DeSoto National Wildlife Refuge
Annual Narrative Report

Missouri Valley, Iowa
Fiscal Year 2001

Prairie Restoration: After years of seeding many acres, the attractiveness of native prairie is clearly visible at DeSoto National Wildlife Refuge.
Photo: USFWS\Bruce Weber

Larry Klimek 4/19/02
Refuge Manager Date

David M. Ellis 5/02/02
Refuge Supervisor acting Date

Nita M. Fuller 5/2/2002
Regional Chief, NWRS Date

Highlights

Monitoring and Studies

- Duck and snow goose use days were below the five-year average. Numbers of snow geese were equivalent to recent history (500,000), but weather shortened their stay.
- The annual fish survey of DeSoto Lake showed a healthy population of walleye and crappie, and an improving largemouth bass fishery. Carp, buffalo and gizzard shad continue to dominate the fishery biomass.
- University of Nebraska-Lincoln continued its long-term deer study with emphasis on evaluating a deer-activated bioacoustic frightening device to reduce crop depredation.

Habitat Restoration and Management

- Cropland at DeSoto (66 acres) and Boyer Chute National Wildlife Refuges (310 acres) was reverted to tallgrass prairie.
- Old moist soil unit (34 acres) was renovated including discing cattails, and renovating and enlarging rodent damaged levees.

Coordination Activities

- Coordinated with Iowa Department of Natural Resources and U.S. Army Corp of Engineers an assessment for restoring a remnant river chute connecting DeSoto Lake to the Missouri river.
- Coordinated land acquisition at Boyer Chute National Wildlife Refuge with Region 6 realty office.
- Negotiated with Nebraska Game and Parks Commission to extend state law enforcement credentials to refuge officers.

Resource Protection

- Shelving in the *Bertrand* Cargo Storage was retrofitted with white Volara foam reducing long-term vibration damage to artifacts caused.
- Rubber slickers and leggings, among the earliest known commercially produced rubber garments, were rehoused to extent their longevity.

Public Education and Recreation

- First Annual DeSoto RefugeFest attracted nearly 4000 people.
- Refuge visitation increased by 16% from the previous fiscal year.
- Iowa Lt. Governor, Sally Pederson, visited to highlight this Refuge as one of Iowa's finest cultural resources, and released a rehabilitated red-tailed hawk. A rehabilitated bald eagle was also released.
- The main paved road through the refuge was left open, for the first time, throughout the year.

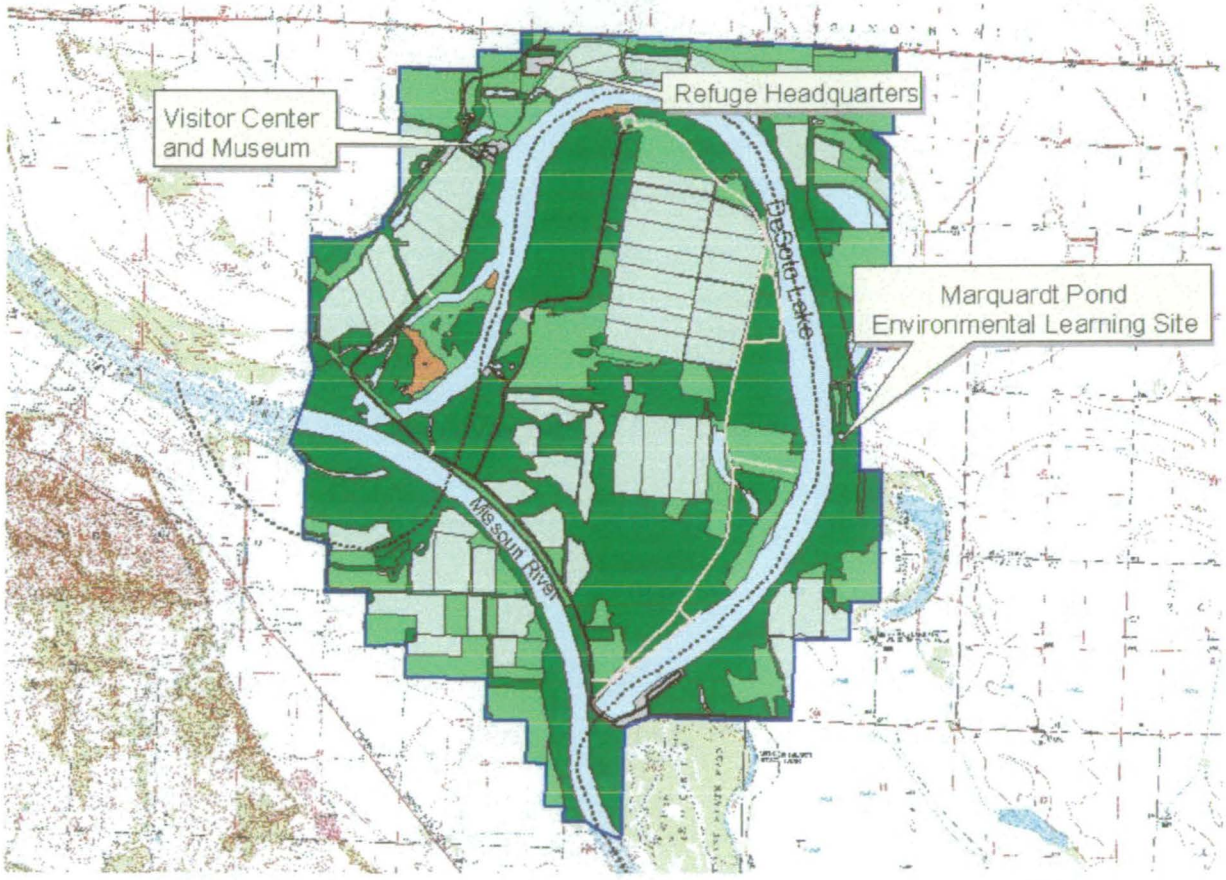
Planning and Administration

- Three staff members departed the Refuge. Bill Lutz, Chief of Visitor Services, retired after 34 years of public service.
- Completed the Refuge's Comprehensive Conservation Plan.

Table of Contents

Local wildlife artist, Russ Christensen, Neola, IA, demonstrates clay sculpturing techniques at the annual Refuge Wildlife Art Show. Photo:USFWS\Bruce Weber

DeSoto NWR
2001



Land Use
- Aquatic
- Barren
- Cropland
- Facilities
- Grassland
- Timber

- Year Round Road
- Seasonal Intermittent Road
- Refuge Boundary
- IA-NE Boundary

N
W E
S

Introduction

DeSoto National Wildlife Refuge is found south of US Highway 30 midway between the farming communities of Blair, Nebraska and Missouri Valley, Iowa. The refuge is situated astride the Missouri River, 20 miles north of Omaha, Nebraska. It lies in Harrison and Pottawattamie Counties, Iowa and Washington County, Nebraska.

The U.S. Fish and Wildlife Service established the refuge in 1958 to preserve habitats for migratory waterfowl. The Migratory Bird Conservation Act and Migratory Bird Stamp Act authorized the acquisition. It serves as a seasonal resting area for up to one-half-million waterfowl, primarily lesser snow geese and mallards.

This 7,823-acre refuge lies in the wide, fertile plain of the Missouri River Valley on former river meanders. Cottonwood bottomlands characterize portions of the refuge. Approximately 1,800 acres are biologically managed as croplands. Cool- and warm-season native grasses have been reestablished on 1838 acres to provide additional biological diversity.

The focal point for both man and wildlife is a former oxbow of the Missouri river - the 788-acre DeSoto Lake. Recreational demand for its use has remained high since refuge establishment in 1958. The refuge provided active recreation throughout its early history, including fishing, picnicking, boating, waterskiing and swimming. Approximately 16-million-dollars worth of facilities accommodated public demand of 500,000 visitors annually. In the 1980s, management emphasis was redirected toward a more balanced program between man and wildlife, emphasizing wildlife-dependent recreation.

The 1968 excavation of the steamboat *Bertrand*, which sank in 1865, on what is now the refuge, adds a major historical emphasis to the refuge program. The 200,000 artifacts in the Bertrand Collection provide a significant assemblage of Civil War-era artifacts; a time capsule of regional and national historical 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* and the historical development and ecological change that occurred within the Missouri River Basin. Besides environmentally-controlled artifact storage and museum exhibit areas, the building houses a laboratory for artifact treatment, a collection records area, and reference library.

The Visitor Center also provides exhibits depicting the 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 audiovisual equipment provides effective interpretation to an average of 160,000 visitors who pass through the center each year.

1 Monitoring and Studies

1a Surveys and Censuses

Wildlife - The fall migration was slow. The month of October only brought a smattering of ducks. Storms finally drove birds out of North Dakota during the first week of November. Snow geese and ducks began arriving at DeSoto on November 8. Duck and goose numbers peaked on November 15 with 85,000 and 500,000, respectively. These numbers did not last long as cold weather set in and quickly froze the lake. The few remaining stragglers were finally driven south by a snow storm on December 11 that froze the small holes in the ice.

Fall duck use days totaled 957,451 which is less than the five-year average of 1,028,558. Snow goose fall use days totaled 7,109,466, compared to the five-year average of 8,139,578. Total fall waterfowl use days was 8,066,917.

DeSoto held the annual Audubon Christmas Bird Count on December 17. This was the second count with a new circle that encompasses Boyer Chute and DeSoto National Wildlife Refuges. Volunteers from the local Audubon Society and other interested birders recorded 62 species, 7,174 individuals. Although this was a low count by historical standards a variety of birds from bluebirds and robins to snow buntings were observed. Volunteer birders also participated in the DeSoto Spring Bird Count on May 5. This count, which includes only the Refuge, recorded 99 species. Although this is not a high species count for the spring, some significant sightings were made including 33 bobolinks, Caspian terns, American redstarts, and many warbler species.

Two surveys were completed on the white-tailed deer herd. A spotlight deer survey was conducted before the December muzzle loader hunt (see 7a Visitor Services section). Refuge staff counted 318 deer on the center island portion of the Refuge. The regional pilot flew refuge staff over both DeSoto and Boyer Chute National Wildlife Refuges to count deer in February. Four hundred twelve deer were observed at DeSoto and 170 at Boyer Chute.

The lake began to thaw by late March. Several duck species, in small numbers, used the Refuge on their way north. The first broods of Canada geese were observed by mid-April.

Fishery - The annual electrofishing survey was conducted on DeSoto Lake for three days the week of May 21. Conducting the survey were staff from the Service's Columbia (Missouri) Fishery Office, Iowa Department of Natural Resources, and the Refuge. The survey consisted of setting hoop and trammel nets and operating two electrofishing boats to sample fish populations throughout the 788-acre lake. This survey is primarily used to assess the overall health, age class condition, species composition, and abundance of game and rough fish species.

Black or largemouth bass, in the first-year age class, were present during the survey and in good numbers. Numbers were low in the adult age class as in past years. However, many first-year bass are surviving their first winter suggesting an eventual increase in the 2-3 year age class.

Eventually the larger adult bass should be available to anglers. Refuge staff have seen some evidence of this during the angling season the last couple of years.

Indicators for walleye show evidence of increased numbers and an increase in harvestable walleye (i.e., more than two pounds). These indicators appear accurate as shown by informal creel surveys during the spring fishing season (see section 7a.).

Black and white crappie were abundant, once again, in all age classes. The larger 10"-14" age classes were not as abundant as observed in the previous 3-4 years. This is probably due to angling pressure and selective harvest for these highly desired panfish.

Electrofishing and netting techniques used during the survey do not adequately select for bottom feeding predators, such as flathead and channel catfish, therefore insufficient data is available for these species. There also is little angler pressure directed toward these catfish species, as the dawn to dusk Refuge hours don't lend themselves for traditional catfishing. However, anectodal information suggests there is a healthy flathead and channel catfish population in DeSoto Lake.

Carp and buffalofish continue to be prevalent throughout the lake. Anything short of draining the lake and the use of rotenone will never eliminate these persistent roughfish. Gizzard shad numbers were down considerably over previous years due primarily to a large die-off last winter.

Geographic Information Systems - This year significant effort was directed to updating metadata, increasing map detail and attribute features for vegetation layers created originally for the Refuge's Comprehensive Conservation Plan, and develop data layers to support prescribed burn plans. Maps were created to support planning for restoring two remnant river chutes within the Refuge and land acquisition at nearby Boyer Chute National Wildlife Refuge. Also a Lewis and Clark campsite within the refuge, three landfills containing discarded steamboat *Bertrand* artifacts, water control structures and levees within moist soil units, and areas of significant white-tailed deer crop depredation were georeferenced.

1b Studies And Investigations

Evaluation of deer-activated bioacoustic frightening device to reduce deer damage to corn on DeSoto National Wildlife Refuge. *Jason Gilsdorf, Scott Hygnstrom, and Greg Clements, University of Nebraska, Lincoln, NE 68583-0819. Kurt VerCauteren, USDA/APHIS National Wildlife Research Center, Ft. Collins, CO 80521-2154*

University of Nebraska-Lincoln researchers continued their research on white-tailed deer (*Odocoileus virginianus*) at DeSoto National Wildlife Refuge during 2001. Kurt VerCauteren and Scott Hygnstrom initiated the radiotelemetry research in 1990. Twenty-seven radio-collared deer were monitored using radio telemetry from 29 May 1999 to 8 March 2001. Twenty-nine additional deer were captured on DeSoto National Wildlife Refuge from 9 March 2001 to 16 March 2001. Nine of the captured deer were equipped with radio collars. More than 3,260 radio locations and 2,350 direct observations were collected from 29 May 1999 to the present on the 36

radio-collared deer. The data will be used to evaluate the impacts of land-use practices on home ranges, habitat use, and movements of deer. In addition, a study at DeSoto National Wildlife Refuge was conducted to determine the efficacy of a deer-activated bioacoustic frightening device in reducing deer damage to corn, during the silking-tasseling stage of growth. The devices were applied for a period of 18 nights, beginning 6 July 2001, at the initiation of silking-tasseling. Test fields were divided into groups of two; one field contained a frightening device while the second field served as a control. Track counts were conducted once every six days around the perimeters of each field to determine the number of deer intrusions. Also amount of deer damage was assessed in each field by inspecting randomly placed, variable-sized sample plots in late July. The telemetry data is used to generate individual home ranges for periods before, during, and after implementation of the frightening devices. Researchers are currently analyzing data collected on crop loss, field incursions, and home ranges to determine the effectiveness of propane cannons, electronic guards, and the new deer-activated bioacoustic device. Researchers plan to continue adding to the database on deer locations, movements, home range, and habitat selection, which will lead to an increased understanding of deer and deer damage. The research is part of a Master's program with the University of Nebraska. Continuation of this research will facilitate wise management of deer across the nation.

Collecting biological and physical baseline data from a remnant Missouri River chute.
Carla M. DeLucchi, Biology Department, Dana College, Blair, NE 68008

Much of the Missouri River throughout its basin was substantially altered in the mid-20th century by the U.S. Army Corps of Engineers. It was channeled and diked to control annual flooding, provide reliable commercial navigation, and to reclaim land for the economic and recreational benefit of humans. The consequence of altering the river's hydrology was to substantially alter the hydrology and ecology of the whole Missouri River Valley. The formation of oxbow lakes ceased, slack water areas, such as backwaters and side chutes, were disconnected from the river, wetlands gradually degraded or disappeared, river current velocity increased, and the river's silt load and deposition decreased. All of this has adversely affected flora and fauna within the Missouri River Valley.

Natural resource organizations and environmental groups consider the Missouri River one of the most ecologically endangered rivers in North America. The U.S. Fish and Wildlife Service, Iowa Department of Natural Resources, Nebraska Game and Parks Commission, and the U.S. Army Corps of Engineers are actively pursuing opportunities to mitigate past landscape alterations to preserve and protect native animal and plant communities. One such opportunity is to restore a remnant river chute found within the boundaries of DeSoto National Wildlife Refuge and Wilson Island State Park.

Slack water areas connected to rivers have been identified as important habitat for the development of healthy fish populations. Fish require specific physical and chemical conditions and a food source, which includes both planktonic and benthic invertebrates. Conditions that affect the abundance of primary production by phytoplankton and benthic plants are also important since an intact food web is necessary to support fish populations.

The purpose of this project is to collect baseline data about numerous chemical, physical and biological characteristics of this remnant chute in its current condition. First-year data included benthic invertebrates, plankton and chlorophyl a, emergent and submergent macrophytes, soluble and total phosphorus, turbidity, dissolved oxygen and water temperature. Although part of the chute is connected to DeSoto Lake during periods of high water, the chute is not currently open to the river. Consequently water does not flow between DeSoto Lake and the Missouri River. This data will be collected in anticipation of reconnecting this chute to the river, and maintaining a permanent connection between DeSoto Lake and the Missouri River.

This project was conducted by Dr. Carla DeLucchi, Chair Biology Department, Dana College, Blair, NE, and her students in cooperation with Refuge staff. A second year is planned.

1c Climatic Data

Seasons' Highlights

Temperature - High temperature for the year was 97° F on August 6. The low temperature for the year was -11° F on December 23. Temperatures were below normal from October through January. December average temperature was much below normal. A 23-day period from December 11 to January 2 was brutal with daily high temperatures averaging 14° F and daily low temperatures averaging -1° F. Temperatures during the remaining months were normal to above normal. A killing frost (28° F or less) occurred October 8 which is normal. The late fall and winter months were colder than normal, and the spring and summer months were typical, warm and humid.

Winter Wonderland following the first significant snowfall of the season. Photo: USFWS\Mindy Sheets

Precipitation - The refuge received above normal annual precipitation (e.g., 116% of normal). Precipitation was above normal from October through February. This winter produced more snow than in several years. The first significant snowfall occurred on December 11. After that snow covered the ground continually through February which is very unusual. March and April rainfall was slightly below normal. Rainfall was above normal from May through July accounting for 57% of this years total rainfall with May producing 9.57 inches. Rainfall became scarce after July 12 and remained below normal through September.

Crops entered the 2001 crop season with much below normal subsoil moisture. This was a decisive factor during the last two months of the season. Rainfall was much above normal during the first half of the crop season, but the faucet turned to a dribble after July 12 and both corn and soybean crop yields suffered. This was predictable. Rainfall in August is critical to produce above average crop yields. It is particularly important when the crop season starts with below

normal subsoil moisture. This subsoil moisture deficit was complicated by the above normal rainfall early in the crop season which encouraged a shallow rooting pattern. This limited crop access to the already deficient subsoil moisture during the critical August period.

The above normal rainfall during May and June did not significantly interfere with field operations for restoring tallgrass prairies. Major rainfall events were spaced far enough apart that field operations were delayed only a few days. Also, the lack of subsoil moisture helped with field drying following a rainfall event. Soil moisture conditions were favorable for seed germination and seedling establishment.

Table 1c-1. *FY 2000 Precipitation and Temperature Summary*

Month	Precipitation (Inches*)		Average Temperature(° F)	
	2000-2001	Average**	Maximum	Minimum
October	1.06	1.80	72	46
November	0.90	1.46	65	34
December	1.08	0.88	22	5
January	1.64	0.65	36	18
February	1.11	0.96	31	13
March	1.37	1.51	46	26
April	2.05	2.60	67	41
May	9.57	3.75	76	54
June	4.78	4.49	80	60
July	4.42	3.23	86	68
August	1.82	3.48	85	64
September	2.79	3.07	75	53
Total	32.59	27.61		

*Includes snowfall **30-year average

2
Habitat Restoration

2a Wetland Restoration

Off-Refuge - DeSoto's funding allocation for the Private Lands (Partners for Fish & Wildlife) program totaled $15,000 for FY 2001. Additional funding from the Challenge Cost Share Program and Ducks Unlimited helped to restore additional acres for several landowners. Other partnerships with both private and government organizations have helped considerably to restore, enhance, and protect wetland and upland habitat within DeSoto's 18-county Private Lands Management District. The more active partners included Ducks Unlimited, Pheasants Forever, Golden Hills Resource Conservation and Development, the Natural Resource Conservation Service, and the Iowa Department of Natural Resources.

Swan Lake Wetland Enhancement in Carroll County 5/01
Photo: USFWS\Steve Van Riper

During the year five habitat projects in three counties were completed totaling 64 acres. Two projects were in Carroll County, two in Pottawattamie County, and one in Mills County.

Noteworthy projects included:

- The Pottawattamie County Conservation Board's Farm Creek Public Wildlife Area totaling 80 acres of wetland and upland habitat, is a complex wildlife project involving numerous partners. The Service provided funding for the restoration of the wetland and seeding of the upland grasslands.

- The 20-acre Crescent Wetland project in Pottawattamie County is part of a 60-acre Conservation Reserve Program project owned by private landowner Jim Goodman. It is one of several protected wetland and upland habitats in this area. The Hitchcock Nature Area owned by the County Conservation Board lies adjacent to this project. It also lies adjacent to the 67-acre Schnack Conservation Reserve Program wetland and the 20-acre Christensen (Honey Creek Lake) Wetland project. The Service provided funding for wetland enhancement and nesting island construction.

Nearly every habitat project accomplished through the Private Lands program was in coordination with one or several other organizations. See Section 5a for more information on Interagency Coordination.

2b Upland Restoration

On-refuge - A total of 66.1 acres of cool-season and warm-season grass and wildflower seed was planted from early May through mid-June. Mechanical tillage was used to prepare seedbeds and control emerged vegetation in new plantings. All sites were maintained after planting with periodic mowing. Initial assessment of stand establishment is good although variable for all sites. Stand establishment will be assessed over the next two growing seasons to determine the relative success of the new seeding, and decide whether additional planting is necessary.

An additional 41.1 acres of cropland is scheduled to be reverted in November or early December using a dormant seeding.

Rainfall was more than adequate to achieve good grass and wildflower seed germination and seedling establishment. Rainfall did not interfere with field operations to any great extent, although rainfall was much above average in May and June. Significant rainfall events were infrequent and the subsoil moisture deficit provided good field drying conditions. After July 12 rainfall was below normal, but adequate to support plant growth.

Table 2b.1 *Summary of Grassland Planting*

Location	Acres	Seed Mix	Comments
East Dike; northeast corner	13.7	Wet mix and wildflowers	Cropland reversion; Spring new seeding
East Dike; southwest of Highway 30 parking lot	14.5	Wet mix and wildflowers	Cropland reversion; Spring new seeding
Between HQ and Visitor Center	21.5	Wet mix and wildflowers	Cropland reversion; Spring new seeding
Westside; east of Gene Smith residence	16.4	Wet mix and wildflowers	Cropland reversion; Spring new seeding
Total = 66.1			

Table 2b.2. *Grass and Wildflower Seed Mixes Planted*

Seed Mix	Species	Cultivar	Seeding Rate (lbs. PLS / acre)
Wildflower Mix	Purple coneflower	Not Applicable	0.1
	Leadplant		0.01
	Black-eyed susan		0.03
	Illinois bundleflower		0.2
	Gray-headed coneflower		0.05
	Butterfly milkweed		0.01
	False sunflower		0.14
	Maximilian sunflower		0.07
	Wild bergamot		0.01
	New England aster		0.01
	Purple prairie coneflower		0.05
	Pale purple coneflower		0.03
Wet Warm- and Cool-Season Grass Mix[1]	Big bluestem	Pawnee	2.5
	Indiangrass	Oto	2.5
	Switchgrass	Trailblazer	2.0
	Virginia wildrye	O'ma'ha	1.0
	Tall wheatgrass	Alkar	1.0

[1]Wet grass mix is made up of species adapted to poorly drained sites.

Off-Refuge - Six upland sites were restored to native grasses totaling 205 acres in eight counties. One was the 50-acre Pottawattamie County Conservation Board Farm Creek Public Wildlife Area. Another involved a $30,000 grant in partnership with the USDA's Golden Hills Resource Conservation and Development and the Loess Hills Alliance. This grant was used to award funds to private landowners and businesses that restored prairies within the Loess Hills. These private landowners and businesses matched funding received from the grant. Matched funds totaled $54,452.

3
Habitat Management

3a Water Level Management

The station's wetlands did not require any spring pumping. Willow, Headquarters, Wood Duck and Buchardt wetlands were recharged in the fall.

3b Moist-Soil Management

The new moist-soil unit was pumped in the fall. The unit will be renovated in the future.

The weather finally cooperated long enough, after several years of waiting, to work on the old moist-soil unit. The levees had substantial muskrat and beaver damage. All the levees were renovated and enlarged. The unit was also renovated at this time.

3c Graze/Mow/Hay

The refuge contracted with a local farmer for harvesting alfalfa. This was the third year of a three-year cash rent contract issued through competitive bidding. Cash rent was $6,951.00. Refuge specific harvest practices were used on 120.5 acres of alfalfa and 53.7 acres of smooth bromegrass. The most important practices for wildlife are limiting harvest to two cuttings annually, between July 15 and September 10, and no insecticide use. Delaying harvest is necessary to avoid disturbing nesting birds.

This is the last year for alfalfa production at the refuge. All alfalfa fields will be rotated to corn for the 2002 production year. They will be temporarily converted from the 6-year biological crop rotation to the 3-year biological crop rotation. These changes will prepare these sites for restoration to native vegetation per the Refuge's approved Comprehensive Conservation Plan. Also the 53.7 acre field of a smooth bromegrass will be reverted to tallgrass prairie in 2002.

3d Farming

Cooperative Farming - Six local farmers cultivated 1812.8 acres of refuge cropland. They used a three-year corn-soybean-sweet clover "biological" crop rotation on 1595.7 acres, a six-year corn-soybean-alfalfa biological crop rotation on 120.5 acres, and a two-year conventional crop rotation on 96.6 acres. Farmers contracted to farm refuge cropland for a two-thirds crop share. Cropland provides food and loafing areas for migrating waterfowl, food, cover and edge for other species. Crops produced and acres in production are summarized in table 3d.1.

Table 3d.1 *Crop Grown and Acres Planted*

Crop	Biological Crop Rotation		Conventional Crop Rotation 2-Year	Acres x Crop
	3-Year	6-Year		
Corn	352.4	----	32.4	384.8
Soybeans	656.7	----	64.2	720.9
Sweet Clover/Small Grain	544.8	----	----	544.8
Milo	41.8	----	----	41.8
Alfalfa	----	120.5	----	120.5
Acres x Crop Rotation	1595.7	120.5	96.6	
Total Crop Acres	1812.8			

The cropping season started with subsoil moisture substantially below normal. Some Iowa State University Extension subsoil moisture observation sites in western Iowa reported record deficits following the 2000 crop season. Overall rainfall was above normal for the crop season (April - September) largely due to rainfall in May. However, it was below normal from July 12 through September. The above normal rainfall early in the growing season encouraged a shallow rooting pattern. This shallow rooting pattern restricted crop access to the limited subsoil moisture supply during the critical August period. Crop yields suffered without adequate moisture for growth and development. Corn yields averaged 89.2 bushels per acre and soybeans averaged 31.3 bushels per acre. The 5-year average yield for corn is 98.0 bushels per acre and soybean is 33.3 bushels per acre.

Another factor limiting crop yields was white-tailed deer depredation. Crop depredation was the most ever observed at the Refuge. Feeding damage was mapped using a global positioning system receiver. Greater than 50% stand loss occurred on portions of eight fields totaling 23.4 damaged acres.

Crop Scouting - This year was the fourth year for the integrated pest management scouting program for agricultural crops. It is managed day-to-day by a local commercial scouting service, including field scout supervision, with oversight by the Refuge biologist. The cost is shared by the refuge and cooperative farmers.

Information produced by the scouting program has helped refuge farmers' make better management decisions. Farmers have changed corn planting rates to produce optimum plant

stands, and used soil testing to improve use of phosphorus and nitrogen fertilizers. Weed species have been identified and population densities determined within each crop field helping with herbicide selection and application rates. Also the timing of weed emergence is another important piece of information provided by the scouting program. This can help farmers time the herbicide application for maximum effect using the lowest application rates. However, this latter information has not been well utilized by the farmers. Farmers need more encouragement/inducement to better use this information essential to reducing herbicide use.

Excess Grain - The refuge stores approximately 1,000 bushels of corn for potential depredation or disease management problems per existing management plans. Any grain in excess of management plan needs is used to attract waterfowl to the vicinity of the visitor center during fall migration and for filling the Visitor Center's bird feeders. When spring arrives, any held-over grain is used to reimburse refuge farmers for early season custom work provided to the refuge or transferred to other field stations.

Table 3b.2. *Inter-elevator Grain Transfers to USFWS Field Stations*

Field Stations	$ Amount
Region 3	
Agassiz	6,416.56
Necedah	768.14
Shiawassee	1,000.04
Swan Lake	8,947.68
Region 5	
Blackwater	5,200.01
Erie	3,800.00
Great Swamp	1,000.04
Region 6	
Kulm Wetland Management District	2,500.01
Fort Niobrara/Valentine	3,000.01
Medicine Lake	3,500.00
National Elk	12,687.31
Total	$48,819.80

Under the current crop land management plan, the refuge's entire share of soybeans and some corn is harvested and sold locally with the proceeds from the sale used to reimburse cooperators (per Iowa State University Extension Publication FM-1698 "2000 Iowa Custom Rate Survey") for custom farming such as seedbed preparation for tallgrass prairie restorations. Any excess remaining after reimbursing refuge farmers is transferred to other field stations. In 2001, DeSoto and Boyer Chute National Wildlife Refuge cooperative farmers were reimbursed $8300.55 and $19,956.25, respectively. Remaining grain monies was transferred to the stations listed in Table 3b.2.

3f Fire Management

Nine cool-season grasslands were prescribed burned in April. Seven native grasslands were burned in May. A total of 361 acres were burned for the year.

Three wildfires occurred during the summer. All fires were less than one acre each. The first fire was in a grassland near the main road. A tossed cigarette is suspected as the cause. The second fire was a lightening strike to a tree. The final fire was a neighboring farmer burning off cattails that escaped onto the Refuge.

Prescribed burning. Photo: USFWS\Mindy Sheets

The Refuge fire crew kept current with required physicals, training, burn boss refresher, physical conditioning, and pack tests. Two members traveled to Neal Smith National Wildlife Refuge to help with prescribed burning and with certifying their new burn boss. Several crew members were also put on the list to help with western fires, but they were never called out.

3g Plant Pest Control

Exotic plant species, which often aggressively invade new habitats, are of particular concern and are receiving more management attention. The Department of Interior has published a list of plant species considered exotic, invasive or a nuisance species.

The following plant species on the Interior's "hit list" have been observed at DeSoto National Wildlife Refuge:

- Clover, yellow sweet (*Melilotus officinalis*) - A biennial routinely planted as a single-year green manure crop in the refuge's biological crop rotation. Also, it was planted as a nurse crop (i.e., a nitrogen source) with newly seeded warm-season grasses until 1994. If it is allowed to produce seed, it can be a significant problem since the seed can remain viable in the soil profile for decades.

- Reed canary grass (*Phalaris arundinacea*) - Common floral under story component in riparian corridors along the Missouri River.

- Smooth bromegrass (*Bromus inermis*) - Refuge personnel routinely planted it to establish permanent ground cover in the early history of the refuge. It has been planted in more recent history as a living firebreak. Currently 255 acres are being managed as cool-season grass habitat and buffer strips around crop fields.

- Purple loosestrife (*Lythrum salicaria*) - This pest was first observed in 1998. The infestation was restricted to a remnant river chute on the refuge near the Missouri River. This chute is frequently flooded during moderate to high river water levels. Plants were hand weeded in both 1998 and 1999. Infestations are likely coming from established sites upstream.

- Common reed (*Phragmites australis*) - This pest has been present for many years. Small scattered infestations are found along agricultural drainage ditches that flow into DeSoto Lake and along the lake shoreline. Population density has steadily decreased due to annual application of glyphosate. Currently there are 23 georeferenced infestation sites totaling only 3 acres.

- Musk thistle (*Carduus nutans*) - This weed pest is the most common invasive species on the refuge. Ten widely scattered georeferenced infestations affect 67 acres. Some infestations contain high population densities. The musk thistle seed head weevil (*Rhinocyllus conicus*) has been monitored since 1995 and 1000 adult beetles were also released in 1995. The number of seed heads infested with this insect has steadily increased over the years. However, musk thistle population has not yet been noticeably affected.

- Velvet leaf (*Abutilon theophrasti*) - This is a very common species in cropland habitats and disturbed sites. It is rarely observed in well-established permanent vegetation.

Other plant pest species observed on the refuge, but in isolated sites and very low population levels are: Autumn-olive (*Elaeagnus umbellata*), Canada thistle (*Cirsium arvense*), Cats claw vine (*Macfadyena unguis-cati*), Cotoneaster (*Cotoneaster* sp.), Crown vetch (*Coronilla varia*), Dame's rocket (*Hesperis matronalis*), Tall fescue (*Festuca elatior*), Henbit (*Lamium amplexicaule*), Common mullein (*Verbascum thapsus*), Multiflora rose (*Rosa multiflora*) and Tree of Heaven (*Ailanthus altissima*).

Other species of concern are Chinese elm (*Ulmus parviflora*), Roughleaf dogwood (*Cornus drummondi*), Smooth sumac (*Rhus glabra*) and Eurasian watermilfoil (*Myriophyllum spicatum*). Chinese elm is an exotic while Roughleaf dogwood and Smooth sumac are native species. All three tree species, particularly Roughleaf dogwood, are encroaching on grasslands throughout the refuge affecting 511 acres. Eurasian watermilfoil has not been observed in DeSoto Lake or its other aquatic environs, but has been reported in an Iowa DNR managed lake within a few miles of the Refuge.

Sixteen miles of the refuge's boundary was mowed to control woody vegetation. This is an annual maintenance practice.

4
Fish and Wildlife Management

4a Bird Banding

Personnel from Iowa Department of Natural Resources and Refuge staff spent July 2 on the Refuge banding the resident Canada geese. A total of 48 geese were banded.

4b Disease Monitoring

Disease monitoring is conducted throughout the year.

A mange outbreak in the coyote population that began in the fall of 1999 seems to have finally run its course. We are starting to see coyotes with fur.

Epizootic hemorrhagic disease or blue tongue virus was observed in the deer herd. Reports from the Iowa Department of Natural Resources reported EHD/BT along our stretch of the Missouri River.

4c Reintroductions

An immature bald eagle was released on the Refuge on March 15. The eagle had been shot north of the Refuge and rehabilitated by the Raptor Recovery Center.

4d Nest Structures

The 65 wood duck boxes housed only two nests this year. One 'woodie' nest of six and another of 12, all the eggs hatched. The lack of nesting box use by wood ducks may be due to availability of natural cavities in the Refuge's aging cottonwood timber. However, the boxes continue to be very attractive to screech owls and wrens. Twenty-nine boxes contained evidence of screech owl use, and eight boxes had been occupied by wrens.

Nesting tubs established around the Refuge by the Iowa Department of Natural Resources were used again this spring by the Canada geese.

5
Coordination Activities

5a Interagency Coordination

The Project Leader, Biology program, Private Lands program, and Public Use program interacted and coordinated activities with many different federal, state, county and local governments and non-governmental organizations throughout the year. High profile examples included the Wilson Island Chute Restoration project which involved the U.S. Army Corp of Engineers and the Iowa Department of Natural Resources; private lands projects which pooled grant monies with Ducks Unlimited, U.S. Department of Agriculture Natural Resources Conservation Service, and Iowa Department of Natural Resources to restore wildlife habitat throughout the 18-county Private Lands program service area; and working with the Nebraska Game and Parks Commission on getting State law enforcement credentials for refuge officers. At Boyer Chute National Wildlife Refuge, coordination primarily focused on land acquisition and habitat restoration with the Papio-Missouri Natural Resources District, Natural Resources Conservation Service Wetland Reserve Program, and the U.S. Army Corp of Engineers. Updating Nebraska and Iowa legislators and the Nebraska Game and Parks Commission and the Iowa Department of Natural Resources on U.S. Fish and Wildlife Service programs and emerging issues was done as needed throughout the year.

5c Private Land Activities

The Private Lands (Partners for Fish & Wildlife) program at DeSoto National Wildlife Refuge, which includes 18 western Iowa counties, continued outreach efforts to improve wildlife habitat and address other wildlife conservation issues. During the year private landowners, county conservation boards, Natural Resource Conservation Service, Golden Hills Resource Conservation and Development, and Loess Hills Alliance were given technical assistance with site evaluations, habitat restoration and enhancements, and cost share funding. Eight counties benefitted from the cost share assistance and nearly all counties received some outreach efforts during the year. Refer to Sections 2a. Wetland Restoration-Off Refuge and 2b. Upland Restoration-Off Refuge for information regarding specific projects.

A significant amount of time was spent working with the Loess Hills Alliance, an advocate for natural resource conservation within the seven-county Loess Hills region of western Iowa. The DeSoto Private Lands Coordinator served on the Stewardship Committee and participated on two scoring committees rating applicants for specific grant funding. The Stewardship Committee funded fire ecology workshops, S-130 & S-190 firefighter training, intern programs which were primarily used to remove cedar trees, fire caches at specific locations within the Loess Hills for landowners to conduct prescription burns, and training for landowners who need technical and financial assistance to preserve and protect their Loess Hills property. Considerable time, funding, and effort went into removal of eastern red cedar, which is an invader since man has eliminated fire as nature's tool to control invasive species.

5e Cooperating Associations

The Midwest Interpretive Association has completed its nineteenth year of operation. Bruce Barkley, the association's executive secretary, a non-government employee, operates a $176,000 business from the DeSoto Visitor Center. Along with DeSoto, the Association also administers outlets at Mingo, Squaw Creek, Swan Lake, Horicon, and Lewis and Clark Lake, which is a U.S. Army Corps of Engineers facility near Yankton, South Dakota. Total revenue increased 101 percent this year compared to last year's receipts. Revenue received from the sale of educational books, artwork, photographs, T-shirts, postcards, and posters at the DeSoto Visitor Center totaled $67,428.46 and $29,466.68 in donations. MIA sales activities are itemized in Table 5e.1.

Table 5e.1 *MIA Sales activity for FY 00.*

Outlet	Gross Revenue	% of MIA Revenue	Monetary Contributions
DeSoto	$96,895.14	55.04	$2,964.57
Mingo	5,723.44	3.25	1,500.10
Squaw Creek	10,278.69	5.84	1,619.05
Swan Lake	2,218.00	1.26	786.56
Horicon	20,374.33	11.58	4,773.71
Lewis and Clark Lake	40,536.15	23.03	4,307.86
Total	$176,025.75	100.0	$15,951.85

The Association also printed more than 26,000 refuge promotional flyers, donated funds and inventory to the refuge's fishing festival, volunteer program, visitor center open house, the refuge's membership to two local Chamber of Commerces, and provided ribbons for the student art show valued at $2,964.57. The executive secretary also contributes to the refuge's operational programs such as computer operations and interpretive programs. Contributed assistance to all Association outlets totaled an additional $2,730.00.

The Association received a third $25,000 anonymous donation in the past four years. These funds will be used for Phase II of the visitor center's exhibit renovation. This donation and other additional funds will be used to offset the refuge's expense for this renovation.

6 Resource Protection

6a Law Enforcement

Six hundred fifty-three law enforcement incidents were reported from which 47 citations were issued during the fiscal year. Citations included drug violations, felony stops, trespass, fishing and hunting violations, and vehicle and traffic violations. Full-time Park Ranger Brent Taylor transferred to the Upper Mississippi River Refuge Complex the first week of September.

6b Permits and Economic Use Management

Eight Special Use Permits were issued during the year. Permits were issued for collecting water samples from DeSoto Lake and inflowing agricultural drainages, collecting aquatic insects, motion picture filming, two for commercial snow goose guiding on the Refuge, two for commercial fishing of rough fish species in DeSoto Lake, and one for bee keeping which is terminated after this year.

6c Contaminant Investigation

During the summer maintenance staff discovered an exposed and active drainage pipe inside the north boundary of the Refuge, east of the Refuge Headquarters. This discharge pipe was the septic tank outfall from a private property, which is across Highway 30 along the Refuge's north boundary. Apparently, this discharge was permitted forty years ago when the Refuge purchased the original acreage in 1960. Since this discovery, the Harrison County Zoning and Environmental Health Department was contacted and a letter was sent by the Health Department to the property owners requesting correction of this wastewater discharge violation. No action has transpired as of this writing.

6f Cultural Resource Management

It was a typically busy and productive year for the Bertrand Collection and its staff. The year also saw the departure of the Curator, Sarah Tuttle, and volunteers Dan & Faith Meurrens. Sarah resigned in June due to family commitments and moved back home to Oregon. The Meurrens moved back to Minnesota. All the departures were a big loss for the collection and the Refuge.

Special Funding - The museum received $5,000 from the Region 3 Art & Artifact budget. The funding was spent on projects which improved the permanent storage conditions of the *Bertrand* objects:

- A project of the Bertrand Collection's rubber slickers and leggings using specialized conservation materials (MicroChamber boards and paper) was completed. As part of the project, the museum staff received in-house training and guidance from conservators at the Gerald R. Ford Conservation Center, Omaha, Nebraska.

- A student in the museum science graduate program from the University of Nebraska-Lincoln, Vonnda Pulscher, was hired as a contract Conservation Technician to help with several projects. These included the annual random sample inventory of the collection, cataloging, and various projects comprising archival materials such as rubber slickers, cigar boxes and lemonade cans.

- Conservators from the Ford Conservation Center will be professionally treating and performing technical examinations of specific objects in the collection in most urgent need of conservation care. The objects were sent for examination and treatment during the fiscal year but have not been completed as of this writing.

Research Requests/Access to Collections - Museum staff responded to 69 requests for information on the *Bertrand*, the cargo and artifact curation. Twelve individuals borrowed 197 slides, 3 videos, 10 books and 3 photographic prints for use with research, publication and public presentations. Researchers from many states and Canada contacted the museum with topics ranging from porcelain makers' marks and beverage containers to steamboat construction techniques and miscellaneous crate dimensions and stenciling. Twelve individuals were helped with on-site collections research. Images of collection objects were published in *Wild West*, a Dorling Kindersley-Eyewitness Book and *Oil Lamps 3* by Catherine M.V. Thuro; in the latter, a multipage history of the *Bertrand* was included by the author.

The Steamboat Bertrand Collection has a web page which is linked to the DeSoto National Wildlife Refuge's web page where all necessary visitation information can be found. The web page describes the steamboat *Bertrand*, the museum and the cargo with many associated images. There is a direct link to the curator's e-mail for questions: [http://refuges.fws.gov/bertrand/index.html and r3bertrand@fws.gov].

Conservation - Staff and volunteers continued upgrading permanent storage conditions of the collection with 15,463 objects handled this year. Object types treated included rubber combs, slickers and leggings, bottle fragments, white lead paint and kegs, washboard pieces, howitzer crates, cigar boxes, and foodstuff cans and containers. Storage upgrades entail removing acidified storage materials or stopping abrasion damage by individually bagging objects and fabricating specialized storage containers or mounts.

SCA intern Carrie Jeffords.
Photo: USFWS\Jennifer Stafford

Major conservation projects completed this year:

- A project began in FY00 utilizing Art & Artifact funds was finished early in the fiscal year. All 616 shelves in Cargo Storage were padded with custom-cut pieces of Volara foam (an inert conservation quality polyethylene foam). The foam should reduce long-term damage caused by vibration on objects by the air handler units. An added benefit was an enhancement

to the exhibition aesthetics in Cargo Storage as the white color facilitated viewing of artifacts on the shelves. The padding project was completed by Student Conservation Association intern Carrie Jeffords and the Freeman Family volunteers.

- Metal and Rubber Conservation Survey - Conservators from the Gerald R. Ford Conservation Center surveyed objects in the Collection composed of metal and rubber. A comprehensive conservation assessment was completed and report written. In addition, metal and rubber objects in particular need of rehousing or conservation measures were identified. While the "rubber" needs were expeditiously addressed, the "metal" assessment substantiated a known and intractable problem with the metal objects in the Bertrand Collection, namely the deterioration of protective coatings applied 30 years ago which are now at the end of their useful life. The ongoing re-corrosion of the metals presents an enormous problem and challenge for the collection which needs to be addressed.

- Dr. Larrie Stone performed his yearly examination of the foodstuffs and alcoholic beverages. Thirty-five bottles of foodstuffs needed treatment for contamination or loss of liquid. Overall, these objects are in stable condition.

- Rehousing rubber slickers - The Bertrand Collection contains approximately 3 dozen rubber slicker coats and leggings; these slickers and leggings are among the earliest known commercially produced rubber garments in existence. Approximately one-half of the slickers are in good condition and the rest are in poor condition. The slickers and leggings in poor condition may have originally had a "matte" finish which was achieved through the addition of lead and other dubious ingredients, which over time has resulted in a brittle, unstable rubber compound. The good slickers were rehoused by placing each coat around a custom-shaped "body" of cotton stockinette stuffed with polyester fiberfill; arms were made from polyester-stuffed Tyvek tubing. Each slicker rests in a custom-made tray made of corrugated board and paper cover made from MicroChamber board. This high tech paper has microscopic zeolite traps which will absorb off-gassing fumes which the rubber is emitting, thereby extending its longevity.

Rubber Slicker Re-housing Project: transferring slicker to new housing. Pictured L-R, Vonnda Pulscher, Julie Reilly of Ford Conservation Center and Faith Norwood.

Photo: USFWS/Jennifer Stafford

Backlog Cataloging / Records Maintenance - This year 86 numbers were fully cataloged and an additional 3 which had been partially completed years ago were finished. Also, 67 catalog numbers were recataloged after extensive accession and provenance research was conducted,

providing more complete and accurate information in the permanent museum records.

Special Tours / Appearances - Several tours were given by museum staff for groups specifically interested in the *Bertrand*. Groups included a local history class from Iowa Western Community College, U.S. Fish and Wildlife Service Ecosystem team and a visit by Iowa Lt. Governor Sally Pederson during a *Discover Iowa* tour of the state.

Sally Pederson, Lt. Governor of Iowa, came to the refuge to publicize the state's cultural resources., While here, she released a rehabed bald eagle.
Photo: USFWS\Mindy Sheets

Volunteers - Museum operations benefitted greatly from the help of a small but very dedicated group of volunteers - Deb, Josh and Drew Freeman, Pat Jensen, Dan & Faith Meurrens and Faith Norwood. Volunteers donated 615.5 hours or the equivalent of 77 days. They helped with storage upgrades, maintaining the research library, the annual random sample inventory, data entry and other miscellaneous tasks. The Meurrens continue their work with the Bertrand Collection as "long distance" volunteers through data conversion from their home in Minnesota (typing up old hard-copy record descriptions which are sent back to the museum in electronic format, which is imported into the museum's new computer database program, *Re:discovery*).

Re:discovery - In a considerable advancement for the Collection records, the computer database was converted from the old DOS-base *d:Base III* program to *Re:discovery*, a windows-based database program which is used by the National Park System and other cultural institutions in the private sector. *Re:discovery* posses' enormous search and descriptive field capabilities and has an integrated public use component which could one day enable visitors at the Visitor Center, others DeSoto Refuge staff or web surfers to access and research the Bertrand Collection records.

Object Identification - A major accomplishment in this area occurred this year, a result of collaborative work by the museum staff, volunteer Faith Meurrens and Dr. Larrie Stone:

- As part of the in-depth provenance research on specific collection items, two bottles of tamarind sauce were identified and recataloged (mistakenly cataloged as honey in the 1970s). Dr. Larrie Stone, who annually inventories and conserves Bertrand foodstuffs helped with the identification. Previously tamarind sauce was not recorded as part of the Bertrand Collection.


Volunteer Faith Meurrens with mountain howitzer case.
Photo: USFWS\Jennifer Stafford

- The collection contains at least 11 uncataloged disassembled mountain howitzer ammunition cases whose component pieces had become mixed together. Using construction techniques, wood grain and archaeological evidence, Faith Meurrens sorted through all the pieces and determined which specific pieces composed specific cases. In addition, contents of cases were determined. The howitzer cases and contents are being cataloged as time permits.

- As a result of provenance research in the collection, a crate wood piece marked *Bertrand* was discovered in a pile of uncataloged crate wood. This brings the count of crates or crate wood in the collection with the steamboat's name up to four objects.

***Bertrand* dumps** - It is a known fact that the Bertrand Lab discarded significant quantities of cargo in the course of handling the material (primarily crate wood and foodstuffs) during the excavation and post-excavation period. It was known that the material was buried on the Refuge *somewhere*. While contacting past employees for oral histories in connection with the *Mud & Treasure: A Commemoration of the Steamboat Bertrand Excavation* exhibition (April & May 2000), museum staff met Russell Rocheford, who began working as a lab technician and later supervised the Conservation Laboratory (1970-73). He personally supervised the dumping of materials in 1972 and 1973 and offered assistance in finding the dumps. This Spring the dump areas were located and their locations recorded by a global positioning system receiver.

6g Land Acquisition Support

Refuge staff provided a majority of the land acquisition support needed at Boyer Chute National Wildlife Refuge during FY 2001. This will decrease in future years because of the new manager at Boyer Chute.

7
Public Education and Recreation

7a Provide Visitor Services

Visitation - We had a moderate summer and the public was able to access all parking lots, boat ramps and walking trails. Refuge visitation was more than the previous fiscal year (274,189 vs. 236,770). The 10-year average is 277,117 visitors per year.

Snow goose migration. Photo:USFWS\Cindy Myer

The 2000 fall snow goose migration was impressive and there was significant visitation to view this annual spectacle. November is normally the busiest month of the year. Last year's visits to the refuge in November totaled 20,596. This fiscal year there were 35,628 visits, a 72% increase. November 18 and 19, a weekend, were the peak days with 2,393 and 2,558 people, respectively. The three-day Thanksgiving weekend attracted 7,536 visitors to the refuge, helped by the arrival of 500,000 geese. Despite a frozen lake and the mass of geese, visitors also saw one brave Great Blue Heron that had yet to move south.

Summer refuge visitation, Memorial Day through Labor Day, totaled 86,488 people. There were 5,868 people on Memorial Day weekend, 1,728 on the July Fourth Wednesday, and 4,992 on Labor Day Weekend. This was a 4% increase over last summer's visitation.

This was the third full year of visitor center operation after the exhibit remodeling in August 1998. The visitor center hosted 92,091 people this fiscal year. The ten-year average for visitor center use is 123,986 visits.

Interpretation - We often say DeSoto National Wildlife Refuge is a place where history and nature meet. DeSoto Visitor Center contains exhibits on cultural history, natural history, wildlife, conservation and U.S. Fish and Wildlife Service-oriented displays. Two galleries feature displays about the Steamboat *Bertrand*, which sank in 1865, and the effects of westward expansion on habitat and wildlife within the Missouri River Basin. Another gallery contains new life-size dioramas depicting Missouri River wetlands, woodlands, and grasslands as they would have appeared to Lewis and Clark in 1804.

Costumed interpreter John Adams gave a Saturday program at the visitor center about the expedition of Lewis and Clark. This is one of many sites along the Missouri river where they camped in 1804.
Photo: USFWS\Bruce Weber

Table 7a.1 *FY 2001 Visitor Activity Comparisons*		
Activity	Activity Units[1]	Activity Hours
Interpretation	308,059	150,701
Environmental Education	14,643	19,465
Consumptive Wildlife Recreation	9,361	24,008
Non-Consumptive Recreation	230,137	162,418
Non-Wildlife Recreation	10,055	4,302
Total Activity Hours		360,894

[1]Activity Units = Number of visitors X the number of activities a visitor is involved in during a single visit.

The refuge continues to enjoy the outcome of rehabilitating interpretation facilities. Wilderness Graphics, Inc., Tallahassee, Florida, solved many of these interpretive needs in the visitor center, the refuge, and particularly at Boyer Chute National Wildlife Refuge. The new information desk, three life-size dioramas, and a sixfold increase in the sales area continue to be popular with visitors.

The three-minute steamboat excavation video is viewed on a 21-inch monitor in a 'shipping crate' in the Cargo Viewing Gallery. We have another that usually shows "Wildlife of DeSoto." The VCR and monitor generally work well in the 'crates'. Visitor-activated videos are popular, but the tapes and machines need regular maintenance when they are viewed 15-20 times a day throughout the year. Upgrading these to laser-disk or CD is planned.

Jerry Mathiasen of the Iowa West Foundation presents $50,000 matching donation to Manager Klimek for rehab of visitor center exhibits.
Photo USFWS\Bruce Weber

We also offer a touchscreen computer that makes available to the public a variety of information about the *Bertrand* steamboat and its cargo. Through this computer program, you can view the collection's catalog cards, learn about who was aboard, what was happening elsewhere in the world at the date of the sinking, and many facts about our marvelous museum collection.

Our two orientation films "Seeds of Change" and "Off the Beaten Path" are shown hourly during the week, and on the half hour on weekends and during heavy-use periods. We also regularly show "America's National Wildlife System: Where Wildlife Comes First." A total of 18,578 people viewed these introductory films, in addition to all school groups. Weekend wildlife films were viewed by 2,277 people.

Table 7a.2 FY 2001 Visitor Center Exhibits and Activities	
October 1-31, 2000	Stan Buman Photo Exhibit
November 4 & 5	Wildlife Art/ Photo Show and Sale
January 8-25	Federal Junior Duck Stamp Exhibit
February 1-21	Kent Peters Exhibit: DeSoto Computerized Images
February 10	Attracting Birds to Your Backyard Talk (Sandy Seibert)
March 1-28	Student Wildlife Art Exhibit
April 1	Meet The Curator Talk (Sarah Tuttle)
April 1-May 30	Gary Lucy Exhibit: Missouri River Steamboat Art
April 15	National Wildlife Week: Suitcase for Survival
April 21	Earth Day Mushroom Talk (Ione Werthman)
May 5	Bird Walk International Migratory Bird Day (J. Toll)
May 15	Learning Wildflowers Talk (Essie Grill)
June 2	DeSoto Refuge Fest
June 2-30	Gary Tonhouse Exhibit: Iowa's Prairie Wildflowers
June 2-30	Lewis and Clark Up The Missouri River
June 9	Butterfly Basics Talk (Ruth Green)
July 1-31	Exhibit: Outdoor Writers Assoc. of America
July 21	Lewis and Clark Talk (John Adams)
August 4-September 1	Stan Buman Photo Exhibit
September 8-16	Prairie Appreciation Week
September 8	Prairie Musical Slide Show Talk (Mark Dietz)
September 15	How Early Americans Used Native Plants (Betty Allen)

DeSoto Visitor Center hosted a variety of temporary special exhibits:

- The annual Student Wildlife Art Show was held during March. This year was the 17th annual showing. One hundred twenty-eight works, from 32 classes in 16 Iowa and Nebraska schools (K-12), were exhibited. Award ribbons were provided, and all

participants received a personalized parchment certificate. Judges were Milt Heinrich (Blair, NE), Tom Walker (Harlan, IA), and Russell Christensen (Neola, IA). About 6,500 visitors enjoyed the exhibit in the center's multipurpose room.

During the June 2 ND RefugeFest, youngsters enjoyed piloting the 3 mini boats brought to DeSoto Lake by the Corps of Engineers.
Photo: USFWS\Bruce Weber

- The Federal Jr Duck Stamp Exhibit was hosted in January. Fifty original paintings by youth (K-12) featured a selection of ducks. The exhibit featured the top winner from each state.

- An exhibit of the steamboat paintings of Gary Lucy was featured from April 1-May 30. Gary is a nationally acclaimed artist whose large format paintings capture the essence of the Missouri River's steamboat era. His realistic style put many viewers back to the river's steamboat days.

- A Lewis and Clark exhibit was featured from June 2 - 30. Their expedition passed through the area in 1804, and they likely camped on the refuge near Wood Duck Pond, after leaving the "council bluff" August 3. The refuge is officially listed as an attraction on the National Park Service's Lewis and Clark National Historical Trail.

- Prairie Appreciation Week featured an exhibit of native grasses the week of September 8-16. This program teaches visitors the historical importance of prairies. In addition to the onsite education program and field walk, we had prairie exhibits and two special speakers. Most of the educational presentations are by the DeSoto National Wildlife Refuge volunteers.

Savannah Sheets enjoying one of the youth activities at the visitor center during DeSoto's RefugeFest. Photo:USFWS\Barb Neilsen

- Refuge Fest - The first Saturday in June we tried to create a festival atmosphere and give a special promotion of visitor use. In the visitor center we had a variety of attractions including a special fish exhibit off the steamboat Bertrand, contests, coloring activities, movies and prizes.

- The first DeSoto Wildlife Art/Photo Show and Sale were held the first weekend in October with a dozen artists and photographers present. It was well received by the public and the artists were pleased with the sales made. The theme focused on the regional wildlife of the Missouri River and Great Plains.

- The Gary Tonhouse exhibit in June featured framed cibachrome prints of Iowa's prairie wildflowers some of which are endangered.

- The Outdoor Writers Association exhibited, in July, some three dozen black and white and color photos by some of the nation's premier outdoor photographers. This was cosponsored by Nikon Sport Optics.

Other Interpretive Programs - The refuge continues to attract an impressive variety of foreign visitors. They came from India, Iran, Ecuador and 52 other nations. Our registration book also records people from all 50 states, and Puerto Rico.

Japenese students learning American history at the Refuge.
Photo:USFWS\Bill Lutz

Staff presented talks and programs to a variety of groups other than students. A total of 123 organized groups and bus tours, containing 3,698 persons, visited the refuge. Programs on endangered species, wetlands, grassland management, wildlife management, low-input sustainable crop production and the steamboat *Bertrand* were all subjects for programs given to specialized groups by staff and volunteers.

The Weekend Wildlife Film Series was enjoyed by 2,277 visitors throughout the year. Many of the same people come each Saturday or Sunday to enjoy a film. The series included special programs for Earth Day, Prairie Appreciation Week, and Lewis and Clark weekends.


DeSoto was the field site for the Dana College Environmental Technology Week workshop for inner city youth. Kids had a field day learning to use digital technology on the refuge.
Photo: USFWS\Bruce Weber

Entrance Fees - This was the 14th year of entrance fee collection. Convenient self-registration stations are at both entrances to the refuge, and another is in the visitor center. The daily fee is $3 per vehicle. Our annual refuge pass was raised from $10 to $15. Commercial vehicles pay $20 daily, or $30 if more than 20 people are aboard.

Table 7a. 3 *Fiscal Year Entrance Fee Data*

Year	Refuge Cost	Receipts	Permits Issued	Refuge Visits
1988	$19,483	$60,534	30,267	382,003
1989	$23,039	$61,750	30,876	386,030
1990	$20,145	$56,087	28,044	390,929
1991	$23,590	$48,684	24,342	371,139
1992	$26,167	$54,317	27,159	313,584
1993	$46,070	$64,137	18,689	297,475
1994	$35,751	$76,398	20,888	302,727
1995	$35,000	$85,832	25,730	309,288
1996	$35,000	$90,367	24,275	270,998
1997	$35,000	$72,126	18,490	237,531
1998	$35,000	$70,990	18,006	255,064
1999	$35,000	$79,895	19,310	256,245
2000	$35,000	$62,313	16,682	236,770
2001	$30,000	$63,348	16,666	274,189

Entrance fees collected were up 2 percent this year to $63,348 from $62,313 in 2000. We sold about the same number of permits overall. Because of the fee demonstration program, the refuge keeps all but the Duck Stamp sales, which dived from 981 to 154 as our cheaper Refuge Pass became better known. We raised the price of the Refuge Pass from $10 to $15 January 1 and its sales remained steady, testifying to the public's acceptance of the value of the pass. It is now the same price as the Federal Duck Stamp. Also, because Golden Eagle Passes increased in price from $50 to $65, sales declined for this pass to 23 from 38 the previous year.

Public Information - The staff responded to 9,086 public inquiries. This includes 7,444 telephone responses, and 642 written responses. Fifty-two news releases were sent to news media in Iowa and Nebraska, and major Kansas, Missouri, and South Dakota media resources. Our mailing list consists of 225 television, radio, and newspapers; this covers most of the media markets in our two-state area. Special information was provided to the Omaha World Herald, Blair Enterprise, Missouri Valley Times News, Des Moines Register, Council Bluff's Nonpareil, and Lincoln Journal-Star newspapers. Thirty interviews were granted to newspapers and 12 to TV/radio representatives. Topics included goose migration, art show, fishing, auto-tour, the Bertrand Collection, and our special exhibits.

Table 7a. 4 *FY2001 Entrance Fee Permits*		
Type of Permit	Number	Receipts
Single Visit ($3)	15,571	$46,713
Groups/Commercial ($20 & $30)	50	$1,410
Golden Eagle Passports ($65)	23	$1,495
Golden Age Passports ($10)	329	$3,290
Golden Access Passports (NC)	59	NA
Federal Duck Stamp ($15)	154	$2,310
Refuge Pass ($15)	542	$8,130
Total	16,660	$63,348

Students - The refuge is active with students and classes especially in spring and fall. A total of 6,837 students (346 classes) visited and were involved in environmental education programs. Teachers supervised many of their own classes at the refuge, and borrowed films, slides shows, and videos to use back in their classrooms.

Our busiest months were May and November with 2,445 students (118 classes) and 2,015 (100 classes) respectively. In the fall, most students come to learn about "Birds in Migration" and "Prairie Appreciation Week." Overall, most of our classes work on the "Artifacts and Lifestyles" cultural resources packet provided by the refuge during their spring visit. As part of a full two-day environmental education program on the refuge, the four fifth-grade classes from Blair's Arbor School received instruction in canoeing and cooking breakfast over an outdoor grill.

About a dozen college classes used the refuge this year, including Creighton University, Clarkson College, Drake University, Dordt College, Westmar College, University of Nebraska, Iowa State University, Iowa Western Community College, University of South Dakota, Morningside College, Hastings College, University of Connecticut and Northwestern College.

Interpretive Foot Trails - The four foot trails were used by more than 30,000 visitors. Volunteers performed "trail patrol," picking up litter and pruning overhanging branches, and periodically restocking the Cottonwood Nature Trail dispenser with interpretive leaflets. Guided tours of the trails were provided to 21 groups. Volunteers provided most of these tours, mostly for conservation-oriented tour groups that called ahead for reservations.

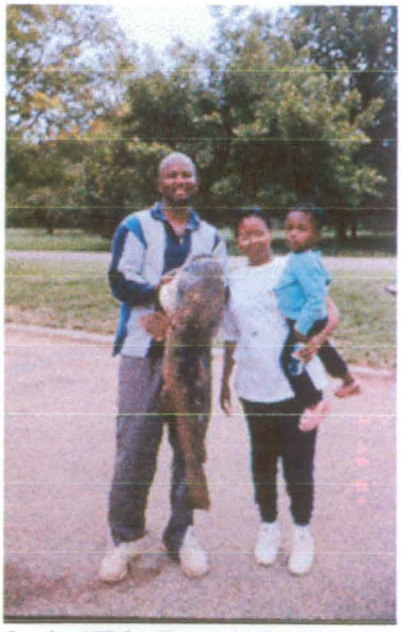
Interpretive Tour Routes - The Auto Tour runs from October 15 through November 30. This includes the peak of the snow goose spectacle. The current route ends at the "Bob Starr Wildlife Overlook". Cottonwood picnic ground was kept open during the auto tour, as was the Bertrand

Excavation Site and Missouri River Overlook. These sites help to disperse traffic during peak-visit periods. More than 49,408 people drove the horseshoe-shaped tour route during the 47-day period. As usual, the best overall snow goose viewing was from the visitor center viewing gallery. Bob Starr Wildlife Overlook was next best.

Fishing - The long cold winter of 2000/2001 didn't seem to affect the spring opening of fishing on DeSoto Lake in April. For the seventh consecutive year, starting with spring fishing in 1995, crappie fishing has been exceptional. The average crappie size has decreased over the last year or two, but 8-10 inches is still commonly measured with some up to 14 inches. Fishing visits are greatest from April 15 to the middle or end of June, after which, the temperatures normally warm up the water to more than 80 degrees, and fishing success diminishes. However, crappie fishing continued well into July this summer probably because of the unusually cool temperatures this spring and early summer. In late September, crappie started biting again, until closing of the fishing season on October 15.

Ice fishing was successful for crappie and bluegill.
Photo: USFWS\Steve Van Riper

The real surprise of the spring fishing season was the walleye. While many anglers were fishing for crappie, the spring walleye spawn started and fishers caught many 2-3 lbs. walleye and some as large as 7 lbs. One bass tournament director reported a 9 lbs. 11 oz. walleye that he had caught at DeSoto. This is the largest recorded walleye for DeSoto Lake. This was undoubtedly the most successful walleye fishing at DeSoto in the last decade.



Omaha, NE family caught this 38-lb. flathead catfish on May 18.
Photo: USFWS\Steve VanRiper

Largemouth bass fishing wasn't as successful as in previous years, as witnessed by the five bass tournaments held on weekends running from late April thru August. See table 7a.5. Flathead and channel catfish were seldom fished for during the slow summer months, however, for those that put in the time many were rewarded with sizeable catches. Several flatheads ranging from 20 - 50 lbs. were observed harvested primarily in the evenings in July and August.

Table 7a.5. *2001 Fishing Tournaments*						
Date	Club	#Anglers	Caught	Entered	Total Weight/ Length	Species
4/21	Southwest Iowa Bass	9	11	2	31"	Largemouth Bass
4/22	Midwest. Bass Association	8	17	17	48.6 lbs.	Largemouth Bass
5/5	IBEW	46 46 46	36 7 1	8 7 1	19 lbs. 15 lbs. 4 lbs.	Largemouth Bass Walleye Channel Catfish
5/27	Small Boat Bass	18	12	12	171"	Largemouth Bass
6/3	Pottawattamie Bowhunters	60	47	47	166 lbs.	Common Carp
8/25	IBEW 763	50 50 50	2 3 19	2 3 19	4.1 lbs. 4 lbs. 44 lbs.	Largemouth Bass Channel Catfish Carp

A major event of the year at DeSoto was the 1st Annual DeSoto Refuge Fest held on June 2. The primary purpose of this event, is to encourage increased visitation throughout the year and to promote fishing (especially carp fishing) on DeSoto Lake. Events included an adult and youth carp fishing contest, U.S. Coast Guard and U.S. Army Corps of Engineers displays, free smoked and fried carp samples, games and contests for the kids, casting clinic, nature walk, and prizes for the fishing contest and kids games. The number of visitors (nearly 4,000) and number of carp caught (approximately 2,000) are indicative of the success of this event. DeSoto and Boyer Chute Refuge staff did a fantastic job of organizing and carrying out this event. From everything learned this first year, we are well on our way to making next year's Fest even better.

Fishing Clinic for Omaha Indian Reservation. Photo:USFWS\Steve VanRiper

Four fishing clinics were held at DeSoto and the Marquardt Pond Environmental Learning Site during the summer and fall seasons. A total of 212 youth and 66

adults participated in these all day events which included casting clinics, knot tying, fish identification, catch and release practices, and outdoor conservation practices. Most of the youth groups were with the New ERA State Laymen's Association of Omaha and the Omaha Indian Tribe. More than 650 fish were caught and all but the roughfish were released back into Marquardt Pond.

Two commercial fishing operators were issued Special Use Permits for the fishing season on DeSoto Lake. The first nets were dropped on April 14 and the last ones pulled on October 1. Neither operator spent many hours on the water, hence, the total weight of roughfish harvested was 1670 lbs. of buffalo fish and 135 lbs. of carp. This year and last year's harvest are the smallest harvest since commercial fishing started at the Refuge. This is primarily due to the number of hours netting rather than the availability of roughfish in the lake.

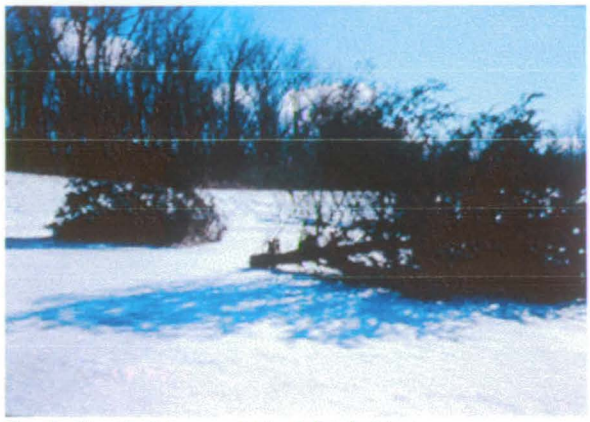
Fish stocking (Table 7a.6) in DeSoto Lake and Marquardt Pond was substantial this year.

Table 7a.6. *Fish Stocking in DeSoto Lake and Marquardt Pond*

Date	Species	# of Fish	Size	Location
10/10/00	Walleye	900	7.5"	DeSoto Lake
4/24/01	White Bass	325	11"	DeSoto Lake
5/8/01	Walleye	2.7 million	fry	DeSoto Lake
5/16/01	Largemouth Bass	37	8-10"	Marquardt Pond
5/16/01	Blue gill	125	5-10"	Marquardt Pond
6/11/01	Walleye	22,636	1.5"	DeSoto Lake
9/24/01	Channel Catfish	5,000	7"	DeSoto Lake

Stocking Marquardt Pond with 5"-10" Blue gill.
Photo: USFWS\Steve Van Riper

In January, refuge staff cut, dragged, and placed two 30' eastern red cedar trees on the ice on Marquardt Pond for future fish habitat.



Brush piles for Marquardt Pond fish habitat.
Photo: USFWS\Steve Van Riper

White-tailed Deer Hunting -This was the second year to conduct an early antlerless-only muzzle loader deer hunt. Due to the increasing deer herd on the Refuge, it was decided last year to have an October hunt to reduce the resident Refuge doe population. The traditional December hunts harvest many of the deer that move into the Refuge in the fall. The hunt was held October 21 and 22. A total of 97 hunters logged 1,396 hours during 146 visits to harvest 47 deer. This was slightly below last years harvest of 53 deer. This was mainly due to only nine deer being taken on the second day due to rainy weather.

The December muzzle loader deer hunt was held on the 9th and 10th. A total of 97 hunters hunted for 1,586 hours to harvest 41 deer. This is a typical harvest for this hunt.

Nebraska and Iowa hunters were each offered archery deer hunting during the state's normal seasons. The voluntary log-in system showed 300 hunters spending 714 hours to harvest 16 deer in Nebraska, and 176 hunters spending 605 hours to harvest 22 deer in Iowa.

Waterfowl Hunt - The second year of the snow goose-only hunt was held. This hunt was established in response to the overpopulation of snow geese. The first hunt occurred last year. The geese arrived very late and the guides only hunted for 16 days. A total of 122 hunters put in 2,905 hours afield to harvest 60 snow geese of which 24 were immature.

Only two private professional guides submitted bids this year. Both met the criteria established in the Snow Goose Management Plan and were selected. They were Jesse James and Shawn Larison, who guided last year. The first day of hunting occurred on November 18. Larison placed decoy spreads in corn fields near the red barn hoping to decoy birds in or pass shoot them as they left the lake. He continued to hunt this spot the remainder of the season. Larison hunted 15 days and harvested 170 geese. James only hunted on three days taking 13 birds. A total of 83 hunters put in 339 hours afield to harvest 183 snow geese, of which 98 were immature.

Mushroom Hunting - 1,896 people visited the refuge in search of the highly sought after morel mushroom. The number of mushroom hunters has declined over the last several years. Unfavorable weather patterns for growth and development of these "fruits of the earth" has limited harvest success.

7b Outreach

Staff responded to speaker requests by civic groups for DeSoto programs whenever asked. Presentations were to Blair High School, Blair, Nebraska, students (25) about "Careers in Wildlife Management," the Blair Horticulture Club (20) about the refuge's flora, a Civil War Round Table (96) in Lincoln, Nebraska, speaking about the conservation of our steamboat's cargo, the Iowa Ducks Unlimited Convention in Des Moines, to Missouri Valley Middle School students, Missouri Valley, Iowa, about "Outdoor Survival," the Greater Omaha Rotary Club (96), Omaha Sertoma (30), and the Omaha Lewis and Clark Foundation (78) about the role of Lewis and Clark in the exploration of this stretch of the Missouri River.

Many meetings were hosted in the Visitor Center multipurpose room. An attempt is made to make facilities available to as many refuge and Service-related activities as reasonable.

The refuge also does outreach by lending videos. Twenty-four video loans reached a combined audience of 958.

People lined the banks of DeSoto Lake in hopes of catching a $10,000 carp, and in lieu of that, just to have fun fishing. Photo:USFWS/Bill Lutz

8 PLANNING AND ADMINISTRATION

8a Comprehensive Conservation Planning

DeSoto initiated its Comprehensive Conservation Plan process during the 1998 summer and completed it on January 24, 2001 with the Regional Director's signature. The Comprehensive Conservation Plan team of Jim Salyer, Judy McClendon and Leon Kolankiewicz were very helpful throughout the process and an asset in completing the document.

The Comprehensive Conservation Plan is now focusing on implementing the plan and preparing the step-down management plans. Cropland conversion to native habitats is being implemented as scheduled. Preparing the step-down management plans is proving to be somewhat problematic as Directorate guidance for the format and content of the plans has not been decided.

8b General Administration

Personnel - Bill Lutz, Chief Ranger, retired after 34 years of public service. Bill's career started with the National Park Service at the Gettysburg National Battlefield in 1968. He continued with the Park Service serving at Indiana Dunes National Monument, Federal Law Enforcement Training Center, and Knife River National Historical Site. He arrived at DeSoto National Wildlife Refuge in 2000 serving two years as the Refuge's Chief of Visitor Services. Bill and Linda now reside in Indiana near their grandchildren.

DeSoto's Chief Ranger Bill Lutz retired to Indiana after a 34-year career with the NPS and FWS.
Photo: USFWS\Bruce Weber

Brent Taylor, Law Enforcement Officer, transferred to Upper Mississippi River National Wildlife Refuge, Savanna District, Thomson, Illinois on September 8. His former position has been advertized and should be filled next year.

Sarah Tuttle, Museum Curator, resigned on June 30 moving to Medford, Oregon to be closer to family. Jennifer Stafford, Museum Technician has been temporarily promoted to the Museum Curator position for 120 days.

Volunteers - DeSoto continues to use volunteers of all ages. Eighty-nine individuals served this year whose tasks ranged from environmental education, wildlife surveys, trail maintenance, visitor center support, to library and museum conservation. Recruiting and scheduling such a variety of people is a challenge.

- Volunteers contributed 4,352 hours for which the refuge expended $2,500. Activity categories listed in Table 8b.1.

Table 8b.1 *Volunteer Activities and Hours*	
Surveys & Censuses	310
Studies and Investigations	746
Law Enforcement Administrative Duties	1,493
Cultural Resource Management	654
Visitor Services/ Outreach	29
Maintenance	1,120
TOTAL HOURS	4,352

- The Annual Volunteer Recognition Luncheon, a potluck, was held February 15 at noon. Thirty volunteers and nine staff attended. Curator Sarah Tuttle gave a program about the challenges of conserving artifacts of the steamboat *Bertrand*. In addition to awards, volunteers were given National Wildlife Refuge calendars and volunteer logo key chains.

- Dan and Faith Meurrens of Woodbine, Iowa, were chosen "Volunteer of the Year," for their work in DeSoto's conservation laboratory. They have been volunteers for more than two years, often spending a full day with the steamboat cargo collection each week. They were presented with a book about the Loess Hills, and time-in-service pins of 500 hours each.

Volunteer Coordinator Bruce Weber presents the Volunteer of the Year award to Faith and Dan Meurrens.
USFWS\Cindy Myer

- The Rod Freeman Family (mother, father, and three sons) were awarded volunteer tee-shirts for contributing 1,511 hours of museum conservation work.

- Roland Saenz, Jack Brownrigg, Enid Heady, Harry Duncan, and Clint Orr continue to be the backbone of our refuge guide group. Volunteer Gary Caldwell was awarded a 2,000 hour pin for maintaining nature trails.

- Gary Caldwell commutes 30 miles each way and comes to the refuge at least three days a week. His work is never ending, keeping the trails clean and removing debris falling from the aging cottonwoods that line the paths.

Volunteer Gary Caldwell is one of our dedicated volunteers, commuting more than 20,000 miles in a single year to tend to our nature trails and help out at the visitor center.
Photo: USFWS\Bruce Weber

- Museum operations benefitted from the help of volunteers who assisted in nearly all aspects of the museum. A half dozen volunteers (particularly Vonda Pulscher and Faith Norwood) helped by organizing and

upgrading storage of archival photographs and museum objects, organizing original laboratory processing cards, handling environmental monitoring programs including remote data loggers and IPM, recording location changes, maintaining the library, rotating textiles and helping with many other miscellaneous tasks.

8c Maintenance

Major maintenance activities either started and /or completed this fiscal year are:

- Completed building site for construction of 40'x72' pole building to store our heavy equipment. Construction will begin this coming spring.
- Replaced 1,100 square feet of carpet in the Visitor Center main viewing areas and front entrance.
- Started to replace all copper lines to water softener and filters, also changing media in filters at Visitor Center to improve water quality.
- Graded and hauled fill to low areas on all interior roads used by our farm program.
- Built a new parking lot at the North end of DeSoto for the bow hunters to park and access new hunting area.
- Volunteers and staff erected a 30'x40' shelter at Marquardt Pond Environmental Learning Center.
- Begun work on new radio tower at the south end of DeSoto lake. Removed and installed 25 radios in Refuge vehicles.
- Began installing automatic gates at both public entrances to the Refuge.

8d Safety

Monthly staff and Quarterly Safety Committee meetings were held throughout the year. The intent of these meetings is to update and train personnel and resolve any safety concerns that arise during the year. Safety meetings are assigned to individual staff members who are then responsible for providing programs. Topics this year included defensive driving, computer ergonomics, coping with allergies, weather alerts, speaker from the Washington County Emergency Director's office, safety responsibility, influenza, attitudes and poisonous plants.

Quarterly safety committee meetings and inspections were held four times this year, with concerns presented to the Refuge Manager. The annual Station Safety Inspection was conducted and the Environmental Compliance Audit was updated as needed.

During the year, fire extinguishers were checked, first aid kits and universal precaution kits were provided to staff, required physicals for fire and law enforcement personnel were provided, water

samples were taken and analyzed, and staff received defensive driving training. Also, provided was employee security awareness training in February by the Federal Protective Service.

Finally, DeSoto was awarded a grant for the installation of two dry fire hydrants that will be installed near the Visitor Center and at the South Beach boat ramp area. These dry hydrants will be available to the local fire departments and the Refuge's fire crew to fill pumper units. Installation will be contracted during the spring of 2002.

8e Compliance

Environmental Safety Compliance Audit updates were reported as required to the Regional Office during the year. This is in response to the audit conducted at the Refuge in 1998.

An Environmental Action Statement was submitted for the proposed installation of the two dry fire hydrants and a radio tower. Both actions were approved with no impact anticipated.

DeSoto Staff : L-R Back Row; Bruce Weber, Susan Cooper, Steve Van Riper, Mar Cunnard, George Oliver, Marco Buske, Rex Stambaugh, Monty Storm, Cindy Myer. Front Row L-R; Wanda Harbottle, Sharon Gilliam, Joan Martin, Jennifer Stafford, Barb Nielsen, Mindy Sheets, Larry Klimek.
Photo: Volunteer\Gary Caldwell