o		
— Ruff	r	r	r	
— Wilson's Phalarope	o	o	o	
— Northern Phalarope	r	o	o	

**GULLS and TERNS - DOVES
CUCKOOS - OWLS - NIGHTHAWKS**

— Great Black-backed Gull	o	o		
— Herring Gull	c	o	c	c

s S F W

— Ring-billed Gull	c	c	c	o
— Bonaparte's Gull	o	o	o	
— Common Tern†	c	c	c	
— Caspian Tern	o	o		
— Black Tern†	c	a		
— Rock Dove†	c	c	c	c
— Mourning Dove†	c	c	c	o
— Yellow-billed Cuckoo†	o	o		
— Black-billed Cuckoo†	o	o		

— Barn Owl	r	r	r	r
— Screech Owl†	c	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
— Saw-whet Owl	o	o	o	
— Whip-poor-will	o			
— Common Nighthawk	o			
— Chimney Swift†	c	c		

**HUMMINGBIRDS - KINGFISHERS -
WOODPECKERS - FLYCATCHERS
LARKS - SWALLOWS**

— Ruby-throated Hummingbird†	c			
— Belted Kingfisher†	c	c	c	o
— Common Flicker†	c	c	c	o
— Pileated Woodpecker†	o	o	o	o
— Red-bellied Woodpecker†	c	c	c	c
— Yellow-bellied Sapsucker	o	o		
— Hairy Woodpecker†	o	o	o	o
— Downy Woodpecker†	c	c	c	c
— Eastern Kingbird†	c	c	o	
— Great Crested Flycatcher	o	c		
— Eastern Phoebe†	c	c	c	
— Willow Flycatcher	o	c		
— Alder Flycatcher	o	o		

s S F W

— Least Flycatcher†	c			
— Eastern Wood Pewee†	c			
— Olive-sided Flycatcher	r	r		
— Horned Lark†	o	o	o	o
— Bank Swallow†	c	c		
— Rough-winged Swallow	o	o		
— Barn Swallow†	c	c	c	
— Cliff Swallow†	r	r		
— Purple Martin†	c	c		

**JAYS and CROWS - TITMICE
NUTHATCHES - WRENS**

— Blue Jay†	c	c	c	c
— Common Crow†	c	c	c	o
— Black-capped Chickadee†	c	c	c	c
— Tufted Titmouse	o	o	o	
— White-breasted Nuthatch†	c	c	c	c
— Red-breasted Nuthatch†	o	o	r	
— Brown Creeper†	o	o	o	o
— House Wren†	c	c		
— Winter Wren†	c	c	c	
— Carolina Wren	r	r	r	
— Marsh Wren†	c	c	c	
— Sedge Wren†	r	r		

**MOCKINGBIRDS - THRUSHES -
GNATCATCHERS and KINGLETS -
WAXWINGS**

— Mockingbird	r	r		
— Gray Catbird†	c	c	c	
— Brown Thrasher†	o	o	o	
— American Robin†	c	c	c	o
— Wood Thrush†	c	c	o	
— Hermit Thrush	c	c		
— Swainson's Thrush	o	o		
— Gray-cheeked Thrush	o	o		

	s	S	F	W
___ Veery†	c	c	o	
___ Eastern Bluebird†	r	r	r	
___ Blue-gray Gnatcatcher†	o	o		
___ Golden-crowned Kinglet	c	c		
___ Ruby-crowned Kinglet	c	c		
___ Water Pipit	c	c		
___ Cedar Waxwing†	o	o	o	o

SHRIKES - VIREOS - WARBLERS - BLACKBIRDS - TANAGERS

___ Northern Shrike	o			
___ Loggerhead Shrike†	r	r		
___ Starling†	a	a	a	c
___ Yellow-throated Vireo†	o	o		
___ Solitary Vireo	o	o		
___ Red-eyed Vireo†	c	c	c	
___ Philadelphia Vireo	r	r		
___ Warbling Vireo†	c	c	c	
___ Black-and-white Warbler	c	o	c	
___ Prothonotary Warbler†	o	o		
___ Golden-winged Warbler	o	o		
___ Blue-winged Warbler	r			
___ Brewster's Warbler	r			
___ Tennessee Warbler	o	o		
___ Orange-crowned Warbler	r			
___ Nashville Warbler	c	c		
___ Northern Parula	o	o		
___ Yellow Warbler†	c	c	c	
___ 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		
___ Cerulean Warbler†	o	c		
___ Blackburnian Warbler	c	c		
___ Chestnut-sided Warbler	o	o		
___ Bay-breasted Warbler	o	o		
___ Blackpoll Warbler	c	c		
___ Pine Warbler	o	o		

	s	S	F	W
___ Prairie Warbler	o	o		
___ Palm Warbler	o	o		
___ Ovenbird†	c	c	c	
___ Northern Waterthrush	o	o	o	
___ Louisiana Waterthrush	o	o	o	
___ Connecticut Warbler	r	r		
___ Morning Warbler	o	o		
___ Common Yellowthroat†	c	c	c	
___ Yellow-breasted Chat	r	r		
___ Hooded Warbler	r	r		
___ Wilson's Warbler	o	o		
___ Canada Warbler	c	o		
___ American Redstart†	c	c	c	

___ House Sparrow†	c	c	c	c
___ Bobolink†	o	o	c	
___ Eastern Meadowlark	c	c	c	o
___ Red-winged Blackbird†	a	a	a	o
___ Northern Oriole	c	c	c	
___ Rusty Blackbird	o	o		
___ Common Grackle†	a	a	a	o
___ Brown-headed Cowbird†	c	c	a	o
___ Scarlet Tanager†	c	o	o	

GROSBEAKS, SPARROWS and BUNTINGS

___ Cardinal†	c	c	c	c
___ Rose-breasted Grosbeak†	c	c	c	
___ Indigo Bunting†	c	c		
___ Evening Grosbeak	r	r	r	
___ Purple Finch†	c	o	c	o
___ House Finch	o	o	o	o
___ Common Redpoll		r		
___ Pine Siskin		r		
___ American Goldfinch†	c	c	c	o
___ Rufous-sided Towhee†	c	o	c	
___ Savannah Sparrow†	o	o		
___ Grasshopper Sparrow†	o	o	o	
___ Henslow's Sparrow†	o	o	o	
___ Vesper Sparrow†	o	o	o	
___ Dark-eyed Junco	o	o	o	

	s	S	F	W
___ Chipping Sparrow†	c	c	c	
___ Field Sparrow†	c	c	c	o
___ White-crowned Sparrow	c	c		
___ White-throated Sparrow	c	c		
___ Lincoln's Sparrow	o	o		
___ Swamp Sparrow†	c	c	c	
___ Song Sparrow†	c	c	c	o
___ Lapland Longspur		o		
___ Snow Bunting		o		



NOTES

Location _____

Date _____ Total _____

Observers _____

Additional Species _____

For additional information, contact:

Refuge Manager
Montezuma National Wildlife Refuge
RD #1, Box 141
Seneca Falls, New York 13148
Telephone: (315) 568-5987

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

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE



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September 1980
RL 52550-2

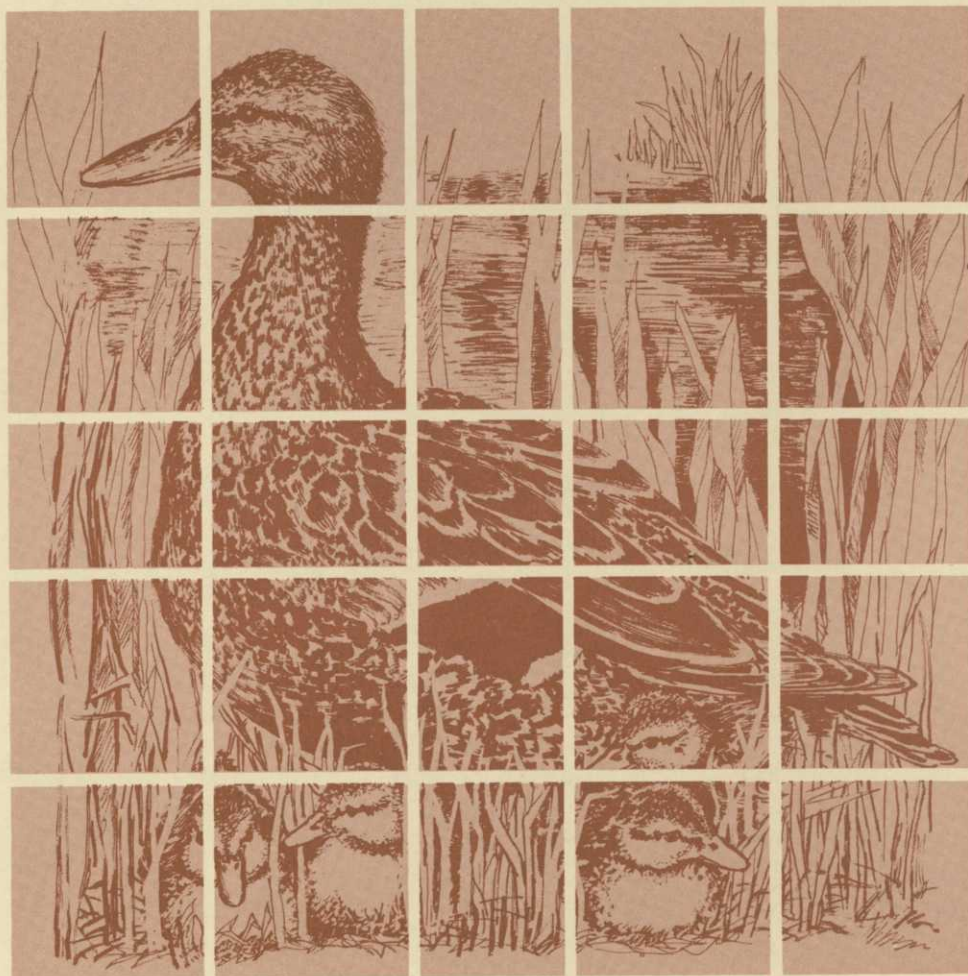
BIRDS of Montezuma

National
Wildlife
Refuge

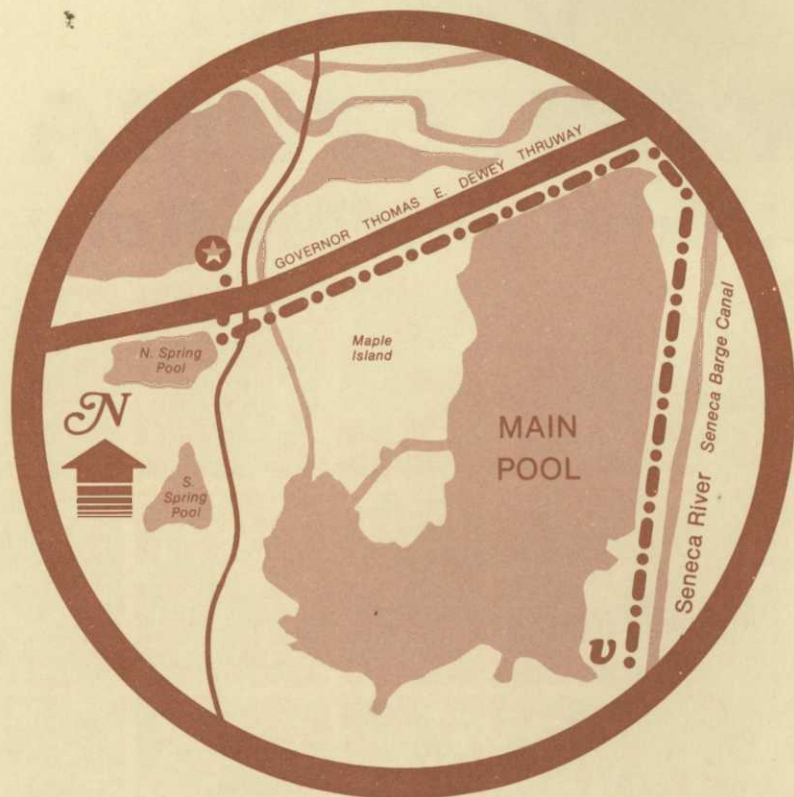


New York

**A
Visit To
MONTEZUMA
National Wildlife Refuge**



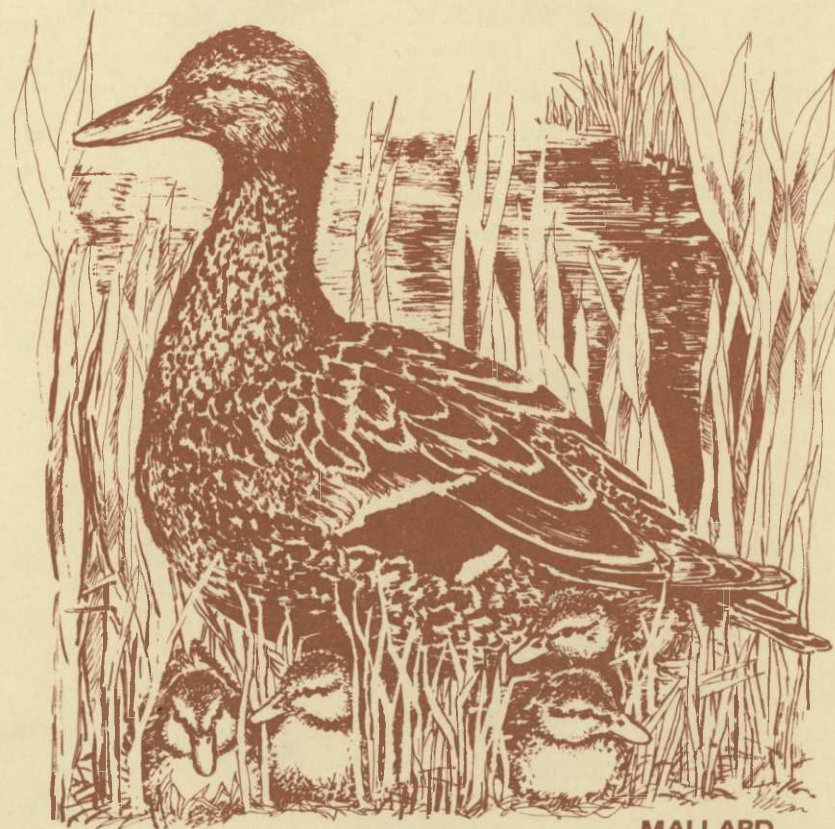
A REFUGE TOUR



AUTO TOUR
 VISITOR AREA
 EAGLE TOWER

Welcome to Montezuma! This self-guided auto tour will take you 3.5 miles through the national wildlife refuge. Follow the numbered markers to the Eagle Observation Tower on Route 89. **PLEASE RETURN THIS GUIDE THERE.** Obey the 15 m.p.h. speed limit and drive safely. Remember, here you are the guests of wildlife.

MARSH HISTORY



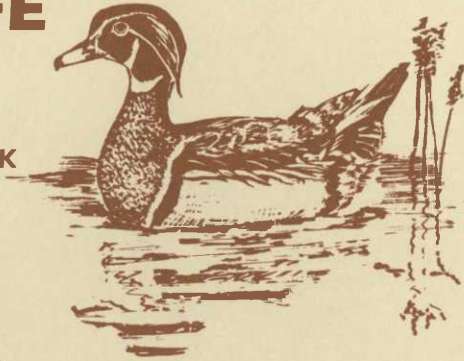
MALLARD

Before 1900, the Montezuma Marsh was one of the greatest freshwater marshes in North America. As with many wetlands, its importance was unrecognized and all but 100 acres were drained. The refuge has restored 5,085 acres. Wetlands are among the most biologically productive lands we have. They also naturally prevent flooding, filter pollution and replenish ground water supplies.

2

VIEWING
WILDLIFE

WOOD DUCK



WHITE TAILED DEER

YELLOW-SHAFTED
FLICKER

MARSH HAWK

GREAT
BLUE
HERON

MUSKRAT



BULLHEAD



CATTAIL



MINERALS

SUNLIGHT

Energy (food) flows through marsh food chains from one group of living organisms to another.

Food, water, shelter and space form **habitats** for wildlife. To see an animal you must first know its habitat requirements. Various types of waterfowl will be found in different parts of the marsh. The marsh hawk hunts over marshes and nearby fields. Deer feed at the edge of woods and marsh, disappearing at the first signs of danger.

WATERFOWL

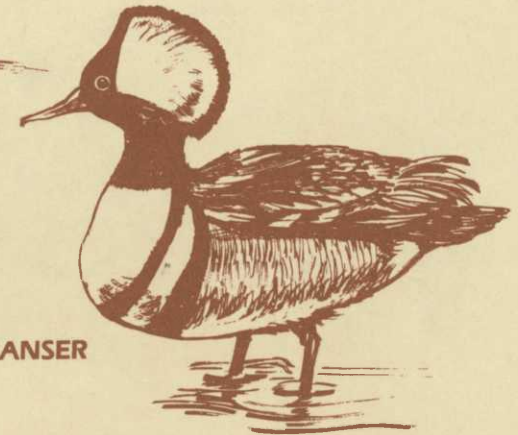


WOOD
DUCK

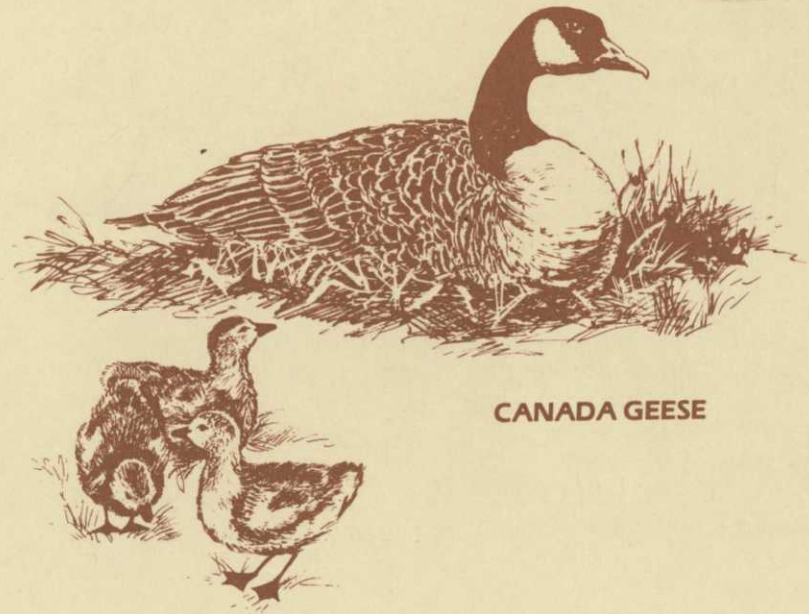
Montezuma is managed as resting, feeding and nesting habitats for migratory waterfowl. Swans are the largest seen. You can see up to 150,000 Canada geese and an equal number of ducks. During migration you should visit late in the evening to watch large flocks returning from off-refuge feeding forays.



AMERICAN WIGEON



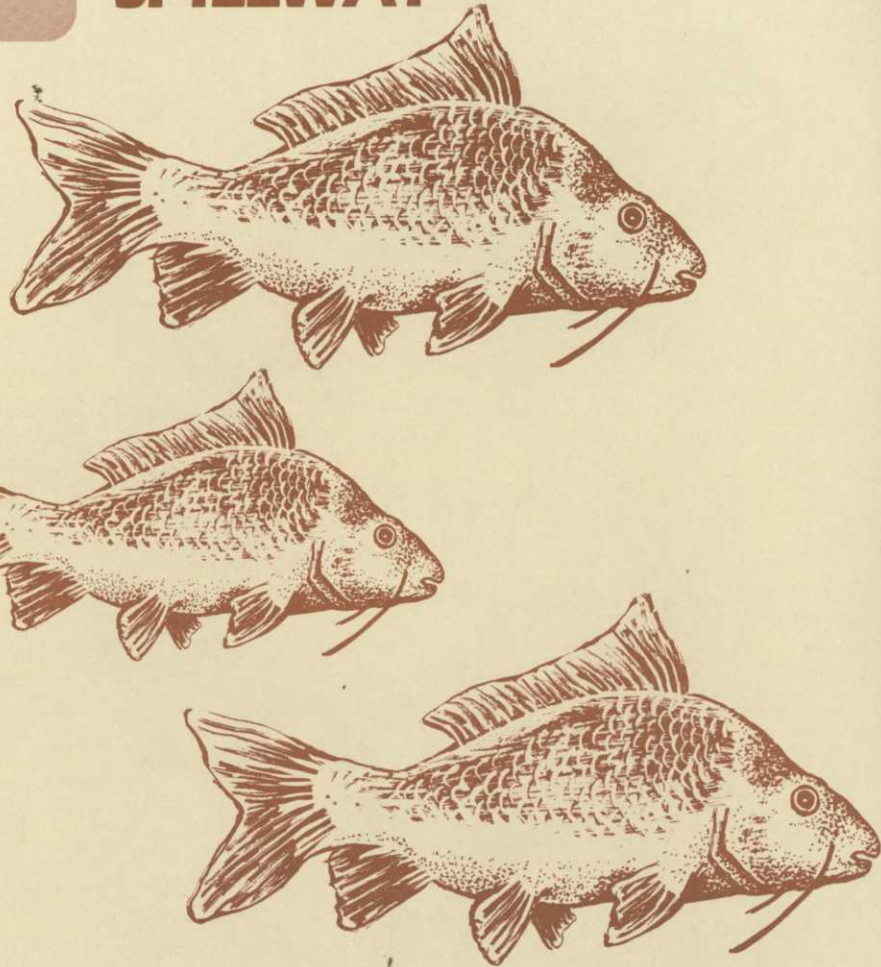
HOODED MERGANSER



CANADA GEESE

4

CARP & SPILLWAY



Water is the lifeblood of the refuge. This water control structure allows water levels to be managed for the benefit of many types of wildlife. In spring, the release of water attracts large numbers of carp from the canal. Carp are bottom feeders, stirring up mud and silt. This kills beneficial marsh plants by blocking out sunlight. Rotating and fixed screens keep carp from the marsh.

NESTING ISLAND

5

CANADA GEESE & BROOD

In the area to your right artificial nesting islands have been built for waterfowl. During May through July, the water to your left is a good place to see waterfowl broods. You will often see Canada goose broods crossing this road.

6

PURPLE LOOSESTRIFE



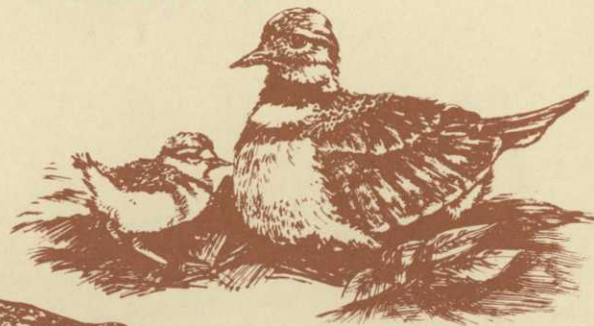
In the summer you will see an abundance of purple flowers to your right and left. This is purple loosestrife. Loosestrife, like the carp, is an introduced species. It is not native and is of little importance to wildlife. Unfortunately, it spreads easily and chokes out more desirable marsh plants.

THRUWAY

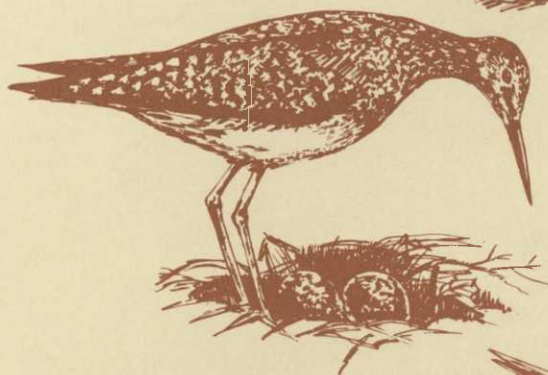
7



On your right is the New York State Thruway. It was built across Montezuma in the 1950's. This is the connecting spillway. It allows water to flow into the main pool, to your left, from storage pools across the thruway. This helps to insure adequate water for the main pool.



KILLDEER



YELLOWLEGS



WOODCOCK



SNIPE

The wetlands and mudflats to your left is excellent habitat for shorebirds, a diverse group of wading birds. The killdeer calls its name and draws intruders from its nest by feigning injury. Yellowlegs wade through the shallows on bright yellow legs. The snipe flies by in rapid zigzags close to cover. At night the woodcock probes the moist ground for food.



Directly before you is a flooded timber impoundment. Marsh habitat was needed more than forest and the area was flooded. You can see heavy concentrations of wigeon here in the spring and mallards and teal in the fall.

10

BALD EAGLE

From this tower you can see the hacking platforms across the pool. Here, between 1976 and 1980, bald eagles are being released in an attempt to reintroduce the bird. Eagles were eliminated from New York by the indiscriminate use of pesticides and habitat loss. You may see eagles in the spring and summer perched on dead trees or soaring overhead. •

**PLEASE
RETURN
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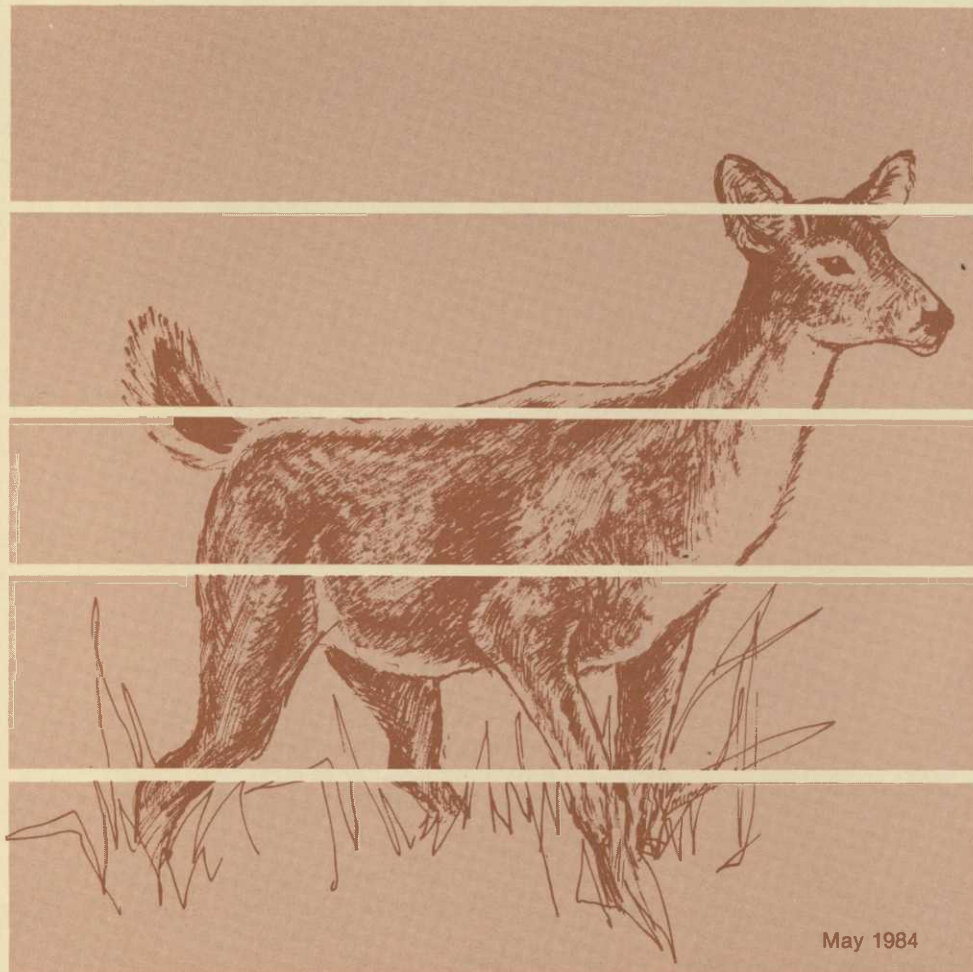
• As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental 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.

For more information contact:

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



Department of the Interior
U.S. Fish and Wildlife Service



May 1984

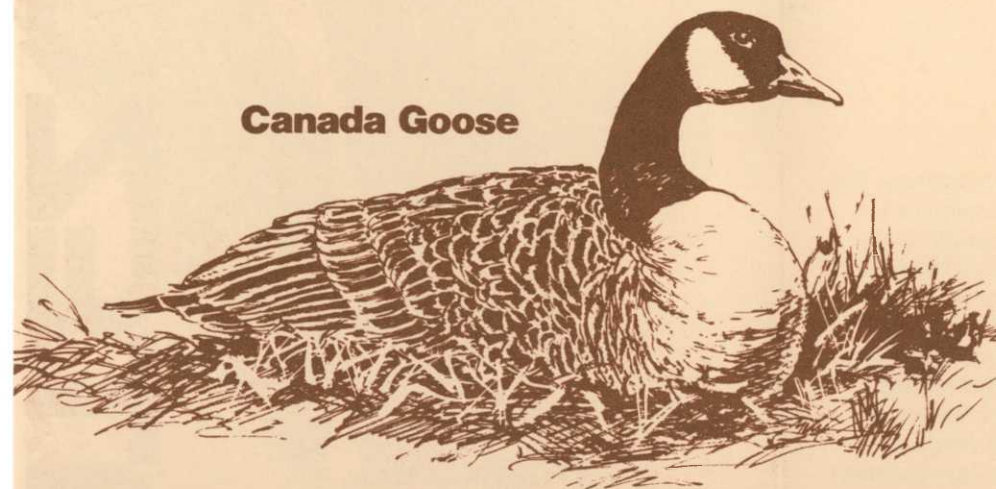
National Wildlife
Refuge

Montezuma



MONTENZUMA

National Wildlife Refuge



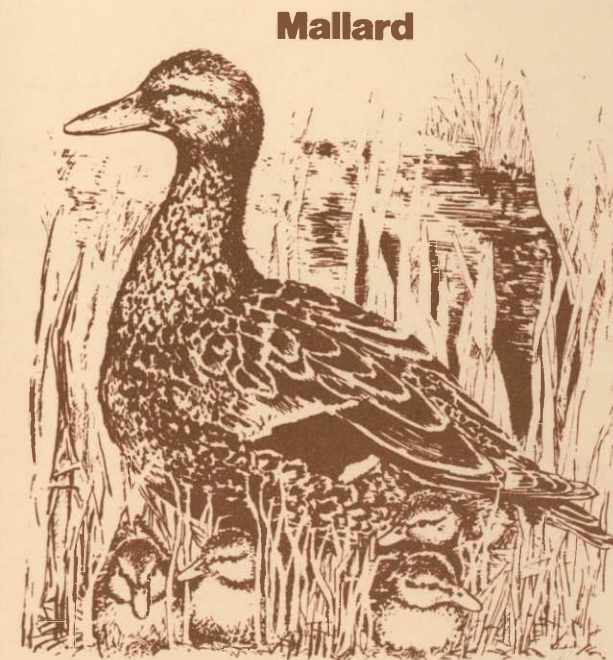
Canada Goose



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 wall-eye. 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.

MONTTEZUMA

National Wildlife Refuge



OFFICE



HIKING



VISITOR AREA



FISHING

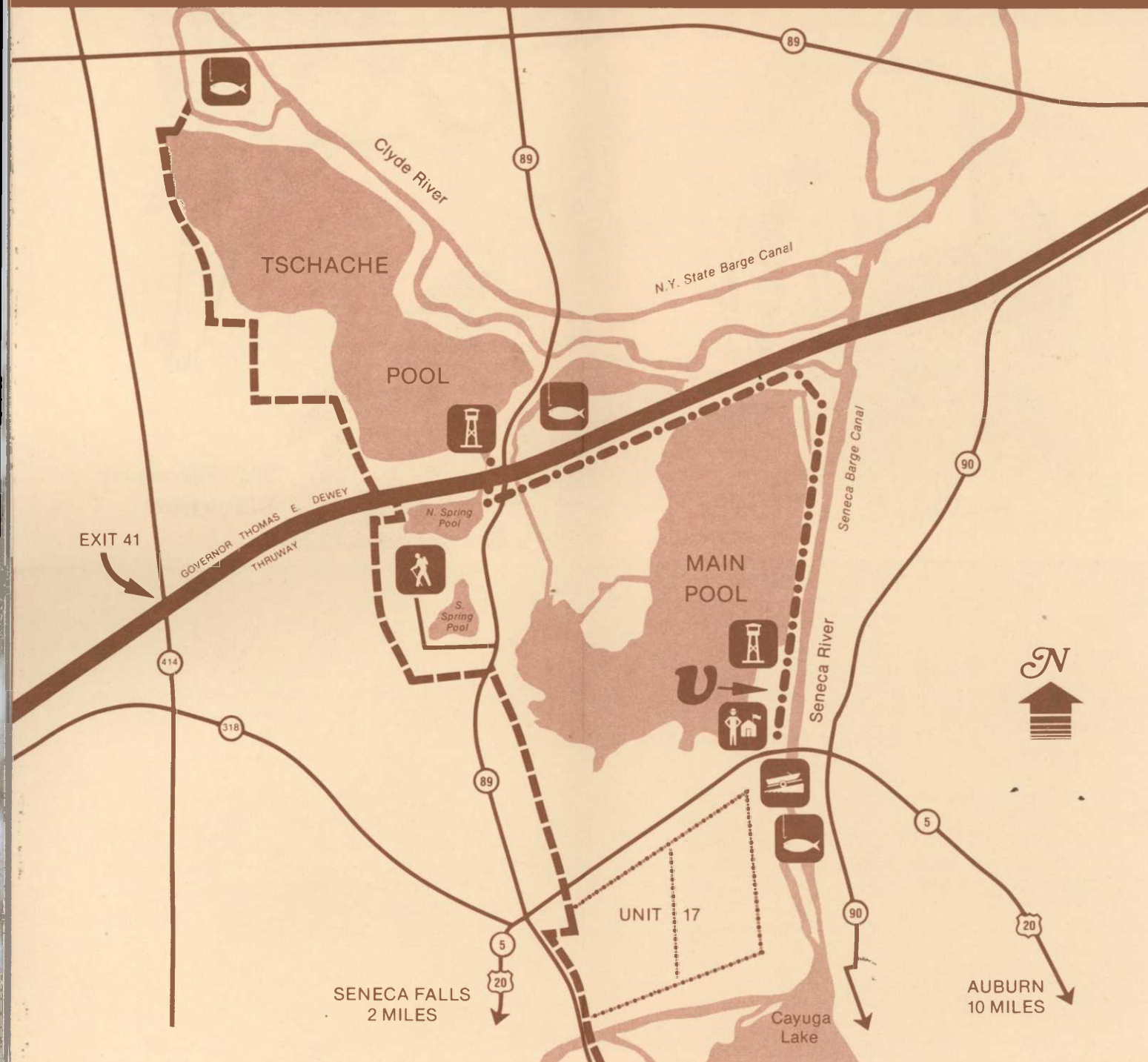


TOWER



BOAT RAMP

--- BOUNDARY -.- AUTO TOUR



Montezuma National Wildlife Refuge

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MAY 1984

K. FEEDBACK

1. In the minds of some, the "comparable worth" argument is a specious one. Certainly, it is fraught with unknown (and perhaps unknowable) variables. However, within FWS, there is one area in which we could resolve some of the inequities that have led to the "comparable worth" debate. Our "secretaries" (clerk-typists, administrative clerks, fiscal clerks--even labeling them has become an exercise in schizophrenia) work in a support role that demands modernization.

Aside from the "no-win" comparable worth argument, a serious question must be asked about the organizational wisdom of maintaining highly skilled folks for 10, 15 or 20 years at grades GS 4, 5 and occasionally 6. It must be remembered that these people are assisting and advising GS 11, 12 and 13 project leaders about increasingly complex matters involving policies and skills as diverse as budgeting, finance, procurement, property management, personnel, office management, computers, typing and filing, public information, record keeping and so forth.

In most private businesses (and many government agencies), persons possessing these skills would certainly be the monetary and titular equivalent of Administrative Aide (GS-7) or Administrative Assistant (GS-9). Most of us would agree with the need to free managers to manage and to also develop (by a variety of means) administrative support people to handle administrative functions and specialties.

Without in any way denigrating the important roles of laborers and entry-level maintenance workers, one really should study the following table showing entry-level laborer salaries with "typical" salaries for highly skilled "secretaries". It seems likely that this entire matter is more of a management efficiency problem than an "equal worth" one.

				*
GS-01	\$ 4.47	WG-01	\$ 6.61	
GS-02	5.03	WG-02	7.04	
GS-03	5.49	WG-03	7.46	
GS-04	6.16	WG-04	7.93	
GS-05	6.90	WG-05	8.35	
GS-06	7.69	WG-06	8.82	
GS-07	8.54	WG-07	9.26	
GS-08	9.46	WG-08	9.71	
GS-09	10.45	WG-09	10.16	
		WG-10	10.62	

*Rochester, New York based rate.

2. We have been encouraged to use the normal distribution curve (NDC) as a "model" for assigning summary level ratings of performance standards. There are reasons to suspect its (1) scientific validity and (2) its motivational (or practical) price tag. Among the problems are these:

a) The two primary violations of probability theory in the use of the NDC theory in behavioral sciences are (1) too small a sample and (2) dissimilar criteria.

1. We violate (1) by using 5-15 people as our "universe"

2. We compound the first error by lumping managers, biologists, maintenance people, public use people and administrative people as if the entire 5-15 folks represent a homogeneous, normally distributed, discrete sample.

b) Neither "universe" nor sample standard deviations have ever been plotted (nor will they ever be probably) for skilled work of a relatively intangible nature which involves a high level of motivation or a relatively high degree of independent judgement. Certainly, behavioral scientists would not agree that these constructs arose from, or combine in the same proportions as, the throw of a die or simple chance distributions.

c) Almost always, use of NDC in behavioral science requires the use of at least 10-12 class intervals to avoid hopeless magnification of sampling error. In essence, we use three(!)-- Levels II, III and IV.

d) The USFWS and the NWRS "universes" are already skewed against use of the NDC since we have highly selected "samples". The NDC is based upon the mean and means (unlike the median) are influenced by extremes. Without any doubt, recruitment and competition (and dedication) pull the NWRS far to the right. It is a statistical impropriety to attempt to artificially put the other "tail" on the curve.

e) Valid behavioral theory requires that we measure performance as best we can and allow the "plots" to fall wherever they will on the NDC. It is statistically and behaviorally

invalid to "pre-assume" the "curve" and, to then superimpose plots in such a manner as to "meet" the "curve".

- f) Certainly, we are faced with OPM constraints. Many of these are proper. However, many of the excesses that have sprung up around performance standards could be alleviated by relaxing the insistence that a region or a zone or a refuge must "fit" a NDC. Continued refinement of performance standards is necessary--especially in view of just what encompasses "fully satisfactory" and "exceed fully satisfactory". This should be worked out on a refuge-by-refuge basis between the zone supervisor and the project leader.
- g) Finally, we should not forget exactly what a NDC really is--and that a Level III encompasses one standard deviation above and one standard deviation below the mean. 68% of all of our employees "should" fall there--between the 16th and the 84th percentile!?! The lack of precision in this method should cause all of us (as trained biologists) to search for a yardstick with greater sensitivity and validity.

It should be clear that this great "leveler" creates more damage to the motivational process than almost anything we could devise. The resource would be better served if we devised motivationally sound rating methods--or at least ameliorated the use of one that is stigmatic and could be perceived as punitive.

