

DESOTO NATIONAL WILDLIFE REFUGE
Missouri Valley, Iowa

NARRATIVE REPORT
Calendar Year 1983

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

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Bird's Eye View of DeSoto Visitor Center

52-108-83 RM

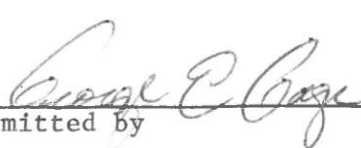
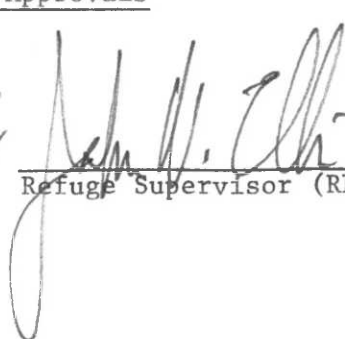
PERSONNEL

<u>Name</u>	<u>Title</u>	<u>Grade</u>	<u>Status</u>
George E. Gage	Refuge Manager	GS-12	PFT
Dean F. Knauer (Transferred 5/15/83)	Asst. Refuge Mgr.	GS-11	PFT
Thomas F. Prusa (EOD 7/25/83)	Asst. Refuge Mgr.	GS-11	PFT
David W. Menke	Outdoor Rec. Plnr.	GS-11	PFT
Allan Montgomery	Collection Manager	GS-11	PFT
Richard Sojda, Jr. (Transferred 1/8/83)	Asst. Refuge Mgr.	GS- 9	PFT
Lowell Deede (EOD 1/9/83)	Asst. Refuge Mgr.	GS- 9	PFT
Nancy Curry (EOD 1/23/83)	Asst. Refuge Mgr.	GS- 7	PFT
Susanne Benda (Resigned 11/12/83)	Museum Technician	GS- 7	PFT
James Guthrie	Police Officer	GS- 5	PFT
Randy A. Porter	Admin. Assistant	GS- 7	PFT
Wanda Harbottle	Refuge Clerk (Typing)	GS- 4	PFT
Nellie Walsh	Clerk-Typist	GS- 4	PFT
Lenora E. Lundeen	Clerk-Typist	GS- 3	PFT
Robert Piontek (EOD 6/12/83)	Information Recep.	GS- 3	CS
Lori R. Hahn	Information Recep.	GS- 3	CS
Harold Morrow	Park Aid	GS- 3	CS
Monty J. Storm	Automotive Worker	WG- 8	PFT
Harlan Lightwine	Eng. Equip. Operator	WG-10	PFT
Kenneth E. Marquardt	Maintenance Worker	WG- 8	PFT
Robert Kraushaar	Maintenance Mechanic	WG- 9	PFT
Mark Cunard (EOD 4/3/83)	Laborer	WG- 2	CS

Temporary

Anthony Mathison	Custodial Worker	WG- 2	TFT
Susan Cooper (5/8/83 - 12/24/83)	Biological Aid	GS- 2	TFT
Tracy Reed (6/6/83 - 8/19/83)	Biological Aid	GS- 3	TPT

Reviews and Approvals

	
Submitted by	Refuge Supervisor (RF2)
Date 3/30/84	Date 4/3/84



DeSoto's Finest

Front Row L-R Menke, Gage

Second Row L-R Lightwine, Kraushaar, Morrow, Storm, Piontek

Third Row L-R Montgomery, Prusa, Cooper, Cunard

Back Row L-R Guthrie, Porter, Harbottle, Curry, Hahn, Deede, Walsh,
Lundeen, Marquardt



YCC Crew, Summer 1983

Back Row: Brent Phillips, Rod Jackson, John Laughunn, Don Buryanek
Front Row: Kelley Kearney, Susan Comer, Anna Sully, Maggie Marsh, Ron
Exley, Steve Hoffman Missing from photo: Patti Kuhl, Jim
Telford

INTRODUCTION

DeSoto National Wildlife Refuge is located midway between the farming communities of Blair, Nebraska and Missouri Valley, Iowa on U.S. Highway 30. The refuge is situated astride the Missouri River, located approximately 20 miles north of Omaha, Nebraska in Harrison and Pottawattamie Counties, Iowa and Washington County, Nebraska.

The refuge was established in 1959 to preserve habitat for migratory waterfowl. Acquisition was authorized by the Migratory Bird Conservation Act and the Migratory Bird Hunting Stamp Act. It serves as a seasonal resting area for up to one-half million waterfowl, primary lesser snow geese and mallards. It has also become an important wintering area for up to 100 endangered bald eagles.

The 7,823-acre refuge lies in the wide, fertile plain of the Missouri Valley Basin on the former meanders of the Missouri River. Portions of the refuge are characterized by cottonwood bottomlands. Approximately 3,000 acres are managed biologically as croplands and grasslands under 12 cooperative farming agreements. Warm-season native grasses have been reestablished on approximately 300 acres to provide additional diversity.

The focal point for both man and wildlife is a former oxbow of the Missouri - the 788-acre DeSoto Lake. Recreational demand for its use has remained high since refuge establishment. The refuge has provided active recreation throughout its history, including fishing, picnicking, boating, waterskiing and swimming. Approximately 16-million dollars worth of facilities have been developed to accommodate public demand by up to 500,000 visitors annually. However, management emphasis has been redirected toward a more balanced program between man and wildlife, emphasizing wildlife-oriented recreation.

The discovery and excavation in 1968 of the Steamboat Bertrand, which sank in 1865, adds a major historical emphasis to the refuge program. The 200,000 artifacts in the Bertrand Collection provide the only fresh-water recovery of Civil-War-Era artifacts in existence and, as such, a time capsule of national significance.

In 1981, the DeSoto Visitor Center was opened. The visitor center is the permanent home of the Bertrand Collection. The five-million dollar, 26,000-square-foot building contains exhibits interpreting the importance of the Bertrand as part of the historical development and ecological change that occurred within the Missouri River Basin. In addition to environmentally-controlled artifact storage and museum exhibit areas, the building houses a laboratory for artifact treatment, a collection records area and a reference library.

The visitor center also provides exhibits depicting natural history of the area and its wildlife. Viewing galleries overlooking DeSoto Lake provide excellent opportunities to observe waterfowl and bald eagles during the spring and fall migration periods. A variety of complex audio and audio-visual equipment provide effective interpretations to an average 200,000 visitors who pass through the center each year.

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A. HIGHLIGHTS

It was a very odd year in the Midlands. Extremes in weather had a major impact on refuge programs. Public use was down generally on the refuge, as it was throughout the state park systems this summer. It was either too wet, or too hot and dry. Crops suffered, people suffered and, as the year ended, wildlife was suffering too. (Section B)

A considerable turnover in personnel was experienced during the year. (Section E-1)

Fall waterfowl use declined with the Thanksgiving weekend snow storm. The lake froze and all was quiet on the deserted lake. (Section G-3)

Plans continued for the fisheries renovation of DeSoto Lake. A fisheries management plan, Section 7 consultation and environmental assessment for proposed development were completed. Preliminary planning meetings with the state conservation agencies, regional office and Corps of Engineers were conducted. (Section G-11)

Public use at the visitor center declined to 187,000 visits, despite some excellent special programs. Even so, environmental education visits mushroomed (by 250 percent in April) over 1982 use, bolstered along by a willing cadre of refuge volunteers. (Section H-1)

While the refuge experienced record waterfowl hunting reservations, success was poor for the 693 waterfowl hunters who only took home 310 geese and 31 ducks. (Section H-8)

The North Beach swimming facility was closed due to a reduction in station FTE's. While we anticipated a public hue and cry, only two Congressional inquiries, a dozen letters and some grumbling occurred. (Section H-16 & 17)

Aside from heavy fall traffic control and literally having to turn hundreds of visitors away, the preventative law enforcement program was easy this year, almost boring. There were no bikers, no fights, no confrontations, no deaths, and not even a major accident. (Section H-17)

The Wildlife Art Show in November attracted fifty artists from Iowa and Nebraska. Over \$6,000 worth of art was sold by the Midwest Interpretive Association, our cooperating association. (Section H-18)

The Midwest Interpretive Association continued to grow. Our cooperating association now has a full-time business manager, a non-government employee. (Section H-18)

The two deteriorating concessions were closed as well this year and the south gate concession facilities removed. Out of sight, out of mind... almost. The net result was less picnicking, boating and waterskiing... maybe. But then, it was an atypical summer. (Section H-20)

The completion of the DeSoto Lake shoreline stabilization project faltered due to the weather and additional bank erosion occurred during the second consecutive summer of high water levels. (Section I-2)

B. CLIMATIC

The winter of 1982-83 was easy on wildlife, heating bills and nerves. The mild, open winter encouraged outside work. Below zero temperatures were only recorded once in January and three times in February. Approximately 80 percent of the ice was off DeSoto Lake by the end of February and, by March 2nd the lake was completely ice free. Farmers were getting ready for an early spring but then the snows came. Precipitation through April was nearly five inches ahead of that received in 1982 (DeSoto's record wet year).

May was cool, with frost on the 15th and, although rainfall was less than average for the month, planting never did get into high gear. The cool temperatures and periodic showers kept many of the refuge's gumbo soils too wet for planting. They'd be reworked and then be hit by another shower just before planting. And so it went! All fields eventually were planted, but one small corn field had not germinated by July 1st.

The cool, wet first half of the year produced flooding in June, but then weather turned hot and dry in July and August. From June 30th through July 23rd it forgot to rain. High temperatures were generally in the 90's and peaked at 100 degrees from July 19th through the 22nd. The first noticeable rain in August didn't occur until the 20th, when 0.85 inches fell. The year's high temperature of 106 degrees occurred on August 16th. Crops were hurting. Many counties in Iowa and Nebraska were declared disaster areas because of crop losses from the drought.

Watering of the newly transplanted trees and shrubs became extremely important during the dry period. Survival rate was very good despite the dry weather. 32-121-83 NC



The first frost of the season occurred on September 21st. October was mild and the first three weeks in November made for almost ideal fall weather.



The season's first snowfall occurred on November 9th, but on the 26th-28th an early winter blizzard dumped two inches of ice and 8-10 inches of snow on the area. 31-077-83 TP

DeSoto Lake was completely frozen over by November 29th, and winter was here to stay, even though the calendar said winter was more than three weeks off yet.

1983 Weather Data - DeSoto NWR

<u>Month</u>	<u>Precipitation</u>			<u>Temperatures (°F)</u>	
	<u>Inches</u>	<u>Normal</u>	<u>Snowfall</u>	<u>Maximum</u>	<u>Minimum</u>
January	0.77	0.74	2.0	41	- 4
February	1.43	0.84	9.0	63	-10
March	4.65	2.08	13.0	80	20
April	2.40	2.65	8.0	79	27
May	4.10	4.42		90	40
June	5.10	4.30		93	42
July	1.15	3.10		100	54
August	1.27	3.86		106	56
September	3.31	3.82		98	29
October	2.19	2.37		88	27
November	4.47	1.22	10.0	67	11
December	<u>.53</u>	<u>.89</u>	<u>17.0</u>	<u>31</u>	<u>-27</u>
Totals	31.37	30.29	59.0		

December was a record breaker - the coldest damn December ever, with only February, 1936 having a colder average temperature. The -27 degree reading recorded on Christmas Eve morning was the year's coldest. From December 17th until Christmas Day, the thermometer did not get above zero and the windchill was extreme. The week before Christmas was the coldest ever, averaging 11.9 degrees below zero in Omaha. A record 203 consecutive hours were reported at zero or below, and it kept on snowing. Seventeen more inches made it a rough winter for man and beast alike. Temperatures began moderating somewhat after Christmas and reached a cozy 30 degrees on December 31.

The 59 inches of snowfall recorded during 1983 eclipsed the previous record of 54 inches set back in 1960.

D. PLANNING

1. Master Plan

Master planning is scheduled for FY-86. Again, as it has been said many times, master planning is needed and should be required for new, undeveloped refuges. But, well-established refuges with on-going programs, with little potential for change, should be left alone. The process is simply wasted on such refuges with years of professional and political conflict resolution behind them.

2. Management Plan

Parts I and II of the management plan were completed and approved. Some objective levels were revised from levels previously set in 1978.

Both the Fire Management and Disease Plan were revised and approved.

Jim Milligan, fishery biologist at Genoa NFH, drafted a Fisheries Management Plan. The plan and an environmental assessment of the proposed lake renovation were approved.

- ✓ The sign plan was rewritten and approved, and the Law Enforcement Plan was rewritten.

4. Environmental Mandates

Iris Zwillman, RO staff, assisted in writing the environmental assessment and Section 7 consultation for the proposed fisheries renovation of DeSoto Lake, which was subsequently approved, complete with FONSI and even the Director's signature.

The Iowa Department of Environmental Quality was contacted and approval was obtained to pump the visitor center sewage lagoon. High water levels made this operation necessary twice due to inadequate design. Corrective construction action is planned for Fiscal Year 1984 (See Section I-1).

5. Research and Investigations

DeSoto NR-76- "Energy Requirements and Management of Post-Breeding Waterfowl in Mid-Latitude Refuges"

Dr. Robert Frederick completed his ongoing research and doctoral dissertation at Iowa State University and developed a bioenergetics model for post-breeding, field-feeding waterfowl on mid-latitude refuges. This simulation model predicts the effect of changes in food availability and hunting pressure on refuging waterfowl populations. The effects of agricultural operations on food availability to field-feeding waterfowl are also incorporated into the model. The model enables managers to simulate the effects of different land-use practices and hunting regimes on waterfowl behavior and refuge population levels.

However, in developing the model, no information had been available regarding the rate at which snow geese ingest food at varying densities. A hypothetical functional response curve for feeding rate was constructed for the purpose of estimating rates of intake (g/min) at various densities of waste corn.

DeSoto NR-78- "Yield and Quality of Warm Season Grasses"

We still have not received final results from this research project, although the field work was completed in 1980. The following information comes from the last progress report received from Cheryl Nielsen, University of Nebraska, Lincoln.

Dead standing plant material was removed by prescribed burning in April 1979 and 1980 from two varieties each of little bluestem, big bluestem, Indiangrass and switchgrass. During May of 1979 and 1980 nitrogen was applied to each plot at 0, 100, and 200 kg/ha. The higher fertilization rates generally increased yield and crude protein content. Nitrate leaching was not detected at these levels of fertilization.

DeSoto NR-81- "Addition of Composted Cattle Manure to Refuge Fields"

The objective of this refuge project was to determine a recommended rate to apply composted cattle manure to refuge fields prior to planting corn. No new information was submitted this year. We are still waiting for the final report from Maggie Smith from the ISU Cooperative Extension Service.

DeSoto NR-82 - "Biological Farming - Wonderlife"

Proponents of the soil additive Wonderlife claim that to properly evaluate the product a long-term trial should be followed. In 1982, Wonderlife was applied to a ten-acre corn plot to compare it with an identical control plot. Results were inconclusive because of improper fertilization. This year, a three-year trial was initiated to give the product a proper evaluation. Recommended rates will be applied for three consecutive years. During this time, fertilizers and herbicides will be prohibited. Evaluations will include: document weed problems, measure and record yields, test forage for protein content, record the number of earthworms per unit area, and record any damage associated with the crop. Soil tests will also be conducted annually.

DeSoto NR-83 - "Evaluate the Effects of a 45 Percent Reduction in Field Corn Acreage on Movement and Habitat Use by Fall Migrating Lesser Snow Geese at DeSoto NWR"

This RO funded study was supposed to take advantage of a unique opportunity to document the effects on behavior of refuging snow geese caused by a average 45 percent reduction in field corn acreage under the payment-in-kind (PIK) program of the U.S. Department of Agriculture. Baseline data were collected in 1976, 1977, and 1981 for developing an experimental computer simulation model (see DeSoto NWR-76 - Energy Requirements and Management of Post-Breeding Waterfowl in Mid-Latitude Refuges).

Qualified Iowa State University wildlife students began collecting field data in mid-September. Newly harvested, disced and plowed fields were sampled for waste corn availability. Goose movements were monitored daily from October 10 through December 12. Feeding flight distances seemed to increase during mid-November as food sources near the refuge were depleted. Geese were observed feeding in corn stubble in the loess hills in Iowa on November 25 and 26, and ranged into the Nebraska hills as well. Specific data analysis is on-going.

DeSoto NWR-83 - "Evaluation of the Pollination Ecology of *Asclepias incarnata* L"

- ✓ Observations were conducted on the swamp milkweed (*Asclepias incarnata* L) to determine the characteristics affecting pollination and pollinator behavior and identification, including degree of self-fertility, nectar production and composition, efficiency of nocturnal versus diurnal pollinators, and habitat requirements. This information can then be compared with other *Asclepiads* for verification and determination of generic constancy.

DeSoto NR-83 - "A Survey of Small Mammal Species at DeSoto NWR"

A survey of non-game small mammal species was conducted by Lisa Mellott from October 5 until October 25, 1983. Different habitat types were sampled using Sherman live traps. Individuals were

marked by toe clipping and then released. Individuals of nine species were captured from four different habitat types and were examined with regards to sex, age, reproductive condition, pelage molt and weight. Several habitat types were not sampled. This, together with the short duration of the trapping period, make it highly possible that additional species may be present on the refuge. These previously undocumented species captured include:

<u>Peromyscus leucopus</u>	-	White-footed Mouse
<u>Peromyscus maniculatus</u>	-	Deer Mouse
<u>Reithrodontomys megalotis</u>	-	Western Harvest Mouse
<u>Microtus ochrogaster</u>	-	Prairie Vole
* <u>Onychomys leucogaster</u>	-	Grasshopper Mouse
<u>Zapus hudsonius</u>	-	Meadow Jumping Mouse
<u>Mus musculus</u>	-	House Mouse
<u>Rattus norvegicus</u>	-	Norway Rat
<u>Blarina brevicauda</u>	-	Short-tailed Shrew

*State of Iowa endangered species. This record extends the present known range of this mammal in Iowa.

Other Research

This fall, 100 snow goose gizzards, hearts and livers were sent to the National Health Laboratory in Madison, Wisconsin to assist with the National Lead Poisoning Monitoring Program which is currently ongoing. No additional gizzard analysis work was conducted.

A proposal was submitted to evaluate the feasibility of supplying nitrogen biologically in an intercropping system and its effects on the nesting success of birds. No funding has resulted to date.

Dr. Robert Frederick and Rex Johnson co-authored a paper entitled "Ross' Geese Increasing In Central North America", Condor 85: 257-258.

The paper presents results of a study conducted to determine if the 1981 fall population of Ross' Geese at DeSoto has increased since 1969. Their estimates show a slight increase, although difference is probably not statistically significant.

03-043-83 DM



The possible land application of Omaha's sewage sludge to refuge crop fields is being evaluated. Should lack of heavy metal levels and disease vector analysis make application acceptable, a demonstration site for sludge application will be developed. Objectives would include a comparison of no fertilization, commercial fertilization, digested sludge and composted sludge effects on soils, crop yields, ground water, and heavy metal uptake in plants and selected animal species important in ecological food chains. Another objective, (should this project proceed), is to develop a set of appropriate guidelines for refuge managers to consider when using sludge and/or compost on refuge lands. So far, the project is only in the discussion stage.

E. ADMINISTRATION

1. Personnel

a. Personnel Actions

Assistant Manager Rick Sojda transferred to Morris WMD on January 9th and Assistant Manager Lowell Deede arrived here from Detroit Lakes WMD during the same week.

Assistant Manager Nancy Curry EOD from Litchfield WMD in January to replace Assistant Manager John Jave who left during November 1982 for Lake Andes NWR.

A reduction in PTEs resulted in loss of our permanent-intermittent Park Tech position that was to be filled this spring; also loss of three summer lifeguards.

Assistant Manager Deede was promoted to a GS-9 Refuge Manager (Biologist) effective April 3rd.

Mark Cunard EOD on April 3rd as a permanent-intermittent Biological Aid and on December 25th he was converted to a career-seasonal WG-2 Laborer.

Assistant Manager Knauer transferred to Malheur NWR on May 15th as the Primary Assistant there.

Susan Cooper EOD on May 8th as a temporary Biological Aid and was terminated on December 24th as her appointment ran out.

Tracy Reed was hired as a temporary Biological Aid and EOD on June 6th and was terminated on August 12th.

Park Aid Bob Piontek EOD on June 12th. Bob transferred in from the NPS, a wise move.

Tom Prusa EOD on July 24th as the Primary Assistant Manager. Tom transferred in from Iroquois NWR, another wise move.

Museum Technician Susanne Benda, resigned on November 12th to take a position with the Kansas Historical Society in Topeka, Kansas an unwise move.

Maintenance Worker Bob Kraushaar was promoted from WG-8 to WG-9 on December 5th and his title was changed to Maintenance Mechanic.

Park Aids Lori Hahn and Bob Piontek had a title change to Information Receptionist, effective December 7th.

Park Aid Lenora Lundeen hardly suffered from a title change to Clerk-Typist, effective December 5th.

Several of the above actions are the result of a personnel classification audit conducted by regional Classification Officer Sylvia Brown in June. Many of the station's PDs were outdated. The final analysis was some restructuring of the staff, some promotions and reclassifications. While time consuming, it was also wise and necessary.

b. Travel/Training

Managers Gage, Knauer and Deede attended an excellent biological farming workshop at Iowa State University in February.

Assistant Manager Nancy Curry attended the 9-week basic law enforcement training at Glynco, Georgia during January 12th - March 14th.

Manager Gage attended Advanced Refuge Managers Training at Beckley, W. VA., Chincoteague NWR, and Washington, D.C. in March. A good course made better by association.

Assistant Manager Knauer and Collection Manager Montgomery presented programs on Cropland Management and Volunteer/Cooperating Associations, respectively, to Mid-Level Managers Academy at Beckley, W. VA. Knauer participated in the Congressional Operations segment of the Advanced Managers Academy as well.

Law enforcement refresher training was held at DeSoto April 11-15th. Officers Gage, Knauer, Menke, Deede, Porter, Curry and Guthrie attended, as did many managers from other refuges.

Outdoor Recreation Planner Menke attended OPM's Middle Management Institute during April 25-27th.

Manager Gage attended the Wildlife Resources Programmatic in Minneapolis during April 18-21st and participated as a facilitator.

Collection Manager Montgomery received a Cultural Resources Management course from NPS at Harpers Ferry during May and attended the Interagency Cooperating Association Conference in Denver during September.

Manager Gage spent several days in the RO discussing budget, objectives and plans and was Acting Division II Refuge Supervisor from May 24th to May 26th and on the 27th day he rested..

Museum Technician Benda travelled to Minneapolis in June for a week of hands-on training at the Upper Midwest Regional Conservation Center.

Manager Gage attended the Project Leaders Meeting in Muscatine, Iowa during August 8-10th.

Refuge officer's Curry and Guthrie attended the Supplemental Basic Refuge Law Enforcement course at FLETC during August 8-12th.

Collection Manager Montgomery, Outdoor Recreation Planner Menke and Assistant Manager Curry attended a Fred Pryor course on Managing People in October.

Manager Gage and Administrative Assistant Porter travelled to the RO in November to discuss the station's personnel audit and restructure the refuge staffing plan.

Assistant Manager Curry represented the Service at Iowa State University's Agricultural Career Day in Ames on November 8th.

Manager Gage travelled to Squaw Creek NWR in December as a team member with RO staff for an Operations Inspection.

c. Staffing - Past Five Years

	<u>Permanent</u>		<u>Temporary</u>	<u>Total</u>
	<u>Full-Time</u>	<u>Part-Time</u>		
CY 83	19	3	2	24
CY 82	17	2	7	26
CY 81	16	3	5	24
CY 80	16	3	7	26
CY 79	13	2	12	27

d. Awards

Maintenance Worker Bob Kraushaar, received a special achievement award of \$400 for his energy conservation efforts at the DeSoto Visitor Center.

Collection Manager Montgomery received a suggestion award for a volunteer patch which was adopted by the Service.

Outdoor Recreation Planner Menke's photograph of a male wood duck was selected for the new Federal duck stamp poster. He and Collection Manager Montgomery both had winning photo contest entries this year.

2. Youth Programs

The YCC program started June 6, with ten enrollees and two staff members. Five of the enrollees selected were from the Blair, Nebraska area and five from Missouri Valley, Iowa. The camp staff was placed through a contract with the Missouri Valley Schools.

YCC projects came in three broad categories: maintenance, construction, and education. Maintenance projects included repairing and painting public use facilities such as pit toilets, picnic tables, pipe gates, road barricades and signs. Both existing interpretive trails received a new layer of woodchips. Other maintenance projects included cleaning refuge vehicles and buildings, mowing lawns, weeding and landscape work at the visitor center. The floats outlining the sunken steamship Bertrand were painted and reset. New steps were placed at the photo blind and two old photo blinds were removed. Numbered posts were set at the head of each of the 75 rows of experimental tree plantings for identification purposes. And, last but not least, litter was picked up throughout the refuge.

The construction projects were learning projects as well.



The Corps members constructed a new fishing dock and stairway at Bullhead Pond to replace an old one built by the YCC in the early 1970's. They worked hard and well. 31-067-83 NC

Repainting of the lake depth map at the south picnic area was another YCC project. 31-064-83 NC



Twenty exhibit panels, to be used during the wildlife art show, were constructed for the visitor center. The corps members built and installed wood duck nest boxes and bluebird houses in various locations about the refuge. New shelves for the office supply and copy room were constructed. Twenty picnic tables were rehabilitated with cedar planks and stumps and brush were cleared for a new interpretive trail south of the visitor center.

The educational category included some biological studies, a field trip and two safety courses.

3. Other Manpower Programs

CETA - CETA employees have provided much needed janitorial and grounds maintenance assistance. Three youths were hired under the 8-week summer CETA program. Wendy Burbridge, a high school student assisted with typing and filing at headquarters. Dondi Arrick, an ISU college student, worked with the maintenance crew on grounds maintenance. Ralph Hughes spent approximately 6-weeks assisting with indoor and outdoor chores at the visitor center.



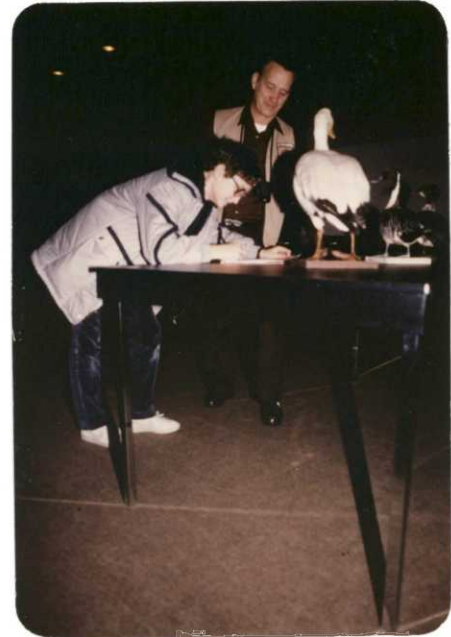
Joe Tenny became our endangered species after nine months of productive employment. Because of its restructuring and relocation out of the community, CETA will no longer be a viable option. 30-058-83 MR

4. Volunteer Program

The volunteer program has been very active during its second year of operation. Although only 14 volunteers have been enrolled in the program, 1,552 hours of valuable assistance have been devoted to the refuge this past year. An additional 115 hours were donated by the Woodbine Community Art Council to assist us with security during our first annual wildlife art show.

The volunteers assisted primarily with programs involving environmental education, historical and nature studies, activities centering around Prairie Appreciation Week, assisting with the first annual art show and sale, surveys, newsletter, and the production of some "DeSoto Fact Sheets."

45-090-83 DM



The refuge was fortunate to have two student volunteers again this year. They were Melinda (Mindy) Rosenbaum from Blair, Nebraska and Ronald Snyder of Lake City, Iowa. Mindy was a junior at the University of Idaho, majoring in wildlife resources. Ron was a junior at Buena Vista College in Storm Lake, Iowa, where he majored in small business management. They both spent many hours during the summer assisting the visitor center staff at the visitor information desk, taking visitor use surveys, leading environmental education groups and working on special individual projects.

Other special projects undertaken by our corps of volunteers include the successful completion of our first annual Wildlife and Wildlands Art Show and Sale (sponsored by the Midwest Interpretive Association), reconstruction of wooden shelves in the center's storage area, and the development of exhibits and a program to coincide with Prairie Appreciation Week. Without their help, many activities would have to have been curtailed or perhaps not even initiated.

5. Funding

The following table indicates total O&M funding targets for the past five years:

<u>Sub Activity</u>	<u>FY-84</u>	<u>FY-83</u>	<u>FY-82</u>	<u>FY-81</u>	<u>FY-80</u>
1110	0	0	0	0	500
1210	0	201,000	130,500	147,000 ²	136,000
1220	0	15,000	7,000	3,000	0
1240	0	432,000	448,000	385,000	345,000
1260	693,000 ¹	0	0	0	0
1520	0	17,000	0	0	0
1994	<u>5,000</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2,000</u>
Total	698,000	665,700	591,500	535,000	483,500

¹Includes \$63,000 for equipment replacement under the ARMMS program.

²Includes \$16,000 for a road rehabilitation project.

Fiscal year 1984 brought a new system of cost coding. Our initial impression of the modified cost coding system is that administrative processes are going to be simplified. We have changed again from "splitters" to "lumpers". Fixed cost accounting is made much easier, simply because there aren't very many work elements that an individual will be working within.

The primary problem with this system is that the integrity of the former system is lost. We can no longer go back and identify individual program costs. For example, all public use programs, (wildlife-oriented and non-wildlife-oriented), fall into work element 205. We would be hard put to retrieve the costs of environmental education programs for comparison with the costs of fishing programs, etc. under this system. But, then, will we ever be asked.

A reprogramming request submitted in 1982 to Congress was approved. The reprogrammed \$154,000 was used to fund 1.9 miles of asphalt resurfacing beginning at the entrance on Highway 30 and continuing past the visitor center.

We finished the year with a flurry of activity. Funds withheld for use in our sewage lagoon enlargement project were finally released in August. These funds were utilized to replace old equipment and upgrade existing communication systems.

DeSoto remained within fund targets. As the table indicates, our total allotment was \$665,700 for operation and maintenance. At the end of the year, DeSoto was underspent by only 0.2 percent or approximately \$1,300. All FTE's had been utilized.

Refuge Manager Gage, presented checks totalling \$67,040 to participating counties under the Refuge Revenue Sharing Act. Harrison and Pottawattamie Counties in Iowa received \$26,045 and \$4,106, respectively. Washington County in Nebraska received \$36,889.

6. Safety

DeSoto has not had a lost-time accident since August, 1982. The three staff accidents reported this year involved a fall, a cut finger, and a brush with the nefarious poison ivy.

Maintenance Worker Marquardt cut his finger on a shovel he had just finished sharpening.

Biological Aid, Tracy Reed rubbed his eye after contacting poison ivy while pulling weeds around the visitor center. The poison ivy caused considerable irritation to his eye requiring medication.

While on law enforcement duty, Manager Gage was standing on a slippery, partly submerged boat dock when he put out a foot to fend off an incoming boat. The forward momentum of the boat flipped him into the air and he landed on his right hip, dislocating and bruising it. Hurt? The embarrassment was much worse! MV = MV

The station's safety committee, consisting of three employees, assigns safety topics for the monthly staff meetings. Individual staff members are selected to provide a safety program on these topics at each safety meeting. Safety topics included such subjects as defensive driving, drugs and alcohol, health, prescribed burning, CPR and first aid techniques, fire hydrant and hose use, wildlife diseases, shop tools, firearms safety and winter driving.



"Hands-On" safety meetings make them more interesting!? It just depends on who or what is getting hosed.

30-064-83 AM

Quarterly safety inspections are made by a three-person team and significant safety items are reported at the next safety meeting. Items that can be corrected immediately are taken care of at the time of the inspection.

Public accidents/incidents which were reported:

- a. Bonnie Harder, an elderly visitor at the center on March 12th fell in the center theatre, breaking her wrist. Mrs. Harder submitted a tort claim to recover considerable medical costs incurred by the accident.
- b. Ricky Ott, age 8, cut his foot while wading along the rip-rap shoreline in a non-wading zone. Refuge Manager Gage administered first-aid and advised parent to take him to a doctor.
- c. Jessica Larsen, age 3, was walking on the concrete planter box outside the visitor center when she fell and hit her head on the concrete. Refuge personnel applied a cold pack to her head. The girl said she had no pain or dizziness, but it was suggested she be taken to a doctor if dizziness or loss of sight occurred.
- d. Todd Young, age approximately 10-12, cut his foot while wading in the small wading area. Although his parents were not with him at the time, other visitors had applied first aid. When his parents returned, they took the boy to a doctor.
- e. Lee Grauf, driving a 1978 Ford pickup registered to Steve Brownrigg, backed into the right rear of a boat trailer, breaking the right taillight and housing on the trailer. There was no damage to the pickup. A note was left for the owner of the trailer to contact Mr. Grauf to collect damages.
- f. Dan Uhlig and his wife were canoeing on DeSoto Lake. When Mr. Uhlig attempted to start the small Johnson gasoline motor mounted on the canoe, the motor caught fire, damaging it and the electric motor mounted nearby. Mr. and Mrs. Uhlig jumped into the lake and splashed water on the fire. There was no personal injury but the canoe and motor suffered.
- g. Dorothy Barngrover, age 75, fell in the visitor center theatre landing on her back. She disclaimed any injury or treatment and continued her tour of the center.

Many other minor injuries are not reported or observed.

F. HABITAT MANAGEMENT

1. General

The mild open winter of 1982-83 did not create hardship for resident wildlife because food and cover were available and abundant throughout the winter. However, the nesting season was somewhat

delayed due to cold, wet weather. The hot, dry months of July and August caused most wetlands to dry up.

Agricultural crops and grassland plantings showed moisture stress and large deep cracks developed across the bottomland soils, both on and off the refuge.

33-096-83 LD



The fall period abruptly turned to winter with the late November ice storm/blizzard and the December cold and windy conditions kept the area completely snow covered through the remainder of the year.

2. Wetlands

Missouri River Basin runoff for the year was about eight percent above normal. This above-normal runoff was evacuated from the system by maintaining full power plant releases from Gavins Point Dam from early July through the end of the navigation season. The navigation season was closed on December 4 at Omaha and December 11 at St. Louis. Releases prior to mid-July were kept low to minimize downstream flooding. The Missouri River at Omaha crested during June at its highest level since 1969, four feet below flood stage.



Refuge backwater areas flooded during the summer and DeSoto Lake levels remained very high. 27-057-83 NC

Boat ramps were raised through August to continue to allow boating access. The paradox of abnormally high water levels in DeSoto Lake during a severe drought occurred primarily because of the flood control projects on the Missouri River. Lake levels returned to normal summer operation levels in September and were lowered an additional three feet by year's end as the river levels lowered. This allowed the contractor to resume placement of riprap along unprotected stretches of shoreline and also lowered lake levels to receive spring runoff.

The cool, wet spring left most marshes with optimum water conditions until July and August, when all but the deepest ponds dried up because of the hot, dry weather.

Approximately one-half acre of willows were cleared to install a four-foot stoplog control structure near the east dike. After the structure was installed and the dike completed, about two feet of water was pumped into the pond. The pumping occurred in mid-October and mallards responded to this new loafing area almost immediately.

New construction for the visitor center pond complex included placement of a four-foot stoplog structure which empties into Rand's Ditch, construction of a feeder system to divert cooling water from the visitor center into these ponds and construction of a small loafing island. These ponds were pumped in late October and received heavy use from waterfowl until freezeup in late November; a neat sight from the visitor center.

Wood Duck Pond was also pumped in late October to make the area more attractive to migrating waterfowl.

Stoplogs were also placed in the three "west side" structures in an attempt to hold spring runoff.

3. Forests

A significant die-off of mature cottonwoods is becoming evident. Size classes above approximately 18-inch DBH trees seem to be most affected. The die-off is not localized, with dead trees scattered throughout each woodland. Adjacent mature trees remain seemingly healthy. We will continue to monitor the situation.

4. Croplands

a. Acreages - During 1983, a total of 3,034.7 acres were cooperatively farmed by 12 cooperators. This represents an increase of 20.3 acres over the 1982 farming program. A total of 2,085.8 acres, or 69 percent, were farmed biologically and 948.9 acres, or 31 percent, were farmed conventionally.

	<u>Corn</u>	<u>Soybeans</u>	<u>Wheat</u>	<u>Clover and Oats</u>	<u>Milo</u>	<u>Other*</u>
Conven- tional	457.4	408.5	83.0	-	-	-
Biolog- ical	<u>412.3</u>	<u>630.0</u>	<u>108.5</u>	<u>462.8</u>	<u>131.0</u>	<u>263.8*</u>
Total	<u>869.7</u>	<u>1038.5</u>	<u>191.5</u>	<u>462.8</u>	<u>131.0</u>	<u>263.8*</u>

*Includes: Summer fallowed ground on various native and tame grass seedings and clipping operations to control weeds.

b. Grassland Seedings - A total of 42.6 acres of native grass were established in three fields during early June. Also, a four-acre area along the entrance road, required reseeding because of poor germination. The basic seeding mix and rate follows:

<u>Species</u>	<u>Variety</u>	<u>Lbs. PLS/Acre</u>	<u>No. PLS₂ Seeds/FT²</u>
Switchgrass	Blackwell	.37	3.3
Indiangrass	Holt	1.81	7.2
Big Bluestem	Pawnee	1.81	6.9
Little Bluestem	Blaze	1.10	6.5
Side Oats grama	Trailway	1.47	6.5
Blue grama	-	<u>.37</u>	<u>7.1</u>
Total		<u>6.93</u>	<u>37.5</u>

The calculated totals can not be considered too accurate because the Truax drill used to sow this mixture cannot be considered a very precise piece of equipment. Calculations are at best a guide to seeding rates. The seeding rates calculated this year range from 20 to 40 pure live seeds/square foot seeded.

Goldstrike sand bluestem was substituted for big bluestem on the four-acre reseeding along the entrance road. Green needlegrass and western wheatgrass were substituted for blue grama on 3.9 of the 42.6 acres seeded.

Mechanical seedbed preparation consisted of two discings and one field cultivation prior to planting. Herbicides were not used and the resulting seedbeds ranged from moderately firm and pliable to somewhat cloddy, depending upon wetness and the amount of clay in the soils worked. The best seedbeds and consequently the best stands resulted on the soybean stubble fields. From zero to two clipping operations were necessary on these fields to prevent undesirable weeds from seeding.

A total of 6.3 acres of birdsfoot trefoil were planted, but first year germination did not appear to be very good.

One of the two areas seeded in 1982 (to be managed as a green goose browse pasture) was reseeded in early spring. The 53.7 acre stand looked as though it had been completely browsed out last fall except for a healthy stand of pepper grass that remained. A seedbed was prepared and the area was divided into thirds. One-third was seeded to 2 lbs. orchard grass and 6 lbs. tall fescue per acre, the next to 5 lbs. green needlegrass and 8 lbs. western wheatgrass per acre, and the final third to 2 lbs. orchard grass and 8 lbs. brome grass per acre.

These mixes were seeded with 1.5 bushel oats/acre to aid in broadleaf weed control. Approximately 25 acres of the oats were harvested, but broadleaf weed competition comprised of cocklebur, velvet leaf, morning glory and sunflowers made harvest operations on the remaining area impossible. This area was clipped to control the weeds. The plan also called for a February/March 1984 broadcast frost seeding of three pounds of Birdsfoot trefoil per acre. This seeding will be delayed until 1985, so better broadleaf weed control can be accomplished prior to the trefoil seeding. The primary objective for this field is that it be used by feeding and loafing snow geese during fall and spring migrations. It is hoped that by limited clipping and/or burning manipulations it may be maintained as a self-sustaining, permanent goose browse pasture. It should also be used as a nesting area for upland birds later in the spring.

c. Food Plots - DeSoto had 18 planned milo food plots and one planned corn food plot, totaling 77.4 acres. In addition five narrow corn strips (used to camouflage ten hunting blinds during the Iowa waterfowl hunt program) totalled 12.7 acres and were left standing for wildlife use. The November 27-28 ice storm/blizzard stopped harvest operations throughout the area. At this time, 9.8 acres of corn and approximately 185 acres of soybeans were left standing in the fields. These crops received very heavy use by deer, pheasants, quail, rabbits, squirrels, etc. and undoubtedly helped alleviate a stressful situation caused by the deep snows, severe cold and winds common throughout December.

✓ An estimated 30,000 to 50,000 mallards kept returning to one 3.5 acre milo strip until it was completely consumed. Even several coyotes hidden within the rows couldn't keep the determined birds away. A peregrine falcon also made direct use of one milo food plot and became a secondary consumer of the grain. A hapless red-winged blackbird provided the meal. Red-tailed, Coopers', sharp-shinned hawks and kestrels also made use of the prey species attracted to this abundant food supply.

d. Biological Farming - This was the fifth year of the biological farming program. Cooperators no longer question whether or not biological farming will work and several have expressed a desire to

go completely biological with their farming activities. However, the cold, wet spring caused many crops to be planted late. The hot, dry summer reduced corn yields by about 33 percent and soybean yields by about 20 percent from the 1979-1983 five-year average. Average yield information follows:

<u>Average Yield in Bushel/Acre</u>						
<u>Crop</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>5 yr. Avg.</u>
Conventional Corn	115	90	104	81.4	63.4	90.1
Biological Corn	116	90	101	99.5	64.3	94.2
Conventional Soybeans	32	32	41	38.0	27.3	34.1
Biological Soybeans	31	36	44	39.0	28.0	35.6

In addition to average yields, top yields were also down from 1982. Top yields for biological and conventional corn fields were 116.7 and 120.0, respectively, as compared to 156.3 and 132.7 in 1982. Top biological and conventional soybean yields were 42.0 and 35.0, respectively, as compared to 48.9 and 50.8 in 1982.

Refuge wheat yields averaged 20.4 bushel per acre and oat yields averaged 33.5 bushel per acre.

The soil additive Wonderlife was applied to one 29.3 acre clover and oats field at the rate of 250 lbs. per acre. This marks the first year of a three-year trial testing the cost effectiveness of using this product. The cost was \$54 per acre to purchase and apply the material in 1983. The clovers out-grew the oats and were subsequently harvested as hay, which yielded 1.2 tons per acre. Clovers often outgrow oats prior to the harvesting operation, so this is not unusual. Based on 1983 alone, one cannot tell if Wonderlife is capable of doing all it is supposed to do.

- ✓ Winter wheat was aeriually seeded in five soybean fields during September totaling 91 acres.
- 33-098-83 AM



The purpose of the winter wheat seeding was to have green browse available, and attract migrating snow geese to these areas following the soybean harvest. Fields were seeded before leaf drop reached 25 percent but after fields started to turn yellow. The seeding rate was at 100 lbs. per acre and the project cost about \$800. Germination was fair with growth to about three inches, but the geese were not attracted to any of the areas. And so it goes!

DeSoto's biological farming program was one stop for the University of Nebraska's "Third Alternative Cropping System (Organic Agriculture) Field Day and Farm Tour" during August. Approximately 95 interested folks toured the refuge and were told about our program and accomplishments.



Manager Gage gives Iowa Conservation staff a tour during their section meeting.
33-095-83 NC

Applying Omaha's sewage sludge to refuge fields became a topic of discussion during the fall months. Several meetings between refuge staff, the city, and a private consultant were held to discuss initiating a project on the refuge. Heavy metals, an immediate concern, is apparently not a problem in Omaha's sludge. Environmental Contaminant Evaluation (ECE) was contacted to aid with a literature review, project personnel, design and evaluation. At year's end, the project was still in the discussion stage.

Implementation of the new Cropland Management Plan has been postponed until 1985. The new plan is in draft form and requires regional office approval prior to implementation. A major aspect of the plan changes the method used to conduct farming business, from a 60-40 crop share arrangement between the cooperator and refuge, to a cash rent system that is based on land value and an average Iowa landowner's return on leased or rented land. Iowa law also requires landlords to notify tenants prior to September 1 if any changes in conducting farming business occur. One of our cooperators is quitting this year and, overall, farmers are hurting now. We decided not to push it (See Feedback, Section K-2).

- e. Excess Grain - Excess shelled corn, totaling 2,737 bushels, was removed from refuge grain bins during March and sold on the open market for \$6,401. Approximately 400 bushels of poor quality corn could not be sold and was scattered on the refuge. The pheasants, deer and squirrels appreciated it.

Agassiz received 1,060 bushels of oats for their banding operation valued at \$1,600 and Fort Niobrara received 500 bushels of oats valued at \$775. Fort Niobrara also received about 245 bushels of corn through inter-elevator transfer.

5. Grasslands

Reestablished native grass fields total 331.0 acres. During 1983, 44.8 acres of native grass fields and 26.4 acres of DNC fields were clipped to control weeds.

Robel pole evaluations were conducted on several native grass fields during April. The newly established stands have not developed into quality winter or nesting cover yet. Field evaluations will be continued to assess the best management strategy for providing high quality cover in the shortest possible time. Burning, for instance, may be included earlier in our management sequence based upon such evaluations.

6. Other Habitat

The thirty acres of sandbar habitat was disced during the fall to encourage least tern and piping plover nesting. A spring nesting survey did not locate any nesting birds. The former North Beach area was also disced. This area may prove to be more attractive to the birds because of the open beach line. It received the bulk of the refuge's shorebird use.

8. Haying

The price of alfalfa hay was increased to \$12 per ton based upon a local market analysis conducted in 1982. Seven cooperators took 984.4 tons from 289 acres. Personal Photo KM



Two or three cuttings can usually be taken between June 20th and September 18th. The June 20th date is considered late for this area, but is required of cooperators to prevent disturbance of upland nesting birds. Yields averaged 3.4 tons per acre and brought in receipts totalling \$11,812.80.

In addition to the straight alfalfa hay, a total of 15.8, 113.1, and 28.0 acres of alfalfa-oats, clover-oats and red clover-timothy hay, respectively, were taken. The price for each was one-half of that charged for the high quality alfalfa. Two cuttings were made on the red clover-timothy hay but only one cutting for the alfalfa-oats and clover-oats hay. The alfalfa-oats hay yielded 0.9 tons per acre, the clover-oats hay 1.5 tons per acre and the red clover timothy hay 3.3 tons per acre. Receipts from this hay cutting totalled \$1,673.40.

9. Fire Management

The Fire Management Plan was approved. The station's 6x6 tank-truck received a rebuilt transmission and was outfitted with a new pumper unit, 10 hp gasoline engine, 200 feet of fire hose and electrical rewind system prior to this year's burning season. The new equipment makes the 6x6 a very functional, although somewhat slow fire-fighting unit. A 200-gallon slip-on Wajax-Pacific tank and pump unit with 200 feet of hose and electric rewind was also purchased for pickup mount. The purchase of three drip torches and three back pack-pumps also bolstered our supply of hand equipment.

During late April, ten areas totalling 205 acres were prescribed burned. This represents 83 percent of the area approved on the annual burning plan. One reed canary grass stand had too much regrowth to effectively conduct the burn. We just couldn't get to that one early enough! The other proposed area was under water due to Missouri River flooding.

There were no wildfires on the refuge.

10. Pest Control

Cooperators applied ten non-restricted use herbicides to control shattercane, buttonweed, cocklebur, foxtail and other weeds in agricultural crop fields during the year. Musk thistle was controlled on approximately 200 acres by force-account mowing and/or by spray application of 2-4, D amine or low volatile ester. This musk thistle infestation was the worst reported in recent history.

An insecticide was applied in the visitor center to control cockroaches, millipedes and spiders.

G. WILDLIFE

1. Wildlife Diversity

DeSoto's 7,823 acres contain a fair diversity of Missouri River bottomland habitats supporting abundant and diverse populations of wildlife.

New sightings this year include the red-breasted nuthatch, common moorhen and black-headed grosbeak.

2. Endangered and/or Threatened Species

A peak of 47 bald eagles were observed on January 4th, while the refuge still held 18,000 snow geese and 22,000 ducks. This number is down considerably from 1982's record peak of 94 birds on March 3rd. The first fall sighting of a bald eagle occurred on October 4th. Populations built up gradually to a fall peak of 39 birds on November 29th. Although there were still eagles at year's-end, most of the eagles followed the departure of waterfowl during the end of November.

A rehabilitated immature bald eagle was released on January 27th.

Eagles roosted in three areas this year: along the south end of Whitetail Drive, the historic roost in the Cottonwood research natural area and in the trees south of the North Beach.



Bald eagle use days were down to 2,108 UD, a reduction from 1982's 4,706 UD and the five-year average of 3,855 UD. Refuge objectives for bald eagle use are set at 5,000 UD. 08-127-83 DM

Five sightings of the peregrine falcon were made during the fall.

Two species listed as endangered in Iowa were observed. These were a grasshopper mouse, Onychomys leucogaster and the northern harrier, Circus cyaneus. Northern harriers, occasionally seen at

DeSoto, were observed on 4/4, 9/13, 9/28, 10/13 and 12/23. The grasshopper mouse was live trapped during a small mammal survey conducted in October.

No sightings of the piping plover or least tern were reported. Both of these species are listed as endangered in the State of Iowa. The least tern has also been listed as a RRP species.

3. Waterfowl

a. Winter Period

Mild weather kept up to 12,000 snow geese and 8,000 mallards on the lake well into January. Then, in February, mild weather again encouraged an early northward migration, bringing geese and ducks back as early as February 19th.

b. Spring Period

Spring goose use exceeded refuge objectives slightly at 268,000 UD. Use was high due to the mild winter that brought migrants back north in mid-February. Spring duck use also exceeded the objective level of 460,000 UD, with 715,610 UD recorded.

c. Summer Period

Wood duck production was low, with only 41 percent hatching success.

05-100-81 DM



This followed a high production year in 1982 which provided a 73.8 percent hatch success rate.



Contributing to poor hatch success rate were a wet, cool, May and June that left marsh water levels extremely high.

05-111-83 DM

Twelve of the 64 nest boxes were completely under water.

As usual, mallard and blue-winged teal production was very low with only a couple broods of each species observed.

d. Fall Period

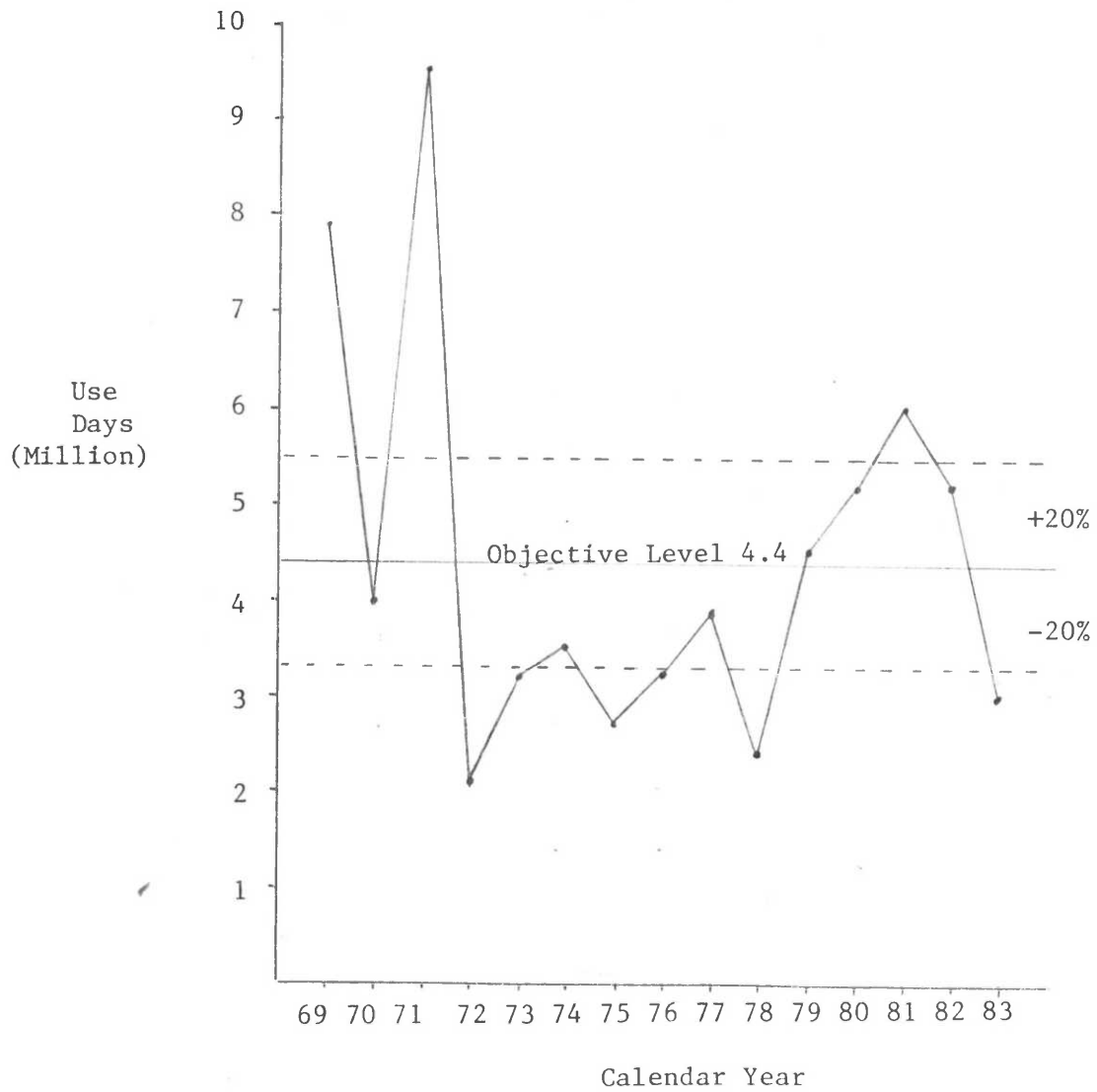
The 1983 fall migration came and went quickly but still provided a few spectacular moments.

01-121-83 DM



The first snow geese arrived on September 30. Numbers built up very slowly through October and it was mid-November before any significant numbers were observed. Fall goose use ran at three million use days or seventy percent of refuge objective of four million.

FALL SNOW GOOSE USE DAYS





There were early fall reports of a western migration in the providences. Fall weather was mild and warm, delaying the southward goose migration into DeSoto by a couple weeks. On November 22nd, snow geese peaked at 175,000 birds.

01-120-83 DM

One week later a blizzard hit sending nearly the entire flock further south, resulting in only 3,033,708 fall use days.

Snow goose productivity surveys indicated productivity at 17.4 percent, with an average 1.69 young per family.

Fall mallards began arriving in late October, peaking out in mid-November at 53,000 birds. Large flocks of 30-50,000 mallards fed heavily in refuge milo strips through the first week in December then numbers dropped to only a handful of birds. Fall duck use was only sixteen percent of refuge objective of seven million use days. One million use days were recorded.

A pair of tundra swan were observed on the lake prior to freeze-up in November.

4. Marsh and Water Birds

Use was up due to extensive use of the lake by cormorants, pelicans, great blue herons and great egrets. Flocks of up to 200 white pelicans in April and 400 double-crested cormorants were observed in October during the migrations.

5. ✓ Shorebirds, Gulls, Terns and Allied Species

Few shorebirds were observed this year. Heavy spring precipitation kept the lake and marsh levels high, leaving little shoreline habitat.

Forester's and black terns were observed occasionally during the summer.

Notable sightings included one willet and 22 lesser yellowlegs. Killdeer were observed throughout the spring and summer. Twelve sanderlings and ten semipalmated sandpipers were observed using the North Beach shoreline on May 29.

6. Raptors

Migrating osprey were observed off and on throughout April and again in mid-September.

A pair of long-eared owls were observed in the headquarters shelterbelt in March. Screech owls, great-horned owls and barred owls were observed throughout the year.

Major fall hawk migrations were observed the first week in October. A Crescent, Iowa resident reported seeing a flock of 400 buteos flying overhead on October 2nd. Assistant Manager Deede observed a flock of 43 Swainson's hawks fly over the refuge on October 6th. Flocks of 10-40 American kestrels were also observed during this period by staff and visitors.

Other notable sightings include a broad-winged hawk in late April, a prairie falcon in November and December, a Cooper's hawk in October and December, a ferruginous hawk in mid-November, and a merlin in September and December.

The staff transported several raptors to the Raptor Recovery Center in Lincoln during this period. The center received 142 sick or injured hawks, owls and eagles this year, of which 57 were subsequently released and 30 are still on a holding pattern.

7. Other Migratory Birds

Two hundred and thirty-five species of birds have been observed and recorded at DeSoto.

While the red-headed wood pecker is our most spectacular summer nester, many red-bellied woodpeckers are also seen during various times of the year. 12-127-83 DM



A pair of mourning doves were observed as early as February 21st at the refuge residences.

Purple finches, rare spring visitors, were observed in mid-April at the residences.

Bob-o-links were observed on the west side of the river in May and June.

Although no bluebirds nested in the bluebird houses, most of the houses were used by house wrens, mice and house sparrows. Several of the bluebird boxes were moved to new, more open, locations and old boxes were repaired or replaced by new boxes. The only bluebirds sighted were seen on the north end of the Center Island on December 18th but are commonly seen in the nearby hills.

A hermit thrush was observed on the Christmas bird count on December 31st, an unusual sighting for that time of year.

8. Game Mammals

An aerial deer census on February 7th yielded a count of 532 deer compared with 467 a year ago.



Several deer observed on the refuge, as well as some of the road-killed deer had coats shabby with mange. However, very few of the white-tailed deer harvested this fall exhibited the problem.

14-100-83 DM

Deer production was good, with many sightings of twin fawns. Two sets of triplets were also observed.

Deer fed heavily in the refuge food plots of corn and milo, as well as in Cooperator Case's unharvested bean field during the late fall and winter.

10. Other Resident Wildlife

A bobwhite quail survey conducted in late June only yielded 18 whistling males along the twelve-mile survey route. This is down drastically from the last count in 1980, when 51 whistling males were heard.

Cottontail rabbit numbers were also, down from the 1980 survey of 25 rabbits observed on the twelve-mile route, to eleven rabbits observed in 1983.

Although the pheasant count is also lower than in 1980, pheasant numbers are up from 1981 and 1982. The five-year average for pheasant calls/stop during the crowing count was 23.3.

Other seemingly inconspicuous residents thrive within their respective habitats.

17-078-83 DM



11. Fisheries Resources

Because of the mild winter, DeSoto Lake was open for ice fishing from January 20th through February 9th. Little use occurred. No fish-kill was observed at ice out this year which occurred on March 2nd, about two weeks earlier than normal. Sport fishing was permitted again from April 15th through September 30th in accordance with state regulations. Size limitations were removed this year to allow a greater angling take prior to the planned fishery renovation scheduled for 1984. Fishing was spotty, with several good catches of crappie and a few nice northern pike being taken. Other catches included bluegill, an occasional channel catfish, the ever abundant carp and small bullheads. Fishing pressure was down this year because of the overall poor quality of the fishery.

One commercial fisherman was issued a special use permit to take buffalo and carpsucker in the spring and buffalo, carpsucker and carp in the fall.

A total of 59,550 pounds of buffalo, carpsucker, and carp were removed by commercial netting.

18-075-83 LD



This is estimated to be about ten percent of the available standing crop. Also taken during the netting operations were 18 common mergansers, three lesser scaup and 35 double-crested cormorants. The mergansers and scaup were lost in the spring, whereas the cormorants were lost in the fall. To minimize this problem, future netting will not be allowed when large flocks of these divers are using the lake.

The history of DeSoto Lake indicates quite clearly that the existing fishery cannot be managed to produce an optimum sustained yield of quality sport fish. The lake is extremely fertile, but the fishery is almost totally dominated by undesirable species and small bullheads. Extensive stocking, totalling over ten million fish in the last 20 years, numerous surveys, habitat improvements and restrictive regulations have failed to improve the quality. This failure is largely attributed to intensive competition by rough fish species. Sport fish species are unable to establish themselves and compete successfully with the overwhelming biomass of the undesirable species. Past winterkills and an inability to perform precise water level management of the lake have tended to favor the proliferation of the undesirable species mentioned.

The environmental assessment and fishery management plan call for chemical renovation of the lake, installation of a fish barrier to prevent entry of undesirable species from the Missouri River, and installation of an aeration system to prevent winterkills.

The planned 1984 chemical renovation will follow the heavy summer public use period and is scheduled during the week following Labor Day. A sound post-renovation program of restocking, restrictive regulations and habitat improvements is planned.

The states of Iowa and Nebraska will be involved in the renovation effort. Stan Petersen from the Marquette biological station ran conductivity tests and provided experienced comments about

practical fish barrier design. The Service has entered into a Memorandum of Understanding with the Corps of Engineers for the design and possible installation of the fish barrier. Fishery Biologist Milligan has provided the primary guidance and coordination in monitoring and planning for the renovation.



In preparation for the planned renovation, Fishery Biologist Milligan Rotenoned a finger of the lake to test effectiveness.

18-077-83 NC

Species composition and distribution was then analyzed. 18-076-83 NC



A contributing element to the fishery problem is the runoff from three drainage ditches that enter DeSoto Lake. Regional surveyors have collected field data regarding the feasibility of rerouting two of these ditches and Engineering will analyze feasibility of a reroute to the river or adjoining state wildlife areas.

Messers. Milligan and Ruelle collected water and sediment samples near the mouths of the three ditches that empty into DeSoto Lake during July. A fourth sample site was located in the Missouri River channel near the inlet area. Contaminant levels for chlorinated insecticides and PCB's were low at all sample sites. The water samples were also analyzed for nitrates, nitrites and ammonia with low or very low results.

H. PUBLIC USE

1. General

a. Overview of Public Use and Public Relations - Public use was down in 1983 compared to 1982's record use. Total refuge visits of just under 406,000 visits represents a 14.3 percent decrease over last year, although it is still higher than any previous year (see table below). Summer recreational use undoubtedly decreased somewhat because both the swimming beach and concession facilities were closed.

As evidenced in the following table, environmental education continued its increase. Use has increased four-fold since 1981. Interpretation use was similar to the previous level.

Refuge Public Use Activity Trends from 1979 through 1983

<u>Category</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
<u>Education</u>					
Visits	1,163	940	1,000	3,399	4,841
Activity Hours	3,275	2,268	4,287	10,470	13,259
<u>Interpretation</u>					
Visits	126,686	161,496	323,800	423,245	444,661
Activity Hours	75,992	77,486	232,387	326,240	317,180
<u>Wildlife Recreation</u>					
Visits	137,149	212,767	240,098	263,501	200,350
Activity Hours	191,387	413,761	438,365	456,902	301,197
<u>Non-Wildlife Recreation</u>					
Visits	157,987	188,690	188,572	184,672	123,995
Activity Hours	314,610	352,313	358,370	402,390	256,721
<u>Total Use</u>					
Visits	272,796	334,410	397,568	473,038	405,727

Continued growth of the volunteer program, coupled with the fact that more area teachers are finding out about EE opportunities, accounted for increased educational use.

Activity hours of interpretive use dropped compared to 1982 levels due to the short time most visitors spend viewing special exhibits.



Special exhibits scheduled in the visitor center's multi-purpose room accounted for a small increase in interpretive visits. 45-084-83 DM

b. Public Relations - Public Relations activities, as listed in the following table, were fairly consistent with the averages for recent years. Professional services to outside agencies have increased during this period due to increased awareness of the refuge and Bertrand Project. Volunteers assisted the refuge staff in responding to an increasing number of requests for off-refuge presentations (personal appearances).

Refuge Public Use Activity
Trends from 1979 through 1983

<u>Category</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Public Inquiries	4,576	4,392	5,075	5,510	4,873
News Releases	34	37	44	48	45
Personal Appearances	42	34	41	37	43
Professional Services	58	72	98	139	180
Exhibits (off-refuge)	9	1	3	9	7

Many news features about the refuge and visitor center appeared in publications far and wide. Articles in the St. Louis Globe Democrat and other St. Louis publications featured the Bertrand artifacts which appeared on temporary loan at Jefferson Barracks, a St. Louis County Park facility. A Davenport, Iowa newspaper also

did a photo feature on the center. The March issue of NEBRASKALand magazine and the October issue of the Iowa Conservationist had photo features on DeSoto and its wildlife. Dave Menke's photographs of refuge wildlife appeared on one NEBRASKALand cover and two covers of the Iowa Conservationist. Collection Manager Montgomery submitted a research paper for publication in Gateway Heritage magazine. A Dave Menke photograph of a male wood duck from the slide file was selected for the 50th anniversary poster promoting duck stamp sales across the nation.

An active schedule of exhibits was featured in the visitor center as listed below:

- a. January and February - An exhibit of endangered species.



A fur coat from the endangered species exhibit. 43-049-83 DM

- b. March - Wildlife week exhibit featuring mounted waterfowl specimens.
- c. June and July - A photographic exhibit entitled "Iowa's Last Living Prairies".
- d. August and September - "Photographs and Writings of Nebraska".
- e. October - DeSoto's first annual Wildlife Art Show and Sale (see report and photos in Cooperating Association section).
- f. November and December - Art selections from the Nebraska Youth Habitat Stamp Contest.

Children's division of
the wildlife habitat art
contest, 1983.
43-060-83 DM



Dignitaries visiting the refuge included Iowa's Governor Terry Branstad and Mutual of Omaha's, Wild Kingdom Host, Marlin Perkins. Larry Jahn, Vice President of the Wildlife Management Institute also toured the center. Senior citizen Minnie Busch from Osceola, Iowa had the honor of being the half-millionth person to tour the visitor center.



Marlin Perkins visited
the fall flight and
seemed to really enjoy
the visitor center.

42-043-83 AM

Temporary exhibits were placed in local restaurants and a series of displays featuring refuge programs was prepared for the Nebraska Travel Information Center in Omaha.

Three railing-mounted waterfowl identification panels were prepared for the visitor center viewing gallery.
43-046-83 DM



A book of refuge wildlife photographs maintained at the visitor center information desk was revised and a similar photo album featuring wildflowers and flowering dates is being prepared for use in spring, 1984.

An unpleasant public relations event occurred this fall when an over-zealous Omaha television personality reported huge flocks of geese at DeSoto two or three weeks prior to any significant migration. He failed to tell viewers that the massive flocks in the film clip were taken during a previous year. Needless to say, several thousand people came expecting spectacular geese flocks and were disappointed.

New leaflets for Wood Duck and Cottonwood Nature trails were designed and printed.



An attractive sketch and number in the leaflet identify each point of interest along the trail corresponding to silk-screened trail markers which were placed this year.

38-030-83 DM

The Wood Duck trail features a refuge management theme, while the Cottonwood trail features the topic of Missouri River bottomland ecology. The regulations leaflet was also revised and printed. Unfortunately, the last-minute decision to eliminate swimming was not reflected on the leaflet. We had to delete by hand the swimming section on each of the 16,000 leaflets given out during the summer. The bird list was revised for future printing to reflect new observations and name changes incorporated in the American Ornithologist's Union sixth checklist.

- c. Signs - The Sign Plan was completely revised, submitted and approved in 1983. A second sign with changing activity panels was ordered for the south entrance. The first sign of this design was put up last year. These signs make the job of announcing seasonal activity changes to the visiting public much easier. Many of the vinyl-lettered signs purchased four years ago are still in relatively good shape and will not have to be replaced for several years.

Due to the demise of concessions and the swimming beach, new reflective recreation symbols and lettering were placed on many information signs to reflect (no pun intended) changes in our recreation program.

2. Outdoor Classrooms - Students

Structured educational activities continued to increase this year with over 4,500 visits (3,400 in 1982) and 13,000 activity hours. Teachers in the Omaha/Council Bluffs metropolitan area are apparently finding out about our educational activities, as well as the availability of volunteers and EE workshops. April, May and October are by far the busiest EE months. Special programs in March, National Wildlife Week, and the September Prairie Appreciation Week, also attract school groups.

Volunteers are given instruction and have become familiar in assisting with educational activities and planning special programs for schools. Typically, school groups arrive at the visitor center about 10:00 a.m., start with an indoor activity, see a film related to wildlife, have a picnic lunch and participate in a nature trail activity after lunch. Five educational activities are available ✓ for teachers use. Teachers may also conduct an activity they write, but most choose one already prepared by the refuge staff. Comments from teachers and students alike are very positive. Indoor activities and educational films provide an alternative if outdoor use is impossible.

3. Outdoor Classrooms - Teachers

Wildlife Week packets were distributed to Washington County, Nebraska and Harrison County, Iowa school teachers in March.

A special invitation to participate in Prairie Appreciation Week activities in September was sent to teachers known to have used DeSoto as an environmental education site in the past.43-083-83 DM



The Fish and Wildlife Service environmental education packet "Wetlands Conservation and Use" was field tested on several groups of students, the YCC crew and a group of teachers. Most teachers seemed to feel that locally produced and more site-specific exercises would work better than packets which were distributed nationwide. Results of the field test were sent to the powers that be.

Just under 300 educators, college students and volunteers participated in training for outdoor classrooms for 850 activity hours. Included in this figure were four half-day workshops for teacher groups.

4. Interpretive Foot Trails

A little under 34,000 visitors used the refuge nature trails. YCC cleared both nature trails during the summer and installed wood chips on all of the Wood Duck trail and approximately half the length of Cottonwood.

5. Interpretive Tour Routes

- ✓ The refuge hosts a one-week Spring Auto Tour and a three-week Fall Auto Tour. The Spring Auto Tour is not interpreted and is reported in the wildlife observation category. During the Spring Auto Tour, approximately 4,500 visitors drove through the refuge. Special wildlife week educational activities were attended by over 300 school students.

The Fall Auto Tour attracts huge crowds and traffic control headaches are experienced each year. The auto tour brought just over 50,000 people in a 28-day period, October 15 to November 11. Overcrowding of the visitor center, parking areas and roads has

caused many visitors to go home disgruntled. Based on last year's overcrowding problems, we issued several press releases and made media contacts encouraging people not to visit on weekend afternoons. Despite our warnings and a late migration of geese, the auto tour attracted nearly 20 percent more visitors than in 1982. Hundreds were turned away from the center.

Many visitors look forward to the Fall Auto Tour each year with eager anticipation. Nature trails, the North Beach overlook and the Bertrand Excavation Site are open to public use during the tour. The visitor center remains open an additional hour to allow folks to see evening feeding flights of snow geese. Nearly 12,000 auto tour guides keyed to numbered posts, indicating points of interest along the tour route, were distributed this year.



Visitors enjoy observing geese at the North Beach overlook, but this facility closes as the Fall peak of waterfowl and eagles begin to arrive.

42-043-83 DM

Despite its problems, the auto tour provides high visibility and a generally positive image of the refuge. Next year, more extensive efforts will be made to spread visitation through the fall season.

Scenes like these can be viewed during the Fall Auto Tour. The refuge has lots of coyotes.

Personal Photo KM



6. Interpretive Exhibits/Demonstrations

- a. Self-Guided Exhibits - Outdoor exhibits include panels interpreting prairie grass demonstration plots and four panels at the Bertrand Excavation Site. The interpretive panels at the prairie plots were repaired by internship student Ron Snyder.



The YCC crew relocated and trimmed the small native plots used to identify different prairie grasses.
31-069-83 NC

The imbedded interpretive panels at the Bertrand Excavation Site are still in excellent shape after four years of continuous use. Waterfowl identification panels are placed on the North Beach Overlook during the Fall Auto Tour.

Special exhibits hosted in the visitor center multipurpose room are reported as self-guided exhibits. Greater numbers of special exhibits in 1983 accounted for a large increase in the number of visitors using self-guiding exhibits and demonstrations.

- b. Interpretive Center - Nearly 187,000 people toured the visitor center during 1983. This reflects a slight decrease compared to 1982 use levels. Many activities were hosted such as environmental education, special exhibits and weekend wildlife films which are reported in other sections of the narrative. The center is open from 9:00 a.m. to 4:30 p.m., 361 days each year. Volunteers are available to assist with environmental education and group tours. A series of wildlife films is shown on weekends. A schedule of special exhibits is also available. An introductory film, "The Seeds of Change", is shown hourly. Three exhibit galleries feature both the artifacts from the steamboat Bertrand and the effects of Westward Expansion on the wildlife of the Missouri River Basin.

DeSoto Visitor Center Use
Average Monthly Visitation, 1981-1983

January	2,074
February	4,643
March	12,696
April	9,595
May	17,948
June	17,286
July	21,857
August	22,586
September	17,909
October	29,636
November	41,020
December	4,428
Total	<u>201,678</u>

Several safety problems in the building were corrected during the year. As a result of several falls and one injury resulting in a tort claim, railings were installed in the "step-down" portions of two viewing galleries and the theater. Floor accent lighting was added in the theater so that visitors, entering after programs have started and lights are dimmed, can see the steps.

Visitors have come from 38 countries. Two new display cubes are being added to the introductory exhibit to prevent possible head injuries from people walking under overhanging cubes. 49-130-83 DM



The new displays will be placed so that visitors are prevented from ducking under the overhangs. Also, a back-up projector with a brighter bulb was ordered for the visitor center theater.

The end of the CETA program meant the refuge staff had to spend more time on janitorial requirements. In the past, we have always been able to hire CETA's during peak use periods that required additional custodial work. The A-76 process which could involve contracting all or part of the visitor center function to a private contractor, surfaced during the year. By the end of the year, it had been decided that an initial A-76 contractual document will be written which will cover maintenance and janitorial functions (See Section K-3).

A preliminary survey was done on an asphalt, handicapped access trail which will be located to the south of the visitor center parking area. Another center project will involve the installation of three exhibits in the Refuge Today Gallery.

- c. Bertrand Collection Management - The second loan of artifacts was completed this year. Approximately 180 items were sent to St. Louis County's Jefferson Barracks Museum in February. The loan was for a month-long special exhibit about the Bertrand and its cargo. We also extended the National Bison Range's loan for another year. The artifact conservation staff provided information to the following organizations: The National Park Service's Exhibit Design Center, Midwest Regional Archeological Center, Midwest Regional Office, Harry S. Truman NHS, and Fort Larned NHS; Southwestern Missouri State University; the National Geographic Society; Kansas State University; the Omaha District, U.S. Army Corps of Engineers; and the Baltimore Museum of Industry. Responses to requests were also provided to people living in Missouri, Mississippi, Colorado, Utah, California, Pennsylvania, Montana, Arizona, Washington, D.C., Ohio and Ontario, Canada.

A large number of people from varied backgrounds have used the collection and/or storage facilities for study purposes. They include: museum professionals from Denmark, Germany, South Dakota, Kansas, Iowa, Maryland and Michigan. Superintendents of national parks in the Midwestern Region have been here, as have the superintendent, historian and curator from Jefferson National Expansion Memorial (The Arch) in St. Louis. Personalities included authors, governors, historians, directors, conservators, curators and architects.

Artifact conservation continued to be an important part of the refuge's operation. Museum Technician Benda treated leather, textiles, ceramics and some metals. A Conservation Management Plan has been in the development stages since early Spring. As a result, qualified conservators from several disciplines have been to the museum to study and outline our conservation needs. Four clothing items have been sent to the Rocky Mountain Regional Conservation Center for conservation and restoration treatment. A contract was also required for immediate care of foodstuffs in a deteriorating situation.

Problems during the year ranged from the shattering of a 5 x 12 foot section of tempered glass in the Cargo Storage Area (\$1,600 worth), to an infestation of mice and bugs, mold growth on wine and other foodstuffs, and repeated cooler breakdowns.

The collection management staff provided talks to local civic groups, service clubs, historical and museum organizations and responded to television, radio and newspaper interviews. Even though the artifacts have been in the new center for nearly three years, interest in this unique collection continues to grow.

7. Other Interpretive Programs - Weekend wildlife films were enjoyed by over 15,000 visitors during the year. Many of the same people turn up each Saturday or Sunday to enjoy films supplied by the Region 3 film library. Other visits in this category include orientation and behind-the-scene tours of artifacts hosted by volunteers and refuge employees.

8. Hunting

- a. Waterfowl

The refuge held its tenth consecutive season of controlled waterfowl hunting. The season was 39 days long, beginning November 1st and ending on December 9th. Due to the high hunting success the past couple of years, 229 of the possible 390 available blind slots were preregistered by the opening of the season. This was the highest number to pre-register since the hunting began.

By mid-November, all the available blind days were filled. Hunter success was poor for the first three weeks, picked up dramatically the weekend of Thanksgiving, and then fell off again. The reasons for this probably had more to do with the weather than anything else. The fall was dry and warm which gave most of local farmers around the refuge time to fall plow or disc their fields. This left very little available food in the area for goose consumption and so they flew far and wide.

When the birds finally arrived in large numbers, their feeding habits as a group were different than year's past. They did not feed in the same areas near the hunting blinds where they traditionally fed. Instead, large numbers of birds used the Center Island and others flew off to the north and south.

Around Thanksgiving, there were about 175,000 snow geese and approximately 55,000 ducks present. A severe storm, beginning with freezing rain and then heavy snow, moved the birds south because food availability became non-existent.

The refuge was selected to cooperate with the National Wildlife Health Lab in the Lead/Steel Shot Study. Personnel collected gizzard, hearts and livers from 100 snow geese which were sent to the lab.

The following table illustrates the harvest summary for the 1983 waterfowl season.

<u>Species</u>	<u>AM</u>	<u>AF</u>	<u>IM</u>	<u>IF</u>	<u>Total</u>
Lesser Snow Goose	45	34	91	132	302
Canada Goose	2	2	0	1	5
White-Fronted Goose	1	2	0	0	3
Mallard	15	12	1	0	28
Wood Duck	1	0	0	0	1
Pintail	0	1	0	0	1
Scaup	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
	65	51	92	133	341

b. Muzzleloader Deer Hunt

The muzzleloader deer hunt for Nebraskans occurred on December 10th and 11th and December 17-20th. The white-tail herd had increased last year and so the hunt was expanded in hopes of taking over 100 deer. The two-segment season allowed a total of 200 permits to be issued, 100 each segment.

During the first two day season, 91 hunters harvested 58 deer. In the second four-day season, 91 hunters harvested 24 deer. Of the total harvest of 82 deer, 36 bucks and 46 does were taken. The poor success during the second season can be attributed to the extremely cold temperatures that ranged from a low of 18 degrees below zero to a high of zero degrees.

Hunters spent a total of 2,823 hours or approximately 15.5 hours per hunter. Nebraska Game and Parks Biologists manned the check station at the refuge headquarters. They weighed 22 fawns with the average weight of 69.1 pounds. The condition of the herd has improved since last year and less mange was noted in the fall herd.

c. Archery Deer Hunting

Archery deer hunting was permitted on areas in both Nebraska (west of the Missouri River) and Iowa. Hunting license requirements and season length for the hunts were consistent with the archery hunting regulations for the state in which the hunting occurred. These hunts require very little administration or enforcement by the staff. A voluntary sign-in system is used to monitor archery deer hunting.

Sign-in boxes are located at all hunter parking areas and hunters are requested to sign in and out each day, indicating the number of hours hunted and their hunt success. Although this method probably is not the best, it does give some idea as to the use of the areas by archery hunters. As far as the harvest goes, a hunter may sign if he is successful, but may not bother to sign if he is not.

Nebraska archers reported a total of three deer taken during the entire season. This figure is not an accurate indication because Manager Gage reported five gut piles and observed heavy hunting pressure from mid-December through the end of the season.

The Iowa season closed on December 2nd with a total of eleven deer reported taken.

9. Fishing - Ice fishing was open for only two weeks during 1983 due to extremely warm weather. Ice fishing is normally open during the months of January and February, as ice conditions permit. Less than 250 ice fishermen used the lake and their success, or lack of it, was not documented.

Refuge estimates of fishing use during the past several years have been subject to a great deal of conjecture and guesswork. Fishing success has occurred only during brief periods in the early spring. Serious anglers no longer even talk about DeSoto Lake except in the past tense. The estimated fishing use this year was just over 60,000 visits, with carp, crappie and bullhead fishing still retaining some popularity. During the previous three years, our estimates have been slightly over 100,000 visits.

11. Wildlife Observation - Wildlife observation is the single most popular outdoor activity at DeSoto. An estimated 129,000 visitors came to observe wildlife during the April 15 to September 30 recreation season. This figure combined with environmental education, the Fall Auto Tour and wildlife observation from the visitor center means that an interest in nature attracts well over half of our visitors.



Nearly 3,500 hours of photography took place this year.

31-078-83 RS

Photo blind use increased again this year as more area photographers became aware of this opportunity. Over 70 photo blind permits were processed during the month of November.

This figure does not include casual photography which is incidental to other types of use.

12. Other Wildlife-Oriented Recreation - Mushroom hunting is permitted in designated areas from April 15 through May 31 and berry picking remains open through the summer. Late April through mid-May are normally the best times to find morels in the woods, although they may be found on sandy areas somewhat earlier. Nearly 8,000 mushroom hunters practiced their craft this year.
14. Picnicking - Approximately 200 picnic tables are available for use during the April 15 through September 30 recreation season. The picnic area at the former swimming beach was not opened this year, but tables and some grills were moved to available spots in other picnic grounds. As might be expected with the demise of swimming beach and concession facilities, picnicking was down over 25 percent compared to previous years.
16. Other Non-Wildlife Oriented Recreation - Like picnicking, boating and waterskiing declined compared to recent years. Up to 6,000 gallons of gasoline were normally sold the boating public at the South Beach concession.

Since the swimming beach was closed for the first time in 1983, swimming use was limited to the two wading areas which were enlarged to partially accommodate the extra load of sun bathers. 47-063-83 DM



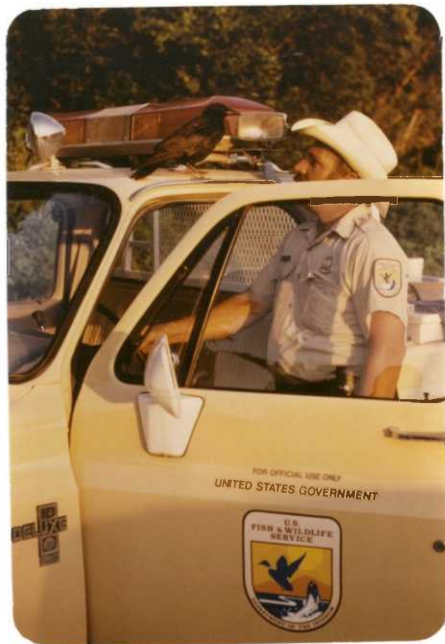
An estimated 10,300 people used the South Beach wading areas. This compares with a normal swimming visitation of about 25,000 people. For better or worse, non-wildlife oriented uses are now a much less significant portion of our total public use program than has been the case in the past.

17. Law Enforcement

During January, the Nebraska State Patrol requested our boat and Officer Guthrie's assistance in recovery operations of a Blair, Nebraska girl and her vehicle from the Missouri River. Ice flows and cold weather hampered the operation, necessitating numerous attempts before the vehicle was located. The body of the 21-year-old woman, who was kidnapped, raped and murdered, was found floating south of the refuge approximately sixty days later.

The decline in public use and turnover of three refuge officers failed to have a major impact on the number of violations prosecuted. Enforcement problems were similar to previous years with the exception that more time than usual was devoted to public relations. The swimming beach, North Beach picnic area and concession stands were effectively closed in 1983, thereby providing refuge officers with the opportunity to polish their public relations skills by answering numerous questions and listening to complaints concerning the curtailment of activities and services. But, only two Congressional Inquiries, and a dozen letters resulted.

A 40-hour law enforcement refresher training session was held at DeSoto April 11-15th with refuge officers from DeSoto, Squaw Creek, Swan Lake, Union Slough, Mingo, Shiawassee, Muscatatuck and Ottawa refuges attending. Officer's Curry and Guthrie also received a break during the public use season by attending the required Basic Refuge Law Enforcement course at FLETC in Glynco, Georgia August 8-12th.



Real "wildlife" law enforcement. Officer Guthrie's trained crow? 48-062-83 LD

Eight individuals were apprehended for possession of Marijuana. Two were minors and not prosecuted, two others pleaded guilty, and the charges were dropped on three of the remaining four individuals by the U.S. Attorney. They obtained the services of an attorney who arranged a plea bargain which required one of the four to plead guilty, thereby saving the U.S. Attorney's office time and expense on this relatively minor case.

Officers continued to receive considerable verbal abuse concerning traffic control during the six week fall migration period. Problems were not as severe and did not last as long as during 1982 due the construction of a turnaround at the visitor center entrance. Other traffic problems along U.S. Highway 30 were lessened because the geese arrived late, did not feed along, (or within sight of), the highway and left early for the south.

Summary of Calendar Year 1983 Violations

<u>Types of Violations</u>	<u>Warning Tickets Issued</u>	<u>Prosecuted Violations</u>	<u>Total Court Fines</u>
<u>Boating Violations</u>			
Insufficient personal flotation devices		5	\$325
Registration	3	8	190
Other	2	13	240
<u>Motor Vehicle Violations</u>			
Speeding	2	1	10
Parking	5		
Other	8	26	725
<u>Fishing Violations</u>	3	20	500
<u>Trespass (closed areas/hours)</u>	10	8	250
<u>Swimming Violations</u>	3	3	75
<u>Possession of Pets</u>		2	50
<u>Hunting Violations</u>			
<u>Possession Controlled</u>			
Substance		6	300
<u>Miscellaneous Violations</u>	2	1	50
<u>Other Cases</u>			
Dispositions Pending		4	
Juveniles not prosecuted		3	
Processed in State court		5	150
TOTAL VIOLATIONS	<u>38</u>	<u>105</u>	<u>\$2,865</u>

18. Cooperating Associations

The Midwest Interpretive Association has completed its second full year of operation as the Service's first independent cooperating association. Its growth is developing as planned and additional sales outlets have been added. Mingo's Cooperating Association came under the MIA's administration a year ago and two more were added this year.

A second agreement with Region 6 assumes the administration of the sales area at Bear River Migratory Bird Refuge from the Southwest Natural and Cultural Heritage Association. Operations began at Bear River during December, but have now retreated to high ground.

An agreement signed with Region 6 initiated the operation of a sales area during the summer visitor season at Gavin's Point National Fish Hatchery. Problems with the sales location, visitor flow, staffing, and the delayed shipment of specially produced inventory all led to a less than ideal first season. Sales began about a month later than planned.

Collection Manager Montgomery serves as the association's executive secretary and acts as liaison between the MIA and the Service.

Bruce Barkley is a new non-government employee who serves the public and the MIA as a full-time Business Manager.

50-085-83 DM



The Midwest Interpretive Association reprinted 40,000 copies of the visitor center leaflet and 12,000 copies of the Fall Auto Tour leaflet. Both leaflets are for free distribution. The MIA also reprinted a full-color article on the refuge from a past issue of NEBRASKAland magazine to be sold at the visitor center.

Seventy-nine books valued at \$747 were provided to the refuge library along with \$50 worth of promotional material (post cards, posters and books) that were distributed by personnel at no cost to the station. The organization also sponsored the attendance of eight cooperative farmers at a Biological Farming Seminar at Iowa State University and two of the Bertrand Collection staff at the annual Missouri Valley Historical Conference, conducted by the University of Nebraska at Omaha.

The association sponsored the first annual Wildlife Art Show and Sale held in the visitor center multipurpose room. A Best of Show and First, Second, and Third place ribbons were awarded to both painters and carvers. Three judges spent several hours making their decisions.

1983 Wildlife Art Show



43-052-83 AM

Over 50 Iowa and Nebraska artists contributed to the success of DeSoto's first Wildlife Art Show.

43-051-83 DM



43-050-83 DM

The Best of Show was a meadowlark done in watercolors. The association also sold over 50 pieces during the four-week event and took in over \$6,000.

Two traveling exhibits were also sponsored by the association this year. They were "Iowa's Last Living Prairies" and "Photographs and Writings".



Gross income of over \$49,300 was reported by the MIA for calendar year 1983. There are 205 sales items ranging from bookmarks through wildlife posters and decoy kits, to framed, limited-edition waterfowl prints which sell for \$125. 50-086-83

20. Concessions

The long-term concessions at the North and South Beach area were not operated. The concessionaire had voluntarily closed his operation at the end of the 1982 public use season.

By the time the refuge opened in April, all concessionaire buildings had been removed at the South Beach facility and the North Beach facilities had been moth-balled.

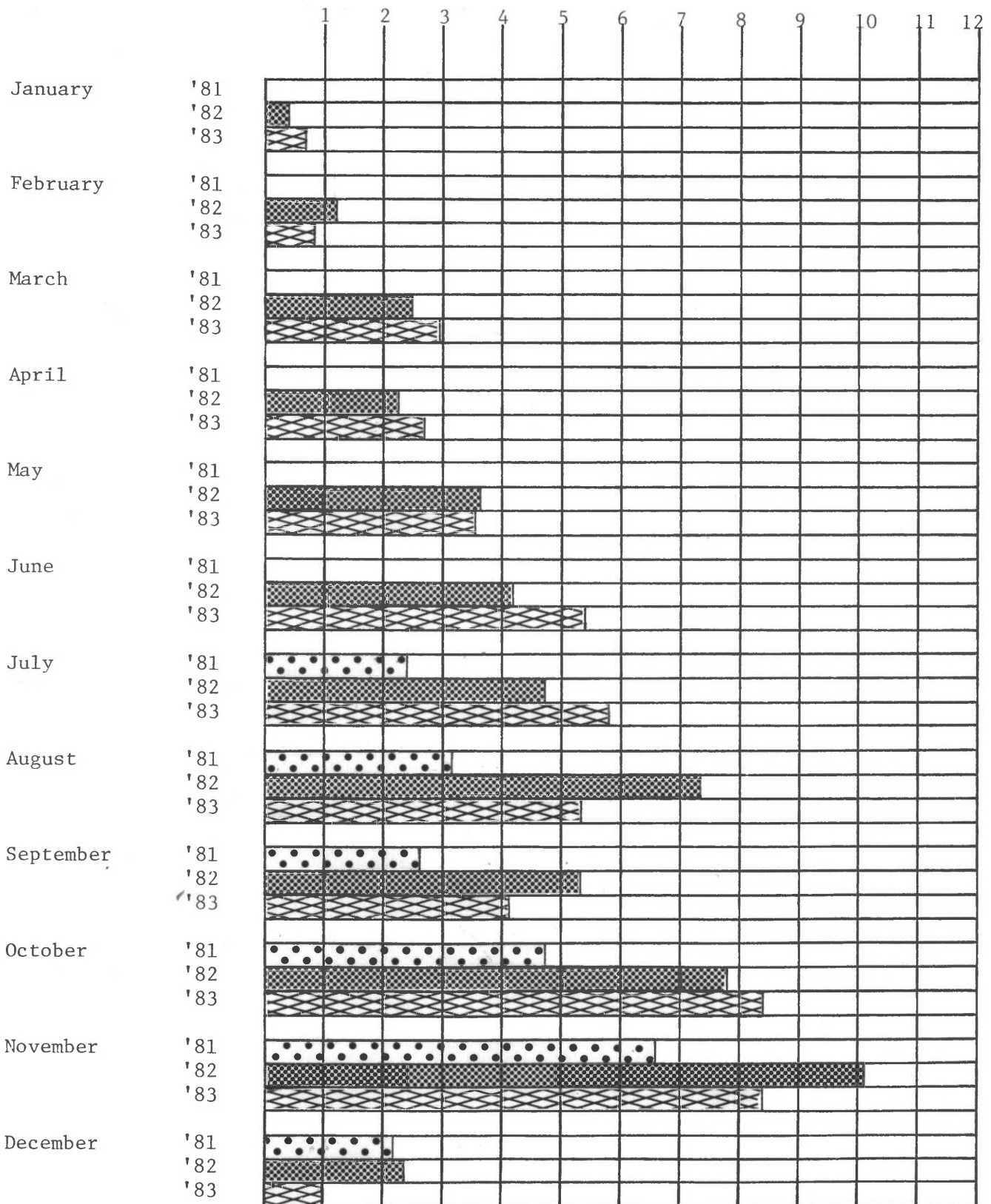
Personal slide KM



Surprisingly, the complaints were only verbal, primarily revolving around the loss of picnic supplies, soft drinks and gasoline for boating and waterskiing.

MIA GROWTH CHART

Thousands of Dollars



I. EQUIPMENT AND FACILITIES

1. New Construction

Nebraska asphalt was awarded a contract to resurface 2.3 miles of road from the north entrance to a point past Bullhead Pond. The original contract was \$159,945. Engineering miscalculated tonages and after all was said and done, only 1.9 miles of road was overlayed for a final contract price of \$187,073. The contractor finally completed the work, basically to our satisfaction, by November. Enough said.



The first of the 2" asphalt overlays being placed by Nebraska Asphalt, a minority subcontractor of Land Paving Company, Inc. (the Company which provided the original marginally-satisfactory road).

35-082-83 TP

Since the asphalt overlays added four inches to the existing roadbed, the north entrance booth curbing had to be raised by refuge personnel.

42-042-82 NC



Two new water control structures were placed, creating new impoundments.



The one structure was located toward the northeast area of the refuge west of the east dike. 32-124-83 LD

The area impounded was under two acres. Future plans call for increasing the size, with some minor earth moving to create a larger shallow-water area.

The other structure was placed near the visitor center to create a controllable 18-acre impoundment for public wildlife viewing. 32-126-83 NC



Both of the impoundments were pumped full in the fall for the migration.



A unique aspect of the visitor center impoundments is the diversion of visitor center excess cooling water. 32-127-83 NC

This was accomplished by rerouting, through a tee and valve system, excess cooling water underground through plastic pipe to an open ditch flowing into the impoundment. The system can be turned to either supply the visitor center impoundment or run the excess out to the lake. The normal discharge during the cooling season from the center's air conditioning system is over an acre-foot per day.

A private contractor painted the yellow center lines on all the refuge asphalt roads. In addition, new yellow lines were placed around the north gate booth and white stop lines were painted at various stop signs.

Bids were opened at the Regional Office for expansion of the visitor center's sewage lagoon, but canceled due to the contract's failure to meet Iowa Department of Environmental Quality specifications. Original specs called for a construction level of 1005 msl and Iowa DEQ requires 1006 msl to meet the 100-year flood level. Another contract is in the works for 1984 completion.

Several new pipe gates were constructed and installed, eliminating the dangerous use of cable gates.

The visitor center overflow parking lot contract was awarded, but due to the time of year, commencement of the contract will not begin until the Spring of 1984.

The water system at the center was modified to lessen iron precipitation problems. This situation will still require additional work and systems modification in the future. Engineering analysis is required.

2. Rehabilitation

The BLHP bank stabilization project resumed on January 25th and work continued through February 11th. Rip-rap was placed along Lakeview Drive, Whitetail Drive and along the northeast bank of the lake. A total of 4,900 linear feet were completed before the weather forced a stop-order. Approximately 1,000 tons of riprap remain stockpiled near the outlet to the lake. This amount,aiding with the 875 tons still to be contractually hauled from the quarry, should be enough to finish the job.

The refuge borrowed Squaw Creek's Mo-trim brush cutter to trim along several miles of dikes and ditches.

The sill plate repairs in all three residences were completed. Also, three fireproof steel doors were installed at the entrance to the residences from their garages.

Because of the loss of the concessionaire at the South Gate area, and the deterioration of the facilities, all concession buildings were removed by contract or force account and the site was leveled and seeded. The boathouse was also removed and a location for a new boathouse is currently being determined, a priority 1984 project.

The sewage lagoon for the visitor center was within one foot of overflowing in early spring. The Iowa Department of Environmental Quality was contacted and approval was granted for emergency spraying of sewage water onto an adjoining field.

A tempered glass cracked in the partition separating the high and low cargo storage humidity areas. Replacement cost of the ceiling to floor glass was \$1,600.

A portion of the winter months was spent by the maintenance staff cutting dead and downed trees around the auto tour and in the south gate picnic area.

In order to try and create improved flight lanes for the snow geese off the lake, a quarter-mile section of cottonwood was removed along a ditch. Several refuge hunting blinds should benefit from this cutting.

Fill dirt was hauled around the foundations of the office, eight-stall, and all three residences to improve drainage away from the buildings.

Residence 83 was painted completely on the inside. The garage was finished with sheetrock and painted.

A mix of buffalo grass and blue grama was used to reseed bare spots in the visitor center lawn. Also, broadleaf weeds were sprayed with 2-4D and some spot-spraying was done with Round-up.

The culvert running under the tour route between Bullhead Pond and the pond above it continued to be dammed by beaver. The culvert was cleared out and a barrier was constructed in an attempt to keep the beaver away from the opening. Also, several beaver were removed from the local area. Another culvert through the dike near the refuge shooting range was also plugged, required clearing.

Biological Aid Tracy Reed contributed to the continuous cleanup efforts on the refuge's extensive recreational facilities. 31-065-83 MR



Several new refuge information and regulatory signs were placed around the refuge.



The sandbar area (northwest of the inlet structure) and the North Beach area were disced to maintain tern nesting habitat by using the refuge bulldozer and a rented plowing disc.

Personal Photo KM

These sand areas are to be maintained and plant succession controlled by discing once or twice a year.

The maintenance staff brushed the entire refuge boundary and repaired about eight and one-half miles of boundary fence.

Cracks in the interior walls and floors of the 1965 headquarters building are widening and lengthening. The building continues to settle on the obvious unstable substrate. A major rehabilitation is anticipated.

3. Major Maintenance

A major portion of the maintenance staff's time deals with public use. In preparation for Memorial Day Weekend, picnic tables and grills from the North Beach were moved to fill in gaps at the south gate area, Whitetail Drive, and Lakeview Drive. Roadsides were mowed, pit toilets were cleaned and supplied, and two expanded wading areas were erected. Also, barbeque grills were repaired, barrier posts in parking lots were straightened and painted. Because of extremely high water and bank erosion, several days were spent removing logs, pilings, and trees that had fallen into the lake. They can be tough on water-skiers!

The ductwork modification completed in the Visitor Center Cargo Storage Area in December, 1982 seems to have corrected the temperature and humidity fluctuations previously experienced.

The walk-in cooler at the visitor center failed twice in one month. It was finally determined that a leak in the line caused the failures. The leak was repaired and the unit recharged by the original installer, Nelson Refrigeration. The temperature was readjusted and humidity settings were made.

Approximately 50 tons of 1½ to 3 inch screened-crushed rock was hand placed under over-hangs at the visitor center to control erosion problems. Black plastic was used under the rock to prevent weed germination.

4. Equipment Utilization and Replacement

No new vehicles were received during the year although two were ordered. We are attempting to initiate a vehicle replacement schedule for our fleet. However, we always find that we have more vehicles which require replacement than dollars for replacement.

A 1972 Plymouth station wagon was transferred here from Litchfield WMD. This older station wagon was utilized in our YCC program, but its reliability is becoming questionable.

After three attempts, a 1972 Plymouth sedan was sold by GSA for a paltry \$127.

The IBM Displaywriter was upgraded to improve word processing capabilities. A new screen which displays one whole page, increased memory capability and a sixty character per second letter-quality printer, with automatic paper feed, was purchased.

A 40-horsepower outboard was purchased to replace a motor that was not dependable. This motor will be used for lake and river patrol.

A gas pump was purchased to replace the aging unleaded pump now in use.

6. Energy Conservation

Significant savings have occurred in the conservation of electricity at the center. In the past, operation of the visitor center required nearly 25 percent of the total energy consumed in Region 3. In a typical three-month period, the visitor center would consume approximately 200,000 kwh of electricity. We revised the operation of heating, ventilating and air conditioning systems, so that these systems were operated only when actually required.

We will continue to pursue our energy conservation options throughout the refuge, implementing suggestions and opportunities as they arise.

J. OTHER ITEMS

1. Cooperative Programs

The refuge participated in state coordination meetings with both the Iowa Conservation Commission and the Nebraska Game and Parks. These meetings have become a yearly event, producing a good exchange of information between state agencies and the Service.

Many different groups used the visitor center multipurpose room as a meeting place. They included three separate meetings of the National Park Service, a Iowa Conservation Commission Conservation Officer's workshop and waterfowl technical section meeting, Nebraska School Administrators Association, an Iowa Chapter of the Victorian Society, the Soil Conservation Service, Friends of St. Joseph Museum, State Historical Society of Iowa, Harrison County Retired Teachers, Nebraska Arts Council, and the Iowa Manufacturer Association.

Again, as in 1982, the Iowa Conservation Commission did not need to pump DeSoto Lake water into their Noble's Lake Waterfowl Management Area through the ditch developed in 1981. Because of high water conditions throughout the year, the Noble's Lake area maintained an adequate amount of water through the waterfowl season and hunting was excellent there.

2. Items of Interest

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Considerable regional office review and technical assistance was received during the year for brochures, trail design and proposed projects. The proposed south gate recreational facility received some site planning. As listed in the DeSoto Public Use Plan, it is proposed that all general recreational facilities be consolidated in close proximity to the Wilson Island State Park. It would be designed for concessionaire operation with improved traffic flow and public safety. A schematic has been developed which integrates the primary requirements.

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public carries away. In season, there are the sights and sound of wildlife. Where else can the public go and view such an array in absolute comfort, and near proximity. One typical testimony by a Duane Bright of Bellevue, Nebraska was recently published in the local Audubon Society's newsletter:

"On November 12, 1983, I observed an unforgettable sight from the visitors center at DeSoto Wildlife Refuge. A few flocks of snow and blue geese were flying in the distance, but only one lone blue goose was on the water about a 100 yards out. Suddenly an immature bald eagle flew in and circled above the goose. It took numerous dives at the goose who in turn would duck beneath the water. After many futile attempts the eagle finally grasped the goose with its talons, but seemingly could not carry it off. This behavior repeated itself many times until the eagle landed on the goose, who was still very much alive, and held it under water. This drowning method seemed to work, for after about 45 minutes the goose floated lifeless in the water. Then the eagle flew to a nearby piling and waited for the current to carry it toward the piling. As the goose drifted closer, the eagle landed on it and flapped its wings in a manner to propel both across the water, eventually maneuvering it on the piling. It began to pluck the larger primary feathers and to fling them in various directions before plucking the smaller feathers. Another eagle arrived and watched intently from a nearby piling, hoping I am sure for some leftovers. This whole hour-long event was viewed through a 40-power spotting scope, and luckily a life-long friend and fellow-birder, Paul Thomas, witnessed this dramatic presentation, compliments of Mother Nature, with me".

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2. The PIK Program

At first, the proposed PIK program looked like it had great potentials. Both the farm community and wildlife would benefit. But, the final bill did not provide any wildlife provisions. Still, it appeared there might be some benefits. Maybe, the idle acres would produce cover - weeds, if not clover. Maybe, some farmers would be encouraged to begin rotations and break away from what we term their corn-on-corn mentality". But, in the final analysis, it didn't happen. Sure, they planted clover until the seed ran out, and there were weeds, but just about everything went under the mower, disc or plow by mid-summer in compliance with the PIK maintenance clause. Those farmers who failed to do so, lost their PIK dollars, if inspected. Locally, all PIK acreages were plowed

or disced early, left open to erode. The Missouri valley was virtually stripped and brown before the geese arrived. Yes, the drought took its toll, but PIK certainly didn't help matters. It made the winter bottleneck a little tighter.

The impact on the farm community was disasterous in some instances. Many who showed early caution, ended up with 100 percent of their farms in PIK. They could not keep busy. They became idle and bored. Many borrowed against the program, a sure thing, when they were already over-extend - loan on top of loan, with the same high rate of interest. The bankers and FHA knew there were PIK dollars out there in the farm community and, for the first time in several years, they dared to go out and take a look. What they found was probably what they had suspected - the collateral gone, the confinements empty, the equipment and grain sold. Foreclosure was their only recourse.

In isolated instances, the farmer's depression resulted in loss of life, his or the bankers. In two nearby instances, cattle (104 and 90) were left in the feeding yards to starve at year's end. And, the end result - up to 15 percent of the farms in some local counties are up for sale or now belong to the banks or larger farm corporations. It has been said that Nebraska and Iowa papers currently are advertising the greatest number of farm sales since the Great Depression. The newspaper classified sections offer grim verification. It has been another bad year in the farm community.

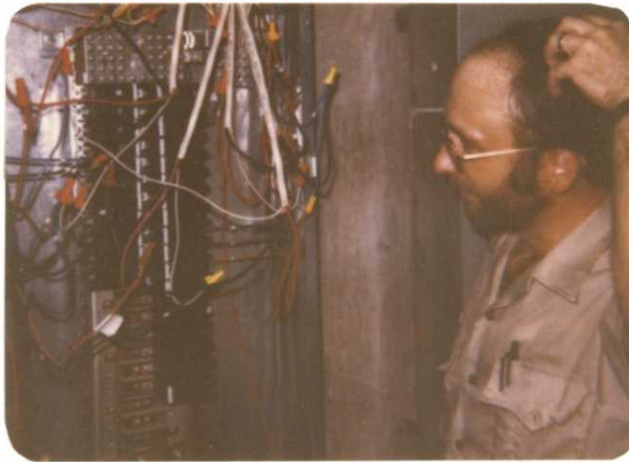
3. Circular A-76

At the field level, we see nothing good or positive in the A-76 process, as initiated. All too many Service personnel aren't aware that last year's threat is this year's reality. Politically, it may appear a good cause - reduce government employment and spending, turn government functions over to the private sector. But, for a small and dedicated Service like ours, it will be a detriment. The Service currently contracts out lots of services and there is limited room for expansion. Sure, we can contract out custodial services at the DeSoto Visitor Center. Our custodian normally does fairly simple repetitive tasks. But, when we start dealing with refuge maintenance workers, etc., we have taken a step backward. The inherent functions of the Service will suffer.

There appears to be a blind acceptance of the A-76 process. I don't think our administrators fully understand the impact on the resource. Yes, there can be a savings in personnel and FTE's but at what cost - both in dollars and repercussions? Can the public interest be adequately served at the field level?

As an example of what I'm trying to say, let's take a look at the average refuge maintenance worker. This individual has a position description which basically covers duties performed. Performance standards give some additional inkling of what this person does and

the expected quality or timeliness of the job. Sure, we can cover most of this in contractual specifications but therein lies the rub. Our average maintenance workers are highly dedicated employees who do a lot of undocumented and undocumentable jobs. At times, they are serving in management functions and performing biological duties or fighting a variety of unplanned brushfires. Why? Because it's a small agency, with very few field personnel and a lot of responsibilities. We are not the NPS or DOD.



Maintenance Mechanic Bob Kraushaar at the visitor center, fighting a difficult circuitry problem. He is capable and he cares. Can he realistically be replaced under an A-76 contract?

Personal Photo KM

These field personnel are our most constant contact with the visiting public. They serve as excellent, uniformed public relations people. How in the hell are we going to get all these services through a contract? "Through tight specifications", you say, "and a quality assurance plan". No....., you don't understand. If we continue on in blind acceptance, it will surely change the overall complexion of the refuge system. At the field level, we find both the Service's general attitude and the process depressing.

So, the plus is a reduction in FTE's.

The minus is a phenomenal administrative process (review, contract preparation, contract administration, etc.), a loss of dedicated, uniformed field employees, a reduction in field morale, a definite reduction in the level of professional and public services. Worse yet, as managers, we lose our managerial discretion, the latitude in the utilization of refuge personnel to accomplish the diversified programs of the Service.

Just take some
time to really
think about it!
Are refuge func-
tions and person-
nel going to be
left hanging out
on a limb?
Personal Photo KM



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