

MONTEZUMA NATIONAL WILDLIFE REFUGE  
SENECA FALLS, NEW YORK

ANNUAL NARRATIVE REPORT  
CALENDAR YEAR 1988

U.S. DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
NATIONAL WILDLIFE REFUGE SYSTEM


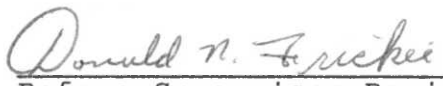
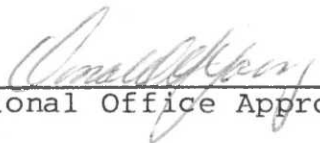
REVIEW AND APPROVALS

MONTEZUMA NATIONAL WILDLIFE REFUGE

Seneca Falls, New York

ANNUAL NARRATIVE REPORT

Calendar Year 1988

	<u>03/13/89</u>		<u>3-24-89</u>
Refuge Manager	Date	Refuge Supervisor Review	Date
		<u>4/7/89</u>	
Regional Office Approval		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. Land was initially acquired under Executive Order 7971, dated September 12, 1938. The purpose of the acquisition was: "...as a refuge and breeding ground for migratory birds and other wildlife..." For other lands acquired under the Migratory Bird Conservation Act (16 U.S.C. 715-715r), as amended, the purpose of acquisition is: "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."

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 resting, feeding, and nesting habitats 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 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.

# LAND TYPE INVENTORY

<u>LAND CLASSIFICATION</u>	<u>ACRES</u>	<u>% OF TOTAL</u>
Wetland Types:		
Riverine	42	.7
Palustrine	3,600	56.0
Upland Types:		
Grassland	560	8.7
Woodland	2,000	31.1
Brush	170	2.6
Administrative Lands (Bldgs., Parking, Roads, etc.)	60	.9
TOTAL REFUGE ACRES	6,432	100.0

Fall peaks of Canada geese approximate 50,000 birds; in spring this number has exceeded 100,000. Approximately 11,000 snow geese use the refuge in spring. Late fall use by mallards has annually approached or exceeded 100,000 birds. Use by black ducks in the fall often reaches 25,000. Approximately 1,000 ducks and geese are produced annually.

Use of the refuge by other water-related avian species is significant. Since the release of 23 bald eagles during the refuge's hacking program in 1976-80, eagles have occasionally visited the area. An active, though not always successful eagle nest has been present since 1987. One pair of osprey generally nest each year, a rare occurrence for the interior of New York. There are also nesting colonies of black-crowned night-herons and great blue herons.

Wildlife education opportunities abound for refuge visitors. Approximately 150,000 persons visit the refuge annually. In addition to a stop at the Visitor Center, visitors may drive the 3.5 mile auto tour route or walk dike trails or the Esker Brook Nature Trail. Some 2,000 area school students are annual recipients of formal on-site and off-site wildlife education programs by trained teachers, volunteers, or refuge staff. Many teachers are involved each year in refuge-affiliated workshops.



## INTRODUCTION

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K. FEEDBACK - Page 67L. INFORMATIONAL PACKET

(Inside Back Cover)

## A. HIGHLIGHTS

The 35,000-acre Northern Montezuma Wetlands Complex Joint Venture Project was designated as Region 5's "flagship" project under the auspices of the North American Waterfowl Management Plan.

Throughout 1988, refuge staff provided major support (planning, interagency coordination, community relations, logistics, etc.) to the Joint Venture Project. Partners are The New York State Department of Environmental Conservation, Ducks Unlimited, The Nature Conservancy, and two large duck clubs.

Office space (in the refuge's old Fur House) has been provided for two - four State biologists to work on the Joint Venture Project. The State has requested space for five - eight biologists and appraisers.

Five years of lengthy negotiations with the New York State Department of Transportation (Waterways Division) came to a successful conclusion in December when the last legal and logistical obstacle was removed for transporting water from Cayuga Lake, by gravity flow, to 1,700 acres of eutrophic refuge pools.

Shotgun and muzzleloader hunts were held on the refuge for a total of 12 days in December. This represented the first gun hunts on the refuge in over 30 years. The hunts were in addition to six weeks of archery hunting; they were in response to burgeoning deer populations throughout central New York State.

Refuge staff was involved for five months in 1988 with statewide, regional, and national environmental organizations over an alleged conflict between hunting on the refuge, visitor safety, and eagle welfare. In fact, the real issues were anti-hunting and refuge hunting programs.

Refuge and Service involvement played a major role in decisions by the State regarding a proposed 40-foot height increase of the Seneca Meadows Landfill, upstream of the refuge.

Last, but not least, the refuge's 50th Anniversary was celebrated during the Columbus Day weekend in October. Many of the highlights described above will play major roles during the next 50 years.



## B. CLIMATIC CONDITIONS

Weather data are obtained from a weather station located at refuge headquarters, and also from nearby Locks 1 and 25 of the New York State Barge Canal System. Yearly average rainfall is approximately 34 inches, compared to only 23.69 inches in 1988. Average snowfall is approximately 68 inches, compared to 48.74 inches in 1988. Total precipitation for 1988 was 27.84 inches, compared to the 45-year average of 33.83 inches.

February, July, August, and November were the only months in which we received near-normal precipitation.

There was insufficient precipitation and runoff to maintain pools at objective levels throughout the summer. This, however, did not result in any serious problems.

### 1988 PRECIPITATION

Month	Snowfall (Inches)	Rain (Inches)	Total Prec. (Inches)	Temp (°F)		37-Year Average Snowfall	46-Year Average Prec.
				Max	Min		
January	7.87	.66	1.27	46	-6	17.00	2.06
February	23.75	.55	2.66	50	4	16.60	2.28
March	2.50	1.33	1.64	74	8	9.46	2.76
April	.50	1.42	1.47	74	30	2.66	2.11
May		2.96	2.96	94	36		3.24
June		.83	.83	100	40		3.12
July		3.93	3.93	100	48		3.39
August		3.42	3.42	99	46		3.25
September		2.15	2.15	86	36		2.95
October	2.00	2.52	2.72	84	22	2.00	3.20
November		3.25	3.25	70	20	4.77	3.37
December	12.12	.67	1.54	56	-15	15.21	2.10
TOTALS	48.74	23.69	27.84	100	-15	67.70	33.83

## D. PLANNING

### 2. Management Plans

The following plans were submitted, approved, or underwent major revisions during 1988:

<u>Plan</u>	<u>Submitted</u>	<u>Revised</u>	<u>Approved</u>
Marsh and Water Management Plan	9/25/87		6/08/88
Trapping Plan		4/14/88	6/13/88
Hunting Plan		4/07/88	8/09/88

Revisions to the hunting plan are discussed in sections G.8 and H.8. Revisions to the Trapping Plan are discussed in Section G.8.

### 3. Public Participation

Hocutt participated in a number of public meetings regarding the permitting and regulation of the Seneca Meadows Landfill. The purpose of these appearances was to present public statements regarding Service positions, to answer questions from media and the public, and to interact with elected and agency officials. This issue is discussed in Section J-3.

On May 2, Hocutt gave a formal presentation to 90 persons at the Monday Night Seminar of The Laboratory of Ornithology (Cornell University). The talk was designed to gain understanding for the proposal to gravity flow water during summer months from the north end of Cayuga Lake, through Unit 17, into Main Pool. Also, the talk permitted the dispelling of negative and false information about refuge hunting programs (and bald eagles) that was started in January, 1988 by an anti-hunter activist. This latter issue is covered in Section J-3.

On May 9, Hocutt gave a presentation in Ithaca, New York, to 44 members of the Cayuga Bird Club regarding the water management proposal and the anti-hunting issue.

On August 17, at the request of State Region 7 Principal Wildlife Biologist John Proud, Hocutt and Maintenance Mechanic Flanders participated in a heated (and sometimes acrimonious) public information session at Oneida Shores

County (Onondaga/Syracuse) Park regarding season setting and reductions for the 1988-89 New York State Waterfowl Season.

#### 4. Compliance With Environmental and Cultural Resource Mandates

A Section 7 Evaluation was prepared for the winter drawdown of the refuge's impoundments. Peter Nye, Eagle Program Coordinator for the New York State Department of Environmental Conservation, requested the evaluation to assess the impact of the drawdown on the three adult bald eagles currently using the refuge. The drawdown was initiated to reduce carp numbers and to consolidate bottom sediments. We concluded that the drawdown would have little, if any, impact upon the eagles. It was determined that some fish would remain available in the pools after the drawdown to supply food for foraging bald eagles. Fish would also be available in the river and canal system bordering the refuge, and in the nearby Finger Lakes.

#### 5. Research and Investigations

Work continued on several studies during 1988. In addition, one study was initiated during the year.

##### Montezuma NR86 - "<sup>13</sup>C, D and <sup>14</sup>C In Methane (Production Sampling In Wetlands)" (52550-16)

Dr. Martin Wahler (Wadsworth Center for Laboratories and Research, New York State Department of Health, Albany, New York) continued to use the refuge as one site in a three-year, \$700,000 world-wide study of the sources of atmospheric methane. No results are available at this time. The final report is scheduled for release in 1989.

##### Montezuma NR87 - "Influenza Viruses and Paramyxoviruses in the Atlantic Flyway" (52550-18)

Since 1977, Dr. Rudolf Deible, M.D. (Director, Virus Laboratories, New York State Department of Health, Albany, New York) has taken cloacal swabs during waterfowl banding operations in central New York. Starting in 1986, Dr. Deible included Montezuma in his collection sites. Cloacal swabs are taken during the course of our normal banding operations and later analyzed for the presence of influenza viruses and paramyxoviruses (Newcastle Disease). Portions of his data were most recently presented last year at the joint meeting of the Northeastern, East New York, and

Connecticut Valley branches of the American Society for Microbiology.

Montezuma NR87 - "Monitoring and Surveillance of Environmental Contaminants at Montezuma National Wildlife Refuge" (52550-19)

Because the refuge is close to the Seneca Meadows Landfill, a known site of hazardous wastes, we have long pondered the advisability of conducting baseline studies for possible contaminants on the refuge. For the second consecutive year, money was available for sampling. The refuge and the Ecological Services Field Office, Cortland, New York joined forces to tackle the problem.

During the late spring, summer, and fall, samples were collected at 20 sites on or near the refuge. Fish, snapping turtles, benthic invertebrates, algae, sediment, water samples, and water quality indicator data were gathered. Work continues on analyzing the samples at this time. Barring any "bad news" in some as yet unreported samples, a scale-back in annual sampling seems to be in order. The final 1987-88 report will not be completed until early in 1989.

Montezuma NR88 - "The Role of *Cyprinus carpio* and *Lythrum salicaria* in the Reestablishment of *Typha glauca* From Rhizome and Seed Sources at the Montezuma National Wildlife Refuge (52550-20)

A series of studies was initiated to explore methods of re-establishing cattail in refuge pools after drawdowns and after the new water transport system is in place. A second goal was to attempt to measure the effects of carp upon cattail mat edges, and upon individual cattail plants which have started from seed germination. May's Point Pool was chosen as the study site.

A number of one-meter square plots were installed. Some areas were enclosed with wire-mesh exclosures to keep carp out of areas which were secured and seeded with either *Typha latifolia* or *T. glauca* seeds. Other areas of mixed, vigorous cattail and purple loosestrife seedlings were fenced/non-fenced to measure carp effects. Replicate plots of vigorous cattail mat edges were protected and left unprotected. Lastly, rhizominous layers of healthy cattail were dug and placed on exposed substrate. Again, some zones were enclosed and others were left open.



Preliminary findings indicate that carp and Canada geese (especially in relatively small pool areas) are major limiting factors in cattail/purple loosestrife competition. We have learned that cattail germination from seeds is widespread on mudflats, but is effectively removed via predation and disturbance. Based upon the one-meter square test plots, it appears that cattail will out-compete purple loosestrife when both plants start from seed germination. Carp and Canada geese also appear to limit cattail expansion from the mature cattail mat. Experiments in seeding exposed sites with Typha glauca and Typha latifolia failed because of algal growth and turbidity from carp action.

Preliminary findings from this research project are scheduled to be presented at the Northeast Fish and Wildlife Conference in May of 1989. Refuge Manager Hocutt and Dr. Leland Marsh, Chairman of the Biology Department, the State University of New York College at Oswego, will present the research results at the conference.

E. ADMINISTRATION

Left to Right: 8, 1, 6, 9, 12, 2, 5, 4, 7  
 (3 and 11 not pictured. 10 pictured on next page).  
 Staff Photo (88-1; PJH).

PERMANENT PERSONNEL

1. Grady E. Hocutt.....Refuge Manager, GS-12, PFT
2. Paul E. Benvenuti.....Refuge Manager, GS-11, PFT
3. John R. Phillips.....Refuge Manager, GS-07, PFT  
 (Transferred to Back Bay NWR, 6/4/88)
4. Kimberly A. Johnson...Outdoor Rec. Planner, GS-09, PFT  
 (EOD 8/28/88 from Okefenokee NWR)
5. Tracy A. Gingrich.....Biologist, GS-07, PFT  
 (Promoted From Biological Technician 12/18/88)
6. Judith A. McMahon.....Fiscal Assistant, GS-06, PFT
7. Nancy J. Estes.....Clerk/Typist, GS-03, PPT
8. Steven L. Flanders....Maintenance Mechanic, WG-10, PFT
9. Melvin J. Norsen.....Maintenance Mechanic, WG-09, PFT
10. Maura J. Sheehan.....Co-Op Student, GS-04, P  
 (EOD 6/12/88)

TEMPORARY PERSONNEL

11. James V. Ellis Jr.....Tractor Operator, WG-04, INT  
(8/24/87 - 12/16/88)
12. Lawrence M. Kroon.....Recreation Assistant, GS-04, TFT



Co-op Biological Science Student Trainee Maura Sheehan (88-2; LMK).

# 1. Personnel

It was a fairly active year for personnel changes. Jim Ellis, temporary Tractor Operator since 8/24/87, was terminated on 12/16/88. The position will remain vacant through the winter. It has not yet been decided when to refill or what type of position will best meet our future needs.

Rather than refill the GS-7 Assistant Manager position vacated by Anne Marocchini in December 1987, it was decided to add a Cooperative Education Program student to our staff. Maura Sheehan joined us for her first work period on 6/13/88 and remained until 9/2/88. She is now attending her junior year at Unity College (Maine) and plans to return to Montezuma in the fall of 1989.

On June 4, John Phillips received a promotion to the GS-9 Assistant Refuge Manager position at Back Bay NWR. After some discussion and debate, it was decided to replace the vacancy with a GS-7/9/11 Wildlife Biologist. Tracy Gingrich, our Biological Technician, was selected to fill the position and assumed his new duties on 12/18/88.

Kimberly Johnson reported on 8/28/88 to fill the long-vacant GS-9 Outdoor Recreation Planner's billet. Kim transferred from Okefenokee NWR. The billet was vacant for almost 18 months. Many refuge educational and interpretive programs suffered as a result.

A summary of staff allocations for the last five years is displayed below:

<u>Total</u>	<u>Permanent</u>		<u>Temporary</u>	<u>FTEs</u>
	<u>Full-Time</u>	<u>Part-Time</u>		
FY 1989	8	1	2	10.4
FY 1988	9	1	2	9.5
FY 1987	9	1	2	10.1
FY 1986	9	1	2	11.4
FY 1985	9	1	2	11.4

# 4. Volunteer Program

Volunteers are an important part of the staff at the refuge, and are used in a variety of refuge programs. The primary



function of the volunteers is staffing the Visitor Center on weekends. Several very dedicated individuals allow the staff person on duty during weekends to pursue other activities while keeping the building staffed. The volunteers also lead several walks and other programs throughout the year. The following chart shows volunteer participation over the past five fiscal years.

<u>Fiscal Year</u>	<u>Number of Volunteers</u>	<u>Hours</u>
1988	12	1,389
1987	37	1,245
1986	20	2,603
1985	9	736
1984	6	710

Several volunteers have been with the program for years. During FY 1988, two volunteers, Karen and Francis Kelly, donated over 250 hours, and were presented with basic volunteer pins at a quarterly volunteer meeting. All volunteers contributing time in FY 88 received Volunteer Certificates. Two new volunteers have recently been added to the program to assist with wildlife management activities. The volunteer program is currently undergoing some changes, and more volunteers will be recruited once positions are identified in areas we need volunteer assistance and position descriptions have been written. Too often, the volunteer program is tailored to the needs/wants of the volunteer instead of addressing a need on the refuge.



Volunteer Paul Hess assists Biologist Gingrich with wood duck nesting box maintenance (88-03; LMK).

## 5. Funding

Funding was sufficient this year to meet our operational needs, and with salary savings we were able to contribute \$20,000 toward the region's purchase of a "cookie-cutter". The machine will be rotated among several refuges that have a need to create openings in emergent vegetation.

	<u>FY 1986</u>	<u>FY 1987</u>	<u>FY 1988</u>	<u>FY 1989</u>
1260 & 1261 - O & M; ARMM; Resource Prob.; Fire	\$351,000	\$370,173	\$433,445	\$391,851
6860 - Expense For Sales	2,000	2,000	2,000	2,000
8610- Quarters Rehab.	3,200	1,800	3,429	3,556
1510- YCC	25,000	0	0	14,280
TOTAL	381,800	373,973	438,874	411,687

## 6. Safety

Montezuma experienced four reportable accidents this year. On 2/8/88, Jim Ellis slipped on an icy sidewalk he was clearing and sprained his left wrist. He was examined by a physician, and was released to return to work on 2/16/88.

On 5/5/88, Mel Norsen received a large wood splinter in his left forearm while working on new shelves for the Check Station. The splinter was removed by a physician, and he was given an anti-tetanus booster and antibiotics. There was no loss of work time.

On 9/10/88, a three-year old refuge visitor collided with an undetermined object in the Visitor Center and suffered a three-inch long laceration on his forehead. At the mother's request, the child was transported to the local emergency room by ambulance, where he was treated and released. To the best of our knowledge, no tort claim has been filed or contemplated.

On 11/25/88, Nancy Estes experienced back spasms while kneeling to pick up a stack of computer paper. There was no loss of work, but the incident was documented and reported to the Office of Worker's Compensation Programs.

Monthly safety meetings were held, and the station safety committee continues to meet quarterly and conduct station safety inspections.

## 7. Technical Assistance

Throughout January, Hocutt coordinated a major (and time-consuming!) media involvement effort on behalf of the Service, the New York State Department of Environmental Conservation, and the New York State Gas and Electric Corporation (NYSEG). This was in conjunction with NYSEG's outstanding efforts on December 29 and 30, 1987, when they provided highly-specialized equipment and a crew of linemen to instal a 75-foot pole only six feet away from a rotten elm tree containing an active eagle's nest. The nest itself was transferred to a platform on the pole. Detailed news releases, professional-quality photographs, and video tapes were sent directly to managing editors (by name) of newspapers from Albany to Buffalo and to New York City. The extra media effort was necessary because we consciously barred media from the actual site due to danger and the site's sensitivity. Newspaper response was spectacular. Hocutt also did television interviews for the CBS affiliates in Rochester and Syracuse, as well as the NBC affiliate in

Syracuse. NYSEG's Director of Corporate Communications, Ken Hooper, was highly complimentary of the Service's efforts.

Hocutt met at the refuge on February 2 with three officers (Rochester area business people) of the Vanderbilt Marsh Muck Club. The 2,600-acre tract is a key piece of the Joint Venture Project. The meeting was to share with them what has been learned at Montezuma about purple loosestrife, and to explore methods of implementing controls at Vanderbilt. At the State's request, Hocutt also introduced the concept of the Joint Venture Project to them. The half-day meeting was very productive.

On February 26, Hocutt addressed a graduate student/graduate faculty luncheon in Syracuse to describe research opportunities (and needs!) that might be available at the refuge for students at The College of Environmental Science and Forestry of The State University of New York at Syracuse.

During February and March, Hocutt and Flanders worked with Drs. John Peverly and Robert Johnson (Agronomy Department, Cornell University) to assist them in their 1988 efforts to secure several hundred cubic yards of substrate which contained pure stands of Phragmites rhizomes. The work was done to expand upon Cornell's 1987 grant efforts in Tompkins County, where Phragmites was used to remove heavy metals and nutrients from wastewater and below primary/secondary sewage treatment plants. The materials were transported in county and township dump trucks.

At the request of the New York State Department of Environmental Conservation, the refuge provided a site and logistical support to allow two State trappers to use the refuge as a site for the on-going steel jaw/padded jaw trap experiment (see Section G-8).

During early March, refuge staff (Flanders, Norsen, Ellis, and Gingrich) worked with crews from the New York State Department of Transportation to close Route 89 to vehicular stopping or parking. The move was to reduce disturbance to a bald eagle nest only a few hundred yards away.

In March, State Regional Fish and Wildlife Administrators asked Hocutt to involve the Service in a 900-acre strip of muck farmlands (Lopez Brothers) just north of the refuge which was being offered for public foreclosure auction by the federal Farm Home Administration. Despite a number of meetings with State personnel, a trip to Boston by Hocutt to make a Land Acquisition Review Committee presentation, and belated intervention by The Nature Conservancy, the farm sold in early March to a local farmer/developer for approxi-



mately \$250,000.00. The appraised value was approximately \$500,000.00. The Conservancy was present at the auction, but did not bid (for reasons unknown to us). Now a key part of the proposed Northern Montezuma Wetlands Complex Joint Venture Project, the land will eventually be acquired by the Service -- undoubtedly for much more than the appraised price or the original selling price.

On March 10 and March 27, Hocutt and State Biological Technician Michael Allen worked with Associated Press staff reporter Bill Kates to produce a wire story about bald eagles and problems encountered by the Montezuma trio of eagles.

Hocutt spent the day on March 18th with senior staff writer Jan Foley, New York State Department of Economic Development, to produce an "I Love New York" segment about the refuge. The Department released the tourism-related materials and news release on April 13th, to coincide with the peak of spring migration. Radio tapes were also released. The total distribution was 1,600 sources. In mid-October, a second distribution was made to coincide with fall migration on the refuge.

On March 28, Hocutt and Phillips worked in Syracuse with John Baldwin, Supervisory Maintenance Engineer (Waterways), of the New York State Barge Canal System, to reach an agreement which would assure the availability of water from Cayuga Lake for transport by gravity flow to the refuge's Main Pool. A tentative agreement was reached which marked a major break in a two-year, jurisdictional impasse which neither agency wanted nor supported. It seemed that the imbroglio between State counsel/State law and U.S. Solicitor/federal law might finally be over, and that work might soon be under way to bring Cayuga Lake water to the refuge.

Several meetings were held in March at the refuge between Hocutt, Rick McCloud and Vivien Norman of Congressman Horton's office, and Hocutt and Joan Mueller of Senator D'Amato's office. These were designed to assist Congressman Horton and Senator D'Amato in responding to a spate of opposing and supportive letters regarding the five-month long anti-hunting furor stirred up (initially) by a Seneca Falls woman. All of the aides were very helpful and very constructive during a prolonged unhappy time (see Section J-3).

In late March and early April, thanks to great help from Inez Connor (PAO/Boston) and Megan Durham (PAO/Washington) we were able to assist Ruby Moy, Congressman Horton's Washington office Administrative Manager, in securing

displays, brochures, and Take Pride bags for an Outdoor Exposition in Richmond, VA. Ms. Moy and Ms. Nancy Horton (the Congressman's wife) were sponsors. Presquile Refuge Manager Barry Brady and Outdoor Recreation Planner Yvonne Schultz assisted greatly by staffing the Service exhibit.

On April 20, Hocutt held discussions and provided a tour of Unit 17 and Tschache Pool for Ms. Joan Mueller, an aide to Senator D'Amato, to allow the Senator's office to better respond to a clip-out, coupon campaign addressed to the Senator by anti-hunting individuals and groups to cease public hunting on the refuge and "...protect the eagles".

On April 24, Hocutt met with and provided a refuge tour for Ms. Ellen Faulkner, President of the 1,400-member Atlantic Chapter (Syracuse/central New York State) of the Sierra Club, regarding the anti-hunting campaign and newspaper "smear" about hunting and public/eagle safety on the refuge. The woman who started the campaign joined the Sierra Club in February and used Sierra Club stationery (without authorization) to send correspondence to statewide media and to elected officials. After the meeting at the refuge, the Atlantic Chapter wrote public letters to all media outlets and environmental organizations in New York State to disassociate the group from the anti-hunting activists. They also wrote that hunting and trapping decisions on the refuge were strictly management-oriented, and should be made solely by the Service and the State.

On April 27, and twice more in early May, Hocutt met with Ms. Carolyn Hartman, a Revenue Officer with the U.S. Internal Revenue Service District Office in Syracuse, regarding the Lopez Brothers muck farm which was lost to the Service in early March because of inaction by The Nature Conservancy. Ms. Hartman suggested that the buyer could not handle the farm's tax liens, and that another sale might be held. Although Ms. Hartman was immediately put in touch with Realty in Boston, she finally (without a reason understandable, at least, to us) withdrew (or was told to withdraw) the IRS from negotiations with the Service. Apparently, the sale held firm.

In early May, the refuge provided displays and brochures to Susan Barclay and Alberta Bennett of the Seneca County Industrial Development Agency for a special county display in the Rockefeller Plaza in Albany, New York.

Jim Castor, Assistant Sports Editor of the Rochester Democrat and Chronicle, spent May 4 and May 12 on the refuge with Hocutt to prepare a special, two-part feature about the refuge. The story ran for two consecutive Sundays as full front-page presentations on the sports section. A large,

color map of places to go and things to do on the refuge ran the second Sunday. Staff Photographer Burr Lewis, who has done a number of refuge photo stories, worked on the refuge for three days for superb black and white photos. The work of the two men was masterful, and met the highest journalistic standards.

On June 7, Hocutt responded to a request for assistance regarding purple loosestrife from the Beaver Lake Nature Center (Onondaga County/Syracuse Parks Department). Hocutt met with the staff, toured the margins of the lake and marsh, and then participated in a critique. A formal letter with recommendations for management and the need for assured water rights was furnished for use by the Parks Department with the Onondaga County Legislature.

On June 8 and 16, Hocutt met on the refuge with Brad Griffin, the State's Region 7 Fish and Wildlife Administrator, to discuss the possibility of the Service providing office space for an appraiser, and part-time space for two biologists (one each from R7 and R8). With approval from Boston, by year's end, the State had installed two phone lines and were set up with two desks, files, and map cases in the front of the old "Fur House".

On June 15 and 16, the refuge hosted the State-wide Bureau of Wildlife (New York State Department of Environmental Conservation) program manager's summer meeting. A major focus of the meeting was to allow Bureau Chief Gary Parsons and regional managers from R7 and R8 to present the Northern Montezuma Wetlands Complex to their colleagues from across the State and from Albany. A DEC Jet Ranger Helicopter was flown in from Albany and landed at the Visitor Center. In a series of flights, all 45 State participants and four refuge staff were provided 20-minute tours of the proposed complex. A ground tour of the refuge was provided, with Hocutt explaining programs, problems, and proposed solutions. An evening cookout on the 15th included the manager and staff from Savannah Evergreen Farms, Ltd. (Robert Congel).

On June 27, Benvenuti and former refuge Recreation Aide Susan Adie provided a tour of the refuge for New York State Senator Kuhl.

The refuge's anti-hunting issue (which began on January 9, 1988) would not die. Ms. Lisa Hertzan, a legal intern with the Animal Defense Fund in New York City, contacted Hocutt in early June (and fired in an encyclopedic Freedom of Information Act request to Boston) about hunting programs, eagles, and public safety. The Regional Office asked them to define and limit the request, and to deal with the refuge about all of the specifics of the various programs. Hocutt

engaged Ms. Hertzan in a number of lengthy telephone calls and exchanges of correspondence throughout June and part of July, and provided extensive background information to her. The Executive Director and Ms. Hertzan did not accept Hocutt's invitation to spend a full day on the refuge -- even though transportation to and from the Syracuse Airport was offered. Finally, in late July, the organization restated their initial concerns, but also withdrew as a party of interest in view of the fact that the refuge had "...acted responsibly in protecting the eagles and public safety during it's four managed hunts...".

On July 6, at the request of State Division of Fish and Wildlife Director Ken Wich, Hocutt discussed waterfowl and endangered species use on the refuge and north of the refuge in the proposed Joint Venture area. He also discussed changed patterns of use during the last decade. Present at the presentation were Director Wich, Ducks Unlimited Northeastern Coordinator Ralph Bitely, Ducks Unlimited Western New York Director Al Starling, Wildlife Bureau Chief Gary Parsons, and State Lands Chief Eric Fried.

Throughout July, Hocutt and Flanders met a number of times with right-of-way engineers and construction foremen for MCI Corporation regarding their installation of a trans-continental fiber-optic telephone cable along Route 5/20 and the refuge boundary. The MCI people were extremely conscientious and helpful. They eventually agreed to bury a long section of line six feet deep instead of three feet deep. This effectively removed any possibility of future conflicts with transporting water from Cayuga Lake, northward underneath Route 5/20, and into Main Pool.

On August 8, Hocutt, Benvenuti, Flanders, and Norsen met with John Dates, President of Dates Excavations, Inc., the firm retained by Robert Congel (Savannah Evergreen Farms, Ltd.) to acquire the huge floating excavator that has changed the "marsh-scape" of Congel's marshes (part of the "private" end of the Joint Venture). A very good discussion was held about their work, eventual leasing of the \$755,000 machine by the Service, and some of the pitfalls (no pun intended) of level ditching and loosestrife.

Hocutt had a number of telephone and written communications throughout the month of August with Alan Poole, Senior Staff Biologist of the Manomet Bird Observatory in Plymouth, MA, regarding a feature article for National Wildlife about shorebird migration and habitats. Poole had specific interest about the annual spring and fall drawdown of the refuge's 200-acre May's Point Pool for shorebird habitat, and the effects of purple loosestrife upon shorebird habitats throughout the northeast. In addition to

furnishing much information and data, Hocutt reviewed and commented upon the paper, at Poole's request.

On August 24, the refuge hosted a major planning meeting at the Visitor Center for the Northern Montezuma Wetlands Complex Joint Venture. Young, Dyer, and Hocutt represented the Service. Director Wich, Bureau Chief Parsons, Joint Venture Coordinator Slingerland, and a number of Albany and regional people represented the State.

On August 29, the refuge hosted the Cayuga County Federation of Sportsmen's Clubs (13 organizations) at the Visitor Center. Hocutt gave a presentation about waterfowl/deer seasons on the refuge and the Joint Venture Project. The Federation represents an excellent method of disseminating information to a very broad audience.

On September 22, Hocutt met with Regional Waterways Maintenance Engineer John Baldwin (New York State Department of Transportation) to try to work out legal language acceptable to State counsel and the Service's Solicitor which would assure water for the refuge from Cayuga Lake.

On September 23, the refuge hosted an all-day (8:00 a.m. - 8:00 p.m.) Joint Venture Open House at the Visitor Center. Dyer, Whittemore, Quist, Casey, and Hocutt were available to answer questions from the general public, media, and refuge neighbors. A number of New York State Department of Environmental Conservation biologists and realty people from Albany, Cortland (Region 7) and Avon (Region 8) participated throughout the day. Over 100 persons formally registered at the Visitor Center.

Also on September 23, Hocutt and Gingrich met with Stephen Hight, Research Entomologist at the Beneficial Disease Lab of the Agricultural Research Service of the U.S. Department of Agriculture (Beltsville, MD) about the suitability of the refuge as a controlled-release site for European coleoptera larvae which are being studied as possible bio-control agents for purple loosestrife.

During October, the refuge banded 198 wood ducks to assist the New York State Department of Environmental Conservation (at their request) with their quota. Due to time constraints and the inability of State personnel to assist our people, another 300-400 woodies were released unbanded.

On October 13th and 16th, Hocutt met (at their request) with Carl Eller and Vern Christianson (Erdmann, Anthony Associates of Rochester), consulting engineers for Seneca Meadows Landfill for wide-ranging technical discussions about the just-released Draft Environmental Impact Statement

for a 40-foot height increase. The purpose of the meeting, ostensibly, was to evaluate their incorporation into the document of technical suggestions, as had provided them and the State of New York. Actually, the meeting became a very frank discussion of the Service's likely future position unless Seneca Meadows outlived their future plans for the site and for the 700 adjacent acres produced by them during the preceding 18 months.

Upon completion of the review of the seven-volume Draft Environmental Impact Statement and Revised Operating Plan for the landfill, Hocutt met at the refuge on the afternoon of October 17 with Frank Shattuck, Chief of Solid and Hazardous Waste Management, New York State Department of Environmental Conservation in Region 8. Hocutt outlined the Service's technical and other concerns about the documents, and recommended specific outcomes which we wanted from the upcoming adjudicatory law hearings in November.

On October 20, Hocutt conducted a management tour of the refuge for Bob Franzen, from the U.S. Soil Conservation Service (U.S.S.C.S.), and five other biologists from Nebraska, Texas, Missouri, Oregon, and Washington, DC. Franzen is New York State Biologist for U.S.S.C.S. Hocutt explained loosestrife problems and treatments, the pending water plan, and the Joint Venture Project.

At the request of the State, Hocutt represented the Service on November 3 and November 4 at State Hearings and Adjudicatory Law Hearings conducted in Waterloo, New York, by a State Administrative Law Judge. Hocutt read a formal statement into the record and then participated in questioning the permittees' consultants and in answering their questions about various positions outlined by the Service.

On November 10, the refuge again hosted at the Visitor Center a major planning meeting for the Joint Venture Project. The Service was represented by Whittemore and Hocutt. State Venture Coordinator Slingerland and a number of state, regional, and Albany people participated, along with the President of the Vanderbilt Marsh Duck Club, The Nature Conservancy's Wayne Clockner, and Ducks Unlimited's Al Starling.

On November 14, Hocutt and Fiscal Assistant McMahon checked a reported illegal wetland fill north of the refuge at the request of Phil Frapwell, Chief of Regulatory Affairs with the U.S. Corps of Engineers in Buffalo. No violation was found.



On December 7, Hocutt and Gingrich met with Libby Herland (Regional Office Farm Bill Coordinator) and Carl Schwartz (Ecological Services, Cortland, New York) regarding the refuge's role as New York State's lead refuge for Farm Bill easement management and construction in the State.

December was the month of decision for the agreement with the New York State Department of Transportation (Waterways) regarding the permit to take water from Cayuga Lake and transport it via gravity flow to Main Pool. Hocutt held a number of conversations with John Baldwin (Waterways Maintenance Supervisor in Syracuse) and with Patricia Junger (Department of Transportation Counsel) in Albany. Discussions among the various parties were held with regional Service Counsel in Boston (Mark Barash). All of the efforts were directed toward overcoming an impasse which developed because Federal law would not permit expenditure of Federal funds on State lands for a water intake structure on the lake. Meanwhile, State law (and the State constitution) prohibited the State from transferring the land to the Federal Government.

A meeting was scheduled for December 12, 1988 in Albany at the office of Mr. John Jermano, State Superintendent of Waterways. Hocutt picked up John Baldwin in Syracuse and traveled to Albany. Mark Barash flew in from Boston. The meeting in Mr. Jermano's office also included counsel Patricia Junger and Bill McDermott. Hocutt gave a 15-minute slide/map presentation. After about two hours of searching for solutions, Baldwin suggested a simple technique which had eluded all of us for two years -- dig the intake ditch from the canal, across State property 200 yards, and put the water control structure just across the common boundary onto Service land. Mr. Jermano gave his full support to the project, and in effect stated that when the State had water, the refuge would have water. Completion of the project will allow the complete restoration of 1,700 acres of marsh. It is, literally, the single most important project since the refuge's inception in 1938.

On December 15, Hocutt met at the refuge with Dr. Ron Scrudato, Vice Provost for Research, The State University of New York at Oswego, and a former consultant to the Service about geohydrology at the Seneca Meadows Landfill. Strategies were defined in the event the State's administrative law judge approved the landfill's 40-foot height increase (or "lift") without scheduling a formal public hearing.



## 8. Other Items

Refuge involvement in public education, logistical support, and management planning for the Northern Montezuma Wetlands Complex Joint Venture project was very active throughout the year. As Region 5's flagship project under the North American Waterfowl Management Plan, the goal of the project is to preserve, restore, and/or improve 35,000 acres of the formerly-vast Montezuma Swamp. At least some management functions of the refuge and state wildlife management areas will be unified. The effort is a joint venture project with the New York State Department of Environmental Conservation, Ducks Unlimited, The Nature Conservancy, Savannah Evergreen, Ltd., and the Vanderbilt Marsh Duck Club.

A number of formal meetings, including an all-day open house for the public and media personnel on September 23 at the Visitor Center, were held throughout the year. Dick Dyer, Ray Whittemore, Walt Quist, Paul Casey, and Don Young, all from the Regional Office, variously played major roles in meetings at the refuge, in Syracuse, and in Albany. Hocutt participated in over 25 formal meetings with officials from a number of public and private organizations. These varied from planning sessions with State regional biologists to formal presentations for Ducks Unlimited officials, elected officials, and persons with other agencies. Almost all of these presentations were at the request of various State officials.

Refuge staffers Gingrich, Benvenuti, and Hocutt were actively involved with State regional personnel in management planning as the various stages led toward starting the formal Environmental Impact Statement process. The Management Plan and the Environmental Impact Statement are being done as joint documents by the State and the Service.

Meanwhile, two State biologists (from Region 7 and 8), along with occasional biological technicians, are billeted three days a week in the front of the refuge's old "Fur House". A State appraiser will be billeted there in early 1989. The State has requested space for five to eight staffers on refuge property. This truly would put the "joint" into the joint venture!

## F. HABITAT MANAGEMENT

### 1. General

Montezuma's primary habitat management objective is to provide feeding and resting areas for migratory waterfowl and other water birds. A secondary objective is to provide nesting areas for a variety of bird species and to create seasonal mudflats for migratory shorebirds. To meet these stated objectives, moderate water levels were maintained during migration. Water levels declined slightly during the waterfowl nesting season. Over 9.5 miles of dikes were mowed during mid-summer in an effort to maintain succession at a stage suitable for nesting habitat. These dikes represent a substantial portion of the refuge's nesting cover.

### 2. Wetlands

Wetland management is the essence of habitat management at Montezuma, since approximately 80% of the refuge's 6,432 acres is classified as marshland. We continue to be hindered by problems brought on by our lack of flexibility to change water levels and lack of a reliable water source. Other confounding factors are the eutrophication inherent with 50-year old, shallow impoundments, insufficient control over carp populations, and the invasion of purple loosestrife that started during the early 1950's. Management of habitat diversity is severely hindered by these limiting factors that have frustrated most efforts to use more innovative management techniques. However, welcome light at the end of a long tunnel is evident as major plans are now almost completed for enhancing water availability and transport (see Section E-7).

The John Deere 690C power excavator was used to construct a small breeding-pair pond with nesting island, and to open a closed water transport channel in the Main Pool.

### Main Pool

This pool covers approximately 1,500 acres and has been the traditional purple loosestrife stronghold on the refuge. Again this year, water levels were held high enough to retard loosestrife germination, but not so deep as to unduly stress cattails. Approximately five acres of loosestrife were mowed with the Hockney Underwater Weed Cutter. This is less than in previous years because of lower water depths in the area to be mowed. Additionally, all sparse stands of

loosestrife were mowed last year. The remaining older, denser stands are inaccessible with our mower. Main Pool will be the primary recipient of benefits to be derived from the work described in Section E-7.

Cattail expansion with the less desirable Typha glauca hybrid has continued in the center of the pool. Water lily continued to be extremely dense along the southeast portion of the pool. Cutting with the Hockney Cutter is very labor-intensive and the results are short-lived, but it does provide some openings which attract waterfowl. Preliminary results with the herbicide Aqua-Kleen (2,4-D Ester) on the water lily are promising and warrant further investigation in the upcoming year.

### Tschache Pool

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

Spring flooding of the barge canal system did not overtop our dikes this year, as has happened in previous years. Each year a few more dead snags fall in the pool. The remaining snags are used extensively as perching and nesting sites for great blue herons and bald eagles. The Tschache Pool road was again closed to the public for most of the season so as not to unduly disturb the great blue heron colony or the bald eagle nest.

Carp continue to be abundant in the pool. The role these fish play in limiting cattail expansion may be greater than previously thought, and perhaps more significant than muskrat activity. The carp were targeted by the late fall, 1988 drawdown described in Section G-17.

### North Spring Pool

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

### South Spring Pool

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

### May's Point Pool

This 200-acre pool was drawn down both in the spring and fall for the shorebird migration. Green-wing and blue-wing teal were abundant, as were shorebirds, egrets, and great blue herons. See Section D-5 for a summary of research work undertaken on this pool during 1988.

## 3. Forests

Approximately 1,800 acres of the refuge are non-commercial woodland, most of which is classified as forested wetland. Dominant tree species include red maple, black ash, green ash, slippery elm, and swamp white oak. No forest management occurred in 1988.

Unit 17, a 600-acre tract of hardwood bottomland forest in the southern portion of the refuge, was seasonally flooded until 1978. There is significant mammalian activity in this tract, as well as at other water/forest interfaces. During 1985 and 1986, two 25 meter square deer exclosures were erected to help determine whether regeneration is retarded due to browsing by deer or due to other environmental factors.

During the annual qualitative browse observations in the spring, we found that the refuge had been heavily browsed during the winter of 1987/88. The winter was not usually severe in central New York. Snowfall totals were very close to historical averages, and three periods of thaw prevented large snow accumulations from hindering deer movement. The dramatic increase in New York State deer management objective levels by the State of New York has resulted in more deer in this area of central New York. Refuge deer hunting programs increased in magnitude in 1988, and will again in 1989. Still, until the State seriously determines to reduce total deer numbers around the refuge, there is little we can really do.

## 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 560 acres of grasslands on the refuge have been divided into several Grassland Management Units (GMUs). This was possible only after all on-refuge grazing was terminated in the early 1980's.

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 1988, mowing practices were instituted in GMU's 1 and 2 according to the current rotational schedule. Clipping heights were maintained at 15 cm (six 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. However, this situation is not unlike the sharply-reduced levels of nest attempts and success on the State's two wildlife management areas. Future plans to increase nesting use and success include strip mowing, dense nesting cover plantings, and removal of brush from along pool/field interfaces. Monies have thus far been unavailable to undertake these fairly intensive plantings. It remains to be seen if these future actions, in conjunction with increased predator control, will result in significantly increased waterfowl production.

## 6. Other Habitats

In addition to the habitats already discussed, there are more than 102 acres classified as rivers, streams, brush, and small isolated grassland areas. These areas are not normally subjected to any habitat manipulation. Several acres of land adjacent to administrative, maintenance, and

recreational areas are managed in accordance with their respective uses.

#### 9. Fire Management

No prescribed fires were initiated during 1988. The potential for prescribed burns at Montezuma is severely limited due to the presence of peat soils and the fact that two major highways traverse the refuge, thus making smoke management a real problem.

A cooperative agreement for wildfire and prescribed fires remains in effect with the Magee Volunteer Fire Department, Inc. A blanket purchase order with the Department provides for reimbursement of costs associated with structural fires and alarm system responses.

No fire equipment was purchased during 1988. Maintenance Mechanic Flanders constructed a short access road from the office complex to the nearby Cayuga and Seneca Canal. The road will provide access to water for local fire companies in case of a structural fire in one of the refuge's buildings. The access road replaces a non-functioning stand-pipe in the office parking lot.

We had no wildfires on the refuge in 1988.

#### 10. Pest Control

Approximately five acres of loosestrife and five acres of water lily were mowed during 1988. Chemical control using the herbicide Rodeo™ is still not possible due to delays in the approval process by the New York State Department of Environmental Conservation.

On September 23, Hocutt and Gingrich toured possible purple loosestrife biological control sites with Mr. Stephen Hight from the U.S. Department of Agriculture's Agricultural Research Service in Beltsville, MD. Height is coordinator for the efforts of Interior and Agriculture in this endeavor.

At least two species of beetles have been identified by Dr. Dieter Schroeder in Europe. They have shown so much promise that attempts may be made to speed up the timetable for quarantine entry and controlled release in the United States. Dr. Schroeder and U.S. Department of Agriculture scientists visited the refuge in 1987.

Three herbicides were used on the refuge during 1988. Triox™ (Prometon) was used to kill weeds around buildings, gates, signs, etc., in order to reduce the amount of time needed for hand trimming. Roundup™ (Glyphosate) was used to treat approximately 30 acres of phragmites on terrestrial sites. Roundup™ was applied with a boom-wick applicator mounted on the front of the refuge's farm tractor. The granular herbicide Aqua-Kleen (2,4-D Ester) was broadcast spread from the airboat on a one-acre stand of white water lily in the Main Pool. Results were very encouraging. A visual inspection showed that all of the lily was killed on the test plot within ten days. In 1989, we plan to use Aqua-Kleen on approximately 25 acres of water lily that is forming a dense mat on the eastern side of the Main Pool.

## 12. Wilderness and Special Areas

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



## G. WILDLIFE

### 1. Wildlife Diversity

Wildlife diversity at Montezuma, as in most relatively stable biotic communities, does not vary much from one year to the next. Most migratory and resident wildlife species found in central New York frequent the wide diversity of habitat types present on the refuge. Species which are uncommon or rarely seen, but were sighted on the refuge in 1988 included: caspian tern, white pelican, peregrine falcon, and snowy owl. In early April, a lone wild turkey was sighted near the refuge main entrance. Turkeys are uncommon in this part of central New York and no additional sightings of the bird were reported during the remainder of the spring.

### 2. Endangered And Threatened Species

In 1987, three adult bald eagles successfully raised two young at an isolated nest site on the northern portion of the refuge. During late December of 1987, refuge staff worked with the New York State Electric and Gas Corporation (NYSEG) and the New York State Department of Environmental Conservation (NYSDEC) to stabilize the nest which was precariously perched in a rotten, dead elm tree. An 75-foot pole was installed six feet from the nest tree, and the nest was then transferred to a "cradle" bolted to the pole.

Despite 1987's successes, 1988 was a very unsettled year for the three bald eagles. In late January, the birds moved from the pole nest to a tree some 200 yards distant. After partially completing that nest, they moved to a dead tree over water only a few hundred yards away from the Tschache Pool Tower and began adding to an old great blue heron nest.

Several days later, for no apparent reason, the birds again moved, this time to an old osprey nest at the base of Clark's Ridge. The birds apparently laid two eggs and incubated them for several days before three days of sustained gusty winds blew down the entire nest on March 25. The next day the birds moved back to the "heron" tree. It is likely that one egg was laid in this nest.

Bad luck continued to plague the birds when on April 16 they abandoned this nesting attempt. The reason for the second failure is still unclear, but may have resulted when the egg was damaged during the incubation process.

Following the second nesting failure, the birds moved back to the site of 1987's successful nest. Refuge and state biologists observed the birds placing sticks atop the platform on the pole installed by NYSEG. Also, other mating behavior was noted. Unfortunately, it was too late in the season for a successful third nesting attempt during 1988.

The three adult bald eagles were continually observed on and in the vicinity of the refuge throughout the late spring, summer, and fall of 1988. The most hopeful sign for the future is that even though an eaglet was not produced in 1988, the adult eagles appear to be locked onto the secure pole-nest, rather than the rotten old trees over open water.

An osprey pair successfully fledged two young from a nest built atop an artificial platform that was erected in the Main Pool last winter. Nesting ospreys are very unusual this far west and inland in the state. Apparently the ospreys were displaced from last year's successful nest location when the bald eagles took over that Tschache Pool nesting site. This year's nest was located just west (a few hundred yards) from the Visitor Center observation deck. The proximity of the nest and adult birds provided refuge visitors with many memorable viewing opportunities.

One peregrine falcon was observed flying over the refuge in early September.

### 3. Waterfowl

Overwintering of Canada geese in the Cayuga Lake Basin continued the trend of the last decade. A ground census of Cayuga Lake (north of Sheldrake) was conducted by refuge personnel during the last week of January. A total of 65,000 Canada geese were recorded. Goose numbers for the entire lake basin were undoubtedly much higher, since only half the lake was censused, and ground counts are notorious for underestimating.

Many of the "lake" birds spent portions of winter days sitting on the ice or slush covering refuge pools. A late January-early February thaw encouraged approximately 16,000 Canada geese and 1,000 mallards and American black ducks to use the refuge pools.

Spring migration started slowly in response to alternate freezing and thawing of the refuge pools during mid and late March. Canada goose numbers peaked at 34,000 in late March and then slowly increased to a spring peak of 40,000 birds in mid-April. Snow goose numbers peaked at 7,000 birds during the same time period. The majority of the birds left

the area during the last week of April. An aerial census of Cayuga Lake and adjoining areas was performed by New York State Department of Environmental Conservation personnel on March 18, and again on April 12. A total of 147,000 Canada geese were tallied during the March census, and 88,000 in April. The April flight also counted approximately 4,500 snow geese on the lake.

Fall waterfowl migration got underway during the last week of September when several thousand Canada geese and ducks arrived in the area. Waterfowl numbers steadily built up throughout the remainder of the autumn. Canada goose numbers peaked during the last few days of November, with 44,000 birds on the refuge. Fall duck numbers also peaked during late November with nearly 85,000 birds observed on the refuge. The most noteworthy occurrence of the fall duck migration was the presence of over 10,000 diving ducks on the Main Pool in early November. Large rafts of both ring-necked ducks and canvasbacks were easily observed from the Main Pool dike for several days.

The first Canada goose brood was observed on May 2. Duck numbers for the spring peaked at approximately 3,500, a small increase over last year's peak of 3,200. The first wood duck brood was observed on May 22. The first mallard brood of the spring was spotted four days later on May 26.

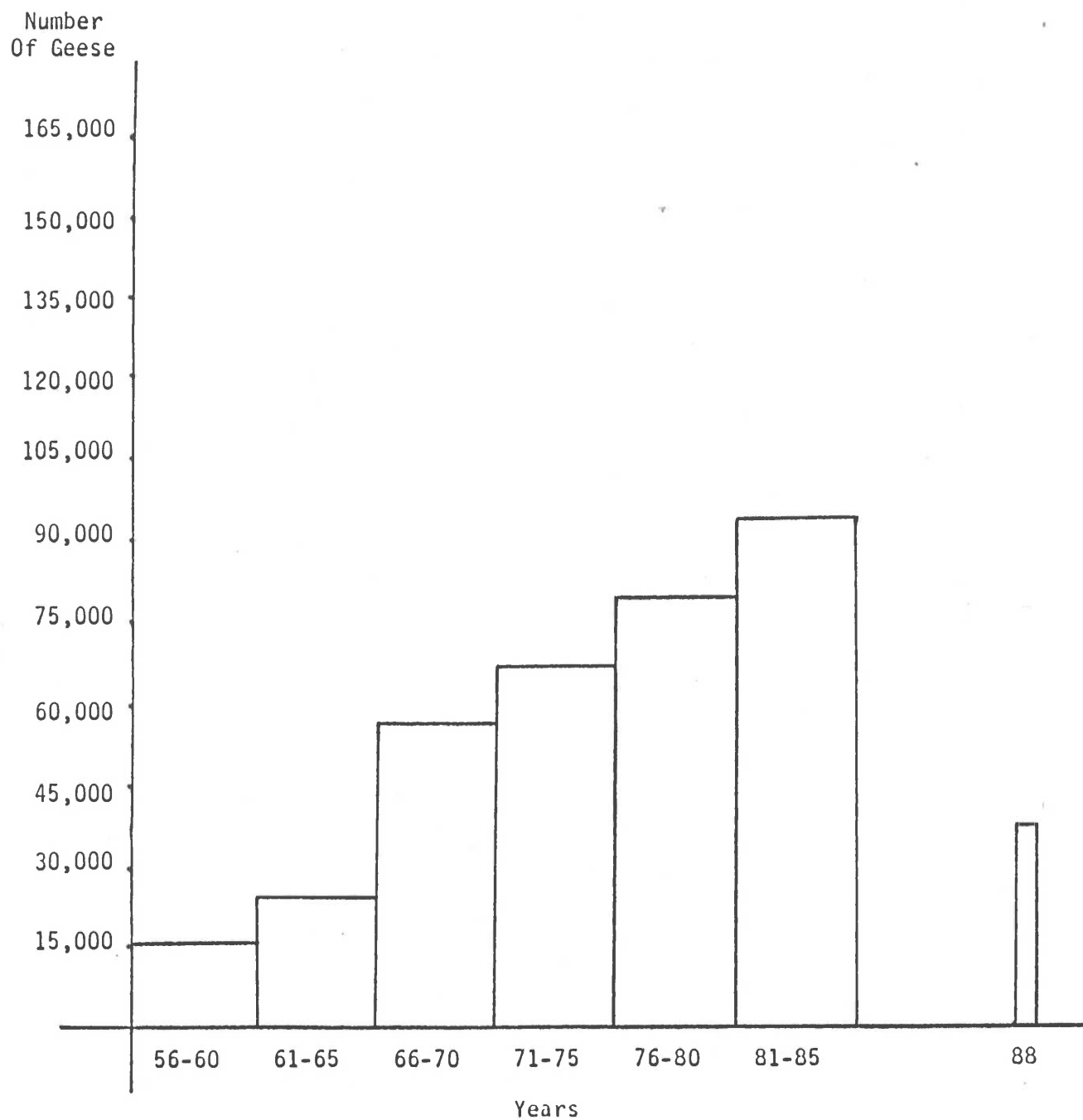
Canada goose production remained constant from last year, with 220 goslings produced. Overall duck production declined slightly in 1988. While wood duck production increased in 1988, mallard production declined from 181 ducklings produced in 1987 to 76 this past year. Lack of precipitation and subsequent low pool levels may have contributed to the decline in mallard production.

The wood duck nest box program at Montezuma has been very successful over the last decade. Yearly monitoring of box use has aided us in attaining a fairly accurate estimate of wood duck production on the refuge. Maintenance Mechanic Steve Flanders has closely monitored the boxes since 1978. He has been instrumental in relocating boxes over the past several years to prevent any potential dump nesting problem. Data are collected in late January or early February for the previous nesting season. Consequently, information on the 1988 season will not be collected until early in 1989.

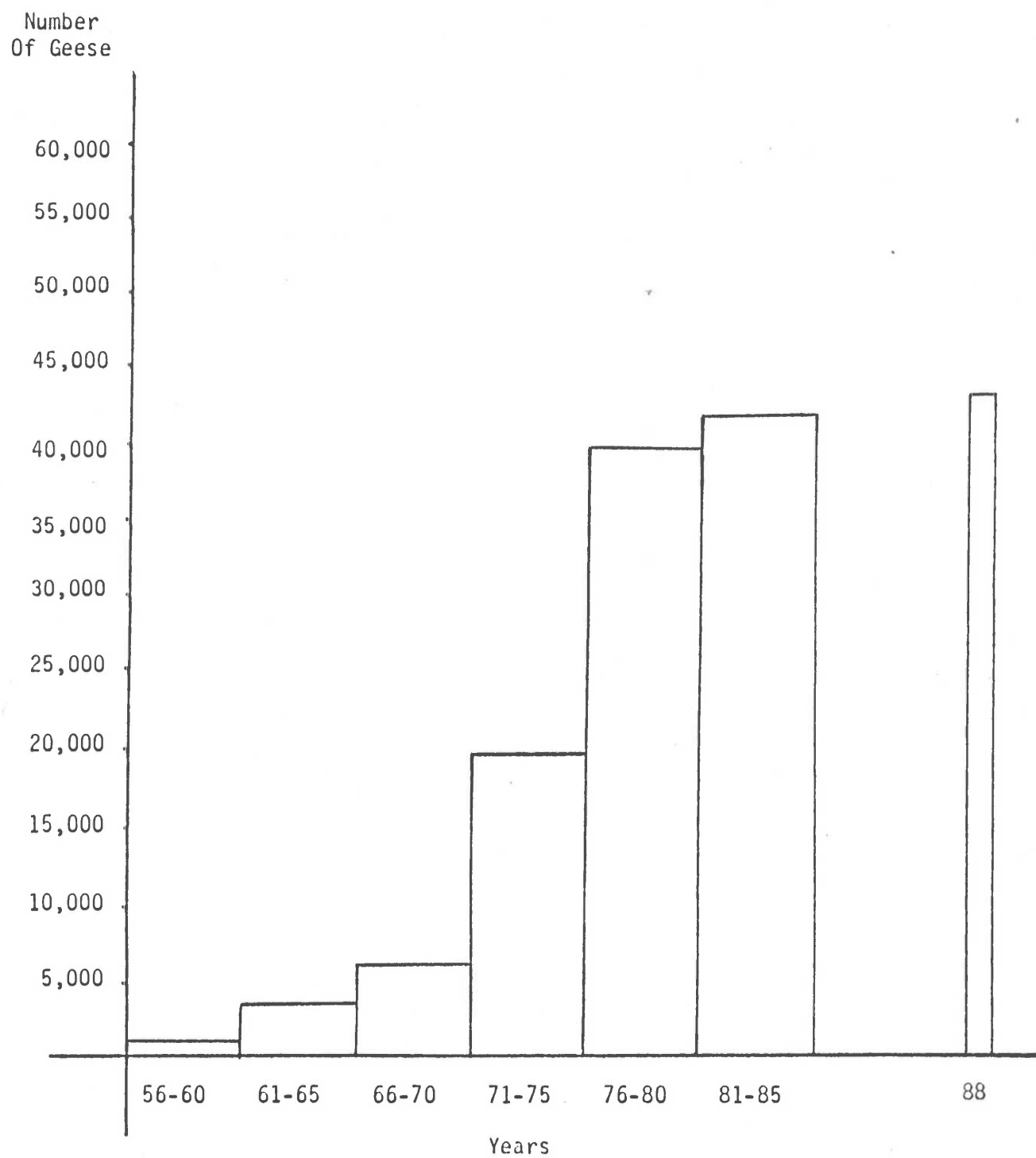
1987 continued the trend in recent years of strong nest box use and production. In 1987, 86% of the 111 boxes were used, with a total of 664 young wood ducks exiting the boxes. In addition, 12 hooded mergansers were produced in the boxes in 1987.

Monitoring and expansion of this very successful program will continue in the future, with a goal of further increasing wood duck production on the refuge. Much of the credit for the success of this program goes to Steve's considerable efforts over the past 11 years.

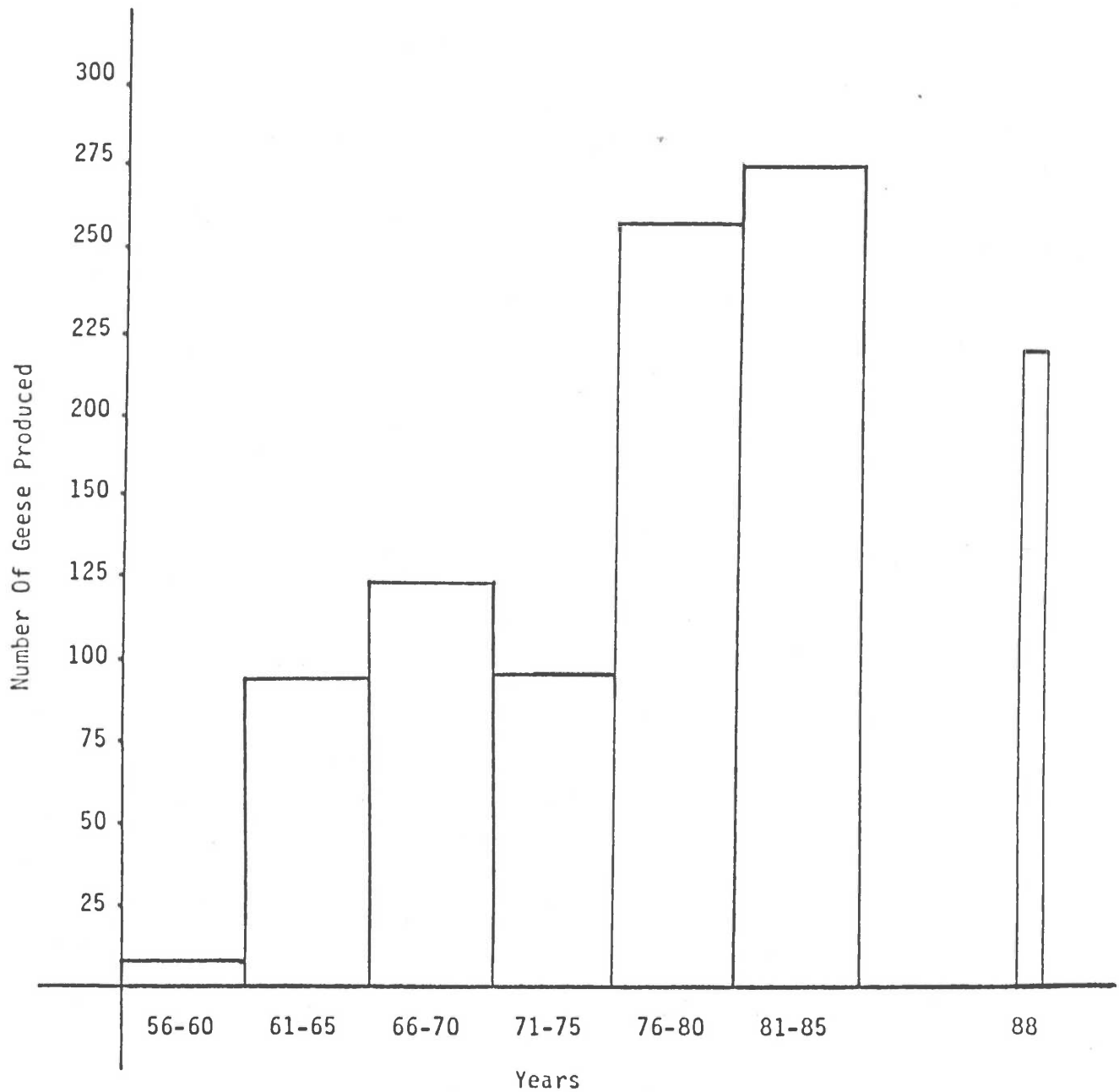
Five-year Means For Spring Peak Canada Goose Populations  
At Montezuma NWR Between 1956-1988



Five-year Means For Fall Peak Canada Goose Populations  
At Montezuma NWR Between 1956-1988



Five-year Means For Canada Goose Production  
At Montezuma NWR Between 1956-1988





#### 4. Marsh and Water Birds

Since 1982, great blue herons have nested atop dead snags in the east-central portion of Tschache Pool. Prior to 1982, when two pair nested in snags, this species had not successfully reproduced at Montezuma since the mid-1940's. One hundred and four nests were built this year, with an estimated 290 young being produced.

While the number of great blue herons nesting on Tschache Pool has steadily increased over the last six years, the number of suitable nesting sites (dead snags over water) has continually declined. The snags are the remains of a hardwood forest that was flooded in the 40's. Over the intervening years, the snags have rotted and fallen. It is anticipated that the heron rookery will shift within the next several years to an area with a greater abundance of nesting sites.

Black-crowned night herons again nested in the purple loosestrife stands fringing parts of the Main Pool. Other species noted as nesting on the refuge this year included Virginia rail and green-backed heron. Although they made no attempts at nesting, double-crested cormorants capitalized on the abundant carp and bullhead populations in refuge pools. Upwards of 300 of the birds were observed on Main and Tschache Pools throughout the late summer and early fall.

#### 5. Shorebirds, Gulls, Terns, and Allied Species

May's Point Pool was drawn down to create mud flats for migrating shorebirds during April and May and again during the fall. The presence of the mud flats attracted large numbers of shorebirds, which in turn attracted many dedicated birders to the refuge. Shorebird species diversity was very impressive. Killdeer, lesser yellowlegs, spotted sandpiper, least sandpiper, dunlin, semi-palmated plover, and pectoral sandpiper were most numerous. Some unusual or rarer sightings included ruddy turnstone, stilt sandpiper, and both Wilson's and red-necked phalaropes. Virtually every species of shorebird representative of central New York was recorded during the spring and fall.

The usual large numbers of ring-billed and herring gulls were observed "cleaning up" the winter-killed carp and small bullheads after the ice went out in late March.

## 6. Raptors

Other than the comments above (Section G-2) concerning bald eagle and osprey use of the refuge, raptor populations showed no noticeable changes in 1988. Species known to have successfully fledged young on the refuge during 1988 included red-tailed hawks, kestrels, and screech owls. Two young also fledged from a great horned owl nest built in a snag on Tschache Pool. This same snag also contained an active great blue heron nest later in the spring.

## 7. Other Migratory Birds

The refuge's efforts to assist in the recovery of the eastern bluebird were first rewarded in 1981 when a single pair of birds used one of our bluebird nesting boxes to produce five young. Since then, 52 additional bluebirds have fledged from nest boxes on the refuge. In 1988, two nest boxes were occupied by eastern bluebirds. The first nest successfully fledged five young in late May. A second nest, containing three eggs, was found abandoned during the last week of July. Species using the remaining boxes included tree swallows, house wrens, and black-capped chickadees.

In 1989 we plan to continue to install double boxes to reduce bluebird/tree swallow conflicts. We also hope to replace existing boxes constructed of pine with new boxes constructed of cedar. The cedar boxes are more decay-resistant, and require less annual maintenance for upkeep.

## 8. Game Mammals

The size of the refuge's non-wintering white-tailed deer herd has remained relatively stable for several years. The estimated population is between 200 and 300 animals. The deer are transitory, constantly moving onto and off the refuge on a daily and seasonal basis. The most important factors affecting deer numbers and movements are farming practices on adjacent agricultural lands, the severity of winter weather, and the intensity of harvest efforts by the State in the Deer Management Units surrounding the refuge.

Throughout the year deer leave the refuge on a daily basis to feed on surrounding farmlands. During occasional severe winters the refuge serves as a "yarding" area for deer from a distance of eight to ten miles. The refuge's 2,000-acre tract of moist hardwood bottomlands and cattail swales provide escape not only for refuge deer, but also for those deer from adjacent, non-sheltered farmlands. The deer seek

out the thermal protection afforded by the bottomland hardwoods and adjacent cattail marshes. This "quasi-yarding" behavior in severe winters (i.e., 1978-79 and 1979-80) is well-documented by state deer biologists.

The recent series of consecutive mild winters, coupled with reduced harvests of deer (especially females and fawns) in and around the refuge, have resulted in too many deer for winter carrying capacities. The magnitude of the increase in herd size in central New York is best illustrated by the fact that the State's indices (the number of bucks killed per square mile) has increased from approximately 0.8 five years ago to almost 2.0 in 1988! The refuge has been proportionately affected.

The large over-wintering deer population has had a negative impact upon the over-all vigor and diversity of the refuge's plant communities and the animal populations which depend upon these communities. Large areas of the refuge's treed and/or shrubbed acreage have been heavily browsed (up to a height of six feet in some cases) in recent years. The refuge's deer hunts have been designed and implemented to reduce the deer population and thus lessen the damage to the vulnerable plant communities.

During the refuge's 1988 archery and gun deer hunts, refuge staff members (three persons completed the New York State Department of Environmental Conservation Deer Aging Techniques Workshop) staffed a hunter check station to obtain accurate biological information on deer ages and physical condition.

A total of 134 deer were harvested by hunters during the 1988 refuge season (October 17 through December 20). Archery hunting accounted for 73 deer, with shotgun hunters removing an additional 61. No deer were taken during the muzzleloading hunt. Eighty-nine (89) of the 134 deer harvested were examined by refuge personnel at the hunter check station. Information collected on each deer included sex, age, antler beam diameter, total number of antler points, and fawn weight. The sex and age breakdown for the 89 deer examined at the check station is summarized in the following table:

Summary Of Check Station Data For the White-tailed Deer  
Hunt On The Montezuma National Wildlife Refuge, 1988.

Sex	Fawns	<u>AGE CLASSES</u>				Number Harvested
		1 1/2 Years	2 1/2 Years	3 1/2 Years	4 1/2 Years	
Male	15	22	8	2	0	47
Female	7	10	13	6	6	42
TOTAL	22	32	21	8	6	89

Average beam diameter (measured with calipers one inch above the base of the antler burr) for 1 1/2 year old male deer was 18.18 mm, as compared to 17.88 mm in 1987, and 17.11 mm in 1986.

The 1987-88 refuge trapping season marked the eleventh consecutive year that the Fur Management Program has used the bid system framework. Five trappers were awarded one unit each. A total of \$1,478.00 was collected as a result of sealed bids. The total number of muskrats harvested was 591, an increase of 25% from the 1986-87 season.

Implemented for the 1987-88 season were several changes that provided for much more liberalized trapping of predators. In addition, significantly higher fur prices, and a substantial increase in raccoon populations led to a greatly increased trapper harvest of predators. Trappers reported catching 113 raccoons (18 last year), three red fox (two last year), 13 mink (none last year), and 42 opossums (eight last year). Twenty-three of the raccoons were caught by New York State Department of Environmental Conservation biologists as part of a state-wide test using padded traps versus conventional unpadded 1 1/2 double coil traps. The padded trap study is continuing on the refuge during the 1988-89 trapping season. Final results of the study are scheduled to be released in 1989.

#### 10. Other Resident Wildlife

Ring-necked pheasant numbers were up again in 1988, continuing the trend of the last several years. Consecutive mild winters, in conjunction with the availability of good habitat (in the form of managed grassland fields) have probably been the two most important factors contributing to this increase. During 1988, two pheasant broods were observed, with a total of 20 young.

#### 14. Scientific Collections

Refuge staff members collected a total of 11 snapping turtles during June of 1988. Tissue samples from the turtles will be analyzed as part of the refuge's ongoing contaminants study. A description of the study is provided in Section D-5.

#### 15. Animal Control

Several woodchuck burrows were treated with rodent control cartridges (gas cartridges) during 1988. Control efforts are annually limited to a few select areas along dikes where woodchuck activity, if left unchecked, could result in structural damage to the dikes. Woodchuck control efforts were also undertaken in the vicinity of the Esker Brook Nature Trail where the existence of burrows constitutes a safety hazard for refuge visitors.

#### 16. Marking and Banding

The preseason waterfowl banding effort at Montezuma was very successful during 1988. The refuge banding quota of 200 mallards (50 each age and sex) was easily met. In addition, the refuge quota of 50 American black ducks was fulfilled for the first time in several years. Several wood ducks were also banded at the request of the New York State Department of Environmental Conservation to assist them in reaching their quotas.

Montezuma was one of several refuges in Region Five that participated in the special mallard reward band study. In an effort to capture and band as many mallards as possible, the refuge applied for and obtained an Army Corps of Engineers permit to place fill and construct a new waterfowl banding site. Work on the .15-acre site adjacent to the Main Pool was completed during the last week of August. The new banding site, in conjunction with existing sites and several newly-constructed traps, allowed refuge staff to

more efficiently meet waterfowl banding quotas. As mitigation for filling wetland habitat to create the new banding site, the refuge created a breeding pair pond, and reopened a closed water transport channel in the Main Pool complex.

All birds were captured with the three-compartment Montezuma Trap. Biological Science Student Trainee Maura Sheehan constructed two sets of new traps during the summer for use in conjunction with 1988's increased waterfowl banding efforts.



Biological Science Student Trainee Maura Sheehan releasing one of the 596 birds banded on the refuge in the fall of 1988. (88-4; TAG)

The total take for 1988 was as follows:

	<u>HYM</u>	<u>AHYM</u>	<u>HYF</u>	<u>AHYF</u>	<u>TOTAL</u>
Mallard	142	60	63	59	324
American Black Duck	28	9	19	18	74
Wood Duck	57	58	55	28	<u>198</u>
					596



## 17. Disease Prevention and Control.

A planned late summer drawdown of Tschache Pool was delayed until the late fall - early winter period. The summer's unusually hot, dry weather conditions posed an unacceptably high risk for the development of an avian botulism outbreak. Dr. Ward Stone (Wildlife Pathologist with the New York State Department of Environmental Conservation) expressed a strong opinion that a mid-summer drawdown of water should be avoided since it would result in a massive fish kill, and also a die-off of aquatic invertebrates. The resulting carcasses, in conjunction with high ambient temperatures and rotting vegetation, could then become centers for the growth of Clostridium botulism. Dr. Stone felt that a summer drawdown under the then-existing conditions would pose a solid fifty percent (50%) chance of producing a botulism outbreak. The drawdown was considered to be a "house-keeping" task to remove a majority of the carp that have infested refuge pools as a result of over-topping of dikes by the New York State Barge Canal. Drawdowns in summer (to oxidize organic materials on the substrate and to enhance plant diversity) can begin in summer, 1989, without major concerns about botulism.

H. PUBLIC USE1. General

Public use continues to play an important role in the management of Montezuma National Wildlife Refuge. The refuge attracts thousands of people from Central New York and across the country each year who want to enjoy the out-of-doors. Total visitation at the refuge was estimated at 155,800 for CY-88, decreasing only slightly from last year. Although this number is far below past estimates of 250,000+ visitors, several factors have influenced the change.

Due to continued loss of personnel, and the ascendancy of critical biological programs, the refuge has not been as actively involved in environmental education and off-site programs as in past years. The position of Outdoor Recreation Planner was vacant for almost 18 months. Methods of estimating visitation have also changed, hopefully producing more accurate numbers. Weather also plays an important role in the volume of visitation, as it influences both the wildlife species which may be viewed and the comfort of the visitor. Lastly, but not without significant effect, has been implementation of the federal fee system at Montezuma.

Monthly visitation for CY 88 is as follow:

January	7,700	July	17,500
February	3,300	August	12,200
March	10,100	September	13,100
April	14,500	October	23,900
May	20,100	November	12,000
June	15,000	December	6,400

An Open House was held in celebration of the 50th anniversary of the refuge in October. The celebration was delayed until October to coincide with peak migration. A weekend of special events was planned and well received. Programs included duck banding demonstrations, a bird walk, a wildflower walk, a carving exhibit and a day of wildlife films. Over 700 people visited the Visitors' Contact Station during the three-day event.



Mike Allen, New York State Department of Environmental Conservation, presented an update on the eagle program at the refuge's 50th Anniversary Open House. (88-5; KSC)



Refuge Manager Hocutt gets a helping hand at a waterfowl banding demonstration (88-6; KSC).

The refuge completed its first full year with entrance fees in September. Collection from general fees totaled \$14,427 during the calendar year. A total of 37 Golden Eagle Passports were sold, as were 211 Duck Stamps. Numerous Golden Age and Golden Access Passports were also issued. Since no extra personnel were hired to run the program, management of the fee program has been quite time consuming for the refuge staff -- with comparatively little monetary return.

## 2. Outdoor Classrooms - Students

The use of the refuge by students for environmental education classes decreased from previous years. This was due to serious staff shortages in the public use program. Most of the 1,423 visits recorded as E.E. this year consisted of school and youth groups who received an introduction to the refuge and Service by either a volunteer or staff person, followed by a film or a simple explanation of the management practices of the refuge. The "touch table" was often used as a center of discussion for younger students. With an increased emphasis on teachers' workshops in the future, it is hoped the refuge will once again be utilized by numerous school groups with less staff involvement.

The refuge film library was made available for use by area teachers. Many teachers utilized these wildlife films in their classroom as a supplemental teaching tool.

Assistance was provided to a number of area colleges and universities. These included:

On April 5, Hocutt led a four-hour management seminar and refuge tour for 40 junior and senior wildlife majors from the College of Environmental Science and Forestry of The State University of New York at Syracuse.

On April 9 and 10, Hocutt presented a session on "Professional Ethics and Management Responsibilities" to 70 wildlife majors from nine institutions at the Northeastern Wildlife Society Conclave at Huntington Forest in the Adirondacks.

On May 7, Hocutt led a five-hour management field trip for 18 students from Dr. Charles Smith's Advanced Ornithology class from Cornell University (Laboratory of Ornithology).

On October 22, Hocutt presented a three-hour waterfowl management lecture and field trip to 35

members of a Waterfowl Management Class from the College of Environmental Science and Forestry at The State University of New York at Syracuse.

### 3. Outdoor Classrooms - Teachers

Assistant Manager Benvenuti met with teachers at the Frank Knight Elementary School prior to their Environmental Awareness Week program in September. Mr. Benvenuti discussed teaching techniques that might be appropriate concerning their "Birds of Prey" theme.

No teachers' workshops were held at the refuge this year. Regrettably, this was the first break in continuity of workshops since the program was first implemented in 1978.

### 5. Interpretive Tour Routes

The Auto Tour Route continues to attract many visitors to the refuge. An estimated 69,800 people toured the 3.5-mile road, which borders Main Pool and terminates at an observation tower overlooking Tschache Pool. Throughout migration these pools are utilized by thousands of ducks and geese. An interpretive brochure is available for the tour route, but will not be reprinted until it can be updated.

### 6. Interpretive Demonstrations

An estimated 45,000 people stopped at the Visitor Contact Station during the year. The building is open and staffed on weekends and some holidays with the assistance of volunteers. Outside exhibits and brochures allow all refuge visitors access to refuge information even when the building is not staffed.

The Duck Stamp Exhibit and the new North American Waterfowl Management Plan Exhibit were displayed in the VCS at various times throughout the year.

The New York State Electric and Gas Corporation (NYSEG) developed a small mobile exhibit explaining last year's relocation of the eagle nest. The exhibit included some background information on the eagle program. The exhibit was well received, and was an excellent source of information on the eagles. NYSEG plans to update the exhibit on a regular basis to explain current nesting efforts and results.





Several people viewed the System 70 Exhibit while it was displayed at nearby Cayuga Lake State Park during their Winterfest. (88-7; PEB)

The System 70 display, with some refuge specific modifications, was used as an unstaffed exhibit for the refuge on a number of occasions during the year at the following locations:

January 27-31	Great Northeastern Sports Show at the New York State Fairgrounds in Syracuse, New York.
February 5-7	Winterfest, Cayuga Lake State Park, Seneca Falls, New York.
April	Environmental Night, Sodus Elementary School, Sodus, New York.
May	Association of Resources Development Convention, Albany, New York.
June 11	National Fishery Research and Development Laboratory, Wellsboro, Pennsylvania.
October 19-26	Environmental Awareness Week, Frank Knight Elementary School, Seneca Falls, New York.

## 7. Other Interpretive Programs

Several special programs were presented in the Visitor Contact Station throughout the year. A series of speakers on a variety of wildlife and environmental topics was planned during the slow season of late winter and early spring. Topics discussed by guest speakers included the following:

March

"Wildlife Rehabilitation" - Refuge Volunteer Barbara Olds.

"Wildlife Photography - Refuge Volunteer Kevin Colton.

"Lynx Reintroduction in the Adirondack Mountains" - Dr. Ranier Brocke, State University of New York College of Environmental Science and Forestry at Syracuse.

"Solid Waste Management" - Dr. Ron Scrudato, State University of New York College at Oswego.

April

"New York's Bald Eagle Restoration Program" - Mike Allen, New York State Department of Environmental Conservation.

"Toxics and Wildlife" - Dr. Ward Stone, New York State Department of Environmental Conservation.

May

"Basic Birding Techniques" - Charlie Rouse, Refuge Volunteer.

Numerous bird, wildflower, and special interest walks were also held throughout the year.





Dr. David Beebe, Camillus Erie Canal Society, lead a walk along the old Erie Canal site on the refuge (88-8; LMK).

## 8. Hunting

Due to continued significant increases in the deer population throughout central New York, and the related damage to plant communities on the refuge, the deer hunt was expanded in 1988. It included a one-week gun hunt and a one-week muzzleloader hunt, which followed the archery hunt. The firearms hunts were the first gun hunts on the refuge in over 30 years.

As in the past, a drawing was used to limit the number of hunters for the opening day of the archery deer hunt. Nine hundred twenty applications were received for the six hundred opening day permits. A total of 419 hunters actually participated in the opening day hunt. Archery hunt harvest results are indicated in the following Table:

## MONTEZUMA ARCHERY DEER HARVEST

	# of Hunter Visits	# of Hunters (60%)	# of Opening Day Hunters	Total Deer Harvest	Opening Day Harvest	Year Success Rate	Opening Day Success Rate
1988	2,300	1,380	419	73	25	5.3%	6.0%
1987	2,953	1,772	483	89	37	5.0%	7.7%
1986	1,648	989	294	63	25	6.4%	8.5%
1985	1,754	1,052	738	66	53	6.3%	7.2%
1984	2,053	1,232	636	78	50	6.3%	7.9%

State Success Rate Average: 5.0%

A computer lottery drawing was held for the gun deer hunt in November. The hunt was set up to allow 115 hunter per day during a six-day hunt. A disappointing 502 applications were received for the 690 permits. Almost 50% of the applications received were for opening day. Stand-by hunters increased the number of permits issued to 562, as many people showed up during the first three days of the hunt. Snowy weather decreased interest as the hunt progressed. So, the refuge was affected by New York State's mounting crisis -- too many deer and too few hunters. Although the initial take consisted primarily of antlered deer, the number of does and fawns harvested increased as the hunt progressed. Harvest data are shown in the following Table:

## MONTEZUMA GUN DEER HARVEST

	# of Hunter Visits	# of Hunters	# of Opening Day Hunters	Total Deer Harvest	Opening Day Harvest	Opening Day Success Rate
1988	562	349	115	61	12	10.4%

The muzzleloader hunt was a disappointment. Despite heavy lobbying by the New York State Muzzleloader's Association, only 35 hunters made 63 visits during the six-day hunt. No deer were harvested during the entire hunt. Since muzzleloading hunting is also permitted in conjunction with the shotgun hunt, no further efforts will be made to provide a "special" muzzleloading hunt.

In view of a lack of any evidence that the State intends to reduce what we (and others) believe is a very high population of deer in Deer Management Unit 86, the shotgun hunt will be expanded to 14 days in 1989.

Although the overall hunt went smoothly, a few incidents did occur. An Aide to Congressman Frank Horton called in response to a constituent's inquiry concerning our lack of flexibility when dealing with handicapped hunters who couldn't hunt within the refuge hunt regulations. Although exceptions concerning handicapped hunters were made on a case-by-case basis, no one recalls discussing the matter with this particular individual. Nevertheless, we asked the Congressman's office to have the constituent contact us in mid-August, 1989, with specific details. In addition, a local paper carried a "letter to the editor" from a local animal rights activist. Except for a few disgruntled archery hunters who felt the area should remain closed to gun hunting, no other conflicts arose.

Waterfowl hunting was limited to ten days this year, as part of the Flyway and State reduction in days. A total of 294 hunter visits took 326 ducks and 96 geese, with a 1.4 bird/hunter harvest. The harvest was down slightly from previous years, but most hunters were happy with the hunting experience provided.

Small game hunting started on December 21. As in the past, little interest has been expressed in the hunt by area hunters. A self-service check station allows participation with little staff effort. The size of the hunt area was decreased in Unit 17, as an area was defined to be used by cross-country skiers and snowshoers only. An incident in January resulted in a precautionary separation of the two groups. The decision was not based upon "safety", but upon public relations and conflict avoidance.

A total of 68 raccoons were harvested by night raccoon hunters in the 1987-88 hunt on the refuge. The hunters, who apply for special use permits, are allowed to use dogs and to hunt between sunset and sunrise.

An incident involving a local anti-hunting activist occurred in January, 1988, and consumed a tremendous amount of staff time. The incident is described in Section J-3. It is likely that these sorts of problems are unavoidable when one looks at the number, complexity, and duration of hunting and trapping programs which coexist for four months on a very limited (1,400 acres or so) upland base. Of course, these consumptive programs coexist on the same limited upland base with a monthly average of 13,000 non-consumptive users during the September-December period.

#### 9. Fishing

Although no refuge waters are open to fishing, the refuge maintains two fishing areas along the Clyde River. In conjunction with the State of New York, the refuge maintains a third fishing area with boat ramp on the Cayuga/Seneca Canal, which is located on State land adjacent to the refuge. Over 24,000 people participated in fishing activities in these areas in 1988.

#### 10. Trapping

Please see section G-8 for a discussion of trapping. Our muskrat trapping program is intended to be a habitat management technique and an economic use.

#### 11. Wildlife Observation

The majority of the visitors at Montezuma Refuge fit into this category. Spring and fall migration of geese and ducks attract thousands of serious birders and casual observers to the refuge each year. The Auto Tour Route offers excellent viewing of Main Pool -- an area of heavy waterfowl use. Two

observation towers at the beginning and termination of the Auto Tour Route, in addition to an observation deck atop the Visitor Contact Station, add to the viewing enjoyment.

Esker Brook Nature Trail also fits under this heading as a non-interpreted walking trail. The trail winds through several different habitat types, allowing the visitor the opportunity to view a variety of plant and wildlife species. Approximately 24,000 people spent time on the trail this year. Considerable trail work is planned for the summer of 1989 with YCC labor.

The refuge is open on carefully prescribed sections of dikes to snowshoeing and cross-country skiing when conditions permit the activity. By doing this, visitors are allowed to visit the refuge at a time it might normally be closed to public use due to weather conditions.

#### 17. Law Enforcement

Law enforcement problems are minor at the refuge. The following violation notices were issued during the year:

Failure To Possess Fishing License	-	2
Trespass	-	3
Possession Of Excess Shells During Waterfowl Hunt	-	1

An area previously open to hunting was closed to all public use because of the location of the bald eagle nest and associated activity in the area. Because of confusing signing, several trespass incidents occurred in this newly-closed area. Warning letters were sent to those involved.

In October, one of the refuge trappers reported two of his traps had been removed. Since the refuge was open to deer hunting at that time, many people had been in the area. The case was turned over to Special Agent Lisenbee.

In December, a hunter left his shotgun unattended in a parking lot after hunting on the refuge. After realizing his error and returning to the site, the gun was gone. The New York State Police investigated the case, but the gun was never recovered.



## I. EQUIPMENT AND FACILITIES

### 1. New Construction

In November, an open-faced pole shed, 32' wide x 75' long x 12' high, was designed and constructed by refuge personnel. The much-needed storage space afforded by this building will be used to keep the nasty New York weather elements from the large pieces of heavy equipment that could not fit into any of the other buildings.

The costs for the materials invested in the building are as follows:

Gravel for the 2,400 square foot building	
and 4,800 square foot yard (184 tons): .....	\$1,067.94
Building Materials: .....	\$6,597.62
Electric Service: .....	\$ 290.00
 TOTAL COST:.....	 \$7,955.56

A total of 312 hours of time were required for the construction of the building, which included site preparation, framing, siding, and finishing work.



The refuge's new open-sided pole barn being built (88-9; KAJ).



The new pole barn, almost completed (88-10; KAJ).

During May, a 175' long x 10' wide road was constructed from the Headquarters yard to the canal to provide access for fire-fighting equipment to draw water from the canal if the need should ever arise. The use of road matting, along with 154 tons of gravel costing \$763.15, was required by refuge staff to complete the project.

## 2. Rehabilitation

Two hundred and fifty feet of 1 1/4" waterline was installed between the old shop and the underground tank by refuge staff to provide a winter vehicle wash bay in the converted paint stall in that building. A small mechanical room was built in the corner to house the water pump, hot water heater, electric heater, hoses and supplies, and a much-needed emergency shower. All excavation, installation, carpentry, and plumbing was done by maintenance staff. Material cost was \$1,074.17. It took refuge staff and equipment 40 hours to complete the job.

Before waterfowl season this year, the Check Station walls and floor were painted. Two walls were panelled, and new cabinets were built. New information signs were made and hung on the walls. Two large cork boards were purchased for posting hunting regulations and information. The cost for materials was \$616.22. It took refuge staff 45 hours to complete this project.





Interior of the refurbished Refuge Check Station (88-11; MJN).

Rain and snow was blowing in on the rear porch of the Headquarters building and leaking around the door and under the wall. This was making the floor tiles come loose and creating a safety hazard with water on the floors after most storms. The porch was framed in with 2x6's, and the double doors were moved. Then, matching Texture 1-II was used to side the porch. The inside will be finished during winter, 1989. Material cost was \$122.96. It took 20 refuge staff hours to complete this task.

The Texture 1-II siding on the Headquarters building was rerailed because of buckling, and the windows and doors were recaulked. Then the entire building and trim was stained with 28 gallons of stain. Material cost was \$453.96. The job took 60 refuge staff hours to complete.

Four new closets were built along one wall of the mechanical room of the shop. One was for cleaning supplies and safety equipment, and the other three were for storage of employees' winter and foul-weather outdoor clothing. The office, foyer, and rest room were all repainted. Material cost was \$322.61. It took 30 refuge staff hours to complete the work.

A new boiler was installed in the shop, by a contractor, to replace the existing hydro-pulse boiler that was rusting out around the lower casing. It was hard to find someone licensed to service the existing hydro-pulse boiler, and also very expensive. Last year it cost \$1,400.00 to have it

serviced and acid-washed. The new boiler can be serviced by any heating contractor. The cost of the new boiler was \$2,750.00.

Some of the pressure-treated 2x6 decking on the VCS was rotting and splitting. The 2x6's were removed and replaced, and 12 gallons of Thompson's Water Seal was applied. The cost of the materials was \$634.49.

### 3. Major Maintenance

In August the 3,750 feet of channel that connects the display pond with the Main Pool was cleaned out and widened by refuge staff, with most of the excavation being accomplished with our new John Deere 690C Excavator. Due to the extremely dry conditions that were present this year, the work was accomplished without mats, which made the work easier and safer.

The back room (approximately 415 square feet) of the Fur House was converted from storage of bird mounts and display cabinets to a laboratory. The walls and floors were painted, and an air conditioner which we had that was not being used was installed through the concrete block wall. A bathroom was built in one corner, with a closet with louvered door for the storage of sensitive equipment. A hot water heater was also installed. Electric baseboard heat was installed in the bathroom to protect the equipment and water lines, and so that the heat in the large lab could be turned off when not in use to conserve energy.

The cost of materials invested in the building of the lab and for equipment was as follows:

Work benches and chairs, storage cabinets, fire extinguishers, vinyl gloves, disposable coveralls, respirators, chemical goggles, etc.....	\$3,662.60
Paint for walls and floor.....	\$ 100.00
Three utility sinks and faucets.....	\$ 225.00
Emergency eye wash station.....	\$ 160.00
New chest freezer for samples.....	\$ 350.00
Drying oven and testing equipment.....	\$6,500.00

Bathroom and closet: lumber, drywall, panelling, plumbing, toilet, electric baseboard heat, hot water heater, and electric service..... \$1,240.52

Septic system: 500-gallon fiberglass tank and leach field..... \$ 500.00

Total cost of materials and equipment..... \$12,738.12

A total of 310 staff hours was used for the design, construction, electric wiring, plumbing, painting, and installation of the septic system and leach fields.



The back room of the Fur House following conversion from storage space to a laboratory for in-house analytical work (88-12; MJN).

A new nesting pond was created along the tour route near the New York State Thruway, approximately 1/8 acre in size. The site was leveled and seeded to complete the job.

The never-ending battle with mowing continues this year with routine dike and road mowing, including Fields #1 and #2, plus the fields along the canal and Main Pool north of the Main Pool water control structure. All this and more accounted for 115 hours devoted to this task. In conjunction with mowing, the boom wick applicator was set up on the front of the John Deere 310B Backhoe to apply Round-up™ on 30 acres of the mowed Phragmites patches when the plants regrew to approximately 2' tall.

#### 4. Equipment Utilization and Replacement

Along with scheduled vehicle maintenance, washing and waxing, and safety inspections, the following is a list of major repairs accomplished by refuge staff on the vehicle fleet:

1982 Dodge D150 - Rebuilt engine, replaced clutch, muffler, and tailpipe.

1980 Chev Luv - Rebuilt engine, replaced clutch, muffler, and tailpipe.

1980 Chev Luv (B) - Repainted the entire vehicle, replaced two front tires.

1979 Volare' - Repaired rust and repainted rust spots, replaced exhaust system.

John Deere 4040 Tractor - Replaced batteries and cables, tie rods, and front bearings.

The following is a list of new or replacement equipment purchased in 1988:

60"-wide Sabine digging bucket for J.D. 690C.

7' Bush Hog rotary mower.

1988 GMC 3 1/2-yard Dump Truck. The following items were installed on the truck: 2-way radio, trailer hitch, snow plow assembly, emergency lighting package, rust-proofing, and snow tires.

#### 5. Communications Systems

The refuge staff installed 275' of underground telephone cable to the Fur House. This was to allow the State to install two telephones for use of their staff in Joint Venture work.

#### 6. Computer Systems

No new computer hardware was purchased during the year, but we did spend a considerable amount of time getting familiar with the equipment that was purchased in the fall of 1987. We did purchase one new piece of software - Lotus Report Writer.

Paul Benvenuti used Lotus 1-2-3 and Lotus Report Writer to conduct the lottery for the opening day of the archery hunt and for the six days of the firearms deer hunt. Use of the system allowed us to handle many more applicants in much less time than with the hand-drawn lottery used in the previous two years. Report Writer facilitated printing adhesive labels with the hunter's back-tag number and the authorized hunt date. It also allowed us to print labels to send notification cards to unsuccessful applicants.

#### 7. Energy Conservation

Replaced the old (1952) freezer in the storage building.

## J. OTHER ITEMS

### 2. Other Economic Uses

One permit was issued for commercial carp fishing. The fish are actually removed from the adjacent canals (state waters) as they attempt to swim through our water control structures to the pools to spawn. We consider it appropriate to charge a small fee for using our control structures as fish traps. Fishing conditions were average this year, and the service received \$765.00 (\$.03 per pound for 25,500 pounds of carp).

Our single beekeeping permittee paid \$40.00 for keeping bee hives on the refuge.

Trapping generated \$1,478.00 as a result of bidding from five trappers.

### 3. Items of Interest

The refuge (especially the refuge manager's time) was periodically handcuffed during the period January 9 through early May by a wide-ranging and very acrimonious campaign which was begun and fueled by a Seneca Falls woman. She accused the refuge's hunting programs of endangering visitor safety, and of disrupting and threatening the refuge's nesting bald eagles. In September, 1987, when Montezuma's fee system began, this same person adamantly stated her opposition to hunting on the refuge.

The woman reported on Saturday, January 9, that she was fired at on the refuge by a refuge hunter with a shotgun. Assistant Manager Benvenuti handled the complaint. He left the woman to search for the alleged hunter, but found no one on the refuge. A goose hunter some 325 yards away on private land was discovered, and he acknowledged firing three shots at geese. He also stated seeing a woman with two large dogs on the State's boat launch (she was not even on the refuge!), screaming at him to "... leave them alone!". When Benvenuti called the woman at home later, she was argumentative and said she would contact everyone in authority to cease the endangerment of visitors and eagles by refuge hunting programs.

She started that night; at 10:00 p.m., Manager Hocutt was called at home by a Rochester newspaper reporter about a "...woman claiming she was shot at on the refuge". The woman recruited allies in area bird clubs (individual members), along with state-wide and regional anti-hunting organizations. She joined a local Audubon group and the Atlantic



Chapter of the Sierra Club. She (and others) wrote letters to editors of newspapers state-wide, along with writing letters and scheduling meetings with New York State national and state-elected officials. She had a number of contacts; we later learned that she had formerly worked for a Geneva (New York) newspaper and two area radio stations. Her past reputation as an intractable "cause" person, or activist, was not undeserved.

The scope and vigor of her attacks were so broad and so convoluted that the refuge had to first learn what they were, as well as what they would next become, and who and what groups would next crop up. Hocutt began the long process of meeting with officers of county and state-wide birding, hunting/fishing, and other environmental groups. Refuge friends were contacted who were capable of writing thoughtful public and private letters. Meetings were scheduled with aides of New York's elected representatives. This stopped the congressionals, since the aides now called Hocutt directly whenever new charges were made. Hocutt did a number of speaking engagements and media interviews. Slowly, one by one, groups and individuals started to realize that they had been had, and that real damage had been done to harmony among legitimate environmental groups. Meanwhile, the instigator dropped the entire issue in mid-April as if she had never been part of it. Please see the Feedback section.

The Seneca Meadows Landfill issue, and the refuge's role as a major party of interest in the State of New York's regulation and permitting of the facility, was relatively dormant until fall. Located upstream of the refuge, and bisected by Black Brook, the refuge's major source of water, Seneca Meadows is the second largest landfill in the state. Part of it is now designated a Phase II Superfund Site, and contains over 163,000 tons of toxic and hazardous waste.

Although the landfill is 90% filled, its owners, DiMino Construction Company in Rochester, New York, has bought 700 acres of land east and north of the current site, and has begun geohydrologic exploration. At year's end, the State was considering a formal proposal to add an additional 40-foot "lift" on top of portions of the existing landfill (please refer to Section E-7 for more detail). In private meetings with the Service and the State, Seneca Meadows has grudgingly agreed to our demands that the closure/post-closure be expanded to 30 years from its current 20 years, and that the escrow account be modified to reflect the lengthened period (and the longer operating life).

At year's end, Hocutt verbally, on behalf of the Service, told Seneca Meadows that their permit renewal DEIS next



winter must detail their long-range plans for the old site and the 700 acres acquired. Otherwise, the Service would have no alternative except to oppose any new permit and petition the State for prompt closure. Such an event is unlikely for two reasons -- Metro Rochester and Metro Syracuse would have no place to go. Nevertheless, Seneca Meadows' "piece-mealing" the permit process makes meaningful fiscal planning impossible even as partial-closure phases come on line.

May 27 was a good day for a change when Mr. Herbert Axel, recently-retired Land Use Director for the Royal Society For The Protection Of Birds, visited the refuge for most of a day with Hocutt. Mr. Axel was lecturing at Cornell at the Lab of Ornithology, and was accompanied by his charming wife, Joan. This was their second visit to the northeast (and the refuge) in the past five years. Always active, Mr. Axel was leaving for Greece to work with Southern Mediterranean governments to stop indiscriminate shooting of seabirds and passerines for target practice.

On May 31, Dr. Peter Magarey, Chief of Plant Pathology, South Australian Department of Agriculture, visited the refuge to learn about management programs and pest plants. He was accompanied by Dr. Robert Seem, Chief of Plant Epidemiology at the Geneva Agricultural Experiment Station (Cornell University). Hocutt provided an airboat and vehicular tour of most of the refuge's problem areas.

On August 20, Hocutt met Congressman Horton's aide, Jerry Kaplan, and his family at the refuge, and provided a guided tour. The afternoon represented an unhurried opportunity to discuss the refuge's water management plan.

On the evening of September 27, Hocutt invited Ms. Nancy Horton (wife of the Congressman), Ms. Ruby Moy (Congressman Horton's Washington office Administrative Manager), and aide Jerry Kaplan to accompany Hocutt, Gingrich, and Flanders on an evening duck banding assignment. All three visitors were put to work handling birds and recording as we banded 63 ducks. Dr. Rudolf Deibel, of the New York State Department of Health, took cloacal swabs from 75 birds as part of his study of avian influenza. Ms. Horton, Ms. Moy, and Mr. Kaplan had a great time, and so did we; they worked hard.



Nancy Horton, wife of District Congressman Frank Horton, assisted with waterfowl banding on September 27. Mrs. Horton and the Congressman maintain an avid interest in the refuge (88-13).

Ruby Moy, Congressman Horton's Washington Office Manager, has long been personally interested in hunting, fishing, and other outdoor sports. Shown assisting Refuge Biologist Gingrich with banding, Ms. Moy has been very helpful on numerous occasions (88-14).



On October 7, Hocutt invited John Baldwin (Regional Maintenance Supervisor, New York State Department of Transportation - Waterways) and his son, and his son's Scout Troop and Scout Masters to join us on a Friday night banding foray. Several dozen birds were handled and banded, and there was an opportunity to discuss why we band and what we learn. The boys (and adults) were very impressed, and also were very helpful in small ways.

On October 13, Hocutt conducted a tour of the refuge for Richard French, author of a number of field guides and papers on birds of Trinidad, the near tropics, and central America. Accompanied by staff from the Lab of Ornithology, Mr. French was on a speaking tour of Cornell, Syracuse University, and other schools.

On October 29, Hocutt provided a tour of the refuge for newly-elected American Legion National Commander H.F. Gierke. A former North Dakota State Supreme Court Judge, Commander Gierke is the first Viet Nam-era person to be elected to the top post. Despite running very late, the entourage arrived with New York State Police cars fore and aft, with far too many other cars in between. Nevertheless, a few minutes were found for an introduction and brief discussion in the Visitor Center. Hocutt went in the lead State Police car with Commander Gierke and a former New York State Commander. Trooper Ken Brown, the driver (who works closely with us at the refuge) still laughs about the 30 mph tour and the billowing clouds of dust.

An incident worth note occurred at the Visitor Center during the permit issuing of opening day. Two native Americans who had not applied for a permit showed up to hunt. Since they had a "red card" (a free license issued by the State), they felt they could hunt anywhere, with or without additional permits. Hocutt explained the safety reasons behind the permit system, and explained that hunting without a permit would be a violation of refuge regulations. Hocutt contacted Onondaga Nation Chief Irving Powless, Jr. to reach an agreement on the issue. Although conversations via telephone took place, no formal meetings have yet been scheduled between the refuge and the Nation. However, Chief Powless clearly played a role; a second suggested incident during the gun season did not occur after Hocutt asked Powless to use his "good offices" to insure the level of cooperation between the Nation and the refuge. The refuge is squarely in a contested American Indian Claim Area.

## Training in 1988 included:

Benvenuti -

"Refuge Academy - Advanced",  
Washington, D.C., 3/13/88 -  
3/31/88 (120 hours).

"Law Enforcement In-Service  
Training", Eastern Shore  
NWR, 4/25/88 - 4/28/88 (40  
hours).

Ellis -

"Refresher First Aid  
Training", Montezuma NWR,  
2/17/88 (8 hours).

Flanders -

"Refresher First Aid  
Training", Montezuma NWR,  
2/17/88 (8 hours).

"Law Enforcement In-Service  
Training", Eastern Shore  
NWR, 4/11/88 - 4/15/88 (40  
hours).

Gingrich -

"Refresher First Aid  
Training", Montezuma NWR,  
2/17/88 (8 hours).

Hocutt -

Region 5 "Project Leaders'  
Conference", Holyoke, MA,  
8/2/88 - 8/5/88 (32 hours).

Johnson -

Region 5 "Project Leaders'  
Conference", Holyoke, MA,  
8/2/88 - 8/5/88 (32 hours).

Kroon -

"Refresher First Aid  
Training", Montezuma NWR,  
2/17/88 (8 hours).

Norsen -

"Refresher First Aid  
Training", Montezuma NWR,  
2/17/88 (8 hours).

#### Special Assignments/Details:

Fiscal Assistant McMahon was detailed to the Regional Office three times during 1988. She worked directly with the Program Development/Budget Division of Refuges/Wildlife, assisting them with funding and personnel management (5/2/88 - 5/6/88; 9/19/88 - 9/23/88). Ms. McMahon also worked directly with Contracting and General Services Division, handling small purchases (6/27/88 - 7/1/88).

Ms. McMahon was detailed to a special task force at the Denver Regional Office to participate in the writing of the FWS Small Purchases Handbook (10/11/88 - 10/21/88).

Maintenance Mechanic Flanders taught the Tractor Training Course to Region 5 employees during the period 5/3/88 - 5/13/88. The course was held at Eastern Shore of Virginia NWR.

Assistant Refuge Manager Benvenuti taught the Refresher First Aid Training Course to refuge personnel on 2/17/88.

Manager Hocutt attended special meetings in the Regional Office concerning contaminants, public use conflicts, and the water management plan (3/21/88 - 3/23/88).

#### 4. Credits

Typing and Proofreading - Estes  
Climatic Conditions - Norsen  
Planning - Benvenuti, Hocutt, Gingrich  
Administration - Benvenuti, Hocutt, Johnson  
Habitat Management - Gingrich  
Wildlife - Gingrich  
Public Use - Johnson  
Equipment and Facilities - Norsen, Flanders  
Other Items - Hocutt, Benvenuti, McMahon  
Editing - Hocutt

K. FEEDBACK

Feedback Sections are interesting. Some years, you just don't want to be hassled by them. Other times, like an over-the-hill woodchuck, you just sort of amble through the tall grass, keep the hole in view, and have a go at it... (88-15; LMK).



1. An unexpected pleasure of our interaction with the North American Waterfowl Management Plan during 1988 has been that of participating with the professional biologists and administrators of The New York State Department of Environmental Conservation. They have demonstrated the very highest possible level of professionalism, concern, and perseverance. From Director Wich right down to the Regional Biological Technicians -- and at all levels in between -- there has been dedication, sensitivity, and plain hard work. In my opinion, their efforts represent standards against which we all, as professionals, could well measure our own work on behalf of wildlife resources.
2. Having been involved with co-op students for several years, and having had two of the finest, several of us feel that a change in philosophy is in order. Perhaps co-op students, in the big picture and the short run, should be organizationally viewed as station liabilities -- and not as assets. Their staggered duty tours, inexperience, relatively short tenure, and other "baggage", tend to severely limit the effectiveness of the finest candidate. This is the case before the additive supervisory and training functions come into play. While the co-op program itself is sound, more effort is required by the Service (regional and field supervisors) in the recruitment and selection process. This topic is proposed here to suggest that co-op recipient refuges be fully staffed to whatever level that station's commitments requires -- and that co-op candidates be viewed as an additive responsibility and work element for that refuge. In other words, co-op students should count against a regional FTE pool, but not against the individual refuge FTE level. In addition to upgrading (and individualizing) the selection process (more Service control -- it's a buyer's market!), there exists a great need to develop specific and systematic training formats and work experiences for these students. Each manager should not be re-inventing the wheel. The bottom line is that a good program can be made to evolve into an excellent one.
3. Events during the anti-hunting fracas which consumed so much time at this refuge from January to May, 1988, brought home to us a sometimes-forgotten precept. The line is indeed thin, even among our supporters, about hunting on refuges.



We at this refuge have assiduously cultivated significant contacts and support among a very diverse group of constituents -- and we jealously guard them. Yet, in the heat of the moment and the media blitz, and the pressures by the ever-present anti's (individuals and groups), it was dismaying to watch otherwise-staunch supporters start to vacillate, or even adopt portions of opponents' propaganda. By working a lot of nights and weekends with officers and other leaders of environmental groups, we were able to first do damage control and, finally, to right the ship. In the months since, I have again re-formulated an opinion I long held, but gave up because of the pressures of more "important" things -- namely, that refuge interpretation and environmental education (in it's broadest sense) must involve ecosystems and life and death as co-equals. As important as units on "wetlands" or "water birds" or whatever it might be, it seems that unless we talk about life/death relationships in natural ecosystems, it is improbable that our voices will be heard when we are required to talk about death. Our lesson last winter is that we are going back to earlier techniques which involve competition, density versus resource limitations, carrying capacity, and death in natural ecosystems.

4. We have institutionalized our perennially-expressed concerns about Administrative Officers (GS-9) and Administrative Assistants (GS-7) on refuges. As in discussions about weather, we talk about it a lot. Instead of blaming the Office of Personnel Management, Service personnel divisions, fate, or sunspots, perhaps we as project leaders and supervisors should engage in a little introspection.

When did we last realize that we stay in business because of the orderly flow of personnel documents and travel vouchers, the maintenance of meaningful fiscal records, the prompt payment of bills, and the efficient functioning of the hundreds of increasingly-complex administrative details? Are we bothered in this era of unfulfilled biological and community needs and demands to see biologists and managers, GS-5/7 through GM-13, muddling through the complex administrative skills? Worse, are we bothered to see GS-4 through GS-6 "Secretaries", at many locations, actually performing many of these complex skills while we take the "credit"? We finally have grown smart

enough (hopefully) to know that we can't hang out in the shop or go out for days to drive tractors. Why can't we relinquish finger-tip control over administrative details which preclude us from doing biology, community relations, and congressional relations?

Instead of sending the same old five or six-inch ruler to Personnel to ask them to tell us how long it is, why don't we stop wasting time and ask ourselves: "What do I do, and what should I do, and what kind of administrative support do I need to free up my time to get on with it?". A strong argument can be made that the answer, every time, will come up as the need for a strong, para-professional, administrative support person -- i.e., an AA or an AO. In others words, devise a new "ruler" based upon needs and operating efficiencies -- and not upon tradition and tired stereotypes.

The world would not cease turning if we were to structure new and modern ways of performing administration. This approach would require one or two well-experienced "trainers", or teachers. From that point, vacant positions should be recruited according to the new criteria, and every compassionate effort should be made to upgrade incumbents who might currently not meet the new standards. There is little else we could do which would give wildlife and the public more bang for their buck.

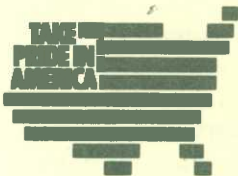
## U.S. FISH AND WILDLIFE SERVICE

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

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

For further information contact:

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



Illustrations by Julien D. Beauregard



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

RL-52550-1

March 1988

# MONTEZUMA

## NATIONAL WILDLIFE REFUGE



## NEW YORK



## Welcome to Montezuma

Montezuma National Wildlife Refuge lies at the north end of Cayuga Lake, in the heart of the Finger Lakes Region of New York State. Located five miles east of Seneca Falls, in Seneca County, Montezuma serves as a major resting area for waterfowl and other waterbirds on their journeys to and from nesting areas in northeastern and east-central Canada. Management of the refuge benefits wildlife and provides a place for people to visit and enjoy wildlife in its natural habitat.



## Entrance Fee Options

To help pay for the purchase of more wildlife habitat and for the management of refuges, Congress passed the Emergency Wetlands Resources Act in 1986. The law authorized the Fish and Wildlife Service to charge entrance fees at National Wildlife Refuges such as Montezuma.

Visitors may pay the daily fee or purchase one of two annual passes - the Duck Stamp and Golden Eagle

Passport. Both are sold at the refuge. Anyone who is 62 years of age or older, or who is disabled, is eligible for a free pass that will admit you and your passengers or family. Children under 16 are admitted free. Refuge staff will be happy to issue you a pass and answer any questions.

## History

The Finger Lakes Region was shaped during the last glacial period, some 10,000 years ago. The retreating glacier created a vast system of lakes. In time, the shallower northern and southern ends of the lakes developed into extensive marshes.

The earliest known inhabitants of this region were Algonquin Indians. They were later succeeded by the Cayugas of the Iroquois Nation. These earliest Americans derived part of their livelihood from the wildlife and plants of the area's bountiful marshes. Seventeenth-century French explorers wrote of the huge flocks of ducks and geese that filled the sky each spring and fall.

Montezuma Marsh gained its name from local doctor Peter Clarke. In 1806 Clarke named his hilltop home after the palace of the Aztec Emperor Montezuma, in Mexico City. Eventually the marsh, the village and the refuge all acquired the name.

Prior to the turn of the century, the Montezuma Marsh extended north from Cayuga Lake for twelve miles, and was up to eight miles wide. This was one of the most productive marshes in North America. As with most wetlands during that era, the importance of the marshes went unrecognized. Construction of the dam at the outlet of the Cayuga Lake and the building of the New York State Barge Canal contributed to the loss of the marsh. By the early 1900's, all but a few hundred acres had been drained.

In 1937, the U.S. Fish and Wildlife Service purchased 6,432 acres of the former marsh. The Civilian Conservation Corps began work on a series of low dikes, which would hold water and restore part of this once-great marsh. Today, several thousand acres of marsh have been restored, once again attracting large flocks of waterfowl each spring and fall.

## Refuge Objectives

The primary objective of the refuge is to provide resting, feeding, and nesting habitats for the migratory birds that call Montezuma "home" during part of the year. The refuge sits squarely in the middle of one of the most active flight lanes in the Atlantic Flyway. During spring and fall hundreds of thousands of waterfowl arrive looking for resting and feeding areas.

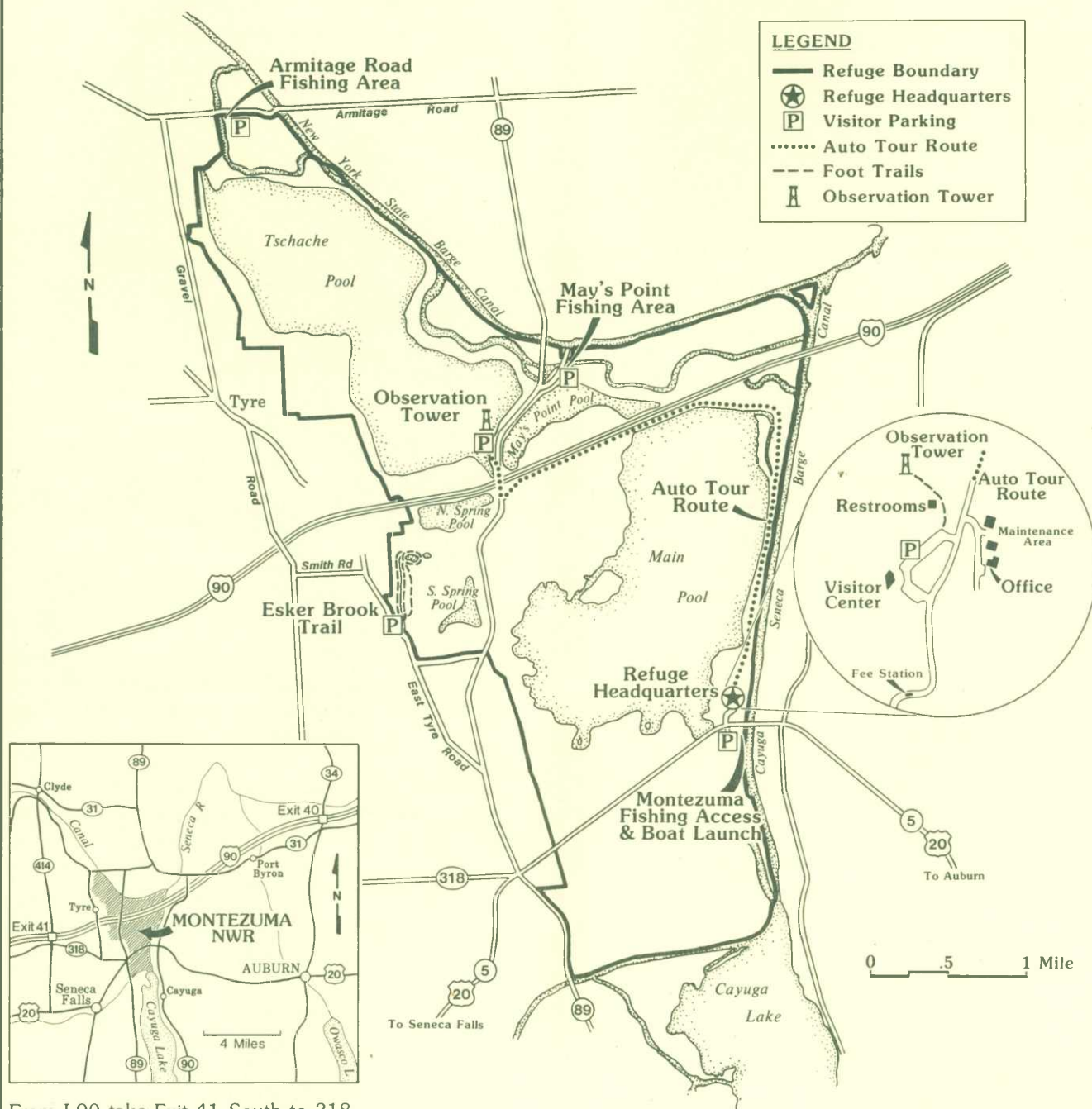


Careful management of the refuge's 3,500 acres of diked pools ensures that migrating birds will find the proper "mix" of emergent and underwater plants along with open water and mudflats. Water levels are manipulated to meet the specific requirements of various species in each season.

A second important objective is to manage the refuge's diverse forest, grassland, and wetland habitats to provide healthy, self-sustaining populations of the many species of mammals, resident birds, reptiles, insects, and other types of animals normally found in central New York State.

A third objective is to provide compatible wildlife-oriented educational and recreational opportunities for the more than 200,000 visitors who stop at the refuge each year.

# Montezuma National Wildlife Refuge



From I-90 take Exit 41 South to 318 East. Then take Routes 5 & 20 East to the refuge.



For additional information, contact:

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

# *BIRDS of Montezuma*

## *National Wildlife Refuge*

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

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE**



RL 52550-2  
JULY 1985



*New York*



# Wildlife Calendar

## Fall Migration:

**WATERFOWL** - Mid-September to freeze-up; Canada goose numbers peak (50,000) in mid-October; duck numbers peak (150,000) about November 1. Best observation times are early morning and late afternoon.

**WADING BIRDS** - Mid-August through mid-October; peak mid-September. Sandpipers can be seen on exposed mudflats while herons and egrets use the shallow water areas throughout the day (extent of these areas varies from year to year). Shorebird watching is best at Mays Point Pool.

## Winter:

The auto tour route is generally closed to traffic (depending upon snow/ice). Cross-country skiing and snowshoeing on the tour route and Esker Brook Trail provide an excellent opportunity to see deer, small mammals, and such songbirds as blue jays, woodpeckers, nuthatches and black-capped chickadees. Learning to "read" wildlife tracks in the snow is a great winter hobby.

## Spring Migration:

**WATERFOWL** - Late February through April; varies as to weather and thaw. 85,000 Canada geese, 15,000 snow geese (mostly in the blue color phase), ducks including scaup, goldeneye and common mergansers. Ducks are not as abundant as in the fall. Best viewing times are in early morning and late afternoon.

**WADING BIRDS** - Shorebird migration less spectacular than in the fall, but birds common May 1 to mid-June.

**WARBLERS** - The peak of warbler migration is May 15. Best viewing is from the Esker Brook Trail from dawn until mid-morning.

**WILDFLOWERS** - From April 1 through June; peak is in May. Violets, trilliums, mayapples, bloodroot, vetches, mustards, and others can be seen on the Esker Brook Trail.



## Summer:

**WATERFOWL NESTING** - Canada geese and several duck species nest here beginning in early March. Broods begin appearing May 1, and can be seen throughout August.

**HERON ROOKERY** - Great blue herons nest in flooded trees in Tschache Pool. Black-crowned night herons may also be seen in the Main Pool.

**FLOWERING PLANTS** - Throughout the summer, you can see flowering plants from the auto tour route including purple loosestrife, iris, marsh mallow, and white water lily. The peak is in late July.

## Year-round:

White-tailed deer, rabbits, foxes, and other wildlife residents can be seen throughout the year. Best viewing times are early morning and late afternoon. You may wish to plan your trip accordingly.

## Enjoying the Refuge

Recreational and educational activities abound at Montezuma throughout the year. The refuge is open from dawn until dusk.



The visitor center, normally open on weekends from 9 a.m. to 5 p.m., contains exhibits, leaflets, and restrooms. The observation deck and tower provide excellent opportunities to see wildlife.



A self-guided auto tour route provides opportunities to observe and photograph wildlife from your car. Please stay in your car because it acts as a "blind" and minimizes disturbance to wildlife. During the winter, snow and ice generally keep the route closed.



A delightful, two-mile walking trail, the Esker Brook Trail, is open year-round. The trail and the Auto Tour Route are open for cross-country skiing and snowshoeing during the winter.



Although fishing and boating are prohibited in refuge waters, the refuge maintains a boat launch that provides access to the State-owned barge canal (see map). Three public fishing sites provide shore fishing opportunities.



Public hunting, primarily for waterfowl and deer, is permitted under special regulations on portions of the refuge during the legal State seasons.

With advance notice, educational programs are available to groups throughout the year. The refuge provides area teachers and students with three outdoor classroom sites for environmental education. Teacher workshops are held at various times during the year. Workshops enable teachers to effectively utilize the resources of the refuge during scheduled field trips. The refuge provides an extensive assortment of 16mm wildlife films (free of charge) to area educators).

s S F W

— Dunlin .....	c	c		
— Stilt Sandpiper.....	o	c	c	
— Ruff.....		r	r	
— Short-billed Dowitcher.....	c	o	c	
— Long-billed Dowitcher .....		c		
— Common Snipe†.....	o	o	o	
— American Woodcock† .....	o	o	o	
— Wilson's Phalarope .....	r	r		
— Red-necked Phalarope .....	r	o	o	

**GULLS - TERNS**

— Bonaparte's Gull.....	o	o	o	
— Ring-billed Gull.....	c	c	c	o
— Herring Gull .....	c	o	c	c
— Great Black-backed Gull.....	o	o	o	u
— Caspian Tern .....	o		o	
— Common Tern†.....	o	o	o	
— Black Tern† .....	o	o	o	

**DOVES - CUCKOOS - OWLS****SWIFTS - HUMMINGBIRDS**

— Rock Dove† .....	o	o	o	o
— Mourning Dove†.....	c	c	c	o
— Black-billed Cuckoo†.....	o	o		
— Yellow-billed Cuckoo†.....	o	o		
— Common Barn-Owl.....	r	r	r	r
— Eastern Screech-Owl†.....	c	c	c	
— Great Horned Owl†.....	c	c	c	c
— Snowy Owl .....			r	
— Barred Owl†.....	r	r	r	r
— Short-eared Owl .....	o	r	o	o
— Northern Saw-whet Owl .....	r		r	r
— Common Nighthawk .....		r		
— Whip-poor-will .....		r		
— Chimney Swift†.....	o	o		
— Ruby-throated Hummingbird† .....		o		
— Belted Kingfisher† .....	c	c	c	o

**WOODPECKERS - FLYCATCHERS**

— Red-bellied Woodpecker† .....	o	o	o	o
— Yellow-bellied Sapsucker.....	o		o	
— Downy Woodpecker†.....	c	c	c	c
— Hairy Woodpecker† .....	o	o	o	o
— Northern Flicker† .....	c	c	c	o
— Pileated Woodpecker† .....	o	o	o	o
— Olive-sided Flycatcher.....	r		r	
— Eastern Wood-Pewee† .....		c		
— Alder Flycatcher .....	o	o		
— Willow Flycatcher.....	o	c		
— Least Flycatcher† .....		c		
— Eastern Phoebe† .....	c	c	c	

s S F W

— Great Crested Flycatcher† .....	o	c		
— Eastern Kingbird† .....	c	c	o	
<b>LARKS - SWALLOWS - JAYS and CROWS</b>				
— Horned Lark† .....	o	o	o	o
— Purple Martin† .....	c	c		
— Tree Swallow†.....	c	c	c	r
— Northern Rough-winged Swallow .....	o	o		
— Bank Swallow† .....	c	c		
— Cliff Swallow† .....	r	r		
— Barn Swallow† .....	c	c	c	
— Blue Jay† .....	c	c	c	c
— American Crow†.....	c	c	c	o

**TITMICE - NUTHATCHES - WRENS**

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

**KINGLETS - THRUSHES - THRASHERS**

— Golden-crowned Kinglet.....	c		c	
— Ruby-crowned Kinglet .....	c		c	
— Blue-gray Gnatcatcher.....	o		o	
— Eastern Bluebird† .....	u	u	u	r
— Veery† .....	c	c	o	
— Gray-cheeked Thrush.....	o		o	
— Swainson's Thrush.....	o		o	
— Hermit Thrush .....	c		c	
— Wood Thrush†.....	c	c	o	
— American Robin† .....	c	c	c	o
— Gray Catbird† .....	c	c	c	
— Northern Mockingbird .....	r	r		
— Brown Thrasher† .....	o	o	o	

**WAXWINGS - SHRIKES - STARLING**

— Water Pipit .....	c		c	
— Cedar Waxwing† .....	o	o	o	o
— Northern Shrike .....				o
— Loggerhead Shrike†.....	r		r	
— European Starling†.....	a	a	a	o

**VIREOS - WOOD WARBLERS**

— Solitary Vireo .....	o		o	
— Yellow-throated Vireo† .....	o	o		
— Warbling Vireo† .....	c	c	c	
— Philadelphia Vireo .....	r		r	



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

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

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

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

Most birds are migratory; their seasonal occurrence is coded as follows:

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

† - Nesting has occurred on the refuge.

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

	s	S	F	W
<b>LOONS - GREBES - CORMORANT</b>				
— Red-throated Loon .....	r			
— Common Loon .....	o	o		
— Pied-billed Grebe† .....	c	c	c	
— Horned Grebe .....	o	o		
— Red-necked Grebe .....	r	r		
— Double-crested Cormorant .....	o	c	c	
<b>BITTERNS - HERONS - IBIS</b>				
— American Bittern† .....	o	c	c	
— Least Bittern† .....	o	o	o	
— Great Blue Heron† .....	c	c	c	o
— Great Egret .....	o	c	o	
— Snowy Egret .....	r			
— Little Blue Heron .....	r	r		
— Cattle Egret .....	r			
— Green-backed Heron† .....	o	c	o	
— Black-crowned Night-Heron† .....	o	c	c	
— Glossy Ibis .....	r	r		
<b>SWANS - GEESE - DUCKS</b>				
— Tundra Swan .....	o	r	o	
— Mute Swan .....	o	o		
— Snow Goose .....	c	o		
— Brant .....	o			
— Canada Goose† .....	a	c	c	c
— Wood Duck† .....	c	c	c	
— Green-winged Teal† .....	c	o	c	
— American Black Duck† .....	a	c	a	o
— Mallard† .....	a	c	a	o
— Northern Pintail† .....	c	o	c	
— Blue-winged Teal† .....	c	c	c	
— Northern Shoveler† .....	c	o	c	
— Gadwall† .....	c	c	c	
— Eurasian Wigeon .....	r	r		
— American Wigeon† .....	c	o	c	
— Canvasback† .....	c	o	c	
— Redhead† .....	c	o	c	
— Ring-necked Duck .....	c	o	c	
— Greater Scaup .....	c	c		
— Lesser Scaup .....	o	o	o	
— Oldsquaw .....	o	o		
— Black Scoter .....	r	r		
— Surf Scoter .....	r	r		
— White-winged Scoter .....	r	r		
— Common Goldeneye .....	c	c		
— Bufflehead .....	c	c		
— Hooded Merganser† .....	c	o	a	o
— Common Merganser .....	a	o	a	c
— Red-breasted Merganser .....	o	r	o	

	s	S	F	W
— Ruddy Duck† .....	o	o		
<b>VULTURES - HAWKS - FALCONS</b>				
— Turkey Vulture .....	c	c	c	c
— Osprey† .....	c	c	c	
— Bald Eagle .....	o	o	o	o
— Northern Harrier† .....	o	o	o	o
— Sharp-shinned Hawk† .....	o	o	o	o
— Cooper's Hawk .....	o	o	o	o
— Northern Goshawk .....	o	o	o	
— Red-shouldered Hawk .....	o	o		
— Broad-winged Hawk .....	o	o		
— Red-tailed Hawk† .....	c	c	c	c
— Rough-legged Hawk .....	o	c		
— Golden Eagle .....	o	o		
— American Kestrel† .....	c	c	c	o
— Merlin .....	r	r		
— Peregrine Falcon .....	r	r		
<b>PHEASANT - GROUSE</b>				
— Ring-necked Pheasant† .....	u	u	u	u
— Ruffed Grouse† .....	u	u	u	u
<b>RAILS - CRANES</b>				
— King Rail .....	r	r	r	
— Virginia Rail† .....	c	c	c	r
— Sora† .....	c	c	c	
— Common Moorhen† .....	c	c	c	
— American Coot† .....	c	c	c	
<b>PLOVERS - SANDPIPERS</b>				
— Black-bellied Plover .....	o	o	o	
— Lesser Golden-Plover .....	r	o	o	
— Semipalmated Plover .....	o	c	c	
— Killdeer† .....	c	c	c	
— Greater Yellowlegs .....	c	c	c	
— Lesser Yellowlegs .....	c	c	c	
— Solitary Sandpiper .....	r	o	o	
— Spotted Sandpiper† .....	c	c	c	
— Upland Sandpiper .....	r			
— Whimbrel .....	r	r		
— Hudsonian Godwit .....	r	o		
— Ruddy Turnstone .....	o	o	o	
— Red Knot .....	r	r	r	
— Sanderling .....	r	r	r	
— Semipalmated Sandpiper .....	c	c	c	
— Western Sandpiper .....	r	r		
— Least Sandpiper .....	c	o	c	
— White-rumped Sandpiper .....	o	o	o	
— Baird's Sandpiper .....	r	o		
— Pectoral Sandpiper .....	c	c	c	

s S F W

Red-eyed Vireo†	c	c	c
Blue-winged Warbler	r		
Golden-winged Warbler	o	o	
Tennessee Warbler	o	o	
Orange-crowned Warbler	r		
Nashville Warbler	c	c	
Northern Parula	o	o	
Yellow Warbler†	c	c	c
Chestnut-sided Warbler	o	o	
Magnolia Warbler	c	c	
Cape May Warbler	c	c	
Black-throated Blue Warbler	c	c	
Yellow-rumped Warbler	c	c	
Black-throated Green Warbler	c	c	
Blackburnian Warbler	c	c	
Pine Warbler	o	o	
Prairie Warbler	o	o	
Palm Warbler	o	o	
Bay-breasted Warbler	o	o	
Blackpoll Warbler	c	c	
Cerulean Warbler†	c	o	c
Black-and-white Warbler	c	o	c
American Redstart†	c	c	c
Prothonotary Warbler†	o	o	
Ovenbird†	c	c	c
Northern Waterthrush	o	o	o
Louisiana Waterthrush	o	o	o
Connecticut Warbler	r	r	
Mourning Warbler	o	o	o
Common Yellowthroat†	c	c	c
Hooded Warbler	r	r	
Wilson's Warbler	o	o	
Canada Warbler	c	o	
Yellow-breasted Chat	r	r	

**TANAGERS - SPARROWS**

Scarlet Tanager†	c	o	o
Northern Cardinal†	c	c	c
Rose-breasted Grosbeak†	c	c	c
Indigo Bunting†	c	c	
Rufous-sided Towhee†	c	o	c
American Tree Sparrow	c	c	
Chipping Sparrow†	c	c	c
Field Sparrow†	c	c	c
Vesper Sparrow†	o	o	o
Savannah Sparrow†	o	o	o
Grasshopper Sparrow†	o	o	o
Henslow's Sparrow†	o	o	o
Fox Sparrow	c	c	

s S F W

Song Sparrow†	c	c	c	o
Lincoln's Sparrow	o	o		
Swamp Sparrow†	c	c	c	
White-throated Sparrow	c	c		
White-crowned Sparrow	c	c		
Dark-eyed Junco	o	o	o	
Lapland Longspur				o
Snow Bunting				o

**BLACKBIRDS - FINCHES**

Bobolink†	o	o	c	
Red-winged Blackbird†	a	a	a	o
Eastern Meadowlark†	c	c	c	o
Rusty Blackbird	o	o		
Common Grackle†	a	a	a	o
Brown-headed Cowbird†	c	c	a	o
Northern Oriole†	c	c	c	
Purple Finch†	c	o	c	o
House Finch†	o	o	o	o
Common Redpoll			r	
Pine Siskin			r	
American Goldfinch†	c	c	c	o
Evening Grosbeak	r	r	r	
House Sparrow†	c	c	c	c

**NOTES**

Location \_\_\_\_\_

Date \_\_\_\_\_ Total \_\_\_\_\_

Observers \_\_\_\_\_

Weather \_\_\_\_\_ Wind \_\_\_\_\_

Time \_\_\_\_\_

Comments \_\_\_\_\_

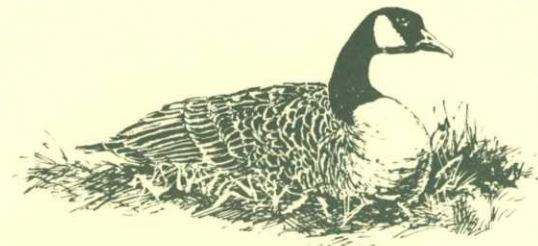
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The following is a list of accidental species that have been recorded only once or twice on the Montezuma National Wildlife Refuge.




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

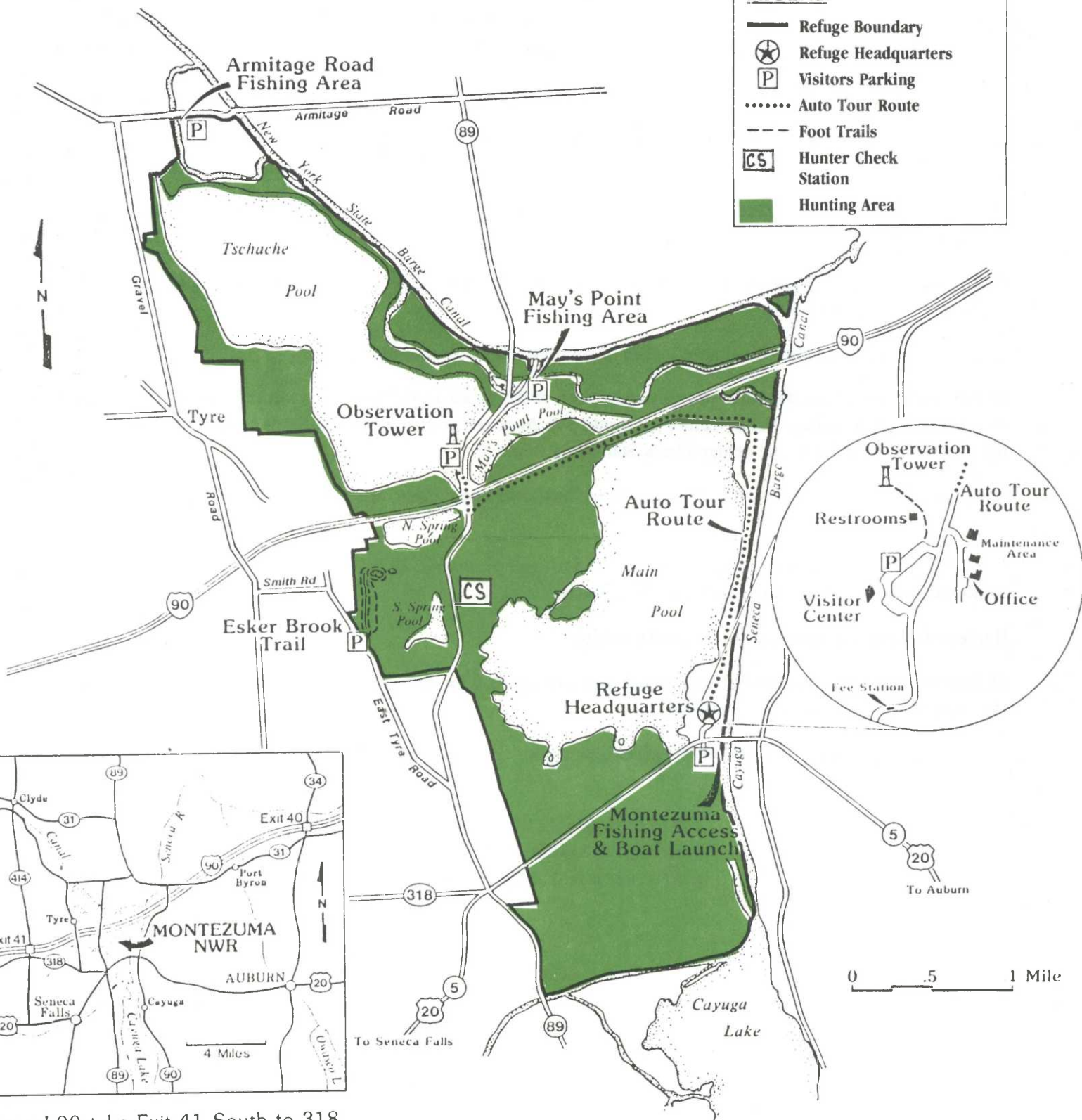


# Muzzleloading Deer Hunt Regulations

## Montezuma National Wildlife Refuge

### LEGEND

-  Refuge Boundary
-  Refuge Headquarters
-  Visitors Parking
-  Auto Tour Route
-  Foot Trails
-  Hunter Check Station
-  Hunting Area



From I-90 take Exit 41 South to 318 East. Then take Routes 5 & 20 East to the refuge.

**MONTEZUMA NWR**  
3395 Route 5 & 20 East  
Seneca Falls, New York 13148-9778  
(315)568-5987

**MUZZLELOADING HUNT INFORMATION SHEET - 1988**

Deer hunting with muzzleloaders only will be allowed by permit from December 14 through December 20 (no Sunday hunting). Handguns are not permitted.

Muzzleloader hunting is allowed in accordance with New York State regulations and season dates, and applicable refuge regulations.

Hunters must wear at least 400 square inches of solid hunter blaze orange.

All hunters on each hunt day must possess and return at day's end a valid refuge permit card. Permit cards will be dispensed at the refuge Visitor Center on Route 5 & 20 at refuge Headquarters. Cards must be returned at the end of the hunt day to the refuge Check Station on Route 89.

Open areas are shown on the map. All other areas, including open water, are closed to hunting. Obey posted signs.

Constructing or hunting from permanent tree stands *is not permitted*. All portable tree stands must be removed from the refuge at the end of each hunt day.

Hunters may not use boats or canoes on the refuge.

All firearms must be unloaded between sunset and sunrise, and hunters must be off the refuge from one hour after sunset to two hours before sunrise.

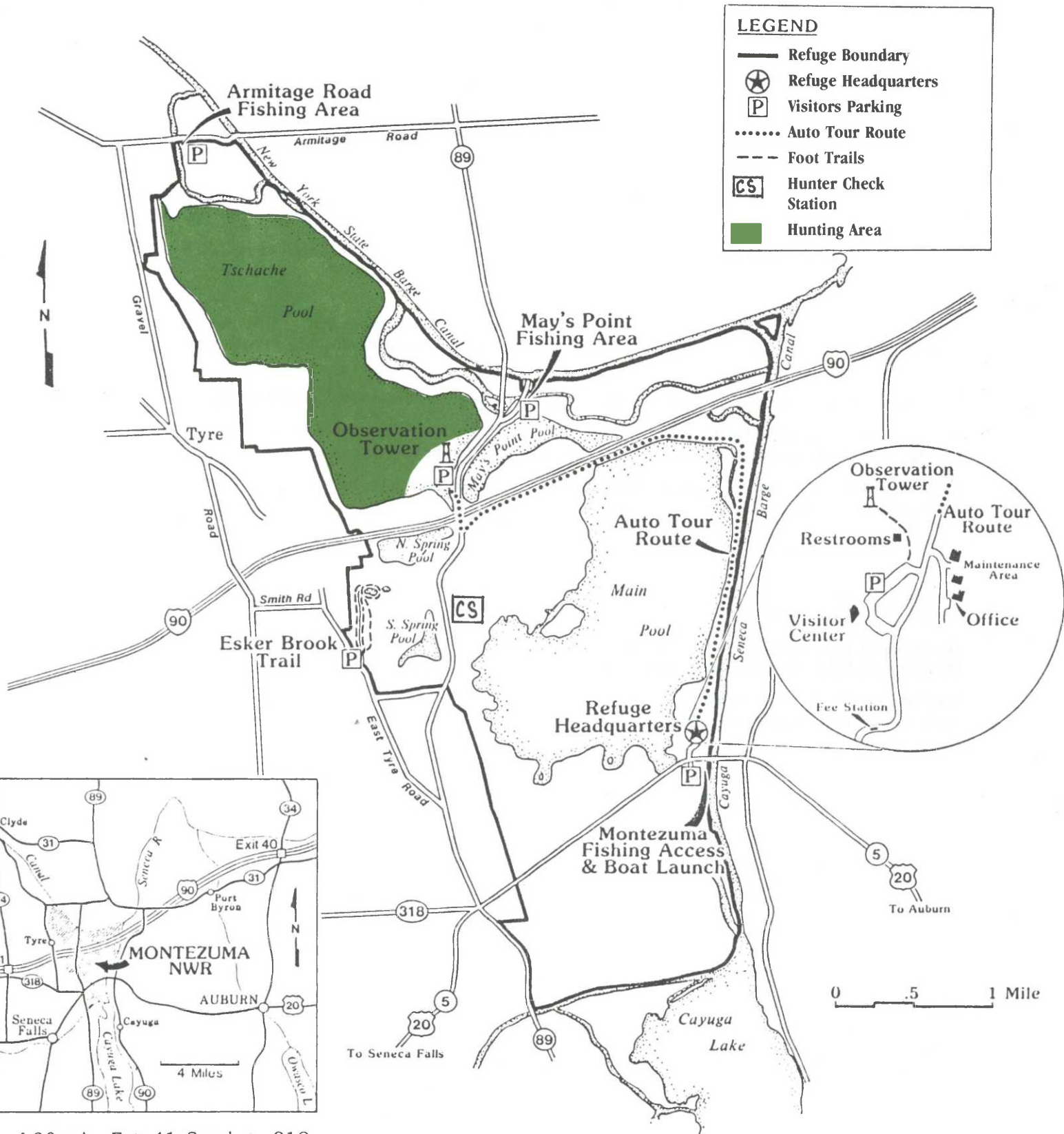
Unless otherwise stated, New York State regulations apply.

**BLOCKING GATES, ROADS OR DIKES  
BY VEHICULAR PARKING WILL RESULT IN A  
CITATION AND FINE. PLEASE COOPERATE.**



# Waterfowl Hunt Regulations

## Montezuma National Wildlife Refuge



From I-90 take Exit 41 South to 318 East. Then take Routes 5 & 20 East to the refuge.

**MONTEZUMA NWR**  
**3395 Route 5 & 20 East**  
**Seneca Falls, New York 13148-9778**  
**(315)568-5987**

**WATERFOWL HUNT INFORMATION SHEET**

Waterfowl hunting on the Montezuma Wildlife Refuge is permitted in accordance with state and federal regulations, and with the additional restrictions below:

**Hunting Dates**

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

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

**Reservation Procedures**

Telephone reservations can be made from 8:00 a.m. to 10:00 a.m. The reservation number is (315)568-4136. Walk-in reservations can be made at the Check Station on Route 89 from 9:00 a.m. to 10:00 a.m. All reservations are first-come, first-served.

Reservations will be accepted on Tuesdays, Thursdays, and Saturdays during weeks when hunting is in progress.

Reservations will be accepted for the immediate next hunt day (e.g., call Thursday between 8:00 a.m. and 10:00 a.m. to hunt on Saturday, call Saturday between 8:00 a.m. and 10:00 a.m. to reserve for the following Tuesday, etc.).

For the refuge season opener, reservations will be taken at the same call-in number between 8:00 a.m. and 10:00 a.m. on the day that precedes the hunt. Note that this is only for the opening day.

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

To maximize opportunity, an individual hunter will be granted only one (1) reservation per three consecutive hunt days for the first six (6) hunting days of the season.

The successful applicant and his/her companion must sign-in at the Check Station on Route 89 at least one hour before legal shooting time. Failure to appear by this time will cause forfeiture of the reservation.

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

**SPECIAL NOTE:** Because of the very serious effects of the drought of 1988 (and throughout much of the 1980's) upon our waterfowl resource, it is possible that the 1988 season will contain marked reductions in season length, bag limits, and other regulations. Some elements of information on this sheet could change. Please help us to conserve our nation's waterfowl resource by learning, in advance of your hunt here, of any changes.

**Additional Regulations**

Boats are required (provide own boat); motors are prohibited. Hunter selects own site in the free-roam system -- camouflaged boats/canoes recommended. Spacing of hunters is assured by assignment of vehicle parking locations around the 4.5 mile dike road. Use of well-trained retrievers is encouraged.

Each hunter is limited to 15 steel shot shells.

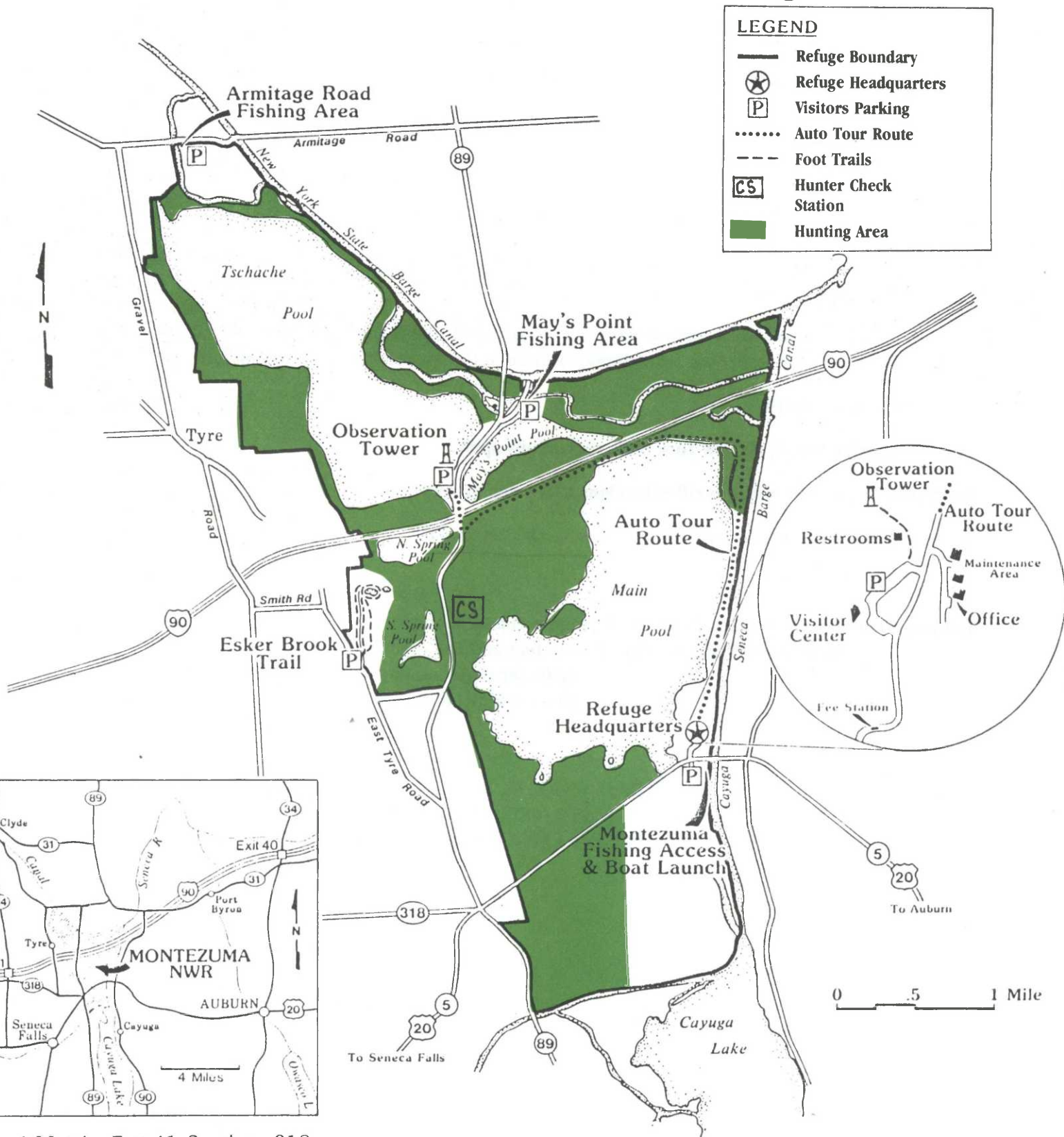
Hunting ends each day at 12:00 noon local time. All hunters, successful or unsuccessful, must check-out at the Route 89 Check Station by 1:00 p.m. local time.

Successful completion of the New York State Waterfowl Hunting Identification Course, the Montezuma Non-Resident I.D. Course, or suitable non-resident State I.D. course is required to hunt on the refuge. It is the hunter's responsibility to provide proof of completion upon request. Hunters interested in taking the New York State Identification Course should contact their closest New York State Department of Environmental Conservation office for further details.

**BLOCKING OF GATES, ROADS, OR DIKES  
BY VEHICULAR PARKING WILL RESULT IN  
A CITATION AND A FINE. PLEASE COOPERATE.**

# Small Mammal Hunt Regulations

## Montezuma National Wildlife Refuge



From I-90 take Exit 41 South to 318 East. Then take Routes 5 & 20 East to the refuge.

**MONTEZUMA NWR**  
**3395 Route 5 & 20 East**  
**Seneca Falls, New York 13148-9778**  
**(315)568-5987**

**SMALL MAMMAL HUNTING INFORMATION SHEET**

Designated small mammal hunting is permitted seven days a week on the areas shown on the map (this excludes all open water areas). Obey posted signs.

All hunters must possess and return at day's end a valid daily hunting permit card. These cards will be dispensed from, and returned to, a self-service station at the Hunter Check Station on Route 89.

Birds may not be hunted.

Unless otherwise stated, all New York State regulations apply.

Hunting is by shotgun only (no rifles/handguns/bow and arrows).

Hunters may not be on the refuge before sunrise or after sunset.

Hunting dogs are permitted.

Hunting dates: December 21 to February 28 (Squirrel and Rabbit)

December 21 to February 12 (Raccoon and Fox - daylight hours

*only*, for night hunting of Raccoons,  
please contact the refuge for current regulations).

**BLOCKING OF GATES, ROADS, OR DIKES  
BY VEHICULAR PARKING WILL RESULT IN A  
CITATION AND A FINE. PLEASE COOPERATE.**

**MONTEZUMA NWR**  
3395 Route 5 & 20 East  
Seneca Falls, New York 13148-9778  
(315)568-5987

**REGULAR FIREARM HUNT INFORMATION SHEET - 1988**

Deer hunting, with firearms (shotgun and muzzleloaders only) will be allowed by limited permit only from December 7 - December 13 (except Sunday, December 11). Handguns are not permitted.

Permits will be limited to 115 hunters per day for each of the six days (690 total permits).

Open areas are shown on the map. All other areas, including open water, are closed to hunting. Obey posted signs.

Constructing or hunting from permanent tree stands *is not permitted*. All portable tree stands must be removed from the refuge at the end of each hunt day.

Successful hunters *MUST* check in their deer at the refuge Check Station located on Route 89.

Hunters may use DMU-86 permits.

Hunters may not use boats or canoes on the refuge.

Hunters must wear at least 400 square inches of solid hunter blaze orange.

All firearms must be unloaded between sunset and sunrise, and hunters must be off the refuge from one hour after sunset to two hours before sunrise.

Unless otherwise stated, New York State regulations apply.

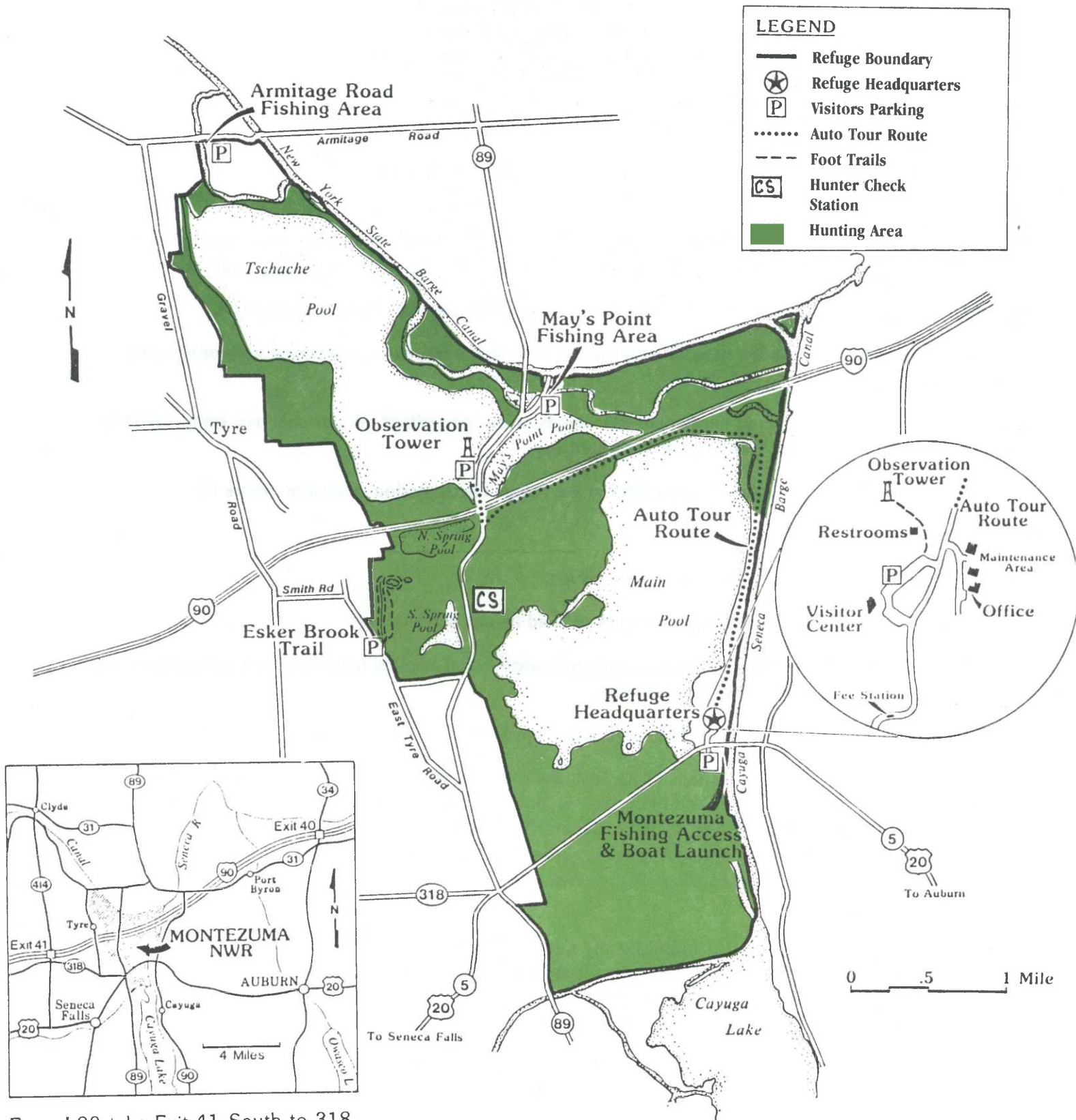
All hunters, before going afield, must check in at the refuge Visitor Center at refuge Headquarters on Route 5 & 20 between 5:30 a.m. and 6:30 a.m. Anyone who has not checked in by 6:30 a.m. will have their permit voided and offered to stand-by hunters. Those hunters not selected to hunt that day may apply for stand-by hunting by registering at the Visitor Center in person at 7:00 a.m. A random drawing will then be held to fill the vacant slots, if any exist.

**BLOCKING OF GATES, ROADS, OR DIKES  
BY VEHICULAR PARKING WILL RESULT IN A  
CITATION AND FINE. PLEASE COOPERATE.**



# Regular Firearms Hunt Regulations

## Montezuma National Wildlife Refuge



From I-90 take Exit 41 South to 318 East. Then take Routes 5 & 20 East to the refuge.



MONTEZUMA NWR  
3395 ROUTE 5/20 EAST  
SENECA FALLS, NY 13148-9778  
(315) 568-5987

REGULAR FIREARM HUNT LOTTERY INFORMATION SHEET

How To Apply For The Gun Hunt:

Send only one postcard with:

1. Full name.
2. Mailing address.
3. New York State back tag hunting license number.
4. The date of the hunt day you wish to hunt on (those not selected for the day desired will be placed in earliest vacant hunt day). Failure to specify a desired hunt day may decrease your chances of being selected.

Duplicate applications will be rejected and will disqualify applicant.

Applications will only be accepted from October 24 through November 12.

A total of 690 permits will be issued (115/day). Those hunters not receiving a permit may participate in a daily stand-by lottery to be held at 7:00 a.m. at the Visitor Center on Route 5/20.

Deer hunting will be with shotguns and muzzleloaders only.

Permits are non-transferable.

A lottery system will be used to issue permits.

Successful and unsuccessful applicants will be notified by mail.

Mail the postcards to: Montezuma National Wildlife Refuge  
3395 Route 5/20 East  
Seneca Falls, NY 13148-9778

CONGRATULATIONS! You have been selected to participate in the firearm deer hunt on Montezuma National Wildlife Refuge for the date listed below your license number on the mailing label. On your hunt day, you must obtain your permit by bringing this card and checking in between 5:30 and 6:30 a.m. at the Refuge Visitor Center. Failure to report by 6:30 a.m. will void your permit.

On hunt days for which you were not selected, you may apply for stand-by hunting by registering in person at the Visitor Center at 7:00 a.m. on the day you wish to hunt.

HUNTERS ARE REQUIRED TO WEAR 400 SQUARE INCHES OF SOLID BLAZE ORANGE.

YOUR SELECTION IS NOT TRANSFERABLE

SORRY! You were not selected to participate in the firearm deer hunt on Montezuma National Wildlife Refuge. However, you may still apply for stand-by hunting by registering in person at the Refuge Visitor Center at 7:00 a.m. on the day you wish to hunt.

HUNTERS ARE REQUIRED TO WEAR 400 SQUARE INCHES OF SOLID BLAZE ORANGE.

**MONTEZUMA NWR**  
3395 Route 5 & 20 East  
Seneca Falls, New York 13148-9778  
(315)568-5987

**ARCHERY HUNT INFORMATION**

Deer hunting using bows and arrows will be allowed, by permit, from October 17 through December 3.

No weekend hunting except for Saturday, November 26 and Saturday, December 3.

All hunters on each hunt day must possess and return at day's end a valid daily refuge permit card. Permit cards will be dispensed on Monday, Oct. 17 and Tuesday, Oct. 18 at the Visitor Center at refuge Headquarters on Route 5 & 20. ALL other days, cards are dispensed at the Route 89 Check Station. On all days, the cards must be returned to the drop box at the Route 89 Check Station.

**Hunting dates:**

October 17 - November 18: Buck or doe (no Saturday or Sunday hunting).

November 21 - December 3: Buck only unless you possess a DMU-86 permit  
(includes Saturday hunting on November 26 and December 3).

For those wishing to hunt opening day, October 17, a special refuge permit will be required. A lottery system will be used to issue the 600 permits for that day. Please see the special information sheet for this lottery.

Either-sex deer may be hunted during the archery season; however, a DMU-86 permit is needed to hunt antlerless deer from November 21 through December 3.

Unless otherwise stated, New York State regulations apply.

Successful hunters on October 17 and 18 **MUST** check in their deer at the Check Station on Route 89.

Open areas are shown on the map. All other areas, including open water, are closed to hunting. Obey posted signs.

Between sunset and sunrise, bows must be "disassembled", "locked", or "cased". All hunters must be off of the refuge from one hour after sunset to two hours before sunrise.

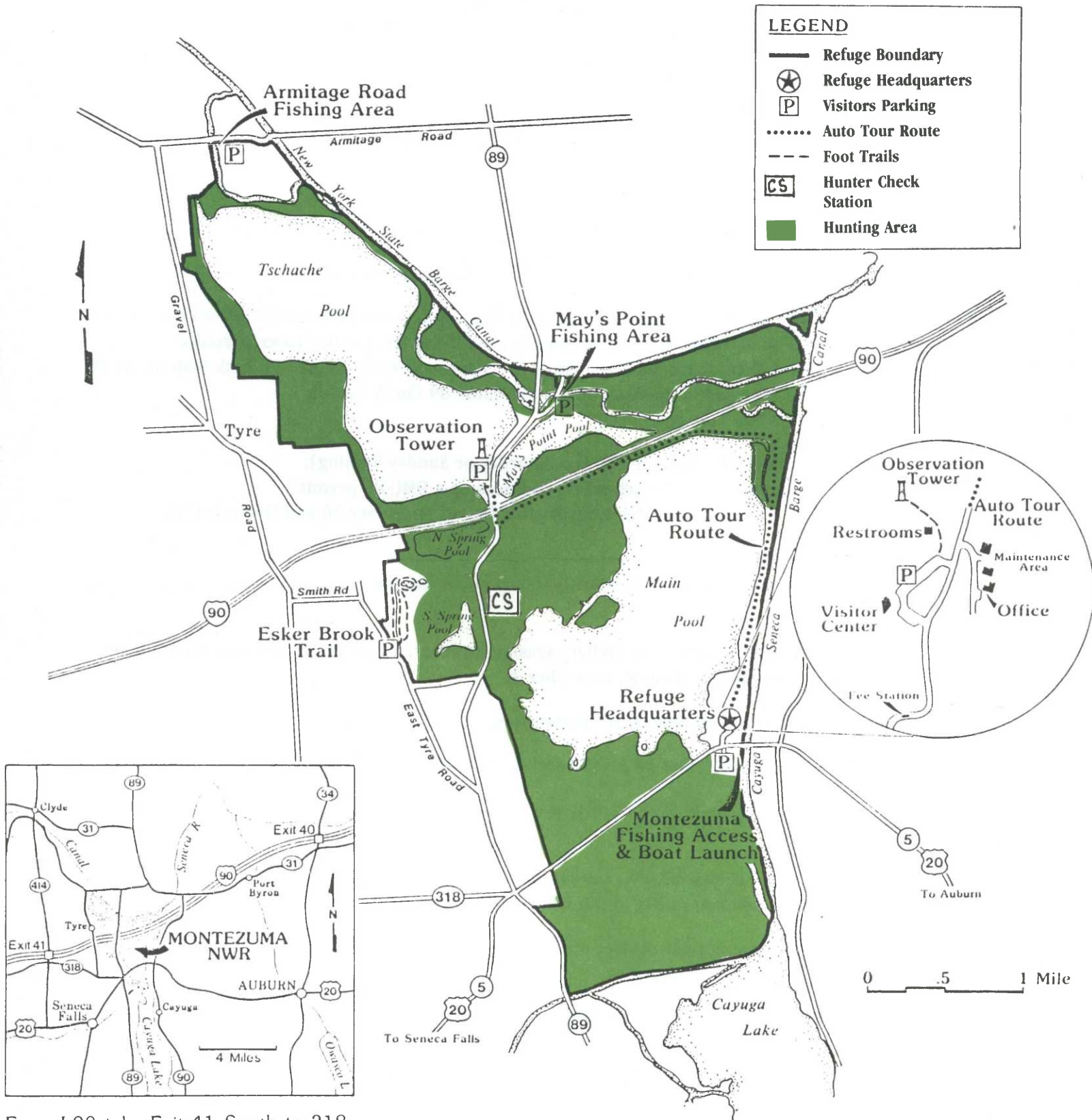
Constructing or hunting from permanent tree stands is **not permitted**. All tree stands must be removed from the refuge at the end of each hunt day.

Hunters may not use boats or canoes on the refuge.

**BLOCKING OF GATES, ROADS, OR DIKES  
BY VEHICULAR PARKING WILL RESULT IN A  
CITATION AND FINE. PLEASE COOPERATE.**

# Archery Deer Hunt Regulations

## Montezuma National Wildlife Refuge



From I-90 take Exit 41 South to 318 East. Then take Routes 5 & 20 East to the refuge.

MONTEZUMA NATIONAL WILDLIFE REFUGE  
3395 ROUTE 5/20 EAST  
SENECA FALLS, NY 13148-9778  
(315) 568-5987

ARCHERY HUNT LOTTERY INFORMATION

How To Apply For The Opening Day Archery Lottery:

Send only one postcard with:

1. Full name.
2. Mailing address.
3. New York State back tag hunting license number.

Duplicate applications will be rejected, and will disqualify applicant.

Applications will only be accepted from September 5 through September 16. A lottery system will be used to issue permits.

Permits are non-transferable.

600 permits will be issued.

Successful and unsuccessful applicants will be notified by mail.

Mail application cards to: Montezuma National Wildlife Refuge  
3395 Route 5/20 East  
Seneca Falls, NY 13148-9778



SORRY! You were not selected to participate in the opening day of the archery deer hunt on Montezuma National Wildlife Refuge. However, for the remainder of the archery hunt there is no lottery and you may pick up a permit in person on the day you wish to hunt. Pick up permits at the Visitor Center for the second hunt day and at the Refuge Check Station on Route 89 (1.7 miles north of Highway 5 & 20) for the rest of the season.

CONGRATULATIONS! You have been selected to participate in the opening day of the archery deer hunt on Montezuma National Wildlife Refuge for the date listed below your license number on the mailing label. On opening day you must obtain a permit by bringing this card and checking in after 5:00 a.m. at the Visitor Center or at the Refuge Check Station on Route 89.

For the remainder of the archery hunt there is no lottery and you may pick up a permit in person on the day you wish to hunt. Pick up permits at the Visitor Center for the second hunt day and at the Refuge Check Station on Route 89 (1.7 miles north of Highway 5 & 20) for the rest of the season.

YOUR SELECTION IS NOT TRANSFERABLE